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Don't blame me: The effects of CEO power, board affiliation, and Sarbanes-Oxley on CEO turnover following financial misrepresentation

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Citation

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UNDERSTANDING HOW TIMING OF ALLIANCE FORMATION AFFECTS NEW-VENTURE SURVIVAL: THE DYNAMICS OF TEMPORAL CONGRUENCE AND CONTINGENCY

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ABSTRACT

New-venture survival has greatly interested many scholars. While alliances have been shown to increase survival, the literature remains silent regarding the effect of *timing* of alliance formations. Related literatures regarding timing of other types of actions have also been unable to theoretically explain their conflicting empirical findings, which suggest that the effect of timing can range from positive to negative. To fill critical theoretical gaps, I develop a novel model based on temporal changes during the pre- and post-formation phases of an alliance. I show the effect can indeed range from positive to negative. I delineate further boundary condition.

INTRODUCTION AND LITERATURE REVIEW

"Timing is everything" –
Greg Gottesman & Matt McIlwain, Managing Directors, Madrona Venture Group

How does the timing of alliance formations (i.e. forming alliances earlier or later in time) affect new-venture survival? New-venture survival has been a topic of interest for many scholars. To survive, new ventures need to overcome their lack of resources, information, and legitimacy. As interorganizational relationships helps new ventures acquire those critical means of survival from other organizations, forming such relationships then becomes especially important for new-venture survival (Aldrich & Fiol, 1994; Delmar & Shane, 2004; Singh, Tucker, & House, 1986; Stuart, Hoang, & Hybels, 1999; Suchman, 1995). An alliance is a type of interorganizational relationship that new ventures frequently form with other organizations. An alliance is defined as a relationship formed between two or more independent organizations that involves exchanging, sharing, or co-developing resources and capabilities to achieve mutual benefits (Gulati, 1995; Kale & Singh, 2009). The literature has examined how alliances increase new-venture survival (e.g. Baum, Calabrese & Silverman, 2000; Baum & Oliver, 1991; Hoang & Antoncic, 2003; Raz & Gloor, 2007). However, the literature is relatively silent regarding how the *timing* of alliance formation (i.e. forming alliances earlier or later in time) can affect new-venture survival. This is despite the fact that the literature has highlighted that the issue of timing is critical (Gulati & Higgins, 2003; Hoang & Antoncic, 2003; Lavie, Lechner, & Singh, 2007). "Unfortunately, the alliance literature has largely overlooked the implications of timing" (Lavie et al., 2007: 583), which resonates with anecdotal evidences suggesting how some founders and venture capitalists claim that timing is important, if not "everything".

To the best of my knowledge, the only study regarding the consequences of timing of alliance formations on performance is the work by Lavie et al. (2007)[1]. In other words, the question of timing of alliance formation has practically been ignored. Based on the first-mover-advantage (FMA) theory, Lavie et al. (2007) argue that forming alliances earlier increases performance because being the first to enter a market should lead to positive economic profits.

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[1] Although, a few studies have examined the *antecedence* behind the timing of relationship formation.

This is because moving first should allow firms to develop technology earlier, secure scarce resources, and prevent buyers from switching to competitors (Lieberman & Montgomery, 1988).

While the FMA theory fits well the context of Lavie et al (2007), which investigates firms' entry into a multipartner alliance in the Wi-Fi industry, in general alliance formation is different from market entry. More importantly, as of now, the FMA theory still faces challenges in explaining the conflicting empirical findings regarding the existence of such an advantage. Suarez and Lanzolla (2007) summarize that after many empirical studies, findings show that the relationship between order of entry and performance seems to range *from positive to negative, including no relationship*. Hence, FMA scholars themselves believe that their understanding can still benefit from further theorizations (Suarez & Lanzolla, 2007).

Furthermore, the related literature regarding decision speed of new ventures (Bourgeois & Eisenhardt, 1988; Eisenhardt, 1989) is not very well suited to answer the timing question either; new ventures can make the same decision with the same speed (e.g. 1 month) but at different timings (e.g. this year versus next year). More importantly, empirical studies in that literature have also resulted in conflicting findings. Studies have found that the relationship between decision-speed and performance can range *from positive* (e.g. Baum & Wally, 2003; Judge & Miller, 1991) *to negative* (e.g. Perlow, Okhuysen, & Repenning, 2002), *including no relationship* (e.g. Judge & Miller, 1991).

My research question is: *How does the timing of alliance formations (i.e. forming alliances earlier or later in time) affect new-venture survival?* While this question differs from that asked in the FMA and decision-speed literatures, this study indeed benefits from those literatures, and may enrich other literatures, including those two.

THEORY

Understanding the effect of timing of alliance formations is challenging because the relationship involves many "moving parts", non-linear changes, and random elements. Following the literature (Ancona, Goodman, Lawrence, & Tushman, 2001; Davis, Eisenhardt, & Bingham, 2007; Gulati & Puranam, 2009), I use simple mathematical representations to aid my theorizations. Furthermore, to enable better analysis and exposition, the literature has recommended that the analysis be divided into static and dynamic components (Gulati & Puranam, 2009). During the static analysis, the task is to explain the causal relationships among the variables without involving any temporal element. After the static relationships become clear, the temporal elements can then be introduced in the following dynamic analysis. The ultimate goal is to integrate both analyses to reveal the causal relationship between timing of alliance formation and new-venture survival.

However, to help guide through the rest of this paper, the main gist behind my theorizations is the following. First, forming an alliance later/earlier will allow new ventures to accumulate a higher/lower level of knowledge, which helps planning in the pre-formation phase. Second, however as new ventures forms an alliance later/earlier, new ventures may encounter different macro environments in the post-formation phase. Different macro environments can yield different outcomes for that alliance, and thus affect new ventures' survival differently. As a result, the effect of timing of alliance formation on new-venture survival jointly depends on how new ventures' knowledge and the macro environment change with time during the pre- and post-formation phases of that alliance (Figure 1).

Static Analysis

Planning during pre-formation phase as a congruence process. Like any other actions, the effect of alliance formation on new-venture survival depends on how the alliance is planned during its pre-formation phase. Given new ventures' strategy, new ventures can decide to form various alliances to carry out their strategy. For each alliance, new ventures strive to come up with a plan that can increase the expected outcome of that alliance. To produce such a plan, new ventures may need to undertake various planning activities during the pre-formation phase of an alliance, such as selecting an appropriate partner, or setting up appropriate governance to oversee the alliance (Gulati, 1998; Kale & Singh, 2009). However, an alliance could produce several potential outcomes, depending upon the scenario with which the alliance unfolds. These potential outcomes can range from the most preferred outcome to the least preferred. Similar to other planning process, the planning of an alliance can help new ventures identify various potential outcomes that may result from that alliance, and select a path of action likely leads to the most preferred outcome (Bhide, 2000; Delmar & Shane, 2003; Gulati, 1998; Mintzberg, 1994).

FIGURE 1
Pre- and Post-formation Phases, and Timing of Alliance Formation
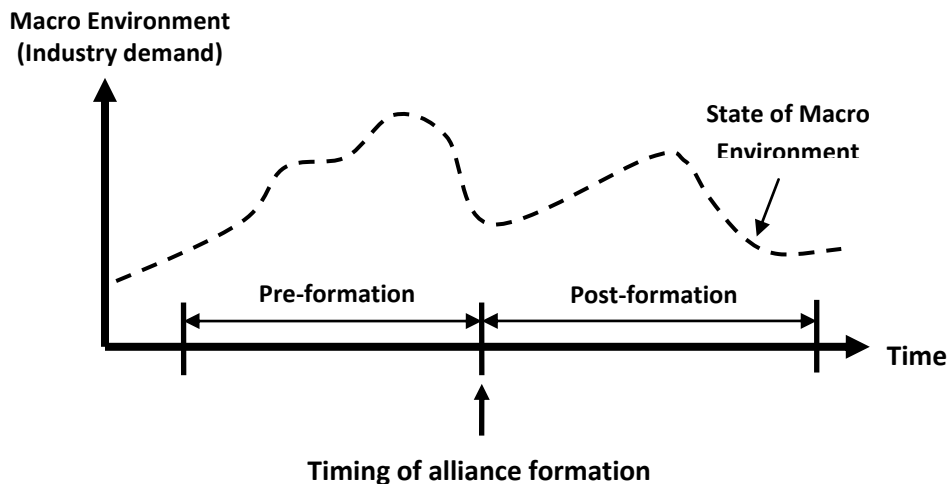
Forming an alliance later/earlier will:
- Allow new ventures to accumulate more/less knowledge during the pre-formation phase.
- But, new ventures may encounter different macro environments during the post-formation phase.

Thus, the effect of forming an alliance later/earlier jointly depends on how new ventures' knowledge and the macro environment change with time.

For example, for a new venture that produces payment software, the broad objective of a technical alliance is to create web-based payment software. Given that objective, the most preferred outcome is web-based payment software that can generate a net income of a certain amount, let's say, $ 1 million. The least preferred outcome is a complete waste of resources. As each potential outcome may occur, it then becomes associated with a certain probability. For example, that most preferred outcome hypothetically has a 20% probability of occurring, while

the least preferred outcome a 10% probability. The expected outcome of that alliance then becomes the sum of the probability of each potential outcome occurring multiplied by the value of each potential outcome (March, 1994: Ch. 1).

Of course, as any prediction about the future is fraught with errors, new ventures cannot be certain in advance with both the probability and the value of each potential outcome. Nonetheless, despite the presence of uncertainty (Knight, 1921; McMullen & Shepherd, 2006), with planning new ventures strive to identify various potential outcomes that may result from an alliance, and select a path that likely leads to the most preferred outcome (Bhide, 2000; Delmar & Shane, 2003; Gulati, 1998; Kale & Singh, 2009; Mintzberg, 1994). In that way, planning helps improve the outcome of an alliance (Gulati, 1998; Kale & Singh, 2009), and increases new ventures' performance (Bhide, 2000; Delmar & Shane, 2003). To highlight this, planning can be conceptualized as a process whose purpose is to select a path of action that is more likely to be in congruent with new ventures' objective of increasing performance, or a congruence process.

Furthermore, studies on decision-speed literature (Bourgeois & Eisenhardt, 1988; Eisenhardt, 1989; Perlow et al., 2002) suggests that new ventures' ability to make a better decision and take a more favorable action is influenced by the knowledge they possess at the time the decision is made. Intuitively, new ventures' ability to select a path that increases their probability of achieving the most preferred outcome should also be related to the level of knowledge that they have[2].

Following the previous example, given the objective of the technical alliance is to create web-based payment software, knowledge can help new ventures increase the probability of achieving the most preferred outcome, for instance, through identifying the right partner with a relevant experience, assembling a better team, understanding the appropriate technology to use, or designing a better incentive system to encourage the best efforts by all parties. Through any possible combinations of means, the knowledge that new ventures have when planning helps new ventures select a path that most likely leads to the successful fulfillment of the objective of an alliance. This way, such knowledge helps new ventures increase the expected outcome of that alliance, and, consequently, their survival.

The importance of striving to follow a better path during planning increases because the impact of such path continues after an alliance is formed (Arthur, 1989; David, 1985; Mintzberg, 1994). For example, after a new venture completes the planning of an alliance, that new venture needs to sign a binding agreement with its alliance partner. Consequently, during the implementation of that alliance, that new venture will find it harder to break away from that relationship, if such a need arises. The sunk cost that new ventures have incurred during planning can also lead to an escalation of commitment that reduces new ventures' subsequent choices in the post-formation phase. Even when no contractual agreement is involved, a planning process can cause new ventures to be emotionally and cognitively invested to follow a certain path. For example, by spending a lot of time planning for an alliance, a new venture might become invested to proceed with that alliance, despite the lack of any contractual agreement. Overall, the path new ventures decide to follow during planning can constrain the subsequent choices new ventures can take in the post-formation phase (Arthur, 1989; David, 1985; Mintzberg, 1994).

Implementation during post-formation phase as a contingency process. However, even though planning can steer new ventures to follow a path that increases their probability of

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[2] Following Kogut and Zander (1992), I define knowledge as consisting of information, e.g. facts, and know-how, e.g. ability to execute something smoothly and effectively.

achieving the most preferred outcome, many contingent factors related to implementation can cause the actual outcome at the end of that path to differ from that expected during planning. Using the previous example, a new venture follows the path that has a 20% probability of creating web-based payment software that can generate a net income of $ 1 million. However, an unexpected collapse in the market causes the demand for all technical products to slump. As a result, that technical alliance generates no net income. In that instance, the new venture is still following the same path. However, the outcome at the end of the path has now changed substantially. With that, the effect of that alliance on the new venture's survival changes as well.

While I recognize that many contingencies can affect the outcome during the post-formation phase, here I only focus on the macro environment as a contingency (I also define macro environment as the strength of market demand in a given industry). This is because numerous studies have shown how the macro environment bounds and exerts a top-down influence on the effects of lower level factors (e.g. Agarwal, Sarkar, & Echambadi, 2002; Bourgeois & Eisenhardt, 1988; Suarez and Lanzolla, 2007). This top-down effect causes the contingent effect of the macro environment to override the contingent effects of other more micro factors (Catrogiovanni, 1991). As a result, the actual outcome from the implementation of an alliance in the post-formation phase is contingent upon the macro environment. To highlight this, the implementation of an alliance in the post-formation phase can be conceptualized as a process whose outcome depends on various contingencies, most importantly the macro environment, or a contingency process.

To summarize, in this static-analysis section I have highlighted how the effect of alliances on new-venture survival depends on which path is selected during planning in the pre-formation phase, and the changes in the macro environment during implementation in the post-formation phase. Having a higher level of knowledge during planning increases new ventures' probability of selecting a path that leads to the most preferred outcome. While that path constrains new ventures' subsequent actions, the actual outcome from those actions depends on the macro environment. Figure 2 depicts how knowledge influences the probability of an alliance to proceed along a certain path, and how each path is associated with a certain outcome. Figure 2 also highlights the role of the macro environment as an important contingency in affecting the outcome of an alliance. Figure 3 further details how having more knowledge at the pre-formation phase favorably increases the probability distribution associated with the various paths.

FIGURE 2
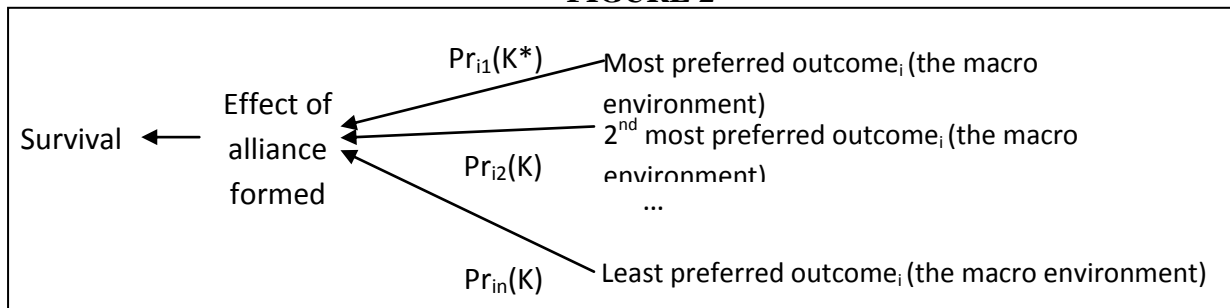
* K = Knowledge during planning

Knowledge during Pre-formation Phase and the Probability of Selecting the Most

Preferred Outcome
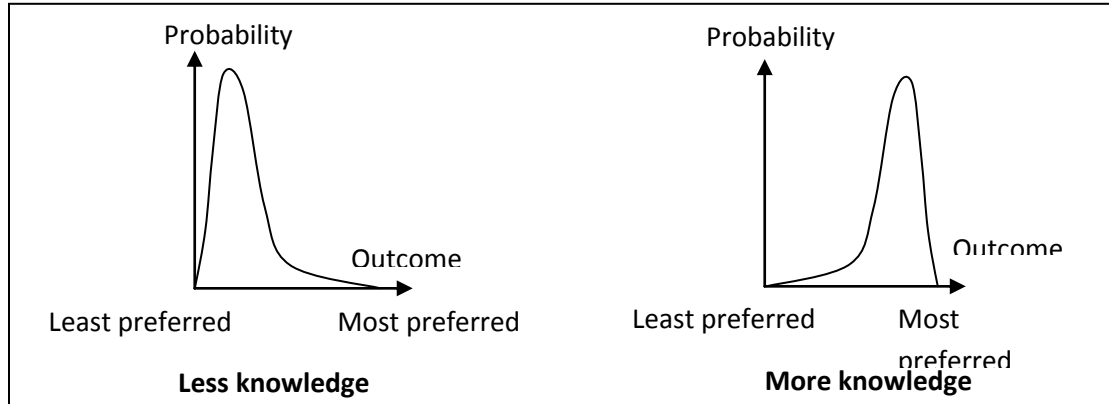
Dynamic Analysis

The difference between the static and dynamic analyses is that the latter now incorporates temporal components. During this dynamic analysis, I answer the research question of this paper. That is, how timing of alliance formation (i.e. forming alliances earlier or later in time) affects new-venture survival. I do so by building upon the previous static analysis. Specifically, I further elaborate on how knowledge and the macro environment changes with time, and how their effects then depend on when an alliance is formed.

To help identify the effect of timing of alliance formation on new-venture survival, I partially differentiate the new-venture-survival variable with respect to the timing-of-alliance-formation variable. I then group the results into two parts. These two parts reflect the effects of timing of alliance formation that arises from the pre- and post-formation phases. To understand the overall effect of timing of alliance formation on new-venture survival, both effects have to be summed up. To illustrate, the static and dynamic analyses can be simply expressed as the following equations (please see the Appendix for details). Due to the inclusion of the temporal components, planning can now be better conceptualized as a temporal-congruence process, while implementation as a temporal-contingency process. I label the dynamic model as the Temporal-Congruence-and-Contingency (TCC) model.

Static analysis:
New-venture survival = Effect from congruence process during planning, a function of *knowledge* + Effect from contingency process during implementation, a function of the *macro environment*

Dynamic analysis:

——————————— Effect from temporal-congruence process during planning, a function of how *knowledge* changes with the *timing of alliance formation* + Effect from temporal-contingency process during implementation, a function of how *macro environment* changes with the *timing of alliance formation*.

However, before I offer a proposition regarding the *overall* effect of timing of alliance formation, I first offer propositions regarding the effect of such timing that results from each of the pre- and post-formation phases, starting with the former. As usual, the propositions provide opportunities for future empirical validations. However, more importantly, the propositions help unpack the overall relationship between timing of alliance formation and new-venture survival.

Planning during pre-formation phase as a <u>temporal</u>-congruence process. Even when analyzed from a dynamic perspective, new ventures still strive to come up with a plan that can increase the expected outcome of an alliance. In this regard, there is no difference between the static and dynamic analysis. However, in reality, planning can be concluded earlier or later. As new ventures wait longer to finalize a plan for an alliance, new ventures' knowledge likely changes. For example, new ventures become more knowledgeable about what it takes to form a successful alliance. Those changes can then affect the outcome from planning. Accordingly, the timing of when new ventures end planning can influence the outcome from planning.

As explained earlier, the critical variable during planning is the knowledge that new ventures have. From a temporal perspective, such knowledge likely accumulates over time. This stems especially from the fact that new ventures often start with limited knowledge (Stinchcombe, 1965)[3]. In the static analysis, I have explained how knowledge can help new ventures make better decisions. This in turn helps new ventures survive. The same explanation still holds in this dynamic analysis. However, as new ventures' knowledge likely increases over time, new ventures' ability to select better alliances should also increase accordingly over time. Consequently, new-venture survival should increase as new ventures form alliances later and acquire more knowledge. This is the essence of planning as a temporal-congruence process.

Empirical findings about how firms that act later excel in product quality (Bohlmann, Golder, & Mitra, 2002; Shamsie, Phelps, & Kuperman, 2004) or incorporate the newest technology (Dowell & Swaminathan, 2006) support this argument. Those studies show how taking action later enables firms to design better products or select a better technology, which increases their performance. The following proposition describes the essence of planning as a temporal-congruence process (please see the appendix for proof).

Proposition 1. Because new ventures likely accumulate more knowledge over time, which helps planning, forming alliances later has a positive effect on new-venture survival[4].

However, different new ventures accumulate their knowledge at different rates, and this heterogeneity could be critical. Studies on the speed of decision process show how different managers acquire different amount of knowledge within the same amount of time by using different approaches to acquire it (Bourgeois & Eisenhardt, 1988; Eisenhardt, 1989). Managers with an ability to acquire knowledge at a higher rate perform significantly better (Bourgeois & Eisenhardt, 1988; Eisenhardt, 1989). Using a completely different approach (NKC-simulation), Ganco and Agarwal (2009) show how new ventures that acquire knowledge at a higher rate can outperform even more established firms. These studies (Bourgeois & Eisenhardt, 1988; Eisenhardt, 1989; Ganco & Agarwal, 2009) support the insight generated from analyzing planning as a temporal-congruence process.

New ventures with a higher rate of knowledge growth can accumulate more knowledge within a given amount of time than those with a lower rate. As knowledge facilitates planning, which helps increase survival, new ventures that have more knowledge during planning should also have a higher probability of survival. This way, new ventures' ability to accumulate knowledge at a higher rate will enhance, or positively moderate, the benefits they receive from delaying the formation of an alliance by a given amount of time. For example, new venture A

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[3] To remove unnecessary confusion, I distinguish the term *level* or the value of a variable at a point in time from the term *rate* or how a variable changes values or levels over a period of time.

[4] This is provided that the window of opportunity to form those alliances is still open (Tyre & Orlikowski, 1994).

can acquire knowledge twice as much as new venture B within, let's say, a month. Let us assume that in a month, new venture A is able to acquire information regarding its competitors and customers; whereas new venture B can only acquire information regarding its competitors. In that case, the ability of new venture A to accumulate knowledge at a higher rate will allow it to make a better decision at the end of the month. That way, the ability of new venture A to accumulate knowledge at a higher rate enhances the benefit it receives from delaying its alliance formation by a month[5] (please see the appendix for proof).

> *Proposition 2. The rate with which new ventures accumulate knowledge positively moderates the effect of forming alliances later on new-venture survival.*

Implementation during post-formation phase as a <u>temporal</u>-contingency process. From a dynamic perspective, two temporal components affect the implementation process, and its corresponding outcome. They are timing of alliance formation, and the length of period over which the performance of an alliance is observed (I elaborate later on why the effect of the length of observation period needs to be considered). Next, I explain the effect of each temporal component, starting from the effect of timing of alliance formation.

Timing of alliance formation can significantly affect the outcome during the post-formation phase through the following process. Different macro environments likely yield different outcomes, as discussed during the previous static analysis. However, the macro environment likely changes over time. As such, alliances formed at different time periods likely encounter different macro environments. Consequently, alliances formed at different time periods likely yield different outcomes. This way, timing of alliance formation can significantly affect implementation outcome.

While the change in the macro environment over time can take all kinds of shapes, three different scenarios presented in Figure 5 indicate how the effect of timing of alliance formation can range from positive to negative, depending upon the macro environment. In case 1, the macro environment becomes more favorable over time in a non-linear manner. In that case, if new ventures form an alliance at ta_1, and assuming that the outcome (net income from that alliance) increases in the same manner as the macro environment, then the outcome of that alliance will increase by A over the observation period Δt. However, if the alliance is formed at ta_2, the increase is B, which is bigger. In this case, delaying the alliance formation

FIGURE 4
Relationship among Rate of Knowledge Accumulation, Outcome and Timing of Alliance Formation

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[5] This is provided that the window of opportunity to form those alliances is still open (Tyre & Orlikowski, 1994).

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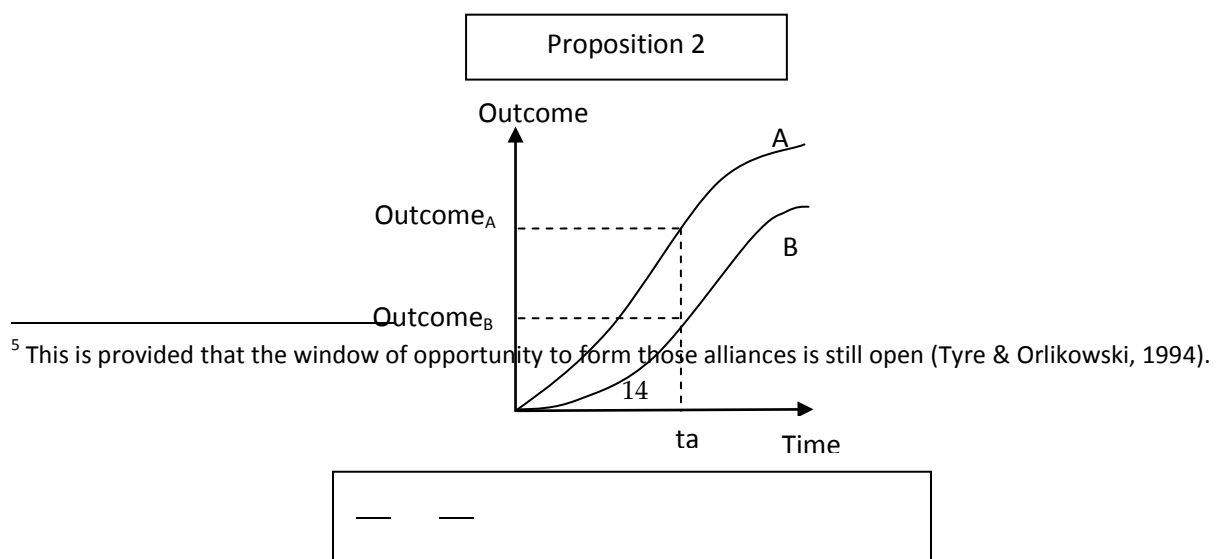
from ta_1 to ta_2 allows new ventures to earn a higher outcome (i.e. B and not A). In case 2, where the macro environment becomes more favorable before reaching its peak and starting to decline, forming alliance at ta_2 instead of ta_1 costs new ventures a loss (-B) instead of a gain (A). In case 3, where the macro environment becomes more favorable but in a stable manner, new ventures neither gain nor lose anything by taking actions at ta_2 instead of ta_1. This is due to a subtle, but critical, difference between time (clock time) and timing of alliance formation (event time) (Ancona, Okhuysen, & Perlow, 2001). While outcome increases with time (clock time), outcome does not change with timing of alliance formation (event time).

These examples demonstrate the following points. First, the effect of timing of alliance formation on the outcome from implementation during the post-formation phase is contingent upon the macro environment. Second, the effect can be positive, negative, or even none (please see the Appendix for further proof). All considered, during implementation, the macro environment is an important contingency that influences how timing of alliance formation can affect new-venture survival. The following proposition describes that contingent effect.

Proposition 3. Depending upon the changes in the macro environment during implementation, the effect of forming alliances later on new-venture survival can range from positive to negative.

Earlier, I indicated that the effect of the length of period over which the performance of an alliance is observed (or the length of observation period) needs to be considered. Two reasons explain this argument. First, it is because performance is a cumulative, not a snapshot, measure. Hence, performance has to be observed over a period of time. Second, understanding the effect of such length also becomes necessary because that effect can be related to the effect of timing of alliance formation under certain scenarios. Assuming that observation is truncated after a certain point, a common empirical practice, new ventures that form alliances earlier/later will experience a longer/shorter observation period. Thus, understanding the effect of length of observation period complements our understanding regarding the effect of timing of alliance formation.

The length of observation period can affect implementation outcome through the following process. As the macro environment changes over time, changing the length of observation period allows different macro environments to influence the implementation process. As the macro environment can change the outcome from implementation, changing the length of the observation period can also change the outcome from implementation. Figure 6 illustrates this point. Consequently, the effect of changing the length of the observation period can range from positive to negative depending upon the macro environment (please see the Appendix for

proof). This means that another temporal-contingency effect that depends on the length of the observation period emerges.

> *Proposition 4. Depending upon the changes in the macro environment during implementation, the effect of increasing the length of observation period on new-venture survival can range from positive to negative.*

Overall effect of timing of alliance formation. So far, I have explained how the effects of timing of alliance formation on new-venture survival depend not only on what goes on during planning in the pre-formation phase, but also that during implementation in the post-formation phase. However, as I indicated throughout this paper, to understand the overall effect of timing of alliance formation, its effects from both phases have to be summed up. While the effect from planning is positive (Proposition 1), the effect from implementation can range from positive to negative, depending upon the macro environment (Proposition 3 and 4). Under certain macro environments, it thus becomes possible that the effects from both temporal processes are both positive. In this case, the planning and implementation processes yield synergistic effects (i.e., both positive effects). However, under other macro environments, the effects from both processes may differ. In that case, the planning and implementation processes yield non-synergistic effects (i.e., positive and non-positive effects). In that case, it also becomes possible that timing of alliance formation has no effect on new-venture survival (i.e. overall zero effect). The following proposition simply sums up the effects from Proposition 1, 3 and 4.

Proposition 5. The overall effect of forming alliances later on new-venture survival is the sum of its effects from temporal changes during planning and implementation. That overall effect can range from positive to negative, depending upon changes in new ventures' knowledge and the macro environment over time.

FIGURE 5
Change in Performance Outcome When the Timing of Alliance Formation Changes [6]
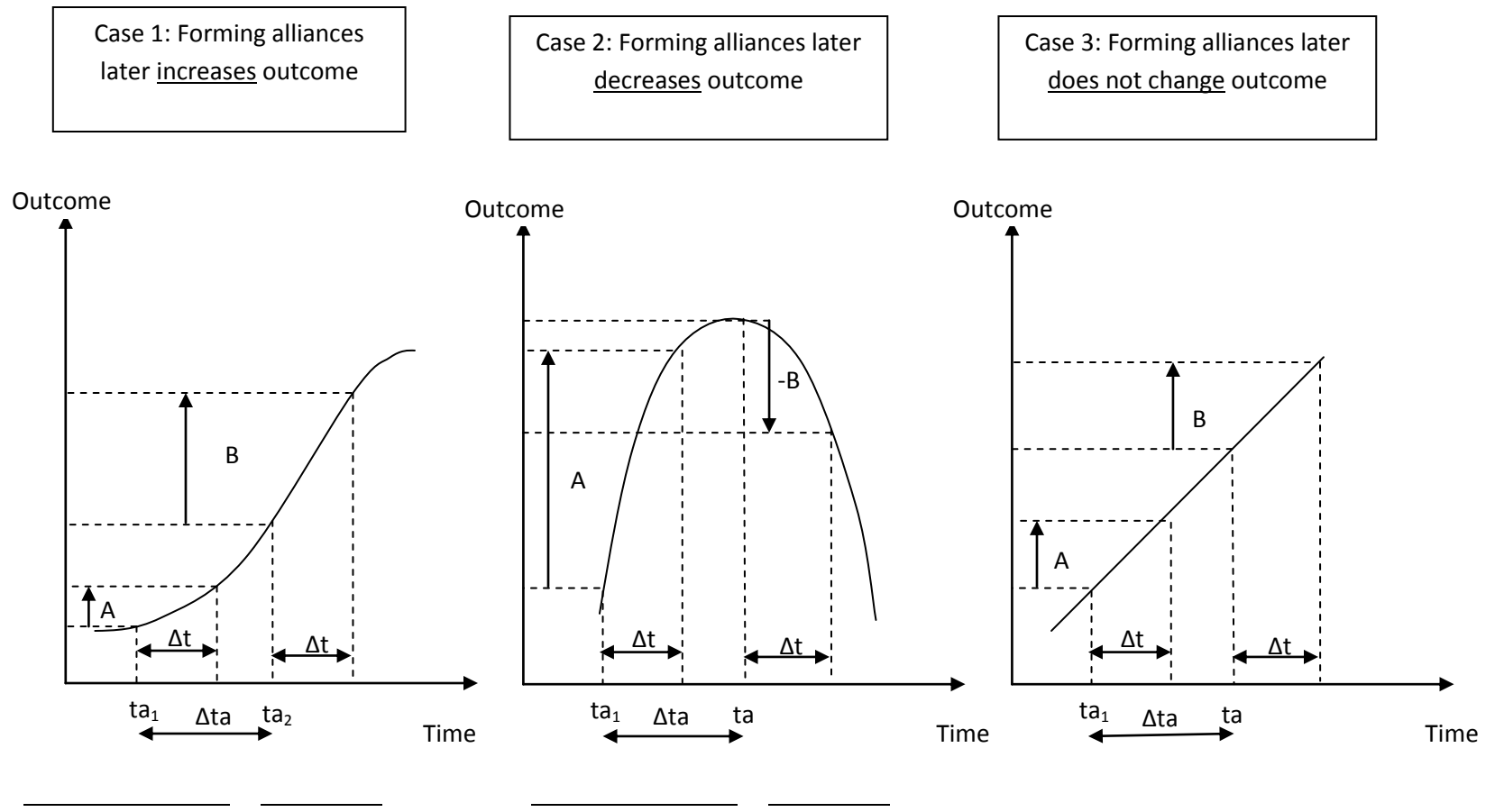
FIGURE 6
Change in Performance Outcome When the Length of Observation Period Changes [7]
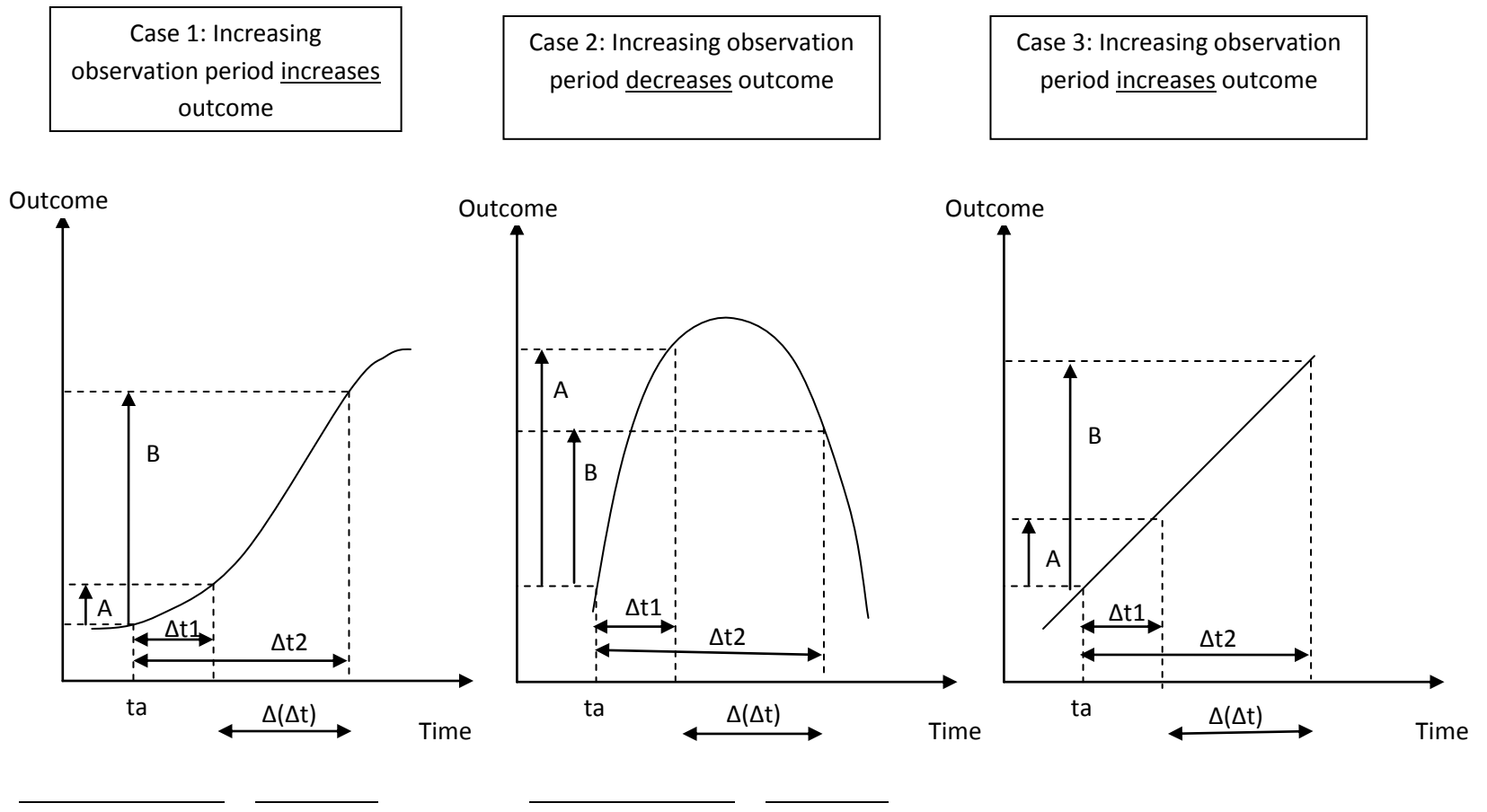
Increasing and decreasing macro-environmental munificence. The presence of a temporal-contingency process means that finer propositions need to be based on a specific context. One interesting context for new ventures will be survival under an increasing or a decreasing level of resources in the macro environment, or macro-environmental munificence (Catrogiovanni, 1991). Given the importance of resources for new-venture survival (Stinchcombe, 1965), the changing level of macro-environmental munificence can influence the effect of timing of alliance formation on new-venture survival. For example, while rushing in might cost new ventures their better judgment, doing so might make more sense under a certain context. The question is then whether new ventures should form an alliance earlier or later under an increasing or a decreasing macro-environmental munificence.

From the planning process, forming an alliance later allows new ventures to accumulate more knowledge, and hence increases their survival, regardless of whether the macro-environmental munificence is increasing or decreasing. However, from the implementation process, the relationship between the timing of alliance formation and new-venture survival is likely to be contingent upon the changing macro-environmental munificence.

When the macro-environmental munificence *decreases* and the industry demand weakens, investing in an alliance more likely yields a negative than a positive outcome. If that is the case, forming an alliance earlier likely causes new ventures to suffer from more negative outcome. New ventures may spend their valuable resources without seeing any return for a longer period of time. Having less resource, new ventures would then have reduced flexibility to take advantage of more attractive opportunities. The decreasing level of resources in the environment will also provide fewer opportunities to recover from any mistakes. Consequently, from the implementation process, new ventures should form an alliance later in order to increase survival. As a result, under a decreasing macro-environmental munificence, the planning and implementation processes yield a synergistic relationship. That is, both processes suggest that forming an alliance later should increase new-venture survival.

On the contrary, when the macro-environmental munificence *increases* and the industry demand strengthens, the reverse happens. As a result, from the implementation process, new ventures should form an alliance *earlier* in order to increase survival. However, as the planning process suggests that new ventures should form an alliance later, a trade-off arises. All considered, I argue that the effect from the implementation process will outweigh the effect from the planning process. On the one hand, if the alliances that new ventures form early are fraught with mistakes due to, let's say, a rather premature plan, the effect should not be fatal. This is because as the market continues to grow, new ventures should still have opportunities to acquire new resources from their stakeholders or the market. Given such slack, new ventures should be able to afford forming an alliance based on a rather premature plan. On the other hand, if those alliances turn out to be successful despite the shorter planning time, new ventures can reap the benefits of those alliances earlier. Overall, I propose that when macro-environmental munificence increases, forming an alliance earlier should increase survival (Table 1).

> *Proposition 6. Under increasing/decreasing macro-environmental munificence, the overall relationship between forming alliances later and new-venture survival is negative/positive.*

TABLE 1

Effect of Forming Alliances Later on New-Venture Survival

	Under increasing macro-environmental munificence	Under decreasing macro-environmental munificence
Effect from temporal-congruence process	Positive	Positive
Effect from temporal-contingency process	Negative	Positive
Total effects	**Negative**	**Positive**

DISCUSSION

This study examines the question of how to increase new-venture survival from a relatively new lens – the temporal lens (Ancona et al., 2001). In specific, this study asks how timing of alliance formation affects new-venture survival. Given the dynamics and complexity of such timing question, I developed my conceptual theorizations with the aid of a simple mathematical model. The resulting theorization shows how the effect of timing of alliance formation on new-venture survival jointly depends on how knowledge accumulates while an alliance is planned in its pre-formation phase, and how the macro environment changes in the post-formation phase of an alliance. Depending upon the rate of knowledge accumulation and the changes in the macro environment, the overall effect of timing of alliance formation can then range from positive to negative. I then hypothesize that under increasing/decreasing environmental munificence, forming an alliance earlier/later increases new-venture survival.

The conceptual theorizations developed here conform to various empirical findings found in other temporally focused literatures. For example, the fact that the effect of the timing of alliance formation can range from positive to negative can potentially explain the seemingly conflicting findings found in the first-mover advantage literature. As Suarez and Lanzolla (2007) highlighted, important contingencies, especially the macro environment, may play a large role in generating the seemingly conflicting findings. By looking at the macro environment, this paper strongly supports the argument put forward by Suarez and Lanzolla (2007).

Similarly, the conceptual theorizations developed here can potentially explain the seemingly conflicting findings found in the decision speed literature. One potential reason behind this conflicting finding is the fact that effect of decision speed on performance is closely intertwined with the timing at which the decision is made. As the dual temporal congruence and temporal contingency processes suggest, what matters is not only how fast the decision is made, but also when the decision is made. Decisions made under different timings may face different macro environments, and hence may yield different outcomes. By incorporating the effect of the macro environment, the relationship between decision speed and performance can now range from positive to negative, just like what the empirical findings suggest.

Likewise, the conceptual theorizations developed here also supports the empirical findings by Lavie et al. (2007). While the study by Lavie et al., (2007) investigates a multipartner-alliance context, the macro environment for that study increases in munificence, as evidenced by the increasing demand for Wi-Fi products and the increasing number of

participants in that multipartner alliance. In that increasingly munificent macro environment, their finding shows that entering the multipartner alliance earlier increases performance, just like what the temporal-congruence-and-contingency model predicted here.

Contributions

Building upon established foundations regarding the importance of knowledge and the macro environment, this study helps connect seemingly disparate streams of literature into a broader, more closely related picture. To the entrepreneurship and the alliance literatures, this study provides a new perspective in our pursuit of trying to understand what can increase new-venture survival. By investigating how timing of alliance formation can increase new-venture survival, this study not only reaffirms the importance of alliances, but also explains how the timing of alliances can accentuate or attenuate their benefits, and hence affect survival. While finding the right partner is important, finding the right time to pick the right partner could be as important, if not more. Given the appropriate amount of time to accumulate knowledge about one's potential partner, a new venture can potentially increase its probability of selecting the right partner. In that sense, new ventures' ability to pick the right partner can be a function of new ventures' ability to pick the right time to form that alliance. Furthermore, as new ventures usually form alliances rather frequently, the issue of timing of alliance formation should frequently surface. As such, this paper can have a rather significant implication for practice.

To the first-mover advantage literature, this paper suggests the important of not rushing in. In fact, what is more certain from the theorizations here is that waiting longer to form an alliance allows new ventures to accumulate more knowledge and form better alliances. In other words, the temporal congruence process highlights the advantage of taking actions later. Put differently, the temporal congruence process highlights that first mover *dis*advantages potentially exist, a point suggested by Lieberman & Montgomery (1998) and is consistent with various empirical findings suggesting that late movers can actually perform better than earlier movers (Bohlmann et al., 2002; Dowell & Swaminathan, 2006; Shamsie et al., 2004). This counterintuitive argument can be important as the inclination to move first can be so impulsive.

Furthermore, the temporal congruence-and-contingency model demonstrates that timing matters in both absolute and relative sense. Being the first to move is a relative definition. However, timing is also essential when viewed based upon a fixed and common reference point in time, or in an absolute sense. At different points in time, the conditions of the macro environments differ. As the macro environment could affect the outcome of an action, where an action is located along the temporal axis – and not just relative to the first mover- could be critically important. In this sense, this study further highlights the role of macro environments in understanding the effect of timing.

Some areas for future studies include testing the propositions here and exploring other macro environmental conditions, e.g. uncertain market environments. Also, understanding how various decision-making strategies, e.g. incremental resource allocations (Adner & Levinthal, 2004; McGrath, 1997; McGrath, Ferrier, & Mendelow, 2004) can influence the timing of alliance formation could be an interesting avenue for future study. To conclude, timing is an almost inescapable part of every decision new ventures have to make. Anecdotal evidences even suggest that some entrepreneurs and investors swear that timing is everything. However, our extant understanding regarding how time and timing can affect new-venture performance remains relatively limited. Expanding this understanding could potentially result in not only an exciting and prolific stream of research, but also relevant, practical recommendations to new ventures.

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APPENDIX

Static Model

An alliance can have multiple outcomes, ranging from the most preferred to the least preferred, with each having a certain probability of being realized. Let 'Best' be the most preferred outcome and 'Worst' be the least preferred outcome. Let the probability of each outcome be labeled from Pr(1) to Pr(n) starting from the most preferred to the least preferred outcome, respectively.

Performance of an alliance = Pr(1).Best + Pr(2). Outcome 2 + … + Pr(n).Worst   *- (1)*

To simplify the mathematical model, equation (1) can be represented by only the most and least preferred outcomes. To do so, let Pr(Best) and Pr(Worst) be another set of probabilities.

Pr(1).Best + Pr(2). Outcome 2 + … + Pr(n).Worst = Pr(Best).Best + Pr(Worst).Worst *– (2)*
    where Pr(Best) + Pr(Worst) = 1 or Pr(Worst) = 1-Pr(Best), such that
Pr(Best) = [(Pr(1).Best + Pr(2). Outcome 2 + … + Pr(n).Worst) – Worst]/(Best – Worst) *– (3)*

Furthermore, to differentiate the effect of various alliances, let the subscript "i" represents the characteristics of an alliance "i", while "Env_i" represents the characteristics of the macro environment associated with an alliance "i". The performance of an alliance can then be represented by equation (4).

Performance of an alliance = Pr_i(Best).$Best_i$(Env_i) + Pr_i(Worst).$Worst_i$(Env_i) *– (4)*

Dynamic Model

So far, the variables have been treated as time-invariant. However, the actual outcome of an alliance may change depending upon the macro environment, which may change with time. As such, alliances formed at different time (t_a) may have different outcome. Further, as the effect of an alliance accumulates over time, that outcome also depends on how long the performance of an alliance is observed (Δt). Including these temporal factors, equation (4) becomes the following. (For conciseness, let variable "P" be an abbreviation for cumulative performance from time t_a to time

$- (5)$

However, the probability of achieving the most or least preferred outcome depends on the cumulative knowledge (K) that new ventures have at the time the alliance is formed (t_a), and a random error (ε), which is not a function of timing of alliance formation. As a higher level of knowledge helps new ventures increase their probability of achieving the most preferred outcome, I have the following relationship.

$$Pr_i(Best) = K(t_a) + \varepsilon - (6)$$

As any probability ranges from 0.0 to 1.0, $K(t_a)$ is standardized from 0.0 to 1.0. Replacing $Pr_i(Best)$ with $(K(t_a) + \varepsilon)$ gives the following

$\varepsilon. WorstiEnvi(\quad , \quad +\Delta \ ) - (7)$

To shorten notations, let K be the short form for   ,   for   , and   for   . As ε is not a function of   , ⎯ = 0. Partially differentiating performance (P) with respect to timing of alliance formation t_a using the product rule will allow me to observe the effect of forming an alliance earlier or later. This results in the following equation.

$$\underline{\quad\quad\quad} \quad \underline{\quad} \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad \underline{\quad} \quad \underline{\quad\quad} \quad \underline{\quad\quad} \ -$$

(8)

However, as Performance also depends on   , I can also differentiate P with respect to

$$\underline{\quad\quad\quad} \quad\quad\quad\quad\quad \underline{\quad} \quad\quad\quad\quad\quad\quad\quad\quad \underline{\quad\quad} \ (9)$$

The total change in performance in (equation 8 and 9) can be decomposed into temporal congruent and contingent effects (see the body of paper for the meaning of temporal congruent and contingent effects).

Congruent effect:

$$\underline{\quad\quad\quad} \quad\quad\quad\quad\quad\quad \underline{\quad} \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad - (10a)$$

Contingent effect with respect to timing of alliance formation:

$$\underline{\quad\quad\quad} \quad\quad\quad\quad\quad\quad\quad \underline{\quad} \quad\quad\quad\quad \underline{\quad\quad} - (10b)$$

Contingent effect with respect to length of observation period:

$$\underline{\quad\quad\quad} \quad\quad\quad\quad\quad\quad\quad \underline{\quad} \quad\quad\quad\quad \underline{\quad\quad} - (10c)$$

Proof of Proposition 1.

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In (10a), the difference between the best and the worst outcomes is the range of outcome, and is positive by definition. Given that new ventures likely accumulate more knowledge over time, then ⎯⎯ ⎯⎯⎯⎯ As a result, ⎯⎯⎯⎯⎯ is positive.

Proof of Proposition 2.

Following the proof of proposition 1, it is clear that the higher ⎯⎯ the higher ⎯⎯⎯⎯⎯ is.

Or, for a given desired increase in performance, ⎯⎯⎯⎯⎯ multiplied by $_j$ (where $_j$ is some temporal delay), a higher ⎯⎯ increases $_j$, or reduces $_j$ for a given

Proof of Proposition 3.

From equation (10b), ⎯⎯⎯⎯⎯ depends on ⎯⎯ ⎯⎯⎯⎯, which can range from positive to negative under different macro environments, as argued in the body of the paper. As the macro environments can take many different shapes, the following scenarios are not exhaustive.

Scenario 1: The macro-environmental munificence decreases, such that forming an alliance later shifts the range of possible outcomes unfavorably, i.e. ⎯⎯ ⎯⎯⎯⎯ . Equation (10b) becomes negative.

Scenario 2: The macro-environmental munificence does not change, such that there is no gain or loss from forming an alliance later, i.e. ⎯⎯ ; ⎯⎯⎯⎯ . Equation (10b) becomes zero or very minimal.

Scenario 3: The macro-environmental munificence increases, such that forming an alliance later shifts the range of possible outcome favorably, i.e. ⎯⎯ ⎯⎯⎯⎯ . Equation (10b) becomes positive.

Proof of Proposition 4.

From equation (10c), ⎯⎯⎯⎯⎯ depends on ⎯⎯ ⎯⎯⎯⎯, which can range from positive to negative under different macro environments, as argued in the body of the paper. As the macro environments can take many different shapes, the following scenarios are not exhaustive.

Scenario 1: The macro-environmental munificence decreases, such that increasing the observation period shifts the range of possible outcomes unfavorably, i.e. ⎯⎯ ⎯⎯⎯⎯ . Equation (10c) becomes negative.

Scenario 2: The macro-environmental munificence does not change, such that there is no gain or loss from increasing the observation period, i.e. ⎯⎯ ; ⎯⎯⎯⎯ . Equation (10c) becomes zero or very minimal.

Scenario 3: The macro-environmental munificence increases, such that increasing the observation period shifts the range of possible outcomes favorably, i.e. ⎯⎯ ⎯⎯⎯⎯ . Equation (10c) becomes positive.

Proof of Proposition 5.

To understand the overall effect, the effects from equations (10a), (10b), and (10c) have to be summed up. While the value of (10a) is positive, the value of (10b) and (10c) can range from positive to negative. Unless, (10b) and (10c) are non-negative, the overall effect can then range from positive to negative.

Proof of Proposition 6.

Due to the trade-off between the effect of timing of alliance formation and the length of observation period under a changing macro-environmental munificence, I rely on conceptual theorizations to proof for Proposition 6, which is discussed in the body of the paper.

Franchising and Firm Performance: The Case of U.S. Restaurants
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Abstract

Franchising has attracted the attention of entrepreneurship scholars in the past three decades, but little is known about how franchising affects financial performance. That is, do the financial benefits of franchising outweigh its costs? To find an answer to this question, our study compares the risk-adjusted performance of franchising versus non-franchising restaurant firms over the 1995-2008 interval, using five different performance measures: the Sharpe Ratio, the Treynor Ratio, and the Jensen Index. For each measure, the results revealed that franchising

restaurant firms outperformed their non-franchising counterparts. Thus, we provide very robust evidence that franchising pays, which can explain why franchising has become increasingly popular.

Keywords: Franchising, Risk-adjusted performance, Restaurants

Introduction

The unprecedented growth of franchising businesses in recent decades sparked considerable research interest (cf. Bürkle and Posselt, 2008; Combs et al. 2004; Lafontaine 1992; Norton 1988b; Oxenfeldt and Kelly 1968; Rubin 1978; Windsperger and Dant 2006). Early franchising research sought to understand why an increasing number of firms adopt franchising, along with the characteristics of franchising firms (e.g., Caves and Murphy 1976; Norton 1988a). For example, a number of researchers (e.g., Carney and Gedajlovic 1991; Castrogiovanni, Combs and Justis 2006) have examined resource scarcity and agency arguments as to why firms franchise. Others have considered alternative reasons for franchising such as innovation (Bradach 1997) and risk spreading (Lafontaine and Bhattacharyya 1995).

Surprisingly little research has dealt with the ultimate effects of franchising on firm performance, however. Two major challenges have hindered research in this area (Combs et al. 2004). First, a large majority of franchising firms are privately held companies, which severely limits the availability of performance data. Second, some maintain that franchising must be performance enhancing or else it would not be so prevalent. Still, franchising and non-franchising firms often coexist within the same industry, and so it is not clear whether either form of business is superior to the other.

We set out to address this deficiency. Our central research question was, "Does franchising pay?" More precisely, our purpose was to investigate whether franchising restaurant firms outperformed non-franchising restaurant firms during the period of 1995-2008. To achieve this purpose, we examined a sample of publicly-listed restaurant firms from a capital markets perspective using five different risk-adjusted financial performance measures.

We thus contribute to the franchising literature by considering risk and return simultaneously, using individual firm level data (cf. Sorenson and Sorensen 2001). In addition, we contribute by examining both traditional risk-adjusted performance (the Sharpe Ratio, the Treynor Ratio, and the Jensen Index) and alternative conceptualizations based on semi-variance (the Sortino Ratio and the Upside Potential Ratio). As shown below, our findings were consistent in all cases, which gives us considerable confidence in our conclusions.

Theory and hypothesis

Research has shown that franchising yields both benefits and costs (Combs et al. 2004). On the positive side, benefits generally fall into four categories—(a) resource access, (b) motivation, (c) innovation, and (b) risk reduction. On the negative side, costs of franchising generally fall into three categories—(a) foregone profits, (b) free riding, and (c) diminished control. We discuss each of these kinds of benefits and costs below. After that, we focus on the ultimate outcome of franchising—i.e., its effect on firm financial performance. For reviews addressing the various benefits and costs of franchising, see Combs and Ketchen (2003), Combs et al. (2004), and Gillis and Castrogiovanni (2010).

Benefits of franchising

Resource access. Oxenfeldt and Kelly (1968) were among the first to argue that firms franchise to access the financial and managerial resources of others, namely franchisees. New, small firms often do not have the same access to capital as their larger, established competitors (Combs and Ketchen 1999; Dant 1995), and have greater difficulty developing managerial talent (Katz and Owen 1992). At the same time, their survival may depend on their ability to grow rapidly in order to achieve economies of scale and scope, and thus overcome cost disadvantages vis-à-vis their larger, established competitors (Caves and Murphy 1976). Thus, the resource access benefit of franchising may result in greater financial performance because it leads to scale and scope economies (Shane 1996).

Motivation. Agency theory suggests that franchisees are more motivated than employee managers to do whatever it takes to make their units successful because they receive the profits of their units (Rubin 1978). Without that profit motive, employee managers are more likely to put forth less than maximal effort since they do not have the same incentives as franchisees (Combs et al. 2004). Even when employee managers receive sales- or profit-based bonuses, they still tend to have less incentive than franchisees since that bonus only reflects part of their total compensation. The firm may be able to reduce potential shirking among employee managers by employing various monitoring mechanisms, but such mechanisms can be costly. Thus, the motivation benefit may result in greater financial performance because it leads to lower monitoring costs at the firm level for a given amount of managerial effort at the unit level.

Innovation. Franchising can foster innovation and accelerate internal change (Bradach 1997; 1998; Cliquet and Nguyen 2004; Lewin-Solomons 1998; Perrigot 2009). Because of their financial investments in their units, combined with their profit incentives, franchisees are inclined to act entrepreneurially (Kaufmann and Dant 1999) to adapt their units to local market conditions (Sardy and Alon 2007). Sometimes, local adaptations may then diffuse throughout the whole chain. Thus, the innovation benefit of franchising may result in greater financial performance by improving the alignment of the individual units with their local market conditions.

Risk reduction. The risk reduction benefit of franchising occurs when firms can franchise locations with low or uncertain profitability, thereby reducing its overall risk by passing some of it on to franchisees (Lafontaine, 1992; Lafontaine and Bhattacharyya, 1995; Martin 1988). Franchisees may be willing to accept high risk locations in exchange for a relatively low risk route to business ownership (Combs and Castrogiovanni 1994; Roh 2002), namely franchising, which has been shown to have significantly lower failure rates than independent business startups (Castrogiovanni and Justis 2007; Castrogiovanni, Justis and Julian 1993). Moreover, since knowledge mitigates risk, franchisees with sound local market knowledge may actually face less risk than the firm in those particular locations. Thus, the risk reduction benefit of franchising may lead to greater financial performance by improving the firm's risk-return tradeoff.

Costs of franchising

Foregone profits. When Oxenfeldt and Kelly (1968) offered their resource scarcity view that firms use franchising for its resource access benefit, they also predicted that firms would later abandon franchising and evolve toward full firm ownership in order to capture all unit profit for themselves. Others have agreed that franchising can be a costly source of capital (Brickley and Dark 1987; Martin and Justis 1993). Some suggest that franchisees require a higher return than the firm because they cannot diversify their risk across multiple locations (e.g., Norton 1995; Rubin 1990). However, the ownership redirection prediction has received only limited

support (cf. Castrogiovanni et al. 2006; Dant, Paswan and Kaufmann 1996; Dant, Paswan and Stanworth 1996).

Free riding. As explained previously, franchisees are highly motivated to work hard so that their units are successful, but unit and firm success are not always congruent. Consequently, franchising is vulnerable to a horizontal agency problem whereby franchisees may pursue their own interests at the expense of other franchisees and the firm (Combs et al. 2004). This is due to the fact that individual franchisees bear the full costs of their efforts to maintain system quality standards, but do not reap the full benefit from their efforts (Michael 2000), and instead benefit from the collective efforts of the network as a whole (Kidwell, Nygaard and Silkoset 2007). A restaurant along a relatively isolated stretch of an interstate highway, for example, may not lose much business due to poor service because its patrons are unlikely to stop there again in the future anyway. Those same patrons, however, may be less likely to visit other restaurants within the same chain as a result of their negative experience at the one along the interstate.

Franchising and financial performance

In studies focusing on franchising firms, researchers generally assume that the benefits of franchising outweigh the costs (cf. Castrogiovanni et al. 2006) because rational firms would not franchise if that would hurt their bottom line. Institutional views raise questions as to whether firms really do act rationally with regards to franchising, however. Combs et al. (2009), for example, found that a firm's past practices and industry norms affect its franchising behavior beyond the effects of situation-specific factors associated with the kinds of franchising benefits and costs outlined here. Nevertheless, theorists also argue that franchising would have succumbed to environmental selection pressures if it led to inferior performance (Combs et al. 2004; cf. Fama and Jensen 1983; Williamson 1991), but this does not explain why franchising and non-franchising firms coexist.

Newby and Smith (1999) contrasted the risk and return of franchised and independent units in the real estate and commercial printing industries in Australia, with mixed results. Franchised real estate agencies had a lower level of profitability compared to non-franchised firms ($p \leq .05$), but exactly the opposite outcome was obtained for commercial printing firms.

Roh (2002) argued that franchising reduces the variability of operating cash flows because royalties received from a unit exhibit less variance over time than the revenue and profit of that unit. Moreover, a firm-owned unit requires a fixed capital investment by the firm, which increases the firm's leverage and thus its level of risk. Therefore, Roh (2002) maintained that publicly-traded restaurants with a higher proportion of franchised units would have lower variation in operating cash flows, and thus a more favorable risk-return tradeoff.

Michael (2002) provided indirect evidence of a positive franchising–performance effect. Firms that franchised early gained market share quickly, which in turn led to better financial performance. Later, Michael (2003) explained that franchising facilitates rapid growth by enabling greater resource access (cf. Shane 1996), which enables firms to gain first mover advantages.

In two related studies of franchising restaurant firms, Combs, Ketchen, and Hoover (2004) and Ketchen, Combs, and Upson (2006) found that the franchising effect is nonlinear. Combs et al. (2004) identified three strategic groups among the 65 franchising firms that they examined, and Ketchen et al. (2006) identified four strategic groups among 94 franchising firms. Both studies considered three performance variables—(a) return on assets, (b) sales growth, and (c) market-to-book value—and found that some strategic groups outperformed others.

Aliouche and Schlentrich (2009) used t-tests to compare 24 franchising and 17 non-franchising restaurant firms along four performance dimensions—market value added, economic value added, return on equity, and shareholder returns. Results of their study were insignificant. This could have been due to the relatively small sample size and lack of control variables.

Hsu and Jang (2009) examined 82 franchising and non-franchising restaurant firms over the 1996-2005 interval with regard to three performance variables—return on assets, return on equity, and Tobin's Q. In t-tests comparisons, the franchising firms exhibited better results than the non-franchising firms along all three variables.

Overall, research as to whether franchising has a generally positive, neutral, or negative effect on firm performance has been extremely limited, and the findings have been mixed. Our sense is that, on balance, the literature seems to lean slightly toward a positive effect. Moreover, Combs et al. (2009) found that franchising firms have tended to utilize franchising more and more extensively over time, which suggests that their experience indicates a net benefit of franchising vis-à-vis firm ownership. Thus, we hypothesize an overall positive effect as follows:

> H1: Franchising firms will achieve greater risk-adjusted performance than non-franchising firms in the same industry.

Method

Sample

We started our sample selection with 121 publicly-traded firms under Standard Industry Codes (SICs) 5810, 5812, and 6794. We only retained companies that had at least 36 continuous monthly stock returns during the full examination period (1995-2008) and had matching financial data in Compustat. Consequently, our final sample consisted of 102 firms—54 franchising firms and 48 non-franchising firms.

Data

Monthly stock returns adjusted for dividends and splits for each restaurant firm were obtained from the Center for Research in Security Prices (CRSP). The CRSP Index's equal-weighted return, which consists of stocks listed on NYSE, AMEX and NASDAQ, was used as a proxy for market return. Data for firm-specific variables were obtained from the Compustat database and companies' SEC filings. Market-based control variables were retrieved from the Eventus database. We used an unbalanced panel in which some firms entered the analysis after 1995 or exited before 2008. The total number of firm-year observations for this study was 711 (425 observations for the franchising firms and 286 for the non-franchising firms).

Dependent variable measures

As indicated previously, we have one theoretical hypothesis, with one dependent variable—risk-adjusted performance. We used three different measures of that variable because each has different advantages and disadvantages. Thus, if our hypothesis was supported with all three measures, the findings would be very robust, and we could state with great confidence that franchising is positively related to risk-adjusted performance. On the other hand, if our hypothesis was supported by some but not all of the measures, our conclusion would be more nuanced, and we would gain insight into the complexity of the phenomenon..

The *Sharpe Ratio* is obtained by first calculating each firm's return—i.e., an equally-weighted return for each firm. Then, the average monthly excess return is computed by subtracting the risk-free rate. Finally, the excess return is divided by the standard deviation of the respective firm's average monthly return. A higher Sharpe Ratio indicates better performance since each unit of total risk is rewarded with greater excess return. The *Treynor Index* is

computed by dividing the excess return (i.e., the firm's return less the risk-free rate) by the beta (systematic risk) of the firm. Beta is obtained by regressing the firm's return on the overall stock market return. The *Jensen Index* is obtained by regressing the excess return of the firm over the excess return of the market, and the intercept of the regression (alpha) is then used as the performance measure.

Control variables

To demonstrate the unique influence of franchising on risk-adjusted performance, we used two sets of control variables. The first set consists of four variables that are used extensively as predictors of cross-sectional variation in stock returns, and are generally referred to as market-based factors or time-variant variables—Market Risk Premium (MRP), Small Minus Big (SMB) stocks, High Minus Low (HML) stocks, and Up Minus Down (UMD) momentum return. MRP is the excess market return (Rm-Rf), based on the CAPM, which controls for business cycle fluctuations. The other two market factors are from the Fama-French model (Fama and French 1993) which extends the CAPM by considering stock size and distress. SMB is the average return on three small portfolios minus the average return on three big portfolios. Barad (2001) reported that small stocks outperformed their larger counterparts by an average of 5.4% annually over 75 years. HML is the average return on two value stock portfolios (high book equity to market equity) minus the average return on two growth portfolios (low book equity to market equity) (Fama and French 1993). High book equity to market equity stocks are associated with distress that produces persistently low earnings on book equity, which in turn results in higher stock prices due to higher level of risk. Fama and French (1993) found that the HML factor produced an average premium of 0.40% per month for the 1963-90 period. UMD controls for the momentum effect (Jegadeesh and Titman 1993), which is based on buying past winners and selling past losers over the past 3 to 12 months (Carhart 1997). With the addition of UMD in 1997, these four market variables are generally referred to as Carhart's (1997) four factor model and are used in performance studies in marketing and finance (Srinivasan, Pauwels, Silva-Risso, and Hansens 2009).

The second set of control variables is related to organization fundamentals obtained from the sample firms' annual SEC filings—(a) firm size (SIZE), (b) debt leverage (LEV), (c) advertising intensity (ADV), (d) sales growth (SALES GR), (e) capital intensity (CAPINT), and (f) firm age (AGE). Four of these—firm size, sales growth, capital intensity, and advertising intensity—were found to be key correlates of performance in a meta analysis by Capon et al. (1990; cf. Russo and Fouts 1997). We controlled for leverage because it had a negative relationship with performance in several studies (e.g., Combs and Ketchen 1999; Hsu and Jang 2009; Srinivasan 2006). Last, we controlled for firm age since younger firms may not yet benefit from experience effects and an established brand.

Firm size was measured as the log of total assets (Russo and Fouts, 1997; Srinivasan 2006). The log was used because some large franchising firms such as McDonalds and YUM! Brands skew the distribution of actual total asset scores. Debt leverage was calculated as debt to total assets (Jensen and Meckling 1976; Combs and Ketchen 1999). Capital intensity was measured as the ratio of total assets to total sales (Capon et al. 1990). Advertising intensity was estimated as the ratio of advertising expenses to total sales (Capon et al. 1990). Finally, sales growth was measured as the three year growth in sales divided by total assets. Scaling by total assets was done to achieve some uniformity across observations since Compustat does not report systemwide sales for franchising firms.

We used the three-year average value for all control variables except sales growth and firm age in order to be in congruence with the risk-adjusted performance measures. Thus, for example, if we obtained the Sharpe Ratio for a given firm over the 1995-1997 period, we used the average of total assets for the same period (1995-1997). We computed firm age (AGE) by subtracting the year a firm was incorporated from the year when our analysis ended. For the 1995-1997 observation window, for example, we subtracted the year in which a firm was incorporated from 1997.

Risk-adjusted Performance Measures

Generally, business practitioners and management researchers tend to use three major risk-adjusted performance measures that have their roots in the 1960s, namely: Treynor Index (Treynor 1965), Sharpe Ratio (Sharpe 1966), and the Jensen Index (Jensen 1968). These measures were built on the works of Lintner (1965), Mossin (1966) and Sharpe (1964) who stated that the expected return of a security is dependent upon the covariance of this security with the market portfolio. These works resulted in the Capital Asset Pricing Model (CAPM) (Lintner 1965; Sharpe 1964) which can be described as:

$$E(R_i) = R_f + [\Box * (R_m - R_f)],$$

where, R_m is the market return of stocks and securities, R_f is the risk- free rate (which is generally measured as the yield on Treasury bills), $\Box$ is the coefficient that measures the covariance of the risky asset with the market portfolio, and $E(R_i)$ is the expected return of i stock.

The Sharpe Ratio is regarded a reward to variability ratio that uses a benchmark based on the realized return of the Capital Market Line (CML). The Sharpe Ratio is obtained by dividing the excess return (realized return less risk-free rate) per unit of total risk (as measured by standard deviation) as this measure considers the total risk of a mutual fund or portfolio. A higher Sharpe ratio is consistent with a higher probability that the portfolio return will exceed the risk-free return. Consequently, the Sharpe ratio can be used by investors who prefer a portfolio with a minimal probability of falling below the risk-free rate.

On the other hand, Jensen and Treynor indices consider only the systematic (non-diversifiable risk) and these measures price the stock according to the Security Market Line (SML). In other words, these measures inquire how the portfolio would perform for its given level of systematic risk based on what the CAPM predicts. That is, the Treynor Index is a measure that produces the excess return per unit of systematic risk. The higher the Treynor Index, the more return the fund or portfolio is providing per unit of risk assumed. On the other hand, the Jensen Index is the average return on a portfolio over and above the return predicted by the CAPM, given the portfolio's beta and the average market return. Jensen's measure is the alpha value of the portfolio. The alpha is the intercept from a regression of fund excess returns on market excess returns. The higher the alpha value, the better the performance.

Data Analysis

We employed fixed-effects multiple regression with dummy coding to assess the effect of franchising on (risk-adjusted) performance. Non-franchising firms were coded as 0, and franchising firms were coded as 1. We checked for multicollinearity in all regression equations and concluded that multicollinearity is not an issue since the Variance Inflation Factors (VIFs) ranged between 1.02 and 2.33, which is well below suggested threshold value of 10 (Pedhazur, 1997). In addition, to demonstrate the viability of our model, we checked for endogeneity, which addresses the issue of reverse causality and omitted variable bias. To make sure that performance measures and firm type are not jointly determined (Michael, 2000; Michael and

Kim 2005), we ran a Hausman test (1978). The results showed that our model specification was robust, and there was no reverse causality between firm type and risk-adjusted performance.

To assess the effect of common determinants of financial performance, we ran a model that includes all control variables, which we labeled Model 1. Then, we added the franchising effect variable (FRAN) to assess how franchising affects financial performance over and above the variance captured by the control variables, and labeled it Model 2. Thus, in Model 2 for each dependent variable measure, we employed the following equation:

Risk-adjusted Performance = □+ □₁RP + □□SMB + □□HML+ □□UMD□□SIZE + □□LEV + □□AGE + □□ SALES GR + □□CAPINT + □□ ADVINT +□̃₁FIRM (dummy)

where RP denotes Risk Premium (Rm-RF), SMB (Small minus Big), HML (High minus Low), UMD (momentum), SIZE (log of total assets), LEV (leverage), AGE (firm age), SALES GR (scaled sales growth), CAPINT (capital investment intensity), ADVINT (advertising intensity), FRAN (franchising or non-franchising firm).

Findings

Table 1 contains the means and standard deviations for franchising and non-franchising firms, along with t-test comparison results, for all performance and firm-specific variables, plus stock market variables of interest—i.e., systematic risk (beta), total risk (standard deviation of stock returns), and mean stock return. As can be seen in Table 1, the two groups differed at the five percent level of significance on all variables except systematic risk and debt leverage (LEV). Franchising firms had higher mean scores on all five-risk adjusted performance measures ($p \leq$ .01). Non-franchising firms had a negative mean Treynor Ratio and Jensen Index, which means that they were not able to deliver positive returns for the level of risk that their shareholders assumed. In addition, franchising firms had a higher annualized return than non-franchising firms (.128 and .072, respectively, p = .001). In addition, franchising firms had a lower total risk compared to non-franchising firms (p = .001). In terms of firm-specific control variables, franchising firms were both larger and older than non-franchising firms. In addition, franchising firms had a higher capital and advertising intensity. Non-franchising firms had a higher sales growth than franchising firms (p = .024).

TABLE 1
Summary t-test Results Comparing Franchising and Non-franchising Firms

Variable	Mean Score (Standard Deviation)		t-value	p value
	Franchising	Non-franchising		
Sharpe	.166 (.612)	.013 (.597)	-3.270	.001
Treynor	.127(.606)	-.036(.684)	-3.170	.002
Jensen	.046 (.249)	-.020 (.281)	-3.293	.001
Sortino	.644(.887)	.205 (.792)	-6.708	.000
UPR	1.310 (.692)	.993 (.608)	-6.248	.000
Mean Return	.128 (.208)	.072 (.228)	-3.240	.001

Total risk	.428 (.188)	.478 (.173)	3.539	.000
Systematic risk	.789 (.580)	.779 (.620)	-.208	.835
Downside risk	.003 (.003)	.004 (.015)	3.462	.001
LEV	.256 (.310)	.219 (.218)	-.1687	.092
SALESGR	.050(.201)	.088 (.217)	2.259	.024
ADV	.034 (.021)	.024 (.015)	-5.009	.000
SIZE (log)	2.306(.783)	2.174 (.608)	-.2345	.019
AGE	32.28(19.619)	24.98 (16.403)	-5.040	.000
CAPINT	.773 (.548)	.671 (.251)	-2.864	.004

As shown in Table 2, multiple regression analysis indicated that all four market-based variables (MRP, SMB, HML and UMD) and firm size (SIZE) had a positive effect on the Sharpe Ratio, which is consistent with previous financial performance studies (Srinivasan et al. 2009) Debt leverage (LEV) had a negative effect on the Sharpe Ratio. Control variables explained approximately one third of the variation in the Sharpe Ratio (Model 1, adj. R^2=.326, p $\leq$ .001). The addition of the FRAN variable to the equation indicated that franchising had a significant effect on the Sharpe Ratio after controlling for market and firm-specific variables. In addition, the analysis showed that FRAN explained significant variation in the Sharpe Ratio (adj. R^2=.340, p $\leq$ .001). The positive sign of the regression coefficient for FRAN denotes that franchising firms outperformed their non-franchising counterparts, consistent with H1.

TABLE 2
Regression Results with the Sharpe Ratio as the Dependent Variable Measure

Independent Variables	Model 1 $\Box$	Model 2 $\Box$
Constant	-.782***	-.848***
MRP	.980***	1.004***
SMB	1.319***	1.348***
HML	1.207***	1.228***
UMD	.610***	.651***
SIZE	.091*	.093**
LEV	-.309***	-.310***
ADV	1.888	.966

SALES GR	-.190	-.176
CAPINT	-.056	-.069
AGE	.002	.001
FRAN		.158***
F	51.188***	23.184***
df	10, 463	11, 462
Adjusted R^2	.327	.340

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

The analysis of the Treynor Ratio, presented in Table 3, showed that the four market variables (MRP, SMB, HML and UMD) and ADV had positive effects on firm performance, while LEV had a negative effect (Model 1). FRAN had a significant effect on the Treynor Ratio after controlling for market and firm-specific effects (Model 2). The positive sign of the beta coefficient denotes that franchising firms had a higher Treynor Ratio, which supports H1.

TABLE 3
Regression Results with the Treynor Ratio as the Dependent Variable Measure

Independent Variables	Model 1 □	Model 2 □
Constant	-.517***	-.588***
MRP	.627***	.652***
SMB	1.043***	1.074***
HML	.889***	.912***
UMD	.551***	.594***
SIZE	.048	.050
LEV	-.215*	-.217*
ADV	3.408*	2.418
SALES GR	-.048	-.143
CAPINT	-.082	-.095
AGE	-.001	-.002
FRAN		.170**
F	20.615***	10.345***

df	10, 426	11, 425
Adjusted R^2	.177	.191

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

    Among the control variables, MRP, SMB and ADV had significant effects on the Jensen Index, as shown in Table 4 (Model 1). Then, FRAN had a positive, significant effect on the Jensen Index after the control variable effects were considered (Model 2), which again is consistent with H1.

TABLE 4
Regression Results with the Jensen Index as the Dependent Variable Measure

Independent Variables	Model 1 $\square$	Model 2 $\square$
Constant	.075	.052
MRP	-.104*	-.096*
SMB	.171*	.181*
HML	-.059	-.051
UMD	-.077	-.063
SIZE	-.029	-.029
LEV	-.042	-.042
ADV	1.873**	1.553*
SALES GR	-.051	-.046
CAPINT	.032	.027
AGE	.000	.000

FRAN	.055*

F	4.219***	4.302***
df	10, 463	11, 462
Adjusted R^2	.064	.071

$*p \leq .05; **p \leq .01; ***p \leq .001.$

Robustness Checks and Additional Analyses

We ran additional analyses using alternative model specifications to ensure that our findings were not model- or measure-specific, and to rule out alternative explanations. All robustness checks were conducted in the same manner as our main analysis. That is, we first employed Model 1 with control variables and then followed by adding the FRAN variable to form Model 2. To consider general macroeconomic factors and market cycles, we replaced the four market factors (MRP, SMB, HML and UMD) with year dummies. Some of the year dummies were significant, but more importantly, FRAN was once again a significant determinant of performance for all five risk-adjusted measures.

We considered an alternative specification for firm size by using total units. In addition, we employed an alternative growth measure in lieu of sales growth by calculating 3-year unit growth for all firms. The results showed that both of these new variables were insignificant, and once again, FRAN remained significant throughout the analysis.

Since previous franchising studies have shown that geographic dispersion relates to the use of franchising (Combs and Ketchen 2003), we investigated whether geographic dispersion (number of US States in which a firm operates) and multinationality (0 if the firm is a domestic U.S. firm, 1 if the firm has a presence in an additional country other than the U.S.) affected the results. By controlling for geographic dispersion and multinationality, we were able to rule out those variables as alternative explanations of our findings. The analysis with these four new variables confirmed the robustness of our model. That is, FRAN remained positive and significant throughout this analysis.

Discussion

As noted previously, our central research question was, "Does franchising pay?" In answer to that question, our results clearly indicate the affirmative. Our hypothesis that franchising firms outperform non-franchising firms was supported for all five risk-adjusted performance measures. It was again supported in our robustness checks, where we used alternative model specifications in part to rule out other possible explanations. Thus, at least among publicly-held restaurant chains in the U.S. during the 1995-2008 interval, franchising firms outperformed their non-franchising counterparts. Investors during that period would have tended to be better off if they held stock in the franchising firms than if they held stock in the non-franchising firms.

No study is perfect, however, and ours was limited in some respects. First, it is conceivable that our findings do not generalize beyond the time interval examined. We note, however, that the interval we examined included periods of economic expansion in the mid-to-late 1990s, recession in the early 2000s, expansion in the mid-2000 decade, and economic recession again in 2007-2008. Given these changing conditions during our study interval, we are confident that our findings would hold up under similar changes in the foreseeable future. Moreover, the fact that our study interval was fairly recent provides confidence that our conclusions are still relevant.

Second, our findings may not generalize beyond the restaurant industry. Indeed, this may be the biggest limitation of our study. As noted previously, Newby and Smith (1999) obtained opposite results across two different industries. Franchising is most viable in industries where production and consumption both occur locally and the products have significant service components (Castrogiovanni et al. 2006). Thus, our findings probably would not hold in such industries as steel manufacturing, where it is unlikely that we would find any franchising firms. Within industries that do franchise, however, research is needed to see how well our results generalize. Combs et al. (2004) reported, for example, that 71 percent of printing and copying business were franchised, but only 39 percent of lodging businesses were franchised—and restaurants were in between with 46 percent franchised. There is some confidence that our findings may generalize to other "franchising" industries since restaurants were near the middle of that range. It is possible, however, that the positive franchising effect we observed might be stronger, weaker, or even insignificant or negative in franchising industries near the extremes of that range, such as printing and copying businesses or lodging businesses.

Third, it is probable that the general tendencies reflected by our findings do not hold for all firms. Thus, there probably are some non-franchising firms that outperform some franchising firms. Franchising researchers have long maintained that there was some optimal level of franchising for each firm (e.g., Blair and Kaserman 1982). For some (e.g., Oxenfeldt and Kelly 1968), optimality occurs at the point where the resource access benefits are exactly offset by foregone profits. For others (e.g., Mathewson and Winter 1985) it is at the point where the vertical agency benefits of franchising (motivation) and the horizontal agency costs (free-riding) are offsetting. For still others (e.g., Bradach 1997), the optimal point is at the intersection of innovation benefits and control costs. Franchising firms that deviate considerably from their optimal levels of franchising may perform worse than many non-franchising firms. In addition, as mentioned previously, research by Combs, Ketchen, and Hoover (2004) and Ketchen, Combs, and Upson (2006) suggests that there are different strategic groups among franchising firms in the restaurant industry, and some of those groups outperform others. The worst performing strategic groups of franchising firms may not perform as well as non-franchising firms on average.

Despite these limitations, the present study overcame many shortcomings of prior studies dealing with the relationship between franchising and financial performance. Whereas Roh (2002), for example, focused primarily on risk, we effectively compensated for risk through our use of risk-adjusted performance measures. Conversely, whereas Hsu and Jang (2009) ignored risk, we used risk-adjusted performance measures. Whereas several studies compared performance differences only among franchising firms (e.g., Michael 2002, 2003; Combs, Ketchen, and Hoover 2004; Ketchen, Combs and Upson 2006), we compared across franchising and non-franchising firms. Whereas Aliouche and Schlentrich (2009) encountered problems due to their relatively few observations, we had a much larger number of observations.

Noting the paucity of research examining the effects of franchising on firm performance, Combs et al. (2004) lamented that "for researchers interested in strategic management, understanding the determinants of financial performance is central." The present study addresses that gap and, therefore, makes an important contribution to the literature with our finding that a franchising effect did indeed exist among the firms in our sample. Summarizing studies of performance differences among franchising firms such as the one by Ketchen et al. (2006) mentioned above, Combs et al. (2004) concluded that "any relationship between franchising and performance is at best contingent on other factors." In contrast, our results show that there may be a general franchising effect on performance within a given industry, beyond any such contingent effects.

Obviously, future research is needed to deal with the limitations of this study. Additional studies are needed to assess the extent to which our findings generalize to other industries, countries, and time periods. Other studies might consider firm, local market, or strategic group contingencies while also testing for a general franchising effect on performance.

Furthermore, research is needed to develop and test models of the specific processes through which franchising affects financial performance. Whereas we tested for a direct franchising effect on performance, we suggested that the effect was really indirect. That is, we described various benefits of franchising (resource access, motivation, innovation, and risk reduction), and we suggested that those benefits in turn result in an overall positive effect on performance. Similarly, we described various costs of franchising (foregone profits, free riding, and diminished control), and though we suggested that those costs have negative effects on performance, we concluded that the net effect on performance is positive. Future studies should get further inside the "black box" by incorporating variables representing the benefits and costs of franchising to examine the direct and indirect effects of franchising simultaneously.

Conclusion

In recent decades, franchising has gained considerable popularity both as a form of business for practitioners and as an area of study for academics. Our results help to explain why. Simply stated, *franchising pays!* That is, we obtained evidence that publicly-held restaurant firms during our study interval on average performed better if they franchised than if they did not. For practitioners starting or developing chain organizations, these results emphasize that franchising should be evaluated to determine if it is right for them. For franchising scholars, this finding adds to evidence that their area of interest is important. For researchers seeking to explain firm performance among restaurant, retail, or service businesses, our study suggests that franchising should be considered.

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OD, TRANSFORMATIONAL VS. TRANSFORMING LEADERSHIP, AND DOUGLAS MCGREGOR

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ABSTRACT

The need to integrate and understand the relationship between OD and leadership literature is becoming more evident as the common element, ethics, begins to weave these two areas of social research together and becomes contextually/environmentally more important. The founding fathers of OD placed ethical issues, as a central tenet to the theory and practice of OD. However, ethics is only considered a central tenet within some, but not all, leadership theories. Thus, this paper invites the reader to consider the leadership theory they subscribe to, and do what McGregor supported through his writings, that is, to check the underlying assumptions.

KEY WORDS:
Organization development, Transforming leadership, Transformational leadership, Ethics, McGregor

INTRODUCTION

Organization Development, OD, has almost as many definitions as there are writers in the field. Each definition varies slightly from the others because of differences in the ontological and epistemological assumptions, or worldviews, of the writers. Friedlander and Brown's (1974) writings recognized that OD was influenced and shaped by the changing environment/context and from the evolution of our collective understanding of human behavior. As a result, one can see the evolution of this field from observing the various subtle differences in definitions of OD through time. Mirvis (1988) goes so far as to group some of the decades into specific bands of OD and label them based on the environmental/contextual issues that shaped the practice and theory of the day, which only highlights the evolutionary nature of our understanding. Within OD literature, McGregor was the first to assert that one needs to understand the underlying assumptions of OD theories, and he argued that these were not often discussed and challenged enough (Heil, Bennis & Stephens, 2000). Within the "Human Side of Enterprise", McGregor (1960, p. 11) stated, "[h]uman behavior is predictable, but, as in physical science, accurate prediction hinges on the correctness of the underlying theoretical assumptions."

Thus, the purpose of this paper is to review and explore two different leadership theories, *transformational* leadership and *transforming* leadership, in an attempt to determine the extent to which their underlying ontological and epistemological assumptions, or worldviews, align with the values of OD.

DISCUSSION

Cummings and Worley (2008) suggest the following definition would be readily agreed upon by OD practitioners and scholars alike: "Organization Development is a system wide application and transfer of behavioral science to the planned development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness"

(pp. 1-2). Yet, for the OD practitioner and scholar, an agreed upon definition is less important than ensuring all work within OD is grounded in the same critical values/principles as held by the original founders, those being: humanism; optimism; and, democracy (French & Bell, 1999; Yaeger, Head, & Sorensen, 2006; and Cummings & Worley, 2008). Weisbord (2004) used different language, although with a similar intention, stating that OD should be based on values that ensure personal human dignity, meaning, and community, and he asserted that these values/principles stem back even to the very essence of Taylor's work in 1915. McGregor's work is well summarized by Heil, Bennis and Stephens (2000) as contributing the following philosophical tenets of OD:

1) Active participation;
2) Transcending concern with individual dignity, worth, and growth;
3) Reexamination and resolution of the conflict between individual needs and organizational goals, through effective interpersonal relationships between superiors and subordinates;
4) A concept of influence that relies not on coercion, compromise, evasion or avoidance, pseudo support, or bargaining, but on openness, confrontation, and working through differences; and
5) A belief that human growth is self-generated and furthered by an environment of trust, feedback, and authentic human relationship. (p. 172)

All of these philosophical ideals within McGregor's writings are as relevant today for OD as they were some 50 years ago and reflect the importance of one's worldview and how it influences perceptions of organizations and the individuals within them. These values/principles are of the utmost importance as they speak to the very worldview of the practitioner or scholar and, therefore, they need to be a priority within any attempt to define what OD is. Cumming and Worley (2004) asserted that it is these values that distinguish OD from change management and organizational change, while Yaeger, Head, and Sorensen (2006) stated that these values, promoted by the founding pioneers, "established OD as a field unlike any other discipline because of its contribution to values based change" (p. 11).

Within OD, practitioners and scholars alike are keenly aware of the desire to improve the effectiveness and efficiency of the organization, a task focus. Yet, there is relatively little focus on the role and responsibility of leadership and its importance. The values within OD, as discussed above, are concerned with how the organization achieves its improvements and an acknowledgement of "the sanctity of the individual, the right of people to be free from arbitrary misuse of power, the importance of fair and equitable treatment for all, and the need for justice through the rule of law and due process" (Yaeger, Head, & Sorensen; 2006, p. 10). This highlights OD's concern with social justice issues and, therefore, highlights it as a discipline steeped in ethics and ethical thinking. McGregor (1960) himself asserted that once an individual attempts to "control" human behavior there should be a concern about manipulation and exploitation. McGregor's specific caution on this topic was that "[s]cientific knowledge is indifferent with respect to its uses" (p. 12) and thus, "science is independent of values" (p.12). McGregor continued his caution by asserting that as an individual becomes more skilled or learned in scientific knowledge, s/he needs to also become more "sensitive to the ethical values" (p. 12).

Shaw and Barry (2007) divided normative theories of ethics into the two main categories, being *consequentialist* and *nonconsequentialist* thinking. They claimed that "[m]any philosophers have argued that the moral rightness of an action is determined solely by its results" (p. 52), leading to consequentialist thinking, and go on to assert that this type of logic to resolve the ethical concerns can or would be rationalized by either *egois*m or *utilitarian* theory. Shaw and Barry also asserted that high levels of ethical thinking are based upon nonconsequentialist thinking, which requires the individual to act from *principle* or an *act of duty*. Lichtenstein, Smith and Torbert (1995) asserted that an individual's ethical development occurs through a series of stages, and, ideally, in groups. This assertion is consistent with the views of many authors such as Colman (1998), Werhane (2002), Christen and Kohls (2003); Bowman (2004); and Cha and Edmondson (2006), to name a few. Lichtenstein, Smith and Torbert showcased that only in the latter stages of their model did "leaders begin to use multiple ethical frameworks to plan and judge actions" (p. 101), while Cooper's (1998) and Geva's (2000) models showcased that higher levels of ethical thinking involved a dynamic process between everyone involved and were dependent on the relationships and how everyone viewed those relationships, the individuals' worldviews. These writings highlight that it is essential to appreciate that there are several levels of ethical development within a contemporary organization in that not everyone within the organization will be at the same level of ethical development, particularly with organizations that value diversity.

Within leadership literature, Greenleaf (1977/1999), Burns (1978), Bass (1985), Thompson (2000), Kouzes and Posner (2003, 2007), Spears and Lawrence (2004), and Yukl (2006) all suggested that ethics is an important aspect of leadership. Yet, it was Ciulla (2005) who continued to stress ethics and ethical decision making as the very heart of leadership. She asserted that the various leadership definitions describe the very nature of the relationship between "leaders" and "followers", and, thus, what one thinks of that relationship, their worldview, is of the utmost importance and has significant ethical considerations, whether known to the individual or not. Kouzes and Posner (2007), with over 20 years of research in support, posited that all leadership is a relationship predicated by mutual needs and interests. They further asserted that the most important aspect of developing and nurturing this relationship was honesty (which, within their research, was defined as being truthful and ethical). These observations were important, not only on the basis of their consistency across time, but even more noticeably because they were consistent across countries, regions and various types of organizations.

Burns (1978) developed a notion of leadership called *transforming leadership*, which was based on the leader being acutely aware of the needs of the followers, service to others, and a higher moral purpose as essential tenets. Burns (as cited in Wren, 1995, p.483) stated that "moral leadership emerges from, and always returns to, the fundamental wants and needs, aspirations and values of the followers. I mean the kind of leadership that can produce social change that will satisfy followers' authentic needs." Burns' notion of leadership placed the ethical consideration of the workers as first and foremost and, as such, is congruent with McGregor's writings, particularly, Theory Y assumptions, discussed below.

While Bass (1985) was more widely known to have made a distinction between *transactional leadership* and what he called *transformational leadership*, the latter was not the same as Burns' notion of transforming leadership. Bass asserted that transformational leaders were able to "get" followers to follow "more" than they otherwise would by raising the followers' consciousness about the importance and value of specific outcomes and ways of

reaching those outcomes. The result was that by raising the need levels of the followers they would overlook their own self interests to achieve the priorities of the organization. Essentially, Bass asserted that transformational leaders draw upon inspiration, vision, charisma, individual consideration, and intellectual stimulation to induce followers. This approach highlights the exact concern McGregor (1960) warned against and described as "manipulation and exploitation" (p. 12). Indeed, Ciulla (2005) asserted that Bass' philosophy of leadership was deficient of any grounding in ethics.

The significant difference between Burns' (1978) transforming leadership and Bass' (1985) transformational leadership was that, for Burns, followers were to be in "relationship with", while, for Bass, followers were to be "acted on". Thus, this significant distinction showcases the difference in underlying assumptions, or worldviews, of these scholars. McGregor (1960) defined management success as, "the ability of others to achieve their goals or satisfy their needs" (p. 20) and his entire premise, the *central principle*, of Theory Y assumptions was that "integration and self-control carries the implication that the organization will be more effective in achieving its economic objectives if adjustments are made, in significant ways, to the needs and goals of its members" (p. 50) - in other words, a being in "relationship with", akin to Burns' approach. Burns asserted that virtues were the central tenet and the main criteria for leadership, since leaders should "define public values that embrace the supreme and enduring principles of a people" (p. 29). Cuilla's (1995) writings also support this approach. On the other hand, Bass asserted that there were four factors which drove organizational performance: leadership behavior, organizational culture; mission and strategy; and structure and size. All of these factors would result in changing the climate and culture of the organization so that they (the leaders), through systems and processes within the organization, "acted on" the followers, and are an indication of why leadership charisma, originally developed by Webber (1947), was a central tenet to Bass' theory. Bass appears not to have taken into account McGregor's writings that socially constructed views of motivation "about the use of extrinsic rewards and punishments to get people to do what we want them to do – may be the biggest stumbling blocks to building a workforce committed to the job and not the reward that comes after" (as cited in, Heil, Bennis and Stephens, 2000, p .95). McGregor believed that a focus on extrinsic rewards influenced management to view or interpret the organization in mechanical terms. This difference in Burns and Bass' work is of the utmost importance, particularly for the OD practitioner and scholar, since Burns argued that Hitler and Stalin would be seen as transformational leaders, but not be considered transforming leaders. Yet, Mother Teresa, Martin Luther King, and Gandhi are examples of transforming leaders who raised people's awareness, empowering them to become part of the solution to reduce social injustice, an ethical issue.

IMPLICATIONS

Currently, the very role and nature of leadership is being redefined, another bifurcation point, as it was in the 1960's. At that time, we witnessed a large challenge to authority as a result of the Vietnam War. Our social constructs of leadership were found wanting and unable to meet the demands of a changing world. The writer believes ethics must begin to play a significantly more important role within leadership for two reasons: firstly, the unethical

behavior on Wall Street looks to threaten our economic stability and the entire basis of capitalism; and, secondly, the tension between our environment and capitalism is threatening our very existence as a species. Our context/environment within history has highlighted the importance of ethics within leadership and, particularly, global and large group leadership. Additionally, leadership literature is in transition from, "how leaders get people to do things (impress, organize, persuade, influence, and inspire) and how what is to be done is decided (obedience, voluntary consent, determined by the leader and reflection of mutual purposes) have normative implications" (Ciulla, 1995, p. 12). Ciulla also suggests that in order for leadership to progress it needs to focus more on understanding leadership, not explaining it, and this assertion is identical to Davis' (1971) assertion that in order to move social sciences forward researchers should focus more on the Sociology of the Interesting verses the Sociology of Knowledge.

Thus, for OD practitioners and scholars, the importance of this discussion is as follows: Firstly, the OD field is grounded in ethical thinking, which is why it will stand the test of time, and, as our collective understanding of ethics and ethical thinking expands, we need to ensure that we are familiar with rudiments of ethical thinking and research. Secondly, we need to be clear on our understanding of the fundamental tenets of the various leadership theories and on the subtle, but significant differences between their underlying assumptions.

The work of Goffman (1959) and Smith and Berg (1987) showcased that groups are a slave to task and assumptions, and, hence, highlighted the importance of being able to develop our metacognitive processes, while McGregor (1960) challenged us to "check" our assumptions. In doing so, the differences between transformational and transforming leadership, and their underlying assumptions, become readily apparent and have significant implications to those within the field of OD.

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TRACK: Organizational Development/Conflict Management

DEVELOPMENT OF AN INTEGRATED MODEL OF GROUP DYNAMICS THROUGH RESEARCH AND PRACTICE

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Abstract

The purpose of the paper is to understand the group dynamics of a group; interpret the experience using relevant literature on group dynamics and formulate a model based on the observations. Group development has been studied using various interventions and in variety of contexts. The current paper utilizes a storytelling format to describe the observations of an unstructured group in a classroom setting. The paper then proposes a new model of group development that is a combination of the various traditional models but provides a unique perspective on some aspects of group dynamics. The paper also provides limitations of the study and gives directions for future research.

Introduction

Group dynamics involves the interaction among various components of a group like members, leader, processes, boundaries, structure, norms, values etc. In order to understand group dynamics it is important to understand these individual components within a group. These group dynamics have been studied in various settings like laboratory, therapy, training etc. Research has also developed group development models like linear, spiral, polarity, punctuated equilibrium model, etc. based on the analysis of these group dynamics. Similarly, the current paper will investigate the developmental processes in a small unstructured group. The paper will borrow Goffman's perspective of theatrical performance to describe the group dynamics of the group observed. The paper will then try to understand the observations using group dynamics literature. Based on the analysis, the paper will also derive a model of group development.

It was the day of the big event. Everyone was ready for the event to begin. The stage was set. Everyone took their respective positions, the curtain was drawn, and the play began. This was the first experience for all of them to be on the stage, unprepared.

The scene was that, a group of fifteen people were sitting face-to-face self-reflecting and observing group behavior in an unstructured environment. They were confined to the place for three hours until the interval after which they had to play their parts again for three more hours. Everyone was worried about their performance but still they wanted to give their best. They knew that the performance could be a catastrophe and yet they hoped for a magical wand to turn the performance into a perfect performance.

Anxiety was at the peak when everyone gathered and took their respective position. Everyone exchanged brief pleasantries and greetings and the performance began. The leader of the group (an authority figure) led the group to start their conversations. Taking the cue from the leader the members began their conversations. It was a smooth transmission and reception of information among group members at the beginning. Everyone put up a front of being smart, well read and belonging to the group. A front is that part of individual's performance which regularly functions in a general and fixed fashion to define the situation for those who observe the performance (Goffman, 1959). Though there were slips, and occasional mistakes initially; they were well covered up and put aside. The overall performance was good. Members did have a challenge of presenting their true self and presenting a self that they wanted the audience to see, however this transition also went smoothly.

After the initial fear and anxiety members became more comfortable with the situation. They thought they could easily put up this front for three hours and even gain some mastery in the task. However, this comfort was short lived as some members gained confidence and even

over confidence. Some bold members in the group initiated the conversation and challenged the performance of other group members. They prompted them with questions that were difficult to answer and sometimes even difficult to understand. The immediate reaction to this was to look at the authority figure who had not spoken a word after the initial conversation. The quiet demeanor of the figure did not change and he remained silent in his position.

There was a pause and a silence for five seconds. It was a disturbing moment for the group members. They had so much relied on the authority figure to be the savior and help them from these bold members in the group but they were helpless. The silence made them even more uncomfortable. Finally, a member changed the topic and brought up a new conversation starter. Oh! What a relief! You could almost hear the members heaving a sigh of relief. Members enthusiastically started participating in the conversations but they still had a feeling of dejection and disappointment for the leader for not answering the question. Some even tried to show the leader that they did not want his authority and that they were not dependent on him for anything. They had already gained mastery in the performance and even started enjoying each other's company. They really did not need the leader. The leader was thus ignored. The three hours passed and the interval was used by members to get out of the performance, reflect on what they said and what they should say thereafter.

After the interval the group members again resumed with the discussion. They were well prepared now and knew what to expect. The leader again initiated the discussion but this time members were not dependent on his instructions. Members had built trust in each other. Again the front was well displayed. Previously members were more cautions on broaching a subject but now they were comfortable with each other. They even revealed their true self at times. The performance continued. Members brought up topics after topics, shared their experience, provided advice. Everything was going smoothly until, she asked that question.

The question was a dramatic turn in the performance. The façade that the group members were portraying for such a long time was shattered. Members were bewildered and confused. Why did she ask this question? The fear of uncertainty again enveloped the members. A group member had asked a question that was related to a very sensitive topic, almost a taboo to be discussed in a social setting. There was a brief pause after the question. But this time members responded quickly to the situation. They knew from the past experience it was not worth depending on the leader and it was better to reason out sooner in order to get the members out of the discomfort posed by the question. Members did their best to provide answer to the question. The group member who had posed the question also felt guilty and apologized for bringing it up but felt it was necessary for her to do so. The members comforted her and interestingly the leader who was quiet for all this time also provided an answer to the question. Due to this reaction from the leader he was more accepted by the group members and was considered as one of them.

The group members continued with their discussions. Now the members started developing a bond among them. They were more comfortable with each other. The compulsion that they had before of answering the question was no longer felt. They also readily accepted the pauses rather than thinking of them as intrusions and instead took their time to introspect and self-reflect during these pauses. Gradually the conversations became scarcer and scarcer. Members felt the exhaustion of a long working day. They were satisfied with their performance and the day concluded.

This story describes three concepts of group dynamics:

1) Self identity in a group
2) Behavior towards a leader
3) Salient behavior in the group

The emphasis will be on understanding these concepts in the light of the literature of group dynamics.

As defined by Schein, a group consists of two or more interacting persons who are psychologically aware, share a common fate and are face to face. Group is also defined as consisting of two or more interacting persons who share common goals, have a stable relationship are somehow interdependent and perceive that they are in fact part of a group (Paulus, 1989). These definitions of group state that, to form a group, members have to feel that they are a part of the group and this feeling needs to be mutual. Even if one member feels he is a part of the group and if there is no reciprocal reaction, then individual members will be only physically present together face- to –face, but working psychologically independently. One way of building this mutual trust is being aware of how one feels about the group and how others react to one's self. However to understand other's reactions one needs to be aware of one's self.

At the beginning of any group development, members are in an ambivalent state. Members have conflicting thoughts like do I belong to the group? Will the group accept me? Will my experience in the group be fruitful? Will I like the members of the group? The more a person tries to resolve this conflict the more he becomes anxious and stressed. The immediate reaction to any stress or anxious situation is fight or flight (Berkowitz, 1987). Thus we noticed in the unstructured group that, the anxious feeling of being in the group resulted in members either being actively involved in a situation or a withdrawal from social interaction. The withdrawal reaction results in more self evaluation and understanding of how the conflict can be resolved. However sometimes members like to test the waters before they get involved in the group. If the reaction that they receive from the group confirms to their identity then they feel wanted and a sense of belonging to the group is developed. On the contrary, if they receive a negative response then they will hide back in their cocoons.

Moreover as observed in the group, members who are aggressive at the beginning of the group and readily participate. They do so because they want to hide their anxiety and preserve their identity. This can be supported by Smith & Berg's (1997) paradox of courage that only when an individual is uncertain can one's actions be courageous. Members are courageous because our society accepts, encourages and rewards people who are courageous. Therefore this is also an attempt to belong to the group in an acceptable way. They also feel that showing anxiety is in a way is showing their weakness which could threaten their individuality and in turn their belongingness to the group.

Although researchers have stated that preserving individuality vs. being accepted in the group is a paradox, in reality these two concepts are in a causal relationship. Only when a person starts respecting oneself or preserving self identity, the group members readily accept him in the group. However is this acceptance of the true self of the individual or the self which the member wants to portray is debatable. Goffman (1959) proposes that a member portrays himself only in ways which is accepted by others or from which he will get a desired response. Similarly,

developmental psychology theories argue that initially a child has no sense of self. The child observes other's reaction to his own behavior and develops clues about himself as a person. Questions like; who do others perceive me to be and who I must become to gain membership in this group are attempted to resolve. And this results in 'As I have become what he perceives me to be so must he become who I perceive him to be (Srivastva, et. al., 1977). Or as Goffman (1959) states that society is organized on principle that individual who possesses certain social characteristics has a moral right to expect that others will value & treat him in an appropriate way. Thus there is a wide interplay of questions and answers that individuals go through while making an attempt to belong to the group.

The initial state of anxiety between self identity and group involvement is also characterized by the next concept which is behavior towards a leader. In the present group, the leader was an authority figure. As we saw at the beginning, the group frequently depended on the leaders supports. Leaders provide a protection to group members' insecurities and group members use a leader as a scapegoat to project their fears, discomforts, negatives (Gemmill, 1986). However if members continue to project these anxieties on the leader and if the leader is unable to provide a desired response than it again results in fight or flight response which results in the vicious cycle of self identification and group membership. In order for the group to develop; members need to face their ambivalence toward authority that appears in the form of dependence and counter dependence and abandon the need to define the self in relation to authority to achieve a more realistic view of the leaders (Srivastva & Barrett, 1988). As we noticed in the unstructured group; members were dejected in the beginning when the leader did not answer their questions but they overcame their frustration over the leader. They had evaluated their relation to the group and the leader's role in the group. If they had not resolved this conflict then members would have been isolated and the group would not have developed.

Traditionally, leadership is defined as the ability to influence a group toward the achievement of goals (Robbins, 2004). The situational leadership as defined by Hersey & Blanchard is based on the followers' readiness to accept or reject the leader. Without a leader it is assumed that a group cannot achieve what it needs to achieve.

There are certain myths about leaders like (Gemmill, 1986)

1) he is the only one who can give direction, vision, protect member
2) he can have the vision to determine the correct direction
3) he can protect from truth and avoid reality
4) he is omniscient and omnipotent (God-like figure)

This concept of leadership is deeply rooted in everyone. In all organizations, in our daily experiences in groups, we find that there is always a leader and members are expected to follow the leader. Thus if a leader does not behave like a leader the natural reaction is to make him behave like a leader, to expect him to take control and charge. There is a constant fear if the leader does not take charge then the members will fail. Also, as Bennis & Shepherd (1956) have said that if the leader does not help then members do not feel that he is incompetent in fact they secretly feel that the leader is purposely leading them in the direction they should be going by not saying anything. There is also a secret wish that the leader should stop this and take his prober role.

For example, as a child is learning to walk there is a need for someone to hold the child's hand. If the hand is not removed the child will never be able to walk. At the same time the child has a feeling that if the parent does not hold her hand, she will fall. Therefore, even if the parents try to remove their hand the child will continue holding the hand. Likewise, if a leader does not lead and guide the group, the group members become insecure and make the leader lead. Nevertheless, a child gains confidence and realizes that she can walk by herself and so does the group. The group also realizes that they can perform without the leader. This realization makes them more comfortable about the leader's role.

The initial disappointment of the leader results in a revolt against the leader. As we saw that members either rejected the leader completely, or members mocked or ridiculed the leader. Furthermore some members in the group purposely asked questions to the leader to get an answer from him. As Bennis & Shepherd (1956) have said that those with a counter dependent orientation strive to detect in the trainers action elements that would offer group for rebellion and may even paradoxically demand rules and leadership from him because he is failing to provide them (Bennis & Shepherd, 1956).

In Slater's view (Slater, 1966 as cited in Srivastva & Barrett, 1988) the group revolt against authority is an essential phase in the development of the group. The group moves from preoccupation of the leader to preoccupation of personal relations (Bennis & Shepherd, 1956). This transition is due to the fact that the realization that authority is not going to help them so they should look at someone inside the group.

Confrontations with the leader serve to establish inter-member solidarity and openness (Lundgren, 1971; Mills 1964, Slater, 1966 as cited in Wheelan & Mckeage, 1993). Members start looking for similar others. As Srivastva et al. (1977) states, members start to become responsive to others who fall into similar categories of age, gender, occupation, social status or reasons for participating in the group.

According to Bion the basic assumptions again resurface. We can see that members start looking for similar people (pairing). After members get satisfactory responses from each other they no longer feel helpless or isolated and the authority figure is neglected. By this time the group has discovered their identity. The authority figure is treated largely as just another member (Srivastva, et al., 1977) i.e., he should neither take more nor less responsibility for whatever happens in the group than any other member. His task expertise is recognized and his input is valued and accepted when it is appropriate (Srivastva, et al., 1977). It was observed that when there were discussions about issues that were external to the group, not only members but also the leader supported the group norm. As stated by Srivastva et al. (1977), if there are difficulties in relation to organization environment, the group engages in power struggle with other groups to secure the identity. The authority figure acts on behalf of the group in these confrontations for the issue involves status and prestige of his group in the organization. Thus we see a gradual change of dependency on leader to a sense of belongingness to the group. The third factor that is important in understanding group behavior is the turning point that occurred in the group discussion.

A turning point came when a member of the group asked the question which was not socially acceptable. This was the most salient behavior in group. Why did the member ask the

question? What instigated her to ask the question? Was it her true self? What would have happened if she had asked the question in another phase of the group development?

As Goffman (1959) has stated unmeant gestures, or intrusion are sources of embarrassment which are typically unintended by the person who is responsible for making them and which would be avoided were the individual to know in advance the consequences of his activity. These are called as scenes. The previous and expected interplay between the teams is suddenly forced aside and a new drama forcibly takes its place.

First, this behavior by a group member could be because she wanted to be included more in the group. Therefore a member could revolt against the group norm by asking questions to attract attention (Gibbard, et al., 1974).

Second, another explanation for the group member's behavior is that she had realized that everyone had the question in mind but were afraid to bring it up and so she thought that in order to resolve this underlying conflict she had to bring it up and get it over with. This can also be supported by Goffman's statement that the individual offers his performance and puts his show for the benefit of other people (Goffman, 1959).

Third, the individual must have wanted to convey some unapparent or obscure feelings that had been bothering her and that she wanted to get solved in the group. Therefore, the individual relies on making it dramatic to grab everyone's attention. Goffman (1959) states that for if the individual's activity is to become significant to others, he must mobilize his activity, so that it will express during the interaction what he wishes to convey. And this is an important point that the performer may be required to do so during a split second in the interaction.

Finally, the member could have experienced the second reality crisis as described by Brower (1989). The member was probably experimenting with her power in the group. The second reality crisis occurs when the leadership or power structure does not meet members' expectation. The strategies that members use to cope with the crisis are dependency, quitting, powerlessness, emotional withdrawal or experimenting with their own power in the group. This crisis usually occurs after the group has been meeting a fair amount of time though within the first half of the total time the members have together. This is the most functional way of dealing with crisis as suggested by Brower. It is important to note that the crisis brings the members of the group closer. Members also become more intimate and disclose personal issues. And this was also apparent in the unstructured group as the belongingness to the group grew stronger among members after the question.

The next part of the paper will look at the some of the traditional models of group development and propose a theory based on these models.

Model of Group Development

Research shows that there are four basic types of models: the linear model, the spiral model, the polarity model and the punctuated equilibrium model. The linear model is an orderly succession of phase or stages that follow a predefined sequence (Bouwen & Fry, 1996). For

example, Bennis & Shephard have defined three phases of group development. Phase I – dependence and sub phases Dependence – flight, counter dependence – flight, resolution-catharsis, Phase II – interdependence, sub phase enchantment- flight, disenchantment-fight, consensual validation. Similarly, Brower defined group development as three stages: turning to the leader, turning to the self, developing shared schema. The unitary sequence model consisting of forming, storming, norming and performing as proposed by Tuckman is also a linear model. Finally, Schutz defined three phases of group development which are inclusion, control and affection. The group working for a short period of time will go through a) an orientation phase b) an evaluation phase based on the available information and then c) a control phase where the emergence of the decision is central (Bouwen & Fry, 1996).

The second model which is the spiral model is the one proposed by Bion. He regards the basic assumption activities of dependency, fight/flight, pairing as recurring alternatives of work. On similar grounds is the Slater's model which talks about role of revolt in establishment of group cohesion and recurring quality of individual and boundary concerns through the life of the group with the group constantly dealing with efforts to maintain equilibrium (Gibbard et al., 1974).

The third type of model which is the polarity model is the one stated by Smith & Berg (1997) about equilibrium forces: individuality vs. sociability or dependency vs. independency etc. or Srivastva et al. (1977) proposed five observable stages of group development: safety v anxiety, similarity v dissimilarity, supports v panic, concern v isolation, interdependence v withdrawal can also be considered as polarity model.

Finally, Gersick (1988) stressed the importance of awareness of time and deadlines that triggers group process and that teams progress in a pattern of punctuated equilibrium.

Although, these models are labeled into four distinct categories many of these models are overlapping. For example, the Schutz model can be considered as linear as well as spiral model. Similarly, based on our group experience it was observed that groups move in a progression at the same time there are recurring phases in the group development. Also there were conflicts like belongingness vs. self identity, as well as spurts of high performance due to awareness of deadline. Thus the current model suggests a combination of all four models in the group development process.

Initially, the group started with high anxiety. Members were constantly struggling with the conflict of individuality vs. group membership. The performance was gradually increasing as groups were trying to resolve the conflict. However, even though the performance was increasing, the group frequently resorted back to the basic assumptions of dependency, pairing, and fight/flight. In the current model this pattern of going back to basic assumption will be called as the regressive loop (see Figure 1). The regressive loops are when group members go back – forth from task performance to basic assumptions, due to which the perceived time as experienced by members to perform a given task decreases i.e. members perceive that they have gone back in time even though in reality the actual time does not go back. Due to this going back in time, performance decreases and the members have to resume their performance from that point where they had left it before going through the regressive loop (1st stage). This regression

is due to what Bion has said that the groups provide a temptation to avoid work and individuals in groups are easily swayed into precisely such regressive behavior (Gibbard, et al., 1974).

A deeper analysis of why members experience the regressive loops can be done by using Kurt Lewin's force field analysis. Based on Kurt Lewin's force field analysis, behavior is a function of person and environment (Weisbord, 2004). The driving forces like inclusion and intimacy towards the group and the restraining factors like status, racial differences, prejudices, and personality factors of the members reach equilibrium or a status quo line. Lewin proposed that the only way to reduce conflict is reducing the restraining forces. Thus many team theories propose that the initial selection of its members is a critical factor in the development of a high-performance team.

Teams must have complementary skills to do their job. Skills like problems solving, technical and interpersonal are said to be important while choosing members in the group (Katzenbach & Smith, 2003). Also Brower (1989) points out that the importance of selecting appropriate mix of members for the group's purposes becomes very crucial from a shared schema perspective.

Figure 1.

Integrated Group Development Model
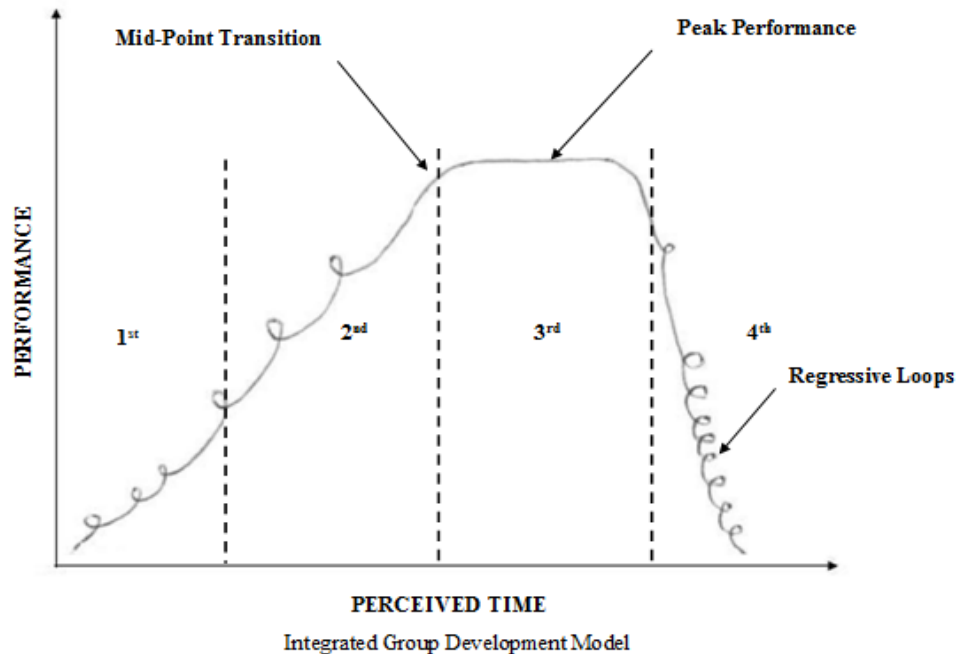
A schema is a cognitive representation that helps to encode, store and retrieve information of the world (Baron, et. al. 2001). When members perceive an event in the same way they are able to work in unison however if they do not see it as same then there are conflicts. The more the members experience conflict the more they regress and performance decreases.

The regressive loops were experienced along the way in group development. However it was observed that as soon as the group came back from the regressive stage there was a sudden increase in performance. This was probably to make up the time lost due to being in a regressive state. The regressive loops became fewer and fewer as the group approached the maximum performance (2nd stage). The performance was the highest at the point which is half way or the mid point transition as stated by Gersick (1988). Since the present group had a limited time frame; the midpoint transition was distinctly observed in the group. The midpoint transition is awareness of the end or the deadline which results in high performance. Moreover the peak performance was not really a peak but a plateau. The performance was stable for a period of time wherein members did not regress to basic assumptions (3rd stage). At the same time, there was a high sense of belonging to the group. A strong feeling of inclusion and acceptance of self and group was observed during this stage. All anxieties regarding the leader were resolved during this stage and the leader was more accepted by the group and was considered as a group member.

After this heightened performance there was a sudden drop in performance which could be a result of exhaustion, lack of resources, and completion of the goal (4th stage). Members again went back to loops to check and recheck their performance and to reconfirm their acceptance in the group. Some of the conflicts resurfaced and members even showed aggression towards other members, a lack of interest or departure from group participation. The leader was also sometimes ridiculed.

This reappearance of regressive loops was an interesting phenomenon that was observed in the unstructured group. It should be noted that the purpose of this regressive state was different from that of the regressive state that occurred at the beginning. In the beginning, the regression was more due to not knowing the group members or of not being included in the group. The conflict between self identity and belongingness was the cause of the regressive loop. The second regression was more due to over inclusion or intimacy with the group. As members knew each other they were more comfortable with conflicts. These conflicts were constructive for the group development as members understood the underlying reasons behind group member's behaviors.

We often find theories stating that conflict is healthy to group development. From this observation, we can conclude that conflict is constructive only when the group has overcome the basic assumptions and the group members regard themselves as a group. At this point it was observed that, even though performance was low as members had mostly accomplished their goal the group inclusion was not a concern. The regressive loops were frequent in this final stage of group development, but the conflicts were resolved effectively.

Thus, for a healthy group development it is important to understand the nature and timing of conflicts in the groups. A leader can play a pivotal role in the managing the conflicts in the group. At the beginning stages of group development, the leader should provide minimal opportunities for conflicts among group members. The leaders should instead focus on enhancing the understanding among group members and increasing the feelings of inclusion and belongingness in the group. As the group progresses and defines the roles, norms and tasks, the leader can permit conflicts among the group. The understanding that the group has developed in the initial stages results in better conflict resolution at later stages and a healthy dialogue among the group members. If the leader allows conflicts at the initial stages; the group might never

progress in the performance. On the contrary, if the leader does not allow conflicts to resurface the group development can be stifled and the group may never achieve the optimal performance.

Conclusion

Even though it was found that most of the time group development process confirms to the basic linear, spiral, polarity models, there were some distinct characteristics like perceived time loss, reoccurrence of regressive loops and constructive conflict that was observed in the current group development process. However, the observation was based only on an isolated group which was not operating in a real organizational context and therefore the current findings need to be generalized by caution.

Another limitation of the theory is that the observation was from a single person's perspective which could be biased. Hence, research needs to be done on groups occurring in different context with multi-observers. Since group dynamics does not occur in vacuum, environmental factors that mediate or moderate group dynamics must be studied. Finally, another area of research could be selecting members on certain personality and environmental factors and then observing regressive loops and performance in the group.

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A MEDIATION MODEL OF TASK CONFLICT IN VERTICAL DYADS: A SUBORDINATE PERSPECTIVE

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ABSTRACT

The current study provides predictions for the antecedents and outcomes of task conflict in supervisor-subordinate dyads and empirically tests the mediation effects of task conflict between organizational culture/subordinate's values and subordinate's outcomes. Structural equation modeling was employed to test our theoretical model. We found that task conflict mediates the positive relationship between a clan culture and beneficial outcomes including less intention to quit. Additionally, we found support for the mediating effect of task conflict on the positive relationship between individualistic values and the same beneficial outcomes. We suggestion that more research is needed to determine how to maximize the benefits of task conflict in not only groups but also both vertical and horizontal dyadic relationships. Further, fostering a clan culture instead of a hierarchy may be a way to increase the positive outcomes and minimize the negative outcomes of conflicts.

Keywords Task conflict, organizational culture, subordinate values, subordinate outcomes

INTRODUCTION

Previous research reveals that the effects of task conflict on organizational outcomes are mixed (Amason and Schweiger, 1993; Baron, 1991; DeChurch and Marks, 2001; Jehn, 1995). Task conflict can lead to negative outcomes on individuals, groups, and organizations. For example, decreased job satisfaction, intent to quit, lowered performance, increased stress (Friedman *et al*., 2000; Jehn and Mannix, 2001; Medina *et al*., 2005), increased relationship conflict, lower team satisfaction, or poor decision making when tasks are structured and routine (DeChurch and Marks, 2001; Jehn, 1995; Simons and Peterson, 2000) have been found to be associated with task conflict. Task conflict can also have a positive impact on organizational outcomes such as decision making, creativity and innovation, increased understanding of the task, and performance (Amason and Schweiger, 1993; Baron, 1991; Jehn, 1995; Priem *et al*., 1995). However, few studies consider task conflict in vertical dyads such as supervisor-subordinate relationships (Dunegan *et al*., 2002; Xin and Pelled, 2003). Given the mixed results of the impact of conflict on organizational outcomes, we need to further develop the existing conflict models by considering constructs that can provide additional justifications. To fill this gap, we adopt Jehn's conflict theory (Jehn, 1994, 1995, 1997) and propose that task conflict at the dyad level represents a useful mediating mechanism for favorable subordinate outcomes.

In particular, we consider the influence of task conflict in vertical dyads from a subordinate perspective. By examining the relationships among task conflict supervisor-subordinate dyads, its antecedents, and its consequences, we propose that task conflict acts as a mediator between organizational culture/subordinate values and subordinate outcomes. Specifically, we explore how organizational culture and subordinate's values impact task conflict; how task conflict in turn affects subordinate-based outcomes such as subordinate's affective organizational commitment, continuance organizational commitment, yearly salary, and intention to quit; and how task conflict mediates the relationship between organizational culture/subordinate's values and subordinate's affective organizational commitment, continuance organizational commitment, yearly salary, and intention to quit. Our mediation model of conflict provides fresh insight into the role that task conflict plays in vertical dyadic relationships.

THEORETICAL MODEL AND HYPOTHESES DEVELOPMENT
Organizational conflict

Organizational conflict research has primarily focused on two types of conflicts, task conflict and relationship conflict. Task conflict is defined as a disagreement or differing perceptions related to the content of the task being performed, including differences in viewpoints, ideas, and opinions (Jehn, 1994). Task conflict is primarily based on non-relationship issues and pertains to ideas and differing opinions about the task. Task conflict develops through "the allocation of resources, application of procedures, and the development and implementation of policies" (Janssen *et al*., 1999: 119). While task conflict may lead to increases in relationship conflict, it does not include the intense negative emotions that occur with relationship conflict (Jehn and Mannix, 2001). Relationship conflict refers to "disagreements and incompatibilities among group members about personal issues that are not task related" (Jehn *et al*., 1997: 288). These disagreements derive from animosity, tension, and annoyance with other members of the group.

The majority of conflict research has focused on conflicts in groups. For example, studies have examined task or relationship conflict in diverse groups, homogeneous groups, top management groups, cross functional groups, and student groups, just to name a few (DeChurch and Marks, 2001; DeDrue, 2006; Olson *et al*., 2007; Pelled, 1996; Pelled *et al*., 1999). There has

been little work done concerning conflict in a supervisor-subordinate dyad. One study by Howat and London (1980) examined conflict management strategies involving supervisors and subordinates. However, they did not distinguish between relationship and task conflict. A later study by Xin and Pelled (2003), differentiated task and relationship (i.e. emotional) conflict and examined these two types of conflicts amongst supervisors and subordinates. Results indicated that relationship conflict resulted in more negative perceptions of leader behaviors than a mix of both relationship and task conflict. In particular, this study focused on perceptions of leader behavior as a result of conflict between supervisors and subordinates. We focus on task conflict in supervisor-subordinate dyads and uncover the association between task conflict and other organizational outcomes, specifically the subordinate's experiences. As such, we make several contributions to the current research on task conflict: (1) we extend the existing literature on conflict in supervisor-subordinate dyads, (2) we examine possible antecedents to task conflict, and (3) we propose a model for capitalizing on the advantages of task conflict while minimizing the disadvantages. In the following, we review theories on conflict in the literature to build our theoretical model.

Theories and Perspectives on Conflict

Different conflict theories and frameworks exist in the literature. The information processing theory is one of the most widely used theories in the conflict literature. It provides theoretical support for the negative results of conflict found in group and organizational outcomes. The information processing theory suggests that "a little conflict may stimulate information processing, but as conflict intensifies, the cognitive system shuts down, information processing is impeded, and team performance is likely to suffer" (De Dreu and Weingart, 2003: 742). It does not, however, differentiate between relationship and task conflict. Thus, additional theoretical support for the possible "positive outcomes" of certain conflict types is necessary (De Dreu, 2006). Jehn's (1994, 1995, 1997) research related to conflict theory differentiates between relationship and task conflict. In particular, Jehn's conflict theory suggests that relationship conflict accounts for the negative effects while task conflict accounts for the positive effects.

In an attempt to resolve the mixed results in conflict research, De Dreu and Weingart (2003) reviewed the theoretical and empirical support related to organizational conflict and team performance. In particular, they were interested in determining whether Jehn's theory of conflict or the information processing theory was most strongly supported in the literature. Their meta-analysis results suggest that as predicted, relationship conflict is negatively related to team satisfaction and team performance. Interestingly, task conflict was also negatively related to team satisfaction. Task conflict did however, have a weaker association with team satisfaction than relationship conflict. As such, they found support for the information processing perspective of organizational conflict with regards to team satisfaction. Similar results were found with both relationship conflict and task conflict and their impact on team performance. The average correlation was significant and negative for both types of conflict with team performance. Therefore, De Dreu and Weingart (2003) found support for the information processing theory instead of Jehn's framework. These results, however, do not negate the previous research that suggests task conflict does indeed have a positive impact on organizations. In addition, it is possible that task conflict has a more positive and significant relationship on other important organizational outcomes such as subordinate's yearly salary, intention to quit, and organizational commitment.

To further explore the contradicting results in conflict research, De Dreu (2006) conducted a second study which created one overarching theoretical framework related to the previous mixed results of task conflict's impact on team performance. A contingency framework was proposed to help explain why task conflict may result in positive outcomes in some situations and negative outcomes in other situations. Interestingly, he found that there is a curvilinear relationship between task conflict and innovation in teams. Low and high levels of task conflict often lead to lower levels of innovation while moderate levels of task conflict result in higher levels of innovation. In addition, results show that information exchange and collaborative problem solving mediate the task conflict-team innovation relationship. As such, it is possible that the effects of task conflict on organizational outcomes are dependent upon not only the level of conflict but also intervening parameters. This is an important revelation because it suggests that task conflict's relationship with performance is more complicated than previously suggested.

Based on De Dreu's research and Jehn's theory of conflict, it is possible that a broader framework of task conflict can be developed. In particular, we suggest that how task conflict is created and encouraged may be an important factor to explore prior to determining whether the outcomes are positive or negative. In addition, as De Dreu suggested we examine task conflict's impact on several organizational outcomes. From the subordinate perspective, we propose a mediated model involving antecedents (i.e., organizational culture, subordinate's values), task conflict, and important organizational outcomes (i.e., organizational commitment, yearly earnings, and intention to quit) and test the resulting hypotheses in a field sample of supervisor-subordinate dyads (See Figure 1).

Figure 1. Theoretical Model

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┌─────────────────┐        ┌─────────────────┐
│  Organizational │        │                 │
│     Culture     │        │ Subordinate's Values │
└─────────────────┘        └─────────────────┘
              ↓                   ↓
            ┌──────────────────┐
            │  Task Conflict   │
            │   in Vertical    │
            │      Dyads       │
            └──────────────────┘
                     ↓
    ┌───────────────────────────────────────────┐
    │                                           │
    │   Organizational and Subordinate Outcomes │
    │                                           │
    └───────────────────────────────────────────┘
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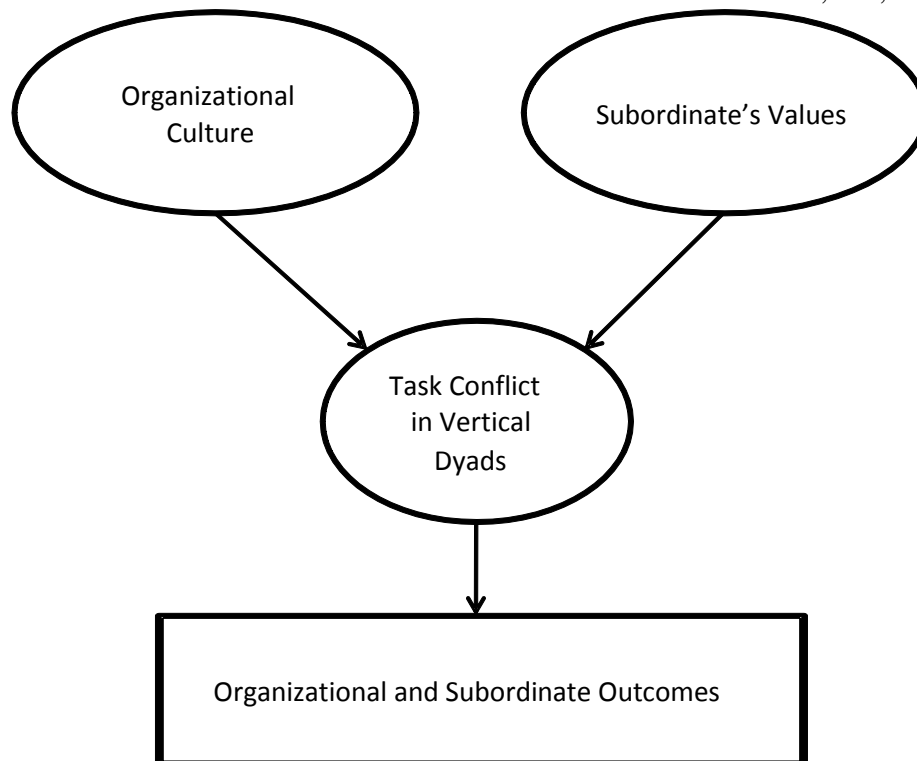
Antecedents to task conflict

While a significant amount of research has focused on the consequences of task conflict, there has been much less research done regarding possible antecedents. How task conflict is created and encouraged is an important factor to explore prior to determining whether the consequent outcomes are positive or negative. As such, antecedents of task conflict are important in the conflict models. In other words, more research is needed that unveils what factors influence task conflict in the organization and in supervisor-subordinate dyads in particular. Previous research has stated that task conflict is directly impacted by factors such as functional background diversity (Pelled *et al.*, 1999), amount of interdependence required for task accomplishment (Deutsch, 1990; Janssen *et al.*, 1999), informational diversity and value diversity (Jehn *et al.*, 1999), and task importance (Jehn, 1997). Organizations can create dyads and groups that meet the necessary requirements to facilitate task conflict and generate positive outcomes. For example, many organizations are focusing on creating groups and teams that include functional, informational, and value diversity. In addition, groups and teams are being put together to complete tasks that require high levels of interdependence. It makes sense therefore, that organizations might also create a culture that fosters task conflict such that the benefits are realized and the disadvantages are minimized.

Organizational Culture

The culture created in the organization may foster task conflict. We follow the Quinn and colleagues' Competing Values Model as the framework to examine the organizational culture relationships presented in our study. We further present our discussion of organizational culture

within the Competing Values typologies created by Desphandé *et al*. (1993). In particular, we focus on hierarchy and clan cultures as defined in the Competing Values Model. Our focus on these culture types is appropriate because of their internal orientation and the powerful effect they have on organization-employee relationships.

Organizational cultures based on hierarchies rely on the use of legitimate authority to achieve performance goals. The foundation of the hierarchy culture is a dependent relationship between subordinates and their superiors. Organizations that have hierarchy cultures focus on control over employees through the use of monitoring and the implementation of rules and standard operating procedures (Ouchi and Price, 1993). In general, hierarchical cultures are not very concerned with creating and maintaining supportive employee relationships.

Hierarchy cultures are characterized as being held together by formal rules and policies. They emphasize stability and structure. Tasks are subjected to careful surveillance, evaluation, and direction. Business effectiveness is characterized by consistency and goal orientation (Desphandé *et al*., 1993). This emphasis on formal rules and policies results in little need for task conflict to develop between supervisors and subordinates. Instead of creating the interdependence required for creating task conflict, hierarchy cultures create a dependent relationship between supervisors and subordinates. Subordinates are therefore, dependent upon the supervisor for the resources to accomplish their tasks. As such, the following hypothesis is offered,

H1. A hierarchy organizational culture is negatively related to task conflict in supervisor-subordinate dyads.

The clan culture, which is internally oriented, emphasizes informal governance. Such an internal oriented culture is shared across members within the firms and it influences members' ways of accomplishing tasks within the organizations (Chatman and Barsade, 1995). Organizations that emphasize clan cultures encourage employees to assist each other in the decision-making processes (Xiao and Tsui, 2007). They focus on supportive work environments where employees are treated like family and individual interests are superseded by the organization's interests. Hence, a clan culture is generally an open and friendly place to work (Dwyer *et al*., 2001). In addition, clan cultures emphasize cohesiveness, participation, and team work (Deshpandé *et al*., 1993). Such cultures encourage placing the group's interests above each individual's own personal interests. The sharing of ideas in the organization and the encouragement of cooperation among employees and their supervisors creates much information regarding the tasks they perform as a team.

Furthermore, the commitment of organizational members is ensured through participation (Deshpandé *et al*., 1993) as managers solicit the knowledge, skills, and abilities of employees at all levels of the organization. Therefore, subordinates are not entirely dependent upon the supervisor for directing them in accomplishing their tasks. Instead, subordinates provide their own viewpoints, ideas, and opinions regarding the task. As a result, we expect clan cultures to facilitate more task conflict in supervisor-subordinate dyads.

H2. A clan organizational culture is positively related to task conflict in supervisor-subordinate dyads.

Collectivist and individualist values

Considerable research supports the notion of individualism and collectivism as important societal and organizational value constructs (e.g., Earley and Gibson, 1998; Hofstede, 1980; Triandis, 1994). These cultural values have also received considerable

support at the individual level of analysis (Chen *et al*., 2007; Triandis, 1989, 1995; Wagner, 1995). It should be noted that while we refer to individualist and collectivist values, the terms are sometimes used interchangeably with idiocentric and allocentric values (Triandis *et al*., 1985). Idiocentric values involve a concern with personal achievement and a priority for personal goals. Allocentric values, on the other hand, are concerned with interpersonal harmony and collective goals.

Collectivism treats the community or social group as the most meaningful social unit (Robert and Wasti, 2002). Collectivists value family, group membership, and inner group harmony. The other side of this increase in harmony and cooperation is a decrease in creativity and innovation (Goncalo and Staw, 2006). In addition, uniqueness is considered a form of deviance when considered from a collectivist's point of view. An individual with collectivist values is therefore more likely to accept group ideas over his/her own ideas. They may even "consider the failure to yield to others as rude and inconsiderate" (Goncalo and Staw, 2006: 97). The primary goal of subordinates with collectivist work values is to promote the interest of others (Goncalo and Staw, 2006). They will avoid any type of conflict with a superior even if the conflict is based on how to accomplish a specific task. As such, the following hypothesis is offered,

> *H3. Subordinates' collectivist work values are negatively related to task conflict in supervisor-subordinate dyads.*

"Individualism is the tendency to treat the self as the most meaningful social unit" (Robert and Wasti, 2002: 545). Individualists value autonomy, personal goals and needs, and the development of a unique personality. Conformity is viewed negatively by individualists, opting instead for independence and a separate identity from those around them. Subordinates that value individualism are concerned with staying true to one's self, even in the face of opposition (Fiske *et al*., 1998). As such, individualists prefer to do things their own way. They are likely to challenge authority because they put their own beliefs above others. This should lead to an increase in task conflict between subordinates and supervisors because individualists prefer to work without much involvement from the boss. As such, we offer the following hypothesis,

> *H4. Subordinates' individualist work values are positively related to task conflict in supervisor-subordinate dyads.*

Organizational consequences of task conflict

Work by Jehn (1995) reveals that task conflict (but not relationship conflict) can have positive team performance effects. Task conflict can, under certain conditions, be beneficial to team effectiveness (Amason, 1996; Simons and Peterson, 2000). Research reveals that teams make better decisions when pre-discussion preferences were in disagreement instead of agreement (Schulz-Hardt *et al*., 2002). Task conflict increases group member's tendency to process task related information deeply and deliberately results in the development of fresh insights and innovation (De Dreu and West, 2001). In fact, studies have shown strong positive associations between task conflict and team performance (e.g. Jehn, 1994). However, this line of research has overlooked individual's attitudes and behavior as consequences of task conflicts. For employees in supervisor-subordinate dyads, how task conflict relates to their individual behaviors and well-being can be important to the success of the tasks (De Dreu and Weingart,

2003). Although team performance has been the key dependent measure in the group literature, it provides virtually not use in vertical dyads. Our goal is to explore outcomes associated with task conflict in vertical dyads. Since vertical dyads automatically assume some level of supervisor position power, it is important to investigate how task conflict impacts such dyadic relationships.

Following De Dreu (2006), we sought to identify outcome measures that would be considered important from the organization and subordinate's perspective, either beneficial or somewhat detrimental to the organization and the subordinate. In particular, we focus on subordinate's organizational commitment (affective commitment and continuance commitment), intention to quit, and yearly salary. Accordingly, the two outcome measures that are considered beneficial from both the organization and subordinate's perspective are affective organizational commitment and subordinate's yearly salary. Affective organizational commitment is defined as an individual's emotional attachment to the organization that reflects the degree to which he/she is involved in and enjoys his/her membership in the organization (Allen and Meyer, 1990; Gong *et al.*, 2009). Affective organizational commitment increases an employee's motivation to produce/perform at work. Such an employee is more likely to remain in the vertical dyads, thus it is important to the development of the supervisor-employee relationships and is favorable from the organization and subordinate's perspective (Clugston *et al.*, 2000). Several antecedents have been identified in the literature that may impact affective commitment, for example, job satisfaction (Gong et al., 2009), job involvement (Meyer and Allen, 1991), collectivist and individualist values (Clugston et al., 2000), perceived politics (Chang *et al.*, 2009), individual characteristics and work experiences (Meyer *et al.*, 2002), etc. Hence, we explore how task conflict impacts affective organizational commitment to contribute to the existing literature. Since task conflict is primarily based on non-relationship issues and pertains to ideas and differing opinions about the task (Jehn, 1994), it should lead to enhanced communication in vertical dyads. As a result, it facilitates the emotional attachment between the supervisor and the subordinate. In addition, subordinates with more productive relationships, as facilitated by task conflict, with their supervisors should observe greater rewards as reflected in yearly salary. Higher subordinate salary should indeed be a result of quality interactions between that subordinate and his or her supervisor. Thus,

> *H5a. Task conflict in supervisor-subordinate dyads is positively related to subordinate's salary and affective organizational commitment.*

Consistent with our goals, the two outcome measures that would be considered less favorable from the organization and subordinate's perspective are continuance organizational commitment and subordinate's intention to quit. Continuance organizational commitment is defined as an individual's tendency to be committed to an organization because of the potential loss or cost he/she may suffer being otherwise (Allen and Meyer, 1990; Jaros *et al.*, 1993). Continuance organizational commitment is calculative and exchange-based. An employee who feels continuance committed to the organization is obliged to stay in the vertical dyads because leaving this relationship would cost too much (Mueller *et al.*, 1992). Such cost can be time, job effort, established relationships at work, and economic investments (Clugston *et al.*, 2000). Previous research has found that variables such as personal characteristics, perceived alternatives, and investments relate to continuance commitment (Mathieu and Zajac, 1990; Meyer *et al.*, 2002). Because we expect the presence of task conflict to be beneficial to the supervisor-subordinate dyad, we do not expect task conflict to contribute to a type of commitment motivated by purely cost.

In addition, research reveals that predictors such as job satisfaction, organizational commitment, individual characteristic, and economic reasons (Currivan 1999; Gaertner 2000; Trevor 2001; Tsai and Huang 2008) relate to an individual's intention to quit. To contribute to the existing literature, we explore the effects of task conflict on subordinate's continuance organizational commitment and intention to quit. Increased communication between the supervisor and the employee for performing a task generates ideas and opinions in this vertical dyad (Janssen *et al.*, 1999). Such efforts invested by the subordinate in the task should not generate negative emotions in the vertical dyad (Jehn and Mannix, 2001). Thus, subordinates are not likely to express emotional disagreements with their supervisors. Instead, the share of information and ideas on the task helps get jobs done which should reduce the subordinate's intention to quit. As a result,

> *H5b. Task conflict in supervisor-subordinate dyads is negatively related to subordinate's intention to quit and continuance organizational commitment.*

Mediating role of task conflict

We have hypothesized that both organizational culture (i.e., hierarchical and clan cultures) as well as subordinate values (collectivistic and individualistic) are antecedents of task conflict in vertical (supervisor-subordinate) dyads. We also propose that task conflict relates to important subordinate outcomes (affective and continuance commitment, salary, and intention to quit), following De Dreu and Weingart's (2003) emphasis on the impact of task conflict on individual behavior and well-being. In addition to influencing employees' attitudes and well-being in the organizations which has already been well documented (Clugston *et al.*, 2000; Jaramillo *et al.*, 2005), we further suggest that organizational culture/subordinate values play a pivotal role in the determination of subordinate outcomes through task conflict. In other words, organizational culture and subordinate values act as exogenous constructs of task conflict and it impacts employees' attitudes and well-being through task conflict. Taken together, we propose that organizational culture/subordinate values have both direct effects on the subordinate outcomes and indirect effects through their impact on task conflict.

> *Hypothesis 6a: Task conflict in supervisor-subordinate dyads mediates the relationship between hierarchy culture and subordinate's yearly earnings and affective organizational commitment.*

> *Hypothesis 6b: Task conflict in supervisor-subordinate dyads mediates the relationship between hierarchy culture and subordinate's intention to quit and continuance organizational commitment.*

> *Hypothesis 7a: Task conflict in supervisor-subordinate dyads mediates the relationship between clan culture and subordinate's yearly earnings and affective organizational commitment.*

> *Hypothesis 7b: Task conflict in supervisor-subordinate dyads mediates the relationship between clan culture and subordinate's intention to quit and continuance organizational commitment.*

Hypothesis 8a: Task conflict in supervisor-subordinate dyads mediates the relationship between subordinate's level of individualism and subordinate's yearly earnings and affective organizational commitment.

Hypothesis 8b: Task conflict in supervisor-subordinate dyads mediates the relationship between subordinate's level of individualism and subordinate's intention to quit and continuance organizational commitment.

Hypothesis 9a: Task conflict in supervisor-subordinate dyads mediates the relationship between subordinate's level of collectivism and subordinate's yearly earnings and affective organizational commitment.

Hypothesis 9b: Task conflict in supervisor-subordinate dyads mediates the relationship between subordinate's level of collectivism and subordinate's intention to quit and continuance organizational commitment.

METHODOLOGY
Setting and Data Collection

We tested the hypotheses using survey data collected from employees of numerous organizations in the Atlanta, Georgia metropolitan area. Since our research questions focused on aspects of organizational culture and individual values, we selected a research design that would span as many organizations as possible thereby maximizing the variance on variables such as organizational culture within the supervisor-subordinate dyads. We elected to distribute surveys through two business graduate school classes of about twenty students each with instructions that they find respondents who do not share the same supervisor. In this way, we avoided inadvertent nesting when the survey design was executed. Multiple responses by subordinates of the same supervisor would demand that we account for variance both within groups and between groups. Our questionnaire distribution method produced a data set that may have as many as twenty responses from a single company but no more than one response per supervisor within those firms. Two-hundred fifty surveys were distributed, 220 were returned and 10 were discarded due to missing information. Twenty variables were randomly selected as a test for monotonic responses – another form of non-response. These survey items were then scanned for the same response, if all twenty were equal to the same value then the survey was manually scanned for monotonic responses. Ten surveys were discarded as a result of this procedure. This resulted in a data set with an N of 200. Of the respondents 67% were over 25 years old, 90% of the respondents were Caucasian; 54% were male, and the mean yearly earnings were $35,500.

Dependent measures

Task conflict in the dyad was adopted from Jehn's (1995) intra-group conflict scale. Affective organizational commitment and continuance organizational commitment were measured using items adapted from Meyer *et al.* (1993). Subordinates' yearly-earnings appear as a continuous random variable. One item on a five-point Likert-type scale was used to capture *intention to quit*. It stated "If a similar job, offering the same pay and work, came available to me in another company, I would be likely to transfer."

Independent measures

Organizational culture was measured using the Competing Values Scale. The scale identifies the relative influence of four culture types that comprise a firm's organizational

culture. Likert-type items scored on a 7-point scale ranging from "1 = strongly disagree" to "7 = strongly agree" comprised the scale. This scale has been widely used in previous research and acceptable levels of reliability and validity have been reported across numerous studies (Cameron and Quinn, 1999; Quinn and Spreitzer, 1991). In this study we use the clan (4 items) and the hierarchy culture (3 items). Subordinates' collectivist work values and subordinates' individualist work values were measured using two different scales as opposed to a uni-dimensional measure and were designed for the individual level of analysis distinct from national culture measures (Clugston *et al.*, 2001). A five items Likert type scale was designed to measure individualism (Sample item: "If a group is slowing me down, it is better to leave it and work alone"). Collectivism was measured using a three items Likert type scale (Sample item: "A person should accept the group's decision even when personally he or she has a different opinion")

Control measures

Relationship conflict in the dyad was adopted from Jehn's (1995) intra-group conflict scale. One sample item reads "My supervisor and I have personality clashes." Age was categorized into five year increments ranging from normal age of entry into the workplace to retirement; this created 10 categories. Dyad tenure was measured with one continuous variable which asked the subordinate the number of years worked with supervisor. Education categories were designed to capture high school dropouts, high school graduates, college attendees, college graduates, master's level graduates and doctoral degrees.

Non-response bias and common method bias

Non-response bias was tested by comparing the responses of the early respondents with the late respondents (Armstrong and Overton, 1977). There were eight multi-item constructs and five single-item variables with a total of thirty-seven items as described earlier. All the items were entered as dependent variables. The early (n=100) and late (n=100) respondents were represented by the factor named group and was used as the fixed factor. All multivariate tests appeared nonsignificant. Specifically, the multivariate tests of Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root produced each a significance value of 0.187, i.e. the null hypothesis that the early and late respondents were similar was not rejected. Therefore, the early and late respondents did not differ significantly with respect to their responses to the survey questions.

Further, following Podsakoff and Organ (1986), Harman's one factor test was conducted where all survey variables were entered into a factor analysis. Not a single factor emerged nor was there a general factor that accounted for the majority of the covariance in these variables. The seven emerged factors explained 13.68, 13.28, 9.36, 8.24, 7.34, 6.29, and 6.10 percent variance respectively. Clearly, there was not a dominant factor. Thus, common method bias did not appear to be problematic.

Analysis and results
Confirmatory Factor Analysis (CFA)

Table 1 shows intercorrelations and reliability coefficients for all study variables.

Table 1. Correlations and reliabilities

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Hierarchy organizational culture	1.0												
2. Clan organizational culture	.37*	1.0											
3. Collectivist Values	.08	.05	1.0										
4. Individualist Values	.09	-.09	-.02	1.0									
5. Task conflict	-.13⁻	-.25*	-.20*	.17⁺	1.0								
6. Earnings	-.12	.06	-.04	-.17⁻	.18⁺	1.0							
7. Affective commitment	.12	.55	.18	-.17⁻	.27*	.16⁺	1.0						
8. Intention to quit	-.05	-.29*	-.13	.16⁻	-.37*	-.12	-.49*	1.0					
9. Continuance commitment	.11	-.29	-.01	.03	-.16⁺	-.24*	-.33*	.32*	1.0				
10. Age	-.17⁺	-.11	.01	-.11	-.01	.41*	.08	-.06	-.03	1.0			
11. Years with boss	-.16⁺	-.02	.02	.14	-.03	.18⁺	.14⁺	-.03	.09	.46*	1.0		
12. Relational conflict	-.03	-.12	-.13⁻	.25*	.56*	-.07	-.23*	.41*	.14⁺	-.04	.07	1.0	
13. Education	.11	.02	.03	-.04	-.03	.28*	.09	-.10	-.07	-.10	-.16⁺	-.08	1.0
AVE	.939	.911	.916	.897	.961	-	.919	-	.906	-	-	-	-
Composite reliability	.968	.968	.970	.971	.985	-	.976	-	.945	-	-	-	-

*correlation is significant at the 0.01 level
⁺correlation is significant at the 0.05 level
⁻correlation is significant at the 0.10 level

Scale properties were assessed by CFA. The CFA Model included eight multi-item constructs: hierarchy organizational culture (3 items), clan organizational culture (4 items), subordinates' collectivist work values (3 items), subordinates' individualist work values (5 items), task conflict in supervisor-subordinate dyads (5 items), affective organizational commitment (5 items), and continuance organizational commitment (2 items), and relationship conflict (5 items). The hierarchy organizational culture, clan organizational culture, subordinates' collectivist work values, and subordinates' individualist work values were exogenous constructs. Task conflict in supervisor-subordinate dyads was the mediator. Affective organizational commitment and continuance organizational commitment were outcomes. Relationship conflict was a control on the outcomes. From the initial results, we detected eight poor items based on poor loadings, cross loadings, modification indices, and high residuals. There items were one from hierarchy organizational culture, one from clan organizational culture, one from subordinates' individualist work values, two from task conflict in supervisor-subordinate dyads, and one from affective organizational commitment. After deleting these items one by one, the CFA model produced a good fit: χ^2=212.453, df=206, GFI (goodness-of-fit index)=0.921, IFI (incremental index of fit)=0.996, TLI (Tucker-Lewis

index)=0.994, CFI (comparative fit index)= 0.996, and RMSEA (root mean square error of approximation)=0.013. When GFI, AGFI, IFI, TLI, and CFI are above 0.90 (closer to 1.00) and RMSEA is below 0.05, the model represents a good-fitting one (Byrne, 2001).

Convergent and discriminant validity

The convergent validity of the scales was supported because all the estimated coefficients of all the indicants were significant (t>2.0) and ranged from 2.488 to 17.671, i.e., significant at p<0.05 level (Anderson and Gerbing, 1988). In addition, no confidence intervals of the correlations for the constructs (Φ values) included 1.0 (*p*<0.05), which supported the presence of discriminant validity (Anderson and Gerbing, 1988).

Structural Model Analysis (Hypotheses Test)

Table 2 and Figure 1 include the results of structural model analyses. We ran two structural models namely fully mediated model and partially mediated model. The fully mediated model included four antecedents (hierarchy organizational culture, clan organizational culture, subordinates' collectivist work values, and subordinates' individualist work values), one mediator (task conflict in supervisor-subordinate dyads), four outcomes (affective organizational commitment, subordinate's yearly earnings, continuance organizational commitment, and subordinate's intention to quit), and four controls (age of subordinate, years with boss, relationship conflict, education of subordinate). The mediator had a path to each of the four outcomes (4 paths), while each antecedent had a path to the mediator (4 paths). The antecedents did not have any direct path to the outcomes. Also each of the four controls had a path to each of the four outcomes (8 paths). The model demonstrated a good fit: χ^2=298.126, *df*=299, GFI (goodness-of-fit index)=0.910, IFI (incremental index of fit)=0.990, TLI (Tucker-Lewis index)=0.986, CFI (comparative fit index)=0.992, and RMSEA (root mean square error of approximation)=0.035. The values of GFI, IFI, TLI, and CFI greater than 0.90 and close to 1.00 represent a good-fitting model. Also, a RMSEA value less than 0.05 indicates a good fit (Byrne, 2001). The results pertaining to the paths are described next.

Table 2. Results of Analyses

	Fully Mediated Model	Partially mediated Model	Comments
Fit Indices:			
χ^2	298.126	282.973	
df	299	283	
GFI	0.910	0.914	good fit
IFI	0.990	0.980	good fit
TLI	0.986	0.991	good fit
CFI	0.992	0.979	good fit
RMSEA	0.035	0.043	good fit
Paths:			
Fully Mediated Model			
Hierarchy to task conflict	-1.535(0.062)	-1.666(0.048)	
Clan to task conflict	2.069(0.019)	1.678(0.049)	
Collectivist to task conflict	-1.754(0.039)	-3.265(0.001)	
Individualist to task conflict	1.743(0.041)	2.752(0.003)	
Task conflict to earnings and affective			

commitment	2.475(0.005)/1.551(0.060)	1.685(0.060)/1.654(0.051)	
Task conflict to quit and continuance commitment	-2.215(.013)/-2.328(0.01)	-1.707(0.034)/-1.489(0.062)	
Partially Mediated Model			
Hierarchy to earnings and affective commitment	no such paths	0.432(0.333)/0.068(0.946)	
Hierarchy to quit and continuance commitment	no such paths	-0.652(0.514)/0.769(0.442)	
Clan to earnings and earnings and affective commitment	no such paths	0.705(0.481)/-0.205(0.837)	
Clan to quit and continuance commitment	no such paths	-0.568(0.570)/-0.248(0.804)	
Individualist to earnings and affective commitment	no such paths	-0.859(0.391)/-0.032(0.974)	
Individualist to quit and continuance commitment	no such paths	0.848(0.396)/-0.706(0.480)	
Collectivist to earnings and affective commitment	no such paths	0.777(0.437)/0.009(0.993)	
Collectivist to quit and continuance commitment	no such paths	-0.827(0.408)/0.723(0.469)	
Model Comparison			
Akaike information criterion (AIC)	570.126	586.973	Fully mediated model is better
Browne-Cudeck criterion (BCC)	618.410	640.937	as above
Consistent AIC	1154.697	1240.317	as above

For the controls, age of subordinate was related positively to subordinate's yearly earnings (t=3.626, p=0.000) and negatively to affective organizational commitment (t=-1.784, p=0.037). Years with boss was positively related to subordinate's yearly earnings (t=2.125, p=0.017) and affective organizational commitment (t=2.529, p=0.005) but was negatively related to subordinate's intention to quit (t=-2.345, p=0.009) and continuance organizational commitment (t=-1.990, p=0.026). Relational conflict was negatively related to subordinate's yearly earnings (t=-2.434, p=0.007) and affective organizational commitment (t=-2.294, p=0.011), whilst was positively related to subordinate's intention to quit (t=2.968, p=0.001) and continuance commitment (t=2.447, p=0.007). Education of subordinate was only positively related to subordinate's yearly earnings (t=2.261, p=0.012).

Figure 2. Main Effects
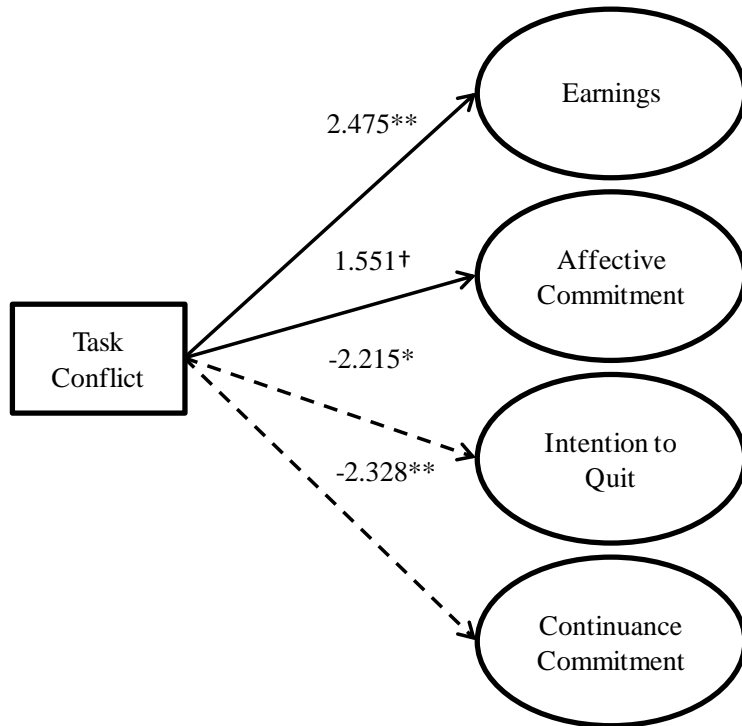
† *p* < .1; * *p* < .05; ** *p* < .01; *** *p* < .001

In no support of Hypothesis 1, hierarchy organizational culture was negatively related to task conflict in supervisor-subordinate dyads (*t*=-1.535, *p*=0.062) but not significant (p<0.05). Clan organizational culture was positively related to task conflict in supervisor-subordinate dyads (*t*=2.069, *p*=0.019) supporting Hypothesis 2. Hypothesis 3 was supported, i.e., subordinates' collectivist work values were negatively related to task conflict in supervisor-subordinate dyads (*t*=-1.754, *p*=0.039). Supporting hypothesis four (H4), subordinates' individualist work values appeared positively related to task conflict in supervisor-subordinate dyads (*t*=1.743, *p*=0.041). Hypothesis 5a was partially supported, i.e., task conflict in supervisor-subordinate dyads was positively related to subordinate's yearly earnings (*t*=2.475, *p*=0.005) but not to affective organizational commitment (*t*=1.551, *p*=0.060). In support of Hypothesis 5b, task conflict in supervisor-subordinate dyads appeared negatively related to subordinate's intention to quit (*t*=-2.215, *p*=0.013) and continuance organizational commitment (*t*=-2.328, *p*=0.010). The results related to controls are discussed next.

Figure 3. Fully Mediated Task Conflict Model
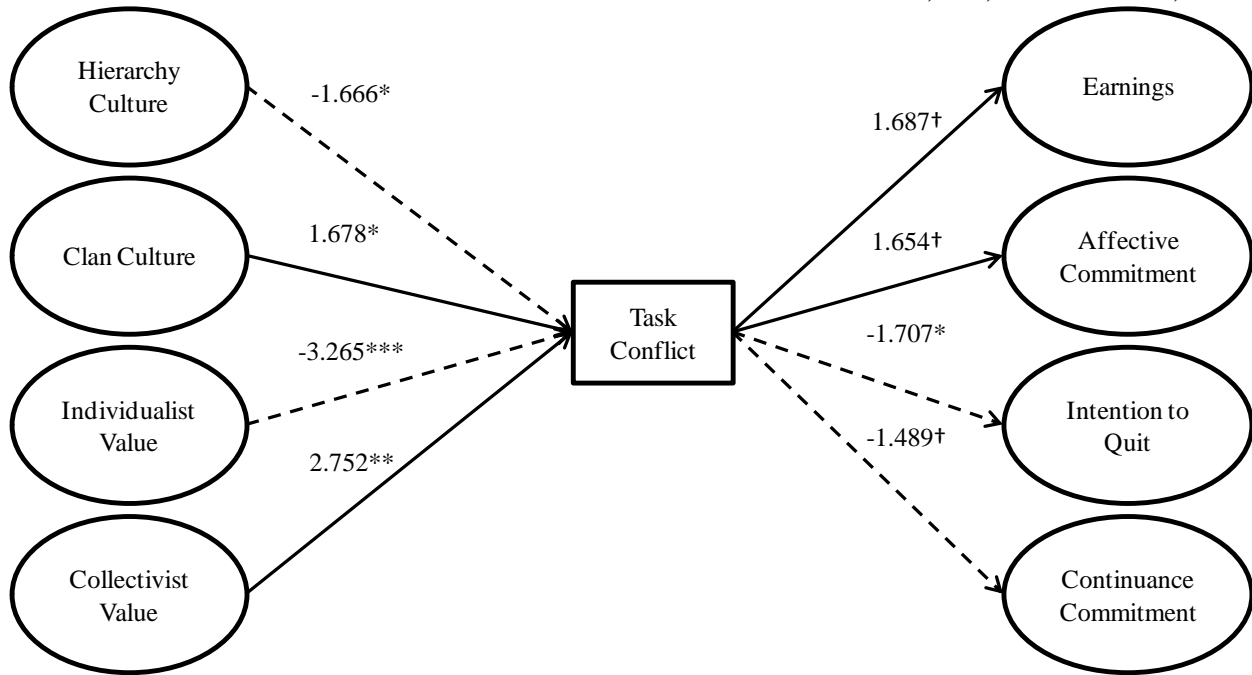
The partially mediated model included direct paths from each of the four exogenous constructs to the four outcomes (16 paths) in addition to all the paths in the fully mediated model. The model achieved a good fit: χ^2=282.973, df=283, GFI (goodness-of-fit index)=0.914, IFI (incremental index of fit)=0.980, TLI (Tucker-Lewis index)=0.991, CFI (comparative fit index)=0.979, and RMSEA (root mean square error of approximation)=0.043. The results related to the paths are discussed next.

In the partially mediated model, none of the direct paths from exogenous constructs (hierarchy culture, clan culture, collectivist value, and individualist value) to outcome variables (yearly earnings, intention to quit, affective commitment, and continuance commitment) was significant. Only the indirect effects through the mediator, task conflict, were significant ($p<0.05$) in that task conflict was found to mediate the relationship between the four exogenous constructs (hierarchy culture, clan culture, collectivist value, and individualist value) and intention to quit (t=-1.707, p=0.034). However, the mediation effects of task conflict between the four exogenous constructs and the other three outcome variables (yearly earnings and continuance commitment) were not supported on a p<0.05 level (See Table II). Thus, Hypothesis 6b, 7b, 8b, and 9b are partially supported based on results related to the intent to quit outcome measure. Hypotheses6a, 7a, 8a, and 9a are not supported.

The two model namely fully mediated model and partially mediated model were compared by Akaike information criterion (AIC), Browne-Cudeck criterion (BCC) and Consistent AIC (CAIC). Lower values are indicative of a better model (Byrne, 2001). All values pertaining to the fully mediated model are lower than that of the partially mediated model (see Table 2). Thus, the fully mediated model is superior to the partially mediated model.

DISCUSSION

Historically conflict has been viewed as disruptive and stressful but recent research offers insight into how task conflict can be functional and stimulating, because it invokes fresh insights that could be beneficial to the individual and organization. Building on the existing literature on conflict, we provide a model that links together the antecedents and outcomes related to task conflict in the workplace. By proposing the mediating effect of task conflict, we found a linkage between organizational culture/subordinate values and positive employee outcomes (i.e., less intention to quit). In addition, while task conflict has been heavily studied in groups and teams, it has not been extensively studied within vertical dyads. Therefore, the current study extends task conflict research to the supervisor-subordinate dyad. We view conflict through such a paradigm and investigate what factors contribute to task conflict and how task conflict impacts subordinate's outcomes.

Our empirical findings support the theory that task conflict can result in positive effects for both the organization and individuals (Jehn, 1994, 1995, 1997). Specifically, we found that task conflict fully mediates the relationship between organizational culture and important individual level outcomes such as intent to quit. We also found that task conflict fully mediates the relationship between subordinate individualistic/collectivistic values and intention to quit. Therefore, both organizational culture and subordinate values are important in fostering task conflict. Results also support recent research that suggests task conflict results in positive outcomes (De Dreu, 2006).

Furthermore, we found that a hierarchical organizational culture is negatively related to task conflict but at a p value < .10. These results suggest that organizations with a hierarchical culture may not be the ideal place to try to foster task conflict. In fact, hierarchies could stifle task conflict within vertical dyads. Subordinates could be more apt to follow directions than to engage in a discussion regarding how to complete necessary tasks. It is extremely clear, however, that a clan culture is instrumental in creating task conflict that results in the positive outcomes. Employees in a clan culture are more likely to engage in discussion regarding how to complete tasks. Higher levels of task conflict then result in higher salary as well as lower levels of intent to quit and continuance commitment.

Our results also support the hypotheses related to subordinate individualistic and collectivistic values. Individualistic values were positively related to task conflict. This suggests that in vertical dyads subordinates with individualistic values are more likely to engage in and respond to task conflict. Collectivistic individuals are less likely to respond positively to task conflict. This idea is supported by the fact that collectivistic values were negatively related to task conflict. As mentioned previously, task conflict does mediate the relationship between subordinate's values and intent to quit.

Contributions

The dyadic approach provides insight regarding the antecedents and outcomes related to task conflict. Such an approach contributes to the existing findings of the group or team approach. Related, previous research on conflict has almost exclusively focused on group performance outcomes and not actual behavior and attitudes of group and dyad members. We believe our approach of examining individual level outcomes such as employee commitment and salary offers a unique contribution to the literature. Future research should investigate other individual level constructs impacted by task conflict such as job satisfaction, stress, and workplace deviance. Finally, our study, which surveys actual field employees, provides both generalizability and realism.

Limitations and Future Directions

First, our sample lacks randomization because it was limited to the workplace contacts of business graduate student. Future research would benefit from an experimental field study to provide additional confidence in both internal and external validity. Second, we investigate all relationships from the perspective of the subordinate that prevents us from establishing consensus between supervisors and subordinates on the conflict measures. The supervisor's perspective would also allow exploration on their well-being as well as how their values impact the level of conflict also. Finally, this study focuses on task conflict only. While we include relationship conflict in our model, we do not develop hypotheses for that construct. Although beyond the scope of this study, we note some interesting findings in that relationship conflict has the opposite effect than task conflict on our individual level outcomes. In other words, relationship conflict appeared to be disruptive while task conflict seemed functional providing some support for Jehn's theory of conflict. In conclusion, we find that employees can experience positive outcomes when they engage in healthy task conflict with their supervisors.

In sum, the current study provides support for the mediating effect of task conflict between organizational culture/subordinate values and intent to quit. It serves as a starting point for future studies that may consider the importance of vertical dyads in organizations and contributes to the conflict literatureby providing more insight on how to facilitatitepositive outcomes associated with task conflict in the workplace.

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TEAM MENTAL MODELS, GROUP DIVERSITY AND INTRAGROUP CONFLICT

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Abstract

This paper seeks to integrate research in shared cognition, group diversity and intragroup conflict. The paper presents a brief review of shared cognition research, compares two published taxonomies of shared cognition, and integrates the extant approaches to mental model categorization into three types: task-work, team-work, and shared approach. Optimized mental models are compiled using various levels of two distinct types of diversity: separation and variety. The paper proposes six testable hypotheses regarding the relationship between the three types of team mental models and three types of intragroup conflict: task, relationship and process.

Introduction

Consider two scenarios: Team A and team B. Team A is able to work side by side on a multitude of tasks, coordinating their actions seamlessly without speaking a word to each other, and all the while accomplishing their goals with aplomb. Team B trip and stumble over each other, often barely able to take time out from bickering over who should do what or how it should be done, to see if they are even heading in the right direction. Granted, these two scenarios represent extremes and the number of possible reasons why two teams might function at considerably different levels of effectiveness is exhaustive. However, one very possible aspect of how these two groups are differentiated is that within a given group, each group member may have completely different approaches to organizing and executing their work - - that is to say, they have different "mental models" that guide their workplace behavior and influence their reactions to various situations and teammates. These differing mental models may be the result of the interaction of each individual member's mental models when they are working together and functioning as a group. In the case of Team A, the group functions quite well; its effort is primarily spent on organizing and executing the at hand. With Team B, there appears to be something preventing the group from sharing information and coordinating their effort, which in turn requires them to spend time and energy trying to resolve conflicting ideas and approaches. The result of this misspent effort is lower productivity and reduced group cohesion.

The group level interaction of individual group members' mental models is the focus of this paper. The following will provide a brief review of current and past research on shared cognition, suggest a framework of three types of team mental models, and propose an optimum composition of individual member mental models that correspond with the critical group processes that frequently engender conflict. The paper also suggests six testable hypotheses that may help in determining the relationship between optimum mental models and group outcomes.

Shared Cognition and Team Mental Models

To begin the discussion of the relationship between team mental models and team outcomes it is necessary to define two key terms in order to explain the domain of applicability of the forthcoming propositions and the focal construct. The terms "team" or "group" will be

used interchangeably to describe a specific types of arrangements of a groups of individuals. Using Hackman and Wageman's 2005 definition, "teams" are defined as intact social systems having clearly defined boundaries in which members have differentiated roles and are interdependent in terms of achieving team goals. Team members are distinguishable from nonmembers and their size may be large or small, and of either short or long duration (temporary project team or ongoing functional unit). Teams have one or more group tasks to perform and are collectively responsible and accountable for achieving expected outcomes. Teams operate within a social system context and are responsible for managing their relationships with other individuals or groups within the larger social system wherein they exist.

The term "team mental model" is a more challenging term to define. The problem is best articulated in Cannon-Bowers and Salas' reflections on shared cognition which summarize the 2001 special issue of the *Journal of Organizational Behavior*, dedicated solely to the topic. Cannon-Bowers and Salas decried that the term "social cognition" (used interchangeably with the term, "team mental model") was used by many people to describe many things, and unless the field developed specific definitions and constructs, the term could potentially become useless. Conversely, they also supported the notion that shared cognition was a valuable construct with potential to improve our understanding of how members of effective teams interact with each other. They give as an example how high performing teams (HPT), were able to coordinate their behaviors without explicit communication. They also pointed to research that suggests team members with shared knowledge are able to interpret cues in a similar manner allowing them to make compatible decisions and take appropriate, well coordinated actions.

Cannon-Bowers and Salas suggested that the shared cognition construct can be used as a predictive variable in measuring team effectiveness. As a predictive measure of potential team performance, it could benefit management by serving as a source of recruitment and/or selection criteria to enable the identification of compatible team members, which in turn, leads to optimally matched members, and overall improved team composition. In some cases, teams would benefit from a diverse set of member knowledge, skills and abilities which collectively provide the team with a broad resource set to draw on; at other times, similarity of approaches and beliefs would best facilitate group interactions depending on the task and nature of the work group.

Cannon-Bowers and Salas also suggested that shared cognition could be used as a diagnostic tool for existing teams. The lack of shared cognition within a team may serve as an indicator of communication deficiencies; managers can then identify the deficiencies and development interventions aimed at improving communication and shared cognition. And finally, Cannon-Bowers and Salas provided an overview of four fundamental questions they believed needed to be addressed in order for the shared cognition construct to attain its potential utility in improving the understanding and predictability of group performance. Specifically, the questions they ask to better define the construct are: what is shared, how is it shared, how is it measured and what outcomes are affected?

What is Shared in Shared Cognition?

Cannon-Bowers and Salas, (echoing the work of Klimoski & Mohammed, 1994) addressed the question of what is shared by identifying four separate categories of knowledge pertaining to work groups: 1) task-specific knowledge, 2) task-related knowledge, 3) knowledge of team mates, and 4) attitudes and beliefs. Task-specific knowledge allows members to take coordinated action without overt communication (as in the previous example of the HPT). In the case of a design team, this would include specific elements such as specific techniques, use of

tools, and principles involved in production of precision technical plans, blueprints, drawings, and models. Task-related knowledge is common knowledge about task related processes such as how to measure or weigh materials or turn on or stop a machine, such as in the case of a production team. Knowledge of team mates would include understanding individual team member's preferences, strengths, weaknesses, and behavioral tendencies.

The fourth category identifies attitudes, which represent favorable or unfavorable dispositions toward social objects, such as people, places, and policies (Greenwald & Banaji, 1995). Beliefs represent that which is held as true by an individual whether in fact it can or cannot be proven or disproved (Cannon & Edmondson, 2001). According to Cannon-Bowers and Salas, the level of shared attitudes and beliefs may be predictive of when members will have compatible perceptions about tasks and the environment.

DeChurch and Mesmer-Magnus (2010), offers a separate classification of "what is shared," calling it the "content of collective cognition". Content is either task-related or team-related. Task-related shared cognition refers to features of the team's job, its major task duties, knowledge of equipment, and resources derived from a detailed analysis of the task. They believe task-related models enabled effective teamwork, with compatibility in cognitions enabling members to interpret information similarly and anticipate behaviors needed to respond in a coordinated manner. Conversely, team-related collective cognition includes features of how team members interact and are interdependent with one another. How shared cognition is conceptualized is believed to affect what it impacts. Task mental models are expected to increase task performance, whereas team mental models are thought to improve team process (Cannon-Bowers and Salas, 2001).

Another classification DeChurch and Mesmer-Magnus offer is regarding the form of cognition. They suggest that research focuses on three different forms of cognition: perceptual, structured and interpretive (with the first two types being predominate). Perceptual cognition describes team members' beliefs, attitudes, values, perceptions, prototypes, and expectations. Structured cognition described the pattern of knowledge arrangement and then models the collection of knowledge patterns within teams.

How Knowledge is Shared

The next question Cannon-Bowers and Salas asked was how knowledge should be shared at the group level in order to support effective team performance. Shared or overlapping knowledge is required when two or more team members are required to have knowledge in common. For example, a surgeon and a nurse each possess distinct knowledge appropriate for their different roles in the operating room, yet they require some knowledge in common in order to coordinate their actions. Similar or identical knowledge, specifically involving attitudes and beliefs, is needed to facilitate common interpretations among group members in response to cues from the environment, changing situations, and unfamiliar occurrences. Compatible or complementary knowledge leads members to draw similar expectations for performance (such as a multidisciplinary team with members having specialized knowledge all focused on the same problem). Distributed knowledge describes knowledge that is too complex to be effectively embodied in any one team member but rather is apportioned across several or all members of the team.

DeChurch and Mesmer-Magnus use the terms *mental models* and *transactive memory systems* to describe how knowledge is shared. Knowledge that is in some way held in common by team members is described as a shared mental model. Knowledge that is distributed among team members describes transactive memory systems, which are defined as a form of cognitive

architecture encompassing both the knowledge uniquely held by individual group members and the collective awareness of who possess different pieces of knowledge. Research on transactive memory has looked at the extent to which the team's knowledge is distributed and retrieved in a coordinated fashion, how team members rely on knowledge possessed by their teammates, and how team members' knowledge sets are differentiated within the team. The benefit of transactive memory is the reduction of redundant effort and cognitive load for any one team member, and increased access to expertise for all team members.

Measuring Shared Cognition

The third question addresses how social cognition is measured. While Cannon-Bowers and Salas acknowledge that much work needs to be done in this area, they offer that both content and structure need to be measured as well as how it the content is shared. Mohammed, Klimoski, and Rentsch (2000) provide a detailed description and analysis of four measuring methodologies: 1) Pathfinder, 2) multidimensional scaling, 3) interactively elicited cognitive mapping, and 4) text-based cognitive mapping. They also suggest that aggregating individual mental model measurements will not perfectly capture the group level model. They describe that group-level cognitive structures can also be measured by "letting the collectivity speak for itself" through the use of global measurement methods. They also suggest that for measuring cognitive processes, verbal protocol analysis is the most commonly used technique. The most common methods for examining the content of team mental models are similarity ratings and Likert-scale questionnaires; and they recommend multiple measures to insure the adequate capture team of mental models.

Textural analysis is a primary tool for measuring both individual and team mental models. Textual analysis techniques are used in many fields such as political science, sociology, management science, marketing, organizations, communication, rhetoric, and artificial intelligence. The techniques are designed to extract some form of representation of an individual's mental model. For example, content analysis assumes that as individual's mental model can be represented by recording the frequency of, and the presence or absence of, the use of certain concepts in a text. Content analysis assumes that the meaning of concepts is not affected by context. The technique focuses on counting the words or general concepts used by the individual being measured and it hypothesized that individuals with similar work and concept counts have similar mental models in regards to the specific context under study. Procedural mapping techniques assume that mental models are a set of implicit or explicit procedures used by an individual to perform a given task and their specific order of use. Procedural mapping focuses on the actions of an individual, the order of processing, and the logic of their reasoning. Cognitive mapping researchers assume that mental models are a set of cognitive structures which either exists in memory or emerges during interactions. This view of mental models includes both declarative and procedural information, with a belief that the meaning and use of that information depends on the way in which it is interconnected (Carly, 1997).

Outcomes of Shared Cognition

The final question asked by Cannon-Bowers and Salas in their reflection is: what are the potential outcomes influenced by shared cognition? They suggest that trends in the literature anticipate that shared cognition could lead to better task performance such as improved accuracy, efficiency, quality, volume and timeliness. Better developed team mental models may lead to better team process and better task performance though more efficient communications, more

accurate expectations and predictions, greater attainment of group consensus, increased similarity of interpretations of cues and stimuli among team members. These potential outcomes may in turn lead to improved motivational outcomes, such as group cohesion, trust, morale, collective efficacy, and group satisfaction.

In summary, a mental model is a conceptual representation within a person's mind that is used to help the person understand and interact with the world. They are psychological representations of real, hypothetical, or imaginary situations. They are the small-scale models of reality an individual uses to anticipate events, to reason, and to comprehend explanation. A team mental model is comprised of the overlapping mental models that team members have in common (Cannon-Bowers & Salas, 2001; Johnson-Laird, 1983). Team mental models can be categorized by the nature of the team process they support. Cannon-Bowers and Salas categorize them as either task-specific mental models, task-related mental models, knowledge of team mates mental models, and attitudes and beliefs mental models. DeChurch and Mesmer-Magnus categorize mental models in two broad categories: task-work mental models or team-work mental models, and defines two primary forms of cognition, perceptual and structured.

The degree of overlap between individual models that form a team mental model is a salient feature of team a mental model and a critical factor in determining the effectiveness of the team mental model. In support of this proposition I will present a categorization of mental models that integrates the previously discussed research with two streams of related research. The first is the work of Harrison and Klein, 2007 on the construct of group diversity and the second is the work of Jehn, 1997 on intragroup conflict.

Group Diversity

Harrison and Klein put forth a model of diversity that describes how distributions of member attributes contribute to the diversity of a group in contrast to the more traditional approach of considering the nature of the attribute understudy, such as demographic, educational, social and cultural diversity. Their model describes three types of diversity: Separation, Variety and Disparity, and proposes how the level of diversity along these three dimensions will interact with the particular individual attribute under consideration.

Separation consists of opinions, beliefs, values, and attitudes, of individual members toward team goals and processes. Minimum separation would exist when all group members shared the same opinions, beliefs, values, and attitudes; the expected outcome of minimum separation would be increased task performance, positive group affect and minimal group conflict. Maximum separation would exist when the group is divided between two opposing views and reduced task performance and group cohesiveness, as well as increased interpersonal conflict and distrust, would be the expected result.

Variety consists of individual members' level of content expertise, their functional background, breadth of network ties, and industry experience. Minimum variety would exist when all members have the same set of knowledge, skills, experiences and professional networks. Minimum variety may result in limited access to knowledge resources, reduced creativity and lower quality decision making. Moderate variety exists when there are a few clusters of homogenous attributes, and it may lead to reduced information sharing and coalition building, which in turn may lead to reduced group performance. Maximum variety consists of uniform distribution of members' attributes leading to a broader knowledge resource base and minimal coalition forming. This is turn may lead to improved creativity, group flexibility, innovation, and higher quality decision making. Maximum variety may also lead to increased task-conflict.

The third type of diversity is disparity. Disparity describes the level of inequality within a group and is concerned with differences in individual attributes such as group member compensation, prestige, status, decision making authority, and social power. Minimal disparity exists when all group members are equal. Maximum disparity exists when one group member receives or holds the highest level of attributes such as pay, status, and authority, and all other group members hold or receive the lowest level. Minimal levels of disparity may support increased trust and cohesion; maximum levels of disparity may lead to negative competition between group members, resentful deviance, reduced member input, and withdrawal.

Intragroup Conflict

Intragroup conflict is a well studied construct that suggests group performance is negatively related to group conflict. While some scholars maintain that certain levels of task-related conflict may actually lead to improved performance, the empirical proof has yet to support the proposition (De Dreu and Weingart, 2003). Intragroup conflict results in wasted effort leading to lower productivity and increased dissatisfaction which in turn leads to reduced motivation in team members (Jehn & Mannix, 2001). Jehn, in her 1997 study of six work units in the international headquarters of a household goods moving company, identified three distinct and differentiable types of group conflict. Through almost 2,000 hours of observation and semi-structured interviews over the course of 20 months, she found that group conflict could generally be categorized as either relationship, task or process related conflict. Relationship conflicts arise in response to interpersonal issues; task conflicts are in response to the content and goals of work; and process conflicts are generated as a response to different approaches to how tasks should be planned, organized and accomplished. Process conflict is a result of disagreements over logistical issues of the task, such as how to get the task done and what roles team members should be assigned.

Jehn also indentified four distinct dimensions of conflict that moderate the impact of conflict on group performance. They include negative emotionality, acceptability norms, resolution potential, and the conflict's importance relative to the group. Negative emotionality is related to poor group performance and low member satisfaction, and is reflected in the amount of negative affect exhibited and felt during conflict. Acceptability norms address the level and type of conflict that is deemed acceptable by the group. Groups may have different norms for different types of conflict, such as an acceptance of fairly high levels of task or process conflict but little or no toleration of interpersonal conflict. Jehn found that groups with norms allowing conflict willingly discussed problems and openly displayed their feelings about conflicts. She also found that groups with norms that reinforced conflict as unacceptable behavior attempted to refrain from behaving in ways that might stimulate conflict.

The third dimension of conflict addresses member's perception of the resolution potential of a conflict. Whether a member perceived a conflict to be resolvable was a function of the member's past experience, the personalities of the group members, the group structure (such as the degree of autonomy the group has, level of interdependence of group members and the level of leader involvement), and the other dimensions of conflict (importance, emotionality, acceptability). Conflicts of low importance and emotionality were generally perceived as more resolvable than high-emotion, high-importance conflicts, irrespective of the conflict type. Jehn's fourth dimension entails the relative importance of the conflict, viewed as the severity of the conflict's anticipated consequences to the group.

Propositions

Based on the preceding discussion of team mental models, group diversity and intragroup conflict, I propose a testable relationship between three specific types of team mental models and levels of intragroup conflict. The first team mental model proposed is a ***shared team-work mental model*** based on a composite of Cannon-Bowers and Salas' categories of the knowledge of team mates and attitude and beliefs types of shared cognition and De Church and Mesmer-Magnus team-work model and perception view of form of cognition. Attributes of the shared team-work mental model include individual member's attitudes (positive or negative toward social objects, such as people, places, and policies), beliefs, preferences, values, perceptions, prototypes, expectations and behavioral tendencies. This model is most related to interpersonal conflict, and group composition suggests that minimal separation between the team-work mental models of the individual team members will yield reduced levels of conflict and increased performance.

Hypothesis 1a: Shared team-work mental models composed of minimal individual team-work mental model separation will be related to increased group performance.

Hypothesis 1b: Shared team-work mental models composed of minimal individual team-work mental model separation will be related to reduced interpersonal conflict.

The second team mental model is a ***shared task-work mental model*** based on a composite of Cannon-Bowers and Salas' categories of the task-specific knowledge and task-related knowledge and De Church and Mesmer-Magnus task-work model. Attributes of the shared task-work mental model include knowledge pertaining to features of the team's job, major task duties, and technical, procedural, operational, and resources derived from a detailed analysis of the task. This model is most related to task conflict and ideal group composition suggests that maximum variety among individual team member's task-work mental models will yield increased levels group performance and conflict.

Hypothesis 2a: Shared task-work mental models composed with maximum individual team-work mental model variety will be related to increased group performance.

Hypothesis 2b: Shared task-work mental models composed with maximum individual team-work mental model variety will be related to increased task-conflict.

The third team mental model is a ***shared approach mental model***. This category of mental model is not addressed directly by Cannon-Bowers and Salas or De Church and Mesmer-Magnus; however, it features some elements included in the task-work and team-work models. The shared approach mental model consists of preferences, priorities, and practices used in the process of organizing work and allocating resources. It contains the elements of the task-related category needed to coordinate effort between individuals with different task knowledge, roles and responsibilities. It contains attributes of the perception form of cognition such as values, perceptions, and expectations. This model is most related to process-conflict and the ideal group composition suggests that minimal separation between individual team member's shared approach mental models will yield reduced levels of conflict and increased performance.

Hypothesis 3a: Shared-approach mental models composed with minimum separation between individual approach mental models will be related to increased group performance.

Hypothesis 3b: Shared-approach mental models composed with minimum separation between individual approach mental models will be related to decreased process-conflict.

Method

The proposed hypothesis could be tested through observation of intact teams, which would yield an assessment to some degree of the support for the hypotheses but not a indication of causality. An experimental design could be used to create teams in a lab setting and provide an

opportunity for the manipulation of the mental model constructs by allowing the creation of team mental models that specifically match the levels of each type of diversity posited as creating the optimal group composition for the relevant team mental model. The independent variable would be the team composition as measured by the type and distribution of relevant attributes possessed by individual team members. The dependent variable for intragroup conflict would be the group-aggregated level of conflict from measures of individual member's perceptions. The dependent variable for performance would be measured through self report measures of group member satisfaction and cohesiveness, and through observations of group task outputs, such as the quality and quantity of complete task in a given period.

Discussion

The preceding discussion focuses on three types of team mental models and views them in isolation. Clearly, groups face a diverse array of task and situations, and multiple mental models will be used to guide individual group member's behavior. Therefore, in addition to Cannon-Bower's and Salas' call for improved definition and categorizations of shared cognition, researchers should be looking for ways to measure the effect of multiple types of mental models operating simultaneously within a group and seek to develop ways to test various configurations of team mental models. Research could also look at how team mental models form over time and what types of interventions could be implemented to develop optimal team mental models. Specific areas of research may also include: the effects of integrating new team members; how to develop improved mental models with existing teams; the potential negative effects of shared mental models (Klimoski & Mohammed, 1994); and lastly, how to balance the competing effects of team mental models that require high levels of variation in order to be effective along one dimension and similarity along another dimension to prevent conflict such as the case of task-work mental models that are optimized by variety but increase potential conflict due to their lack of similarity. Learning how to better understanding and how to manage this paradox may lead to a better understanding of shared cognition and the role it plays in effective group processes.

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INCREASING COIN-IN THROUGH AN INTENSIVE TEAM BUILDING CAMPAIGN FOCUSED ON CUSTOMER SERVICE

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Abstract

The research question, can team building increase revenue was tested at a mega casino. The general manager implemented a strategic initiative to enhance revenue through exemplary customer service. Team building outcomes included the establishment of team pacts and team goals and improved communications between management and employees. The team pacts and team goals included customer service agreements created by each team. The team pacts and team goals established performance goals that introduced concrete measurable performance outcomes. This feedback loop provided employee autonomy that assessed the quality of the team's efforts. This paper defines team building, enucleates the researcher's process, and concludes with quantitative evidence that supports the financial benefits of team building as a revenue enhancement tool.

Introduction

Casinos all offer similar machines and games with the odds of winning in the hands of the house or casino. Given that customers have choices of where to play; the distinguishing determinant in the customer's decision is creating a positive, repeatable experience for the customer. The authors proposed that team-building intervention focused on improved customer service would result in increased customer loyalty, which would lead to increased coin-in for the casino. The phrase, *coin-in*, describes the total amount of monies inserted into a slot machine (Ahlgren, Dalbor & Singh; 2009).

Various authors (De Meuse & Liebowitz, 1981; Liebowitz & De Meuse, 1982; Ammeter & Dukerich, 2002) have debated the value of team building as an economically beneficial training tool. The authors of this paper explored coin-in at a mega resort and entertainment casino using regression analysis before and after implementing team building. Significant increases in coin-in were directly attributed to team building, thereby validating team building as a revenue enhancement activity.

Team Building

According to Liebowitz and De Meuse (1982), team building is defined as an:

… intervention in which intact work groups experientially learn, by examining their structures, purposes, norms, values and interpersonal dynamics, to increase their skills for effective teamwork. It is a direct attempt to assist the group in becoming more adept at identifying, diagnosing and solving its own problems, usually with the aid of a behavioral science consultant. (p. 2)

Concomitantly, Buller (1986) suggested this definition of team building. "A planned series of meetings facilitated by a third party consultant, with a group of people having common

organizational relationships and goals that is designed specifically to improve the team's task accomplishment by developing problem solving procedures and skills and then solving the team's major problems "(p. 149). Liebowitz and De Meuse (1982) and Buller (1986) all agreed that no conclusive definition of team building exists. Buller (1986) emphasized team building from a problem solving perspective noting that this perspective includes "(1) a planned intervention, (2) facilitated by a third-party consultant, (3) with an intact work group, (4) that develops the problem solving capacity of the team, and (5) solves major problems" (p. 149). The authors of this study selected the above definition as a working definition for team building. Every team did in fact disclose problems uniquely specific to their team. The implementation of team building on a planned intervention basis included pre-planning with supervisors who identified concerns from their perspective. As the team building evolved, team members validated the supervisor's concerns, or brought forth new concerns that contradicted or reinforced the supervisor's concerns. A third-party consultant facilitated and conducted the team building, setting up sessions with all segments of the casino personnel. The team building used intact work groups and focused on improving interpersonal skills and communication skills. Teams identified opportunities for improvements using a positive approach to identifying and solving problems. Step five, solving major problems, typically included involving other departments, implementing the solution, creating feedback loops to maintain a continuous communication flow, and evaluating the success of the solution.

The authors used a simple, effective methodology for delivering team building to the casino. (1) Established ownership of shared goals, (2) removed inhibitors/blockages to achievement of those goals, (3) introduced enablers to help achieve those goals, (4) used team building processes and tools in the correct sequence to gradually improve performance, and (5) Tracking™ performance in order to grow strengths and maximize outcomes.

Zenger and Miller (1974) identified personal motivation as a component of successful team building. Zenger and Miller (1974) noted that individuals have an innate desire to achieve and grow for their own personal fulfillment as a contributing member of the team. The authors of this study specifically focused on this literature using team building intervention techniques that transferred ownership for quality work to specific employee teams, creating an environment where each person willingly contributed their best efforts for the benefit of the team. Team building success involves the acceptance of personal responsibility and accountability for the success of the team (Ammeter & Dukerich, 2002). The consultant used coaching techniques to develop strengths and positive reinforcement to encourage teams to a level of excellence expressed as individual team commitment.

Team Building Process

The team building process followed by the consultant allowed intact teams to: (1) set team goals, (2) establish team pacts, (3) establish customer service agreements, (4) assess team satisfaction and team successes, (5) develop a team decision-making matrix, (6) develop a team communication plan, (7) establish a peer feedback loop, (8) develop a team performance improvement process, and (9) establish a team recognition system. Each of these outcomes included buy-in from the teams since each team created their own unique outcomes. The consultant focused on creating measurable outcomes by assisting the teams in creating behaviorally anchored activities within each of these documents.

Team building was implemented in February of 2008 with a massive Team Rally to introduce the concept of team building. Starting in October of 2008 (and continuing), on site consulting throughout all levels of the casino occurred. Top executive leadership teams, security

personnel, housekeeping, parking attendants, and front-line attendants were all included in the team building sessions. Sessions were scheduled to ensure that every shift had easy access to the training. Shift supervisors and managers were present in every team-building session. People from different shifts were blended to increase cross communication flows and understanding of different perspectives. Each team had the opportunity to suggest improvements (WHAT IF'S) that affected their jobs. As these suggestions connected to adjacent teams, feedback loops were established to move improvements throughout the value chain of the casino.

The creation of feedback evaluation tools further strengthened communication throughout the casino. The evaluation tool tested the accomplishments of each team based on their specific outcomes identified in the 9-step team building process. Based on the feedback, adjustments and improvements were recommended and assigned to the appropriate team(s).

Team Building Outcomes

Using the above-described approach to team building, the team members learned to visualize their highest intentions. They learned the power of appreciating each other and being appreciated. In the process of team building, they set a team vision, generated their list of WOW's (outstanding behaviors) for job satisfaction, and offered suggestions for continuous improvements categorized as WHAT IF'S. The teams reported out that they learned to deal with old baggage and work together to achieve collective peak performance by understanding how each team's behaviors affected the entire organization. As the teams WOW's and WHAT IF'S were accomplished, the teams expressed pride and autonomy in recognizing the importance of their individual efforts as significant contributors to the success of the entire organization.

The authors of this study concatenate research by McClean (2009), and Wieseke, Ahearne, Lam and Dick (2009) who determined that improved internal customer identification (defined as organizational identification and commitment) positively related to financial performance. McClean (2009) determined that employee groups as exemplars of customer service as a competitive advantage were moderated by the impact of their effort upon the organization. The greater the employee group's impact on the organization, the more significant their actions became as an organizational competitive advantage. The authors of this study proposed that employee behavior and performance is the competitive advantage that distinguishes a winning customer experience over a mediocre customer experience within the casino industry. Improved profitability is proposed as a direct result of employee commitment to the organization. The authors focused on creating a positive casino experience for the guests by creating synergistic employee teams, that worked together effectively through the existence of well-defined clear systems and procedures, and an environment built on open and healthy communication. Loveman (2003) specifically addressed the importance of excellent customer service as a competitive advantage that increased revenue for Harrah's in Las Vegas. For casinos, the financial odds are against the guest. That means the guest must have a pleasurable experience even when the guest loses money. The guest's enjoyment, satisfaction, and loyalty to the casino result from their interactions with the casino employees. To create a pleasurable experience, employees must recognize their influence on the guest's enjoyment.

The power of the collective employee group moving en masse to accomplish their unique goals underscores the importance of a cohesive approach to managing the organization. Every aspect of team building was aligned to support the organization's business strategies and objectives for creating a winning guest experience. The team building for this casino focused on the casino's vision and goals, thereby increasing the likelihood that employees would display on-

the-job behaviors that would enhance the player's experience. The casino commonalities highlighted throughout each team building training included:

1. The entire floor staff, supervisors, and shift managers embrace each other as one united team who value each other and feel valued.

2. The entire team enjoys each other and embraces common agreements for happily working together and supporting each other both within shifts and between shifts.

3. Everyone on the team is equipped with the tools, skills, and knowledge to welcome and assist guests to create a benchmark winning experience, including the ability to promote complimentary services.

4. The team understands the importance of selling club membership, and have the knowledge and skills to help guests obtain memberships and services.

5. Everyone demonstrates support for each other, including all levels of leadership.

6. The leadership reflects outstanding models of great customer service and inspires greatness intended to make raving fans of everyone connected within or beyond the casino.

Together, these six commonalities formed a framework from which each tem could recognize how their actions contributed to the casinos success.

Financial Gains from Team Building

De Meuse and Liebowitz (1981) completed a meta-study of over 36 published studies on team building. Their review focused on: (1) research designs, (2) sample sizes, (3) dependent variables, and (4) the length of time the intervention was investigated. Their findings suggested that team building improved employee attitudes, perceptions and behaviors, which resulted in improved organizational effectiveness. However, they noted the lack of rigor within the research methods that precluded them from attestation that team building directly affected organizational effectiveness, or possibly pointed to auxiliary variables accounting for the organization's effectiveness.

The ultimate goal of any team building exercise is to improve business results. Previous researchers identified the financial benefit of team building as an area for further study (De Meuse & Liebowitz, 1981). The results of this study provide further evidence that team building does improve employee attitudes, perceptions, and behaviors, resulting in improved organizational effectiveness. Additionally, this study proves that team building does increase revenue as described by increasing daily coin-in. Using regression analysis, before and after implementing team building, indicated an increased coin-in of $825,000 per day. Holding all other variables in the regression model constant, team building directly and significantly improved daily coin-in. The coefficient is statistically significant at the 95% confidence interval, and the adjusted r-squared of the model is 94%. Regression analysis identifies which variables drive daily coin-in at a casino. The estimated multivariate regression equation finds day of the week, seasonality, and trend affect daily coin-in at the casino. Other factors that drive coin-in are gas prices, football games, competing casino promotions, weather, payday, daily actual hold percentage, holidays, financial/economic conditions, concerts, promotions, and of course team building training. Regression analysis is used to determine how much of the historical total coin-in for that particular day was due to team building training and how much was due to other factors. The regression equation provides a breakdown of total daily coin-in for each day of the year for the casino. The regression analysis isolates the exact relationship between the team

building training and coin-in while factoring in all other variables in the model that affect total daily coin-in for that day.

Conclusion

This study describes the team building process implemented at a mega-resort and casino. The process included the creation of a 9-step team-building outcome focused on creating an exemplary experience for guests of the casino. Employee team feedback indicated improved abilities to visualize and verbalize team intentions, improved appreciation for employee efforts throughout the casino, increased levels of autonomy, and improved awareness of the synergistic affects of commitment to a cohesive understanding of the commonalities communicated throughout the casino. Furthermore, the implementation of team building verifies that team-building can and does positively contribute to the bottom line.

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PUTTING THEIR BEST FOOT FORWARD: IMPRESSION MANAGEMENT IN THE INTERVIEW

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ABSTRACT

The topic of impression management (IM) in the employment interview has gained a great deal of scholarly interest in the past two decades. Despite findings that IM influences interview outcomes, relatively little is known about what traits predict these behaviors. Further, a debate exists regarding why IM in the interview actually matters. The authors propose a mediation model in which personality traits influence multi-source (interviewer and applicant) ratings of IM, which in turn have unique effects on important interview outcomes. Specifically, it is proposed that some IM tactics will be positively related to interview outcomes when rated by the applicant but negatively related when rated by the interviewer. The proposed mediation suggests that successful IM usage may actually be an indicator of applicant competence, thus contributing to the validity of the interview and ultimately our understanding of why impression management matters.

Applicants vying for employment in today's economy are fully cognizant of one thing: before securing a job offer, they must first convince the organization that they are worthy of joining its ranks. Accomplishing this task generally requires the successful completion of an oral examination commonly known as the employment interview. Indeed, the interview is arguably the most widely accepted and utilized selection tool among today's businesses (Bell, 1992; Judge, Higgins, & Cable, 2000; Posthuma, Morgeson, & Campion, 2002). In fact, it is so heavily relied upon that an applicant's performance in the interview is actually perceived to be more important in hiring decisions than established objective, job-relevant credentials such as general mental ability (Dipboye, 1992; Barrick, Shaffer, & DiGrassi, 2008). Given the importance of performing well in the employment interview, it is no surprise that applicants attempt to put their best foot forward when presented with this challenge. But herein lies a problem. Is this 'best foot' so to speak a true indicator of the applicant's potential, or is it perhaps a mere facade designed to trick the interviewer into rendering a higher evaluation?

This very issue has received increasing attention from human resource (HR) scholars over the past twenty years. Research suggests that this phenomenon, in which people use specific tactics to portray positive images of themselves, is occurring quite frequently in the employment interview (Baron, 1983; Gilmore & Ferris, 1989; Fletcher, 1990; Kacmar, Deleary & Ferris, 1992; Stevens & Kristof, 1995). A recent study conducted by Levashina and Campion (2007) found that 90% of applicants engaged in impression management tactics during the interview. Another study of 119 applicants found that all but three engaged in these tactics (Ellis, West, Ryan, & DeShon, 2002).

Impression management (IM) tactics are techniques used to regulate or control information about one's self, thus portraying a particular image to a target person (Schlenker,

1980). Researchers contend that the interview is an ideal setting for this type of behavior, as the applicant is experiencing a great deal of pressure to fit the needs of the interviewer (Godfrey, Jones, & Lord, 1986). These pressures are likely to motivate the applicants to create a positive, and potentially misleading, image of themselves in order to influence a positive outcome.

Dispositional traits of the applicants have attracted relatively little attention in the impression management literature, as only a modest collection of individual differences have been investigated as potential predictors of IM (e.g., Kristof-Brown, Barrick, & Franke, 2002; Van Iddekinge, McFarland, & Raymark, 2007). This lack of a thorough examination, in addition to several mixed findings, has triggered a call for further exploration into the antecedents of impression management (Gilmore, Stevens, Harrell-Cook, & Ferris, 1999; Kristof-Brown et al., 2002).

Additionally, research on IM tends to use only a single-source rating of these tactics. Indeed, many studies use either applicant self-reports or interviewer ratings of IM. Without accounting for both sources, it is impossible to determine the true ability of interviewers to detect these tactics. Further, unless both sources are accounted for, we cannot capture the potential differential effects that these ratings may have on the outcome of the interview.

Finally, the question of why impression management in the interview actually matters has recently become the source of much debate among scholars in the HR arena. Consistent findings that IM is positively linked to interview outcomes (e.g., Gilmore & Ferris, 1989; Kacmar, Delery, & Ferris, 1992; Stevens & Kristof, 1995) have captured the attention of scholars and practitioners alike. Two conflicting views have emerged that attempt to interpret the true meaning of this relationship. On the one hand, researchers have cautioned HR professionals against rewarding undeserving applicants that create inaccurate, misleading images of themselves, and instead recommend using objective, job-relevant criteria to make hiring decisions (Harris, Kacmar, Zivnuska, & Shaw, 2007). On the other hand, some scholars have suggested that any image distortion resulting from IM tactics should not only be viewed as an effort to produce a desirable impression, but it is also an indication of the capacity to do so in job-relevant settings (Kristof-Brown et al., 2002). Thus, it is quite possible that the effective management of one's impression is actually a measure of competency. The validity of the employment interview is at least partially dependent on which of these views is found to be more accurate.

This paper aims to help fill the literature gaps discussed above, and in doing so, contribute to our understanding of who is likely to engage in IM and why this engagement matters. The personality traits used in this paper have all been positively correlated with interview outcomes (Caldwell & Burger, 1998). We propose, however, that these traits actually work through IM behaviors to influence the outcomes. Therefore, we expect that IM tactics mediate, at least partially, the relationship between personality traits and interview outcomes. This mediation contradicts the view that IM biases interview outcomes. Rather, it suggests that applicant characteristics driving IM tactics are the same qualities that interviews are designed to capture. That is, applicants engaging in desirable, self-promoting IM tactics may possess the favorable traits companies are trying to detect in the employment interview. Conversely, applicants engaging in deceptive, misleading tactics may possess undesirable traits, suggesting that these are the same people that companies strive to weed out. We discuss the difference between these IM types below.

THEORETICAL FRAMEWORK AND HYPOTHESES

Social influence and social dependence theories can both be used to explain the motivation behind an applicant's use of IM, as well as an interviewer's reaction to these tactics. Social influence theory suggests that nearly all interpersonal relationships involve some form of influence between parties. That is, in a social exchange, a person or persons will always influence others to a certain extent (Barrick, Schafer, & Digrassi, 2009; Cialdini & Trost, 1998; Levy, Collins, & Nail, 1998). Social interdependence theory refers to an interpersonal relationship in which one or more parties depend on another in order to achieve a goal (Deutsch, 1949). The employment interview is an ideal setting for social influence and social interdependence theories to co-exist. Simply put, applicants are dependent on the interviewers' evaluations of them to achieve the ultimate goal of receiving a job offer. This dependence serves as motivation for an applicant to influence the interviewer's impression of him or her. Thus, IM tactics act as social influence mechanisms that aim to maximize the desired outcomes and minimize the potential negative consequences that may result from the interview (Ferris, Hochwarter, Blass, Kolodinsky, & Treadway, 2002).

These theories also help explain why interviewers react to impression management. According to social influence theory, because people in social interactions are always influencing others, somebody must also be influenced (Cialdini & Trost, 1998). Therefore, an interviewer who is the target of IM tactics is likely to be impacted by them to some extent. Social interdependence theory further posits that interviewers are also dependent on the applicants for information about their qualifications. This dependency heightens the likelihood that the interviewer will be influenced by IM tactics used by applicants during the presentation of this information.

In summary, the interdependent nature of the interview is likely to motivate the applicant to influence the interviewer's evaluations of him or her. In doing so, the applicant's personality traits are likely to surface in impression management tactics that reflect these traits. We now identify the distinct types of impression management tactics used in this paper.

Impression Management Types

We borrow from the taxonomy of faking developed by Levashina and Campion (2007) to distinguish between the various types of impression management. They grouped IM tactics into four types (slight image creation, extensive image creation, image protection, and ingratiation). Slight image creation indicates that the applicant has exaggerated, but the information presented is relatively similar to the actual truth. Extensive image creation is a more severe form of IM in which the applicant creates fictional misrepresentations of the truth (i.e., lying to deceive the interviewer). Image protection behaviors are those in which an applicant omits job-related information from his or her responses in an effort to preserve a positive image in the mind of the interviewer. Finally, when applicants ingratiate, they are engaging in behaviors such as complementing the interviewer in an attempt to increase their likeability in the eyes of the interviewer.

For the purpose of this paper, we further group these four types into two overarching categories, which we will call 'selling' and 'lying' tactics. Selling tactics are those that Levashina and Campion (2007) label as slight image creation, image protection, or ingratiation, whereas lying tactics are those labeled extensive image creation. This distinction allows us to differentiate between IM tactics that appear to be desirable (selling) versus those that are deceptive (lying).

FIGURE 1

Proposed Model of Applicant Personality Traits, Impression Management Ratings, and Interview Outcomes.
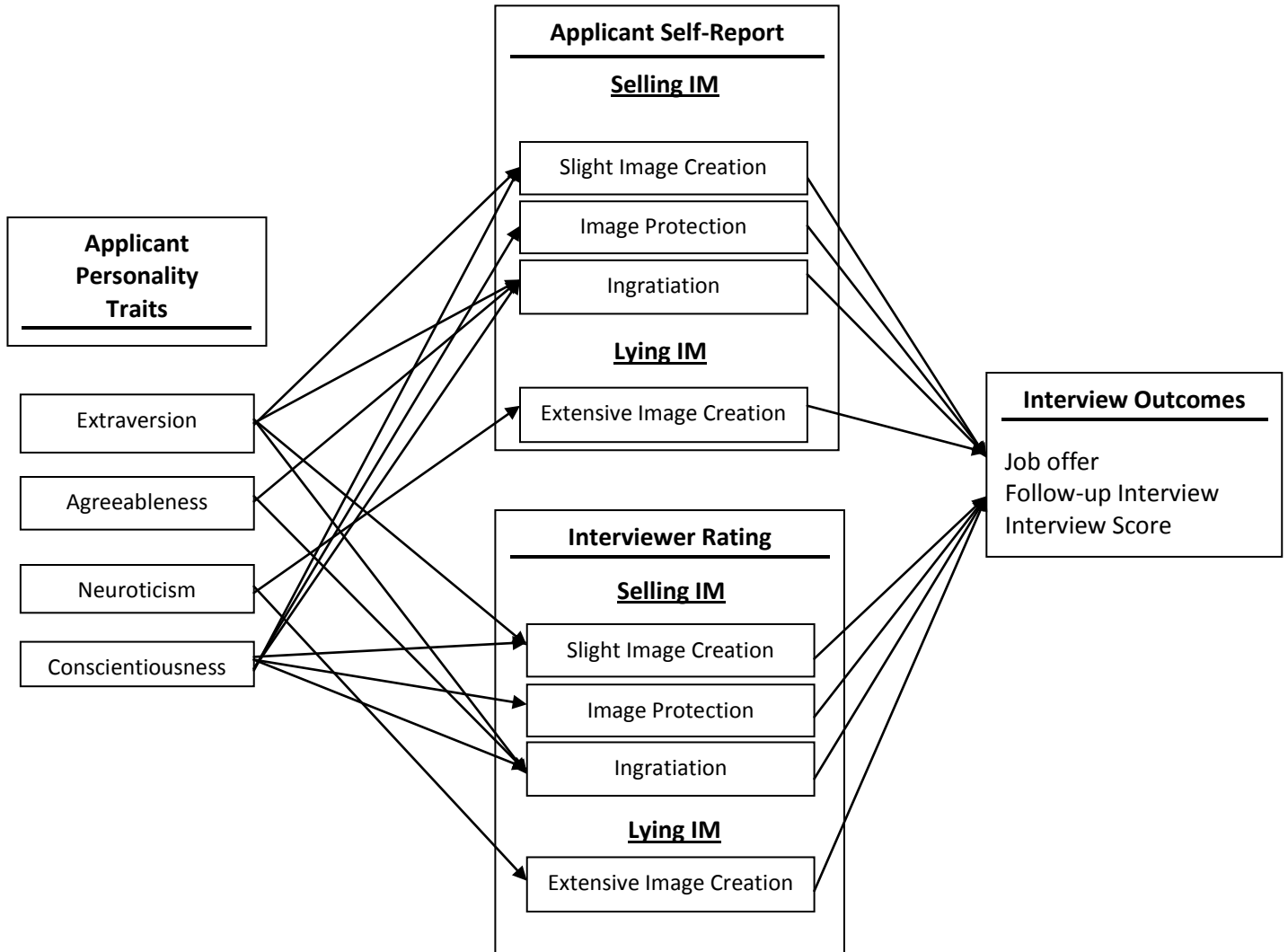
Personality and IM Tactics

Despite the escalating popularity of research into the personality-behavior relationships, this topic has received very little consideration in the impression management literature (Kristof-Brown et al., 2002). However, research does suggest that both extraversion and agreeableness are significantly related to IM usage (Kristof-Brown et al., 2002). Further, there is evidence that a potential link may exist between IM usage and both emotional stability and conscientiousness (Van Iddekinge et al., 2007), though these findings were at the personality sub-facet level, making it difficult to discern the true overall relationship. These results provide promise for future research attempting to uncover potential relationships between personality and IM.

Big five personality traits. We extend the previous personality-IM research by accounting for a more robust collection of personality traits. In particular, we propose that four of five traits in the Five Factor Model (FFM) will predict the likelihood of engaging in IM tactics. The FFM was chosen to represent an applicant's dispositional personality because it is a consistently valid taxonomy of personality traits across a wide variety of contextual situations and procedures (Barrick & Mount, 1991) and scholars in the HR arena have found it to be a highly relevant model with significant effects in the employment interview (Caldwell & Burger, 1998).

Extraversion is conceptualized by descriptive facets such as sociable, talkative, fun-loving, affectionate, and friendly (McCrae & Costa, 1987). Applicants who are more talkative, and in essence more outgoing, are likely to be more capable of expressing themselves, more motivated by rewards, and consequently more likely to engage in self-promoting behaviors that highlight his or her past accomplishments and current abilities (Kristof-Brown et al., 2002). Thus, we expect that the talkative, reward-driven qualities will cause an applicant to engage in slight exaggerations in order to improve his or her outcomes. Further, the warm, kind qualities of extraverts will likely result in compliments toward the interviewer. Thus, we propose:

> *Proposition 1: Applicant extraversion will be positively related to slight image creation and ingratiation, as rated by both applicant self-report and interview ratings.*

Agreeableness is defined as likeable, conforming, sociable, and loving (Digman, 1990). These qualities likely influence applicants to engage in generous, considerate, and helping behaviors (Kristof-Brown et al., 2002) while in social settings. In particular, it is expected that applicants high in agreeableness will engage in tactics that are expected to please the interviewer. This may involve likeable behaviors such as direct complements to the interviewer or conforming to the needs of the interviewer via image adjustment. Thus we propose:

> *Proposition 2: Applicant agreeableness will be positively related to ingratiation, as rated by both applicant self-report and interview ratings.*

Neuroticism (low emotional stability) is defined by generally undesirable characteristics such as anxiety, depression, anger, and embarrassment (Tellegen, 1985). Therefore, we reason, it will likely be more difficult for these applicants to demonstrate their value in the interview. Thus they may attempt to engage in behaviors that mask their negative qualities. Specifically, we expect that highly neurotic applicants will cover up their shortfalls by creating fictional misrepresentations of themselves. Thus, we propose:

> *Proposition 3: Applicant neuroticism will be positively related to extensive image creation, as rated by both applicant self-report and interview ratings.*

Conscientious individuals tend to possess qualities such as dependability, a will to achieve, task-interest, prudence, a hard-working attitude, and self-control (Digman, 1990). Scholars have suggested that the components of conscientiousness will likely influence an applicant's preparation for the interview (Kristof-Brown et al., 2002). This preparation should afford them the knowledge of which IM tactics are most appropriate in certain settings. Thus, conscientious applicants should engage in a variety of IM behaviors, depending on the situation. However, the generally desirable qualities of these applicants do not suggest a need to create any extensive fabrications of the truth. Thus, we propose:

> *Proposition 4: Applicant conscientiousness will be positively related to (a) slight image creation, (b) image protection, and (c) ingratiation, as rated by both applicant self-report and interview ratings.*

Personality and Interview Outcomes

Research has also indicated that applicant personality traits can influence interview outcomes (i.e., job offer, follow-up interview, interview score). Indeed, Caldwell and Burger (1998) found that all big five personality factors were positively linked to interview outcomes. Based on these findings, we propose similar relationships below.

IM Tactics and Interview Outcomes

Consistent findings have emerged in both the lab and field supporting a positive relationship between the IM tactic usage and important interview outcomes (Gilmore & Ferris, 1989; Kristof-Brown et al., 2002). This research suggests that IM tactics positively influence interviewer ratings of perceived qualifications, interview performance, and likelihood of hiring. Interestingly, these results were found regardless of the applicants' objective qualifications..

Linking social influence and social interdependence theories can be helpful in explaining why such a relationship might exist. As noted above, applicants are dependent on the interviewers to achieve their goal of attaining a job offer. When an applicant engages in influential behaviors, interviewer's evaluations of the applicant are influenced (Cialdini & Trost, 1998). Therefore, it is not surprising that impression management tactics have an impact on interview outcomes.

The issue of measuring IM tactics is quite important when linking these tactics to interview outcomes. In particular, the interviewer's ability (or lack thereof) to detect IM is critical to establishing this relationship. For example, if the interviewer is unable to detect these IM tactics, it is reasonable to expect that the effects of IM on interview outcomes are actually greater than we currently know (Levy et al., 1998). This is especially interesting considering research has shown that humans are fairly inaccurate when attempting to detect deception (e.g., DePaulo, Stone, & Lassiter, 1985). Indeed, Stevens and Kristof (1995) demonstrated the inability of interviewers to detect IM tactics of applicants. Results of their study showed only low to moderate convergence between interviewer and applicant ratings. Thus, it appears that interviewers were not able to completely identify the frequency of impression management reported by applicants.

As previously discussed, we have grouped the IM tactics into two categories: selling and lying. Selling IM tactics may be considered desirable behaviors, as applicants are expected to sell their achievements and abilities, highlight their likeability, and avoid expressing their most negative qualities. This has been supported by research linking slight image creation and ingratiation tactics to interview outcomes (e.g., Stevens & Kristof, 1995).

Deceptive, lying behaviors are also positively correlated with interview outcomes (Stevens & Kristof, 1995). However, to this point, these tactics have been measured exclusively via applicant self-reports. It is expected that this positive relationship exists because the interviewers are unaware that the lying has occurred. Lying tactics are generally considered to be undesirable, as they may indicate that the applicant is dishonest, untrustworthy, and unethical. Previous research has shown that raters have a tendency to punish those who are thought to be lying in social interactions or negotiations (Croson, Boles, & Murningham, 2003). Thus, if the interviewers do indeed perceive that they are being lied to, it is likely that they will report a lower evaluation of the applicant. We propose that the outcome of the lying tactics will depend on the source of the rating. Specifically, we expect that applicant self-reports (due to the interviewer's general inability to detect the deception) will be positively related to interview outcomes. Conversely, any tactics that *are* detected by the interviewer will result in negative outcomes. Thus, we propose the following:

Proposition 5a: Both applicant self-reports and interviewer ratings of slight image creation, image protection, and ingratiation will be positively related to interview outcomes.

Proposition 5b – Applicant self-report ratings of lying tactics will be positively related to interview outcomes.

Proposition 5c – Interviewer ratings of lying tactics will be negatively related to interview outcomes.

By proposing a mediating effect of IM tactics on the personality-outcome relationship, this paper contributes to our understanding of the true effects of IM behavior. For example, conscientiousness has been found to predict job performance across all job types (Barrick & Mount, 1991). With this mediation model, it can be argued that job-relevant personality traits such as this are not only influencing interview outcomes, but they are doing so *through* impression management behaviors. That is, applicants who engage in IM tactics such as slight image creation should be the same individuals that possess important, job-relevant traits, and are therefore likely to perform well in the interview. This suggests that interview results influenced by selling IM are not biased, but rather that IM tactics may actually contribute to the validity of the interview by demonstrating applicant competence. However, it is important to note that we do not expect applicants engaging in lying tactics to demonstrate their true abilities. Rather, these deceptive tactics, when undetected, could result in the hiring of unqualified candidates, and ultimately place the validity of the interview in question. Thus, it appears that not all IM tactics have equal effects on interview validity.

As indicated above, personality has been linked to both impression management tactics (Kristof-Brown et al., 2002) and interview outcomes (Caldwell & Burger, 1998; Cook, Vance, & Spector, 2000). Furthermore, impression management tactics have been found to predict interview outcomes (Gilmore & Ferris, 1989; Kacmar & Carlson, 1999). Because personality traits have been identified as distal constructs that influence more proximal behaviors (Chen, Gully, Whiteman, & Kilcullen, 2000; Van Iddekinge et al., 2007), we propose that impression management will serve as a mediator between personality and interview outcomes. This prediction is in line with previous findings linking personality to more immediate constructs such as knowledge, skills, and motivation that mediate the personality-performance relationship (Campbell, McCloy, Oppler, & Sager, 1993; Van Iddekinge et al., 2007). Because other factors such as job experience are also likely to play a part in predicting interview outcomes, a partial mediation is expected. Thus, we propose:

Proposition 6: Both selling and lying IM tactics, as rated by both applicant self-report and interviewer ratings, will partially mediate the effects of all four personality traits on interview outcomes.

DISCUSSION

The widespread popularity of the employment interview in today's businesses makes the study of impression management in the interview a highly relevant topic. This is particularly true in light of recent findings that nearly all applicants engage in impression management tactics (Ellis, West, Ryan, & DeShon, 2002; Levashina & Campion, 2007) and that these tactics have a significant impact on interview outcomes.

We contribute to both research and practice in several ways. First, the inclusion of four of the big five personality traits as potential antecedents to IM tactics provides a more comprehensive collection of personality traits than found in previous research, thus guiding future researchers in their identification of applicants who are likely to engage in these behaviors. This is especially important in light of our proposition that the same personality traits that predict interview performance also predict impression management. Indeed, this suggests that IM in the interview really does matter, as it appears to be a measure of applicant competence rather than a bias. This is good news for Human Resource professionals, as the validity of the interview appears to be at least partially determined by whether or not IM tactics bias the interviewer's evaluations of applicants. With 85-90% of companies using the interview as their exclusive means for selecting new employees (Bell, 1992), a clear understanding of this validity is critical.

Additionally, accounting for ratings of lying tactics from both the applicant and the interviewer, we propose differential effects on interview outcomes based on the rating source. Because applicant ratings of lying have been positively linked to interview outcomes, and interviewers are unable to detect all of these deceptive behaviors, we may be grossly underestimating the effect size of IM on outcomes (Levy et al., 1998).

Understanding the antecedents of IM tactics can also assist interviewers and organizational decision-makers in identifying individuals who are likely to engage in these tactics. Furthermore, understanding whether or not IM is a true reflection of the applicant's ability will guide practitioners in how to handle these behaviors. For example, if IM tactics are indeed valid indicators of applicant competence, practitioners need not expend a great deal of effort trying to detect them. Given the difficulty associated with identifying these tactics, this should simplify the job of the interviewer.

Before any conclusions can be made, it is clear that empirical support is needed. Thus, future research should test the effects of extraversion, agreeableness, neuroticism, and conscientiousness on interview outcomes as well as IM usage (rated by both interviewer and applicant). Further, to truly understand the impact of impression management tactics beyond the interview, it is necessary to empirically measure the relationship between actual job performance and the use of IM tactics in the interview. Positive relationships, for instance, will suggest that IM tactics are indeed indicators of applicant ability. Negative relationships, however, will suggest that a bias exists, thus diminishing the validity of the interview. Future research on impression management in the employment interview should make attempts to better understand these links.

Another area in need of further investigation is the effects of other applicant traits on unique impression management tactics. For example it is possible that qualities inherent in the applicant, such as self-monitoring, attractiveness, or enthusiasm, may play a role in predicting IM usage. While our theoretical investigation is more comprehensive than previous models, it is not comprehensive. Therefore, future researchers are implored to investigate the relationship between unique IM tactics and various other applicant traits.

Finally, because the applicants should know the extent to which they engage in impression management, their self-report ratings of IM are expected to be the closest available measure of the true IM score. However, it is possible that these applicants are not entirely truthful in their reporting. Future research should not only measure the applicant self-report and interviewer ratings, but it should also measure the ratings of a third-party neutral observer to provide additional insight into the accuracy of interviewer ratings. Indeed, because a third party

observer will not be the direct target of the IM tactics, as is the interviewer, he or she is less likely to be influenced by them. Therefore, this third rating of IM may be even more accurate than the ratings by the interviewer.

CONCLUSION

Our theoretical investigation into the relationship between impression management tactics and applicant traits is the most comprehensive to date. While empirical confirmation and additional future research endeavors will certainly serve to strengthen our arguments, we believe our study makes several meaningful contributions. First, by proposing a mediating effect of IM tactics on the personality- interview outcome relationship, we argue that the validity of the employment interview has been previously understated. While previous research has identified significant relationships between personality traits and interview outcomes as well as relationships between IM tactics and interview outcomes, we were unable to identify any study that considered a mediating effect of IM tactics on the applicant trait-interview outcomes relationship. Second, we include four of the big five personality traits as potential antecedents to IM tactics. The inclusion of these traits provides a more comprehensive collection of personality traits than found in previous interview and impression management research. Given this strength, empirical support for our propositions will empower researchers to better identify applicants who are likely to engage in specific IM behaviors. Finally, we propose differential effects on interview outcomes by accounting for the IM ratings from both the applicant and the interviewer. This is an important distinction given that previous research has shown applicant ratings of lying are positively linked to interview outcomes and interviewers are frequently unable to detect deceptive behaviors beyond the level of chance.

Given the overwhelming popularity of the employment interview, we hardly expect interview research to subside any time soon. Likewise, we do not expect the question of "do IM tactics really matter?" to disappear. However, our theoretical exploration of this question certainly provides unique insight. Our study suggests that IM tactics do, in fact, matter in the employment interview. Drawing from the social psychology and personality literatures, our paper suggests that IM tactics serve as revealing mechanisms for personality traits, thus contributing to greater interview validity.

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Toward a Model of Generalization and Maintenance

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ABSTRACT

Over two decades have passed since Baldwin & Ford (1988) critiqued the state of training transference. The absence of training transfer continues to plague researchers & practitioners alike. I review the current state of training transfer research and assess the degree to which researchers have heeded the suggestions of Baldwin & Ford (1988). Researchers conclude, only 10 percent of training transfers to job performance. Recent studies suggest this number may be higher, but researchers agree little training is actually transferred. Building upon Baldwin & Ford's (1988) model of transfer behavior, and incorporating Oviatt & McDougal (2005) framework of entrepreneurial internationalization, a model of training generalization and maintenance is developed.

Introduction

Positive transfer of training is defined as the degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job (Newstrom, 1984). A key condition for transfer is that learned behavior must be generalized and maintained over a period of time. Baldwin & Ford (1988) critiqued the existing transfer research, reiterating

training researcher's growing concerns for the absence of transfer of training, dubbed a "transfer problem" by Michalak (1981) due to the large corporate expenditures on training and development and minimal return on those expenditures in terms of transfer to the workplace. A big reason for the long-standing popularity of Baldwin & Ford's (1988) study rests in the framework that they provided for understanding the transfer process, which is described in terms of training-input factors (training design, trainee characteristics, & work-environment), training outcomes (learning & retention), and conditions of transfer (generalization & maintenance). Both training inputs and outcomes are posited to have direct and indirect effects on conditions of transfer. Baldwin & Ford (1988) critiqued the existing literature in terms of their transfer process model.

Training Inputs: Training-Design

The largest portion of empirical research on transfer at the time of Baldwin & Ford's (1988) study was concentrated on improving the design of training programs. Design research centered on four basic principles: 1) *Identical elements* (hypothesizes that transfer is maximized to the degree that there are identical stimulus and response elements in the training and transfer settings-Thorndike & Woodworth, 1901); 2) *teaching of general principles* (maintains that transfer is facilitated when trainees taught, not just applicable skills, but also general rules & theoretical principles that underlie training content (McGehee & Thayer, '61); 3) *stimulus variability* (notion that positive transfer is maximized when variety of relevant training stimuli are employed, Ellis '65); 4) *conditions of practice* (includes number of specific issues- a) massed or distributed learning, b) whole or part training, c) feedback, and d) overlearning. Training-design studies typically consisted of college students working on simple memory and motor tasks, with immediate learning or retention as the criterion of interest. Baldwin & Ford (1988) suggested that this type of research had two basic limitations: 1) the generalizability of results is limited to short-term, simple motor tasks and memory skills training; and 2) criterion measures of interest have been learning and short-term retention. They emphasized the need for research that examines the direct effects of training-design factors on training outcomes and then examines the effects of those training outcomes on conditions of transfer.

Training Inputs: Trainee Characteristics

In contrast to training design, there were limited empirical investigations of ability, personality, and motivational effects on training and transfer. Existing literature had shown moderate predictive power of ability & aptitude tests as predictors of trainability (Neel & Dunn, 1960), however, results were described as "far from impressive" (Ghiselli '66). With respect to personality variables, Noe & Schmidt (1986) found limited support for effects of locus of control on pretraining motivation & learning; however, Miles (1965) concluded personality factors had no effect on transfer. Studies on motivation factors (Ryman & Biersner, 1975; Hicks & Klimoski, 1987; Noe, 1986) did show positive effects on transfer. The criterion typically used in these studies was the retention of learned material. Baldwin & Ford (1988) suggested that this had two critical problems: 1) a lack of theoretical frameworks, and 2) lack of adequate criterion measures of transfer.

Training Inputs: Work-environment

Baldwin & Ford (1988) described empirical research on work-environment characteristics as "sparse," identifying only seven work-environment studies. These studies used large-scale surveys to examine relationships of correlates such as work climate, leadership climate, and supervisor support to transfer criteria. Two major problems identified were: 1) the static nature of research in relation to dynamic nature of transfer process, and 2) criterion

problem (reliance on self-reports). Baldwin & Ford (1988) further suggested that there was a need to identify key work-environment variables and the need to operationalize these variables.

Baldwin & Ford (1988) provided a direction for future research, suggesting the following: a) transfer researchers should take into account other literatures (e.g., counseling and psychotherapy), b) research needs to take a more interactive perspective, designing and developing a framework that incorporates the more complex interactions among the training inputs, c) job relevance of training content (transfer research has implicitly assumed job relevance of training content without attempting to specify what desired skills/behaviors are or what training content should be to insure skill acquisition), and d) perhaps most importantly, they suggest there is a critical need to conduct research on transfer with more relevant criterion measures of generalization and maintenance.

Slightly over two decades have past since Baldwin & Ford (1988) first critiqued the state of transfer research. What, if anything, has changed? Did transfer researchers heed Baldwin & Ford's (1988) suggestions to expand the scope of transfer research? Did researchers forge a new and different path, making significant contributions to the field of transfer research? Or, did they continue with more of the same, leaving the "transfer problem" in place? The remainder of this study focuses on the changes that have taken place within the transfer research arena in the post-Baldwin & Ford (1988) time frame, 1991-2007. Generally speaking, research on training characteristics and training design continued, but was minimal. The growing research emphasis was on the work environment and its interaction with training characteristics and training design. In the sections that follow, I present summaries of that research. The final section of this study culminates with the development of a model and propositions for training generalization.

Post-Baldwin and Ford (1988): The 1990's

Tziner, Haccoun, & Kadish (1991) introduced a relapse-prevention module to 94 Israeli military instructors attending a two-week training program, in order to evaluate its effect on post-training transfer. They found that relapse-prevention contributed to higher levels of immediate post-training mastery of training content and higher intentions among subjects to transfer and apply their skills. However, the intent to transfer was based on self-report data, something Baldwin and Ford criticized in their 1988 review. In addition to examining relapse-prevention, they examined the impact of trainee locus of control and self-perceptions of work environment support for the learned skill. They did not find a direct association between locus of control and perceptions of a more supportive work environment. They did find a significant interaction between relapse prevention, locus of control, and perceptions of a positive work environment, indicating that trainees who were rated as internals, who perceived a more supportive environment, and who had received a relapse prevention program, were perceived by their supervisors as displaying greater levels of transfer strategies.

Ford et al., (1992) defined and operationalized the construct of the opportunity to perform and systematically examined the extent to which trainees receive differential opportunities to perform trained tasks in a U.S. Air Force aerospace technical training course. Their results suggest that differential opportunities to perform exist in the work setting and are more closely related to work context than individual factors. Specifically, the work context factor that had some impact on opportunity to perform trained tasks was supervisor's perceptions of the employee's capability, skills, and likability.

Rouiller & Goldstein (1993) considered the concept of organizational transfer climate and assessed whether an organizational transfer climate exists on the job that helps to determine if behavior learned in training actually gets put to use in the job situation. The term "climate"

was used in a way similar to that used by Schneider (1975), who defined *climate* as the practices and procedures used in an organization that connote or signal to people what is important. The author's measure of organizational transfer climate consisted of those "situations and consequences" that either inhibit or help to facilitate the transfer of what has been learned in training into the job situation. Their study confirmed that individuals who learn more in training also performed better in transferring those behaviors. They also found support for their main hypothesis that a positive organizational transfer climate appears to be at least as important if transfer of training behavior was to occur. In a multiple regression analysis, learning accounted for 8 percent of the variance in transfer behavior, but learning and transfer climate together accounted for 54 percent of the variance.

Tziner & Falbe (1993) examined locus of control and subject perceptions of work environment support of application of skills acquired in training during a two-week program provided to male and female Israeli military instructors. Prior to this study, gender had not been introduced in the context of training outcomes. Their results showed that gender affects motivation to transfer, with female trainees demonstrating a lower motivation to transfer than male trainees. Gender differences were not found with respect to learning, but the female trainees reacted differently to the training and viewed it of less value than did male trainees. An additional variable that significantly affected motivation to transfer and reactions to the course was work-environment support. The more supportive the environment was perceived to be for application of training, the higher was the reported motivation to transfer and the more positive was the reaction to the course. The authors noted that this finding was consistent with Noe's (1986) contention that perception of environment favorability to transference of training influences motivation to transfer knowledge and skills acquired in training.

Facteau, et al., (1995) conducted a study to determine whether trainee's general beliefs about training affected pretraining motivation and transfer of training. They also looked at the impact of social support for training from four organizational constituents (top management, supervisors, peers, and subordinates). The authors hypothesized that training attitudes, individual attitudes, and environmental support variables would be related to pretraining motivation. Additionally, they hypothesized that pretraining motivation, organizational commitment, and the environment support variables would be related to perceived training transfer. The authors found that attitudinal variables of intrinsic incentives, training reputation, organizational commitment, and compliance were highly related to pretraining motivation, suggesting that managers who perceived more intrinsic reasons to attend training, who had a favorable view of the training efforts, and who were less likely to attend training because it was required, were more likely to report higher levels of motivation to attend and learn from the training programs. The authors found that pretraining motivation was related to perceived transfer. Finally, the authors found that managers who perceived a greater degree of support from their immediate superiors for training reported greater motivation to attend and learn from the training.

Brinkerhoff & Montesino (1995) explored the impact of two management interventions, a pre-training expectations discussion and an after-training follow-up discussion, on the transfer of skills from training programs to the work situation. Trainees attending developmental skill courses in a Fortune 200 company were randomly assigned to two groups: 1) those whose managers provided the specified pre-and post-session interventions, and 2) those whose managers did not provide them. Their results showed significantly higher training usage and a more positive perception regarding the forces that encourage transfer of training within their work environment among the trainees who received the management support interventions.

Trainees whose supervisors explicitly supported training found fewer factors in their environment to inhibit transfer than their counterparts whose supervisors did not explicitly support training.

Xiao (1996) explored the relationship between organizational factors and the transfer of training in four electronics companies in China, defining organizational factors as those management practices in organizing production that might affect the transfer behavior of trainees. The author found that learning was a significant factor related to improved performance on the job; however, organizational factors accounted for 29 percent of the transfer over and above training. Specifically, supervision and matching trainee's knowledge, skills, and abilities (KSA) with work design were the most influential organizational factors.

Axtell, Maitlis, & Yearta (1997) examined the multiple influences (training design, trainee characteristics, and work-environment) on the application of trained interpersonal skills at work immediately after the training course and at intervals of one month and one year after training had taken place. This was the first study in the review to consider the long-term effects of training transfer. Earlier studies were limited to data collected immediately after training and/or within 3-4 months of the training. The authors were also the first to consider the importance of job relevance in their study. Results indicated that trainee's perceptions of relevance and usefulness of the course and their motivation to transfer skills were key variables in determining the level of transfer of training they felt they had achieved after one month. Initial skill transfer appeared to be a key predictor of longer-term transfer. After one year, the authors found that the most important factors influencing trainee's self-rated transfer appeared to be the amount that they believed they had transferred after one month, the degree of autonomy in their jobs, and their original motivation to use what they had learned. This study relied on self-ratings.

Holton et al., (1997) attempted to operationalize the construct of transfer climate and develop a general transfer climate instrument. The authors attempted to validate Rouiller & Goldstein's (1993) eight-factor structure for a transfer climate instrument, which the original authors were unable to do because of an inadequate sample size. Using exploratory factor analysis, Holton et al. (1997) found a substantially different factor structure. Their results suggested that trainees perceive climate according to referents in the organization (e.g. supervisor, peer/task, or self) rather than according to psychological cues, as Rouiller & Goldstein (1993) proposed. The author's analysis suggested the following transfer climate constructs: 1) supervisor support, 2) opportunity to use, 3) peer support, 4) supervisor sanctions (e.g. negative supervisor responses), 5) personal outcomes-positive (e.g. raises), 6) personal outcomes-negative (e.g. reprimands), 7) resistance (e.g. discouragement from prevailing group norms). The data also suggested two important transfer design factors: 1) content validity, and 2) transfer design.

Seyler et al, (1998) examined the relationship of motivation to transfer skills and knowledge learned in a computer-based training program with five groups of variables: individual or general attitudes, situational specific attitudes, reactions, learning, and work environment factors. The authors state that their most important finding was that environmental factors (opportunity to use, peer support, supervisor sanctions, and supervisor support) explained a large amount of variance in motivation to transfer. Opportunity to use had the greatest influence on motivation, followed by computer-confidence (a self-efficacy measure), peer support, and supervisory sanctions, respectively.

Burke & Baldwin (1999) investigated the effects of two different relapse prevention (RP) modules (full relapse prevention and modified relapse prevention) designed to supplement a training program on employee coaching skills. The study was administered to 78 research scientists representing five different departments in the research component of a large Midwestern firm who enrolled in a supervisory-skills curriculum. Results indicated that major learning points were successfully gained by the trainees. Using a four-step regression analysis, the authors did not find a significant main effect on maintenance outcomes in either the full or modified relapse prevention modules. The authors did find that transfer climate did account for a significant amount of variance in the trainee's use of transfer strategies, implying that trainees who faced a more favorable transfer climate used more transfer strategies once they returned to work.

Post-Baldwin and Ford (1988): 2000 – 2006

Holton, Bates, & Ruona (2000) asserted that transfer researchers had not used acceptable scale development procedures in conducting their research and suggested that instrumentation differences may have contributed to the variety of conclusions drawn by researchers about the relationship between transfer system variables and performance. Their study expanded on the concept of the learning transfer system and reported on the validation of an instrument to measure factors in the system affecting transfer of learning. Their 9-factor structure developed earlier (Holton et al, 1997) had shown initial evidence of content, construct, and criterion validity and was the foundation of the current study. They first fit the nine constructs from version 1 into their theoretical model and then reviewed the literature, adding additional constructs that would fit their theoretical framework. Their sample consisted of 1616 people in a wide variety of organizations and training programs. Using exploratory factor analysis, 16-factor transfer system constructs that affect transfer of learning were identified. A second-order factor analysis suggested a 3-factor higher order structure of climate, job utility, and rewards. The study was based on a very large and diverse sample, providing a high level of confidence that the instrument will work well across many types of training and in most organizations. Instrument constructs were developed from sound theory, building on results from several previous research efforts. The second-order factor analysis was revealing in several ways: 1) Baldwin & Ford (1988) proposed that transfer factors would be represented by three domains: Trainee characteristics, training design, and work environment. The second-order analysis identified three factors: *job utility, rewards, and climate*. Job utility roughly corresponded to training design domain, whereas climate and rewards factors fit in the work environment domain. The few trainee characteristics measured here did not emerge as a separate second-order factor. 2) Supervisor support cross-loaded on job utility and rewards, suggesting that supervisor support may play a dual role in transfer. On one hand, supervisors provide employees an opportunity to apply learned skills. On the other hand, support serves as a reward to employees by signaling to them that their learning application efforts are viewed positively. This was considered conceptually sound as Baldwin & Ford (1988) emphasized that supervisor support is a multidimensional construct that includes both utilization-focused activities (e.g. goal setting) as well as reward-focused activities (e.g. praise, extrinsic rewards). Holton et al's model is holistic in its approach and moves the debate away from a concentration on outcomes to a discussion about how training works and how the factors that make it work can be enhanced in the organization (Donovan, Hannigan, & Crowe, 2001).

Huczynksi & Lewis (2001) compared two management technique courses with very specific objectives to overcome the problem of training courses whose objectives were too broad

and complex. Participants completed a series of pre- and post-course questionnaires to establish whether they intended to **transfer** their training to their work and whether they had in fact done so. A number of characteristics were found to distinguish the **learning** 'experimentors' from the 'non-experimentors'. More of the experimentors had attended the course on their own initiative, more of them believed the course would be beneficial to them on the job prior to attending it, and a greater proportion had had pre-course discussions with their boss. It was found that **transfer** attempts were more likely to be successful and beneficial where the boss sponsored the new idea. Organizational factors found to inhibit training **transfer** included overload of work, crisis work and failure to convince older workers. The main facilitating factors were related to the preparedness of the superior to listen to new ideas and allow experimentation with them. The management style and attitudes of the trainee's boss were found to be the single most important factor in management training **transfer.**

Kupritz (2002) focused on workplace design as another dimension of organizational context potentially contributing to training transfer. She noted that researchers had overlooked the impact of the physical environment (e.g., building design, interiors) in their quest to understand training transfer. She credited Barker (1968) as having coined the term *synomorphy* to signify that the physical environment and behavior cannot be separated. The author sampled twenty-four office workers who had participated in a training workshop for supervisory skills over a four-month period and were now back at the job. Through structured interviews, the authors collected data on the participant's perceptions on the importance of the physical environment. Participants perceived workplace design to be an organizational factor affecting their ability to perform newly acquired supervisory skills. The workers identified a range of design features that influence transfer, including physical enclosure, layout, furniture, flexibility, ergonomic design, and windows. Positive management support was still perceived as a bigger factor impeding transfer. Privacy problems were perceived to impede transfer, followed by a lack of management support.

Gumuseli & Ergin (2002) examined the impact of manager's reinforcement on participant's job attitude, productivity, effectiveness and satisfaction in the transfer process among a group of sales representatives and their supervisors. Using experimental (oriented and supported by managers) and control (not supported by managers) groups, the authors found behavior changes in both groups over a three-month period. The change in behavior in the experiment group increased continuously throughout the three-month observation period, whereas the same observation for the control group revealed a rapid increase in the first month that slowed down over the following months. This result showed a positive effect of manager's orientation and support efforts. The experimental group, in general, showed more significant change in their behavior, greater efficiency, and effectiveness. The authors found that the biggest responsibility in the transfer of acquired knowledge, skills, and attitudes to the workplace rests with the supervisors of the training programs and with the workplace managers.

Lim & Johnson (2002) assessed learning transfer made by human resource development professionals from a Korean organization for a training program on performance improvement technologies. Their results provided evidence to support prior studies of learning transfer, revealing multiple reasons for high or low transfer. Their study identified a pattern of near and far transfer, with implications for training design to promote higher learning transfer. If the focus of training was on far transfer, the recommended instructional strategies were to teach general theories and principles. If the focus was on near transfer, the recommended instructional strategies were to teach learning content identical to the job tasks and the encouragement of

overlearning for greater transfer. They also identified goal-setting as important to transfer of learning. Similar to the findings of past studies, they identified supervisory support as the strongest factor influencing learning transfer, followed by opportunity to use the skills acquired.

Machin & Fogarty (2003) conducted an empirical study utilizing structural equation modeling methodology to test a model of exogenous variables (computer self-efficacy, positive affectivity, reactions to previous training, negative affectivity, and transfer enhancing activities) posited to predict learning, post-training self-efficacy, and transfer intentions. Participants in the study were members of the Queensland Police Service who were undertaking advanced training for a computerized information system. Results of this study identified numerous training-related and personal factors as predictors of transfer implementation intentions.

Cromwell & Kolb (2004) examined the relationship between four specific work-environment factors (organization support, supervisor support, peer support, and participation in a peer support network) and transfer of training at one-, six-month, and one-year points following supervisory skills training given to trainees and their managers from a large northeastern university. Trainees who reported receiving higher levels of support in the work environment indicated they were applying, to a higher extent, the knowledge and skills they learned in the training program. This finding provided further evidence for the importance of organizational support to learning transfer. Similar findings were found for supervisory and peer support. The study revealed that time elapsed since training was an important factor to consider when measuring a trainee's application of knowledge and skills. No differences occurred at the one- and six-month time frames, but significant differences did occur at the one-year time frame for all but the peer support network. This finding suggested that transfer should be measured over a longer period of time, a finding supported by Guadine & Saks (2004). Finally, two barriers to transfer most mentioned by trainees were time and management support/buy-in.

Pidd (2004) examined the extent to which social identity can provide further insight into factors that influence training transfer, and in particular, the conditions under which social support was likely to be most effective in facilitating transfer. Results confirmed that the impact of workplace social support on training transfer was influenced by the extent to which trainees identified with workplace groups that were the source of this support. Results of this study, as well as Axtell et al. (1997) indicated that the period immediately following the training was a critical period for the effective transfer of training.

Hawley & Barnard (2005) examined training transfer in relation to the work environment characteristics of peer and supervisor support. Data were collected from human resource development professionals in a nuclear power industry using interviews. Two underlying themes that emerged in this study was the importance of peer (potential positive impact of peer support) and supervisor support (potential negative impact from a lack of supervisor support) to the transfer of learning. The authors found that upper management seemed to lack an understanding of the training prior to the course.

Lim & Morris (2006) examined the effects of transfer variables on trainee characteristics, instructional satisfaction, and organizational factors of perceived learning and training transfer made by a group of trainees who attended a financial training program conducted for a Korean conglomerate. The author's findings suggest that there are certain distinct variables in trainee characteristics (job function, years in the related job experience, and immediate training needs), instructional factors (overall satisfaction, job helpfulness, content satisfaction, satisfaction with instructor, and instructional level), and organizational climate (responsiveness to change, educational support, transfer opportunities, and peer or supervisor feedback) that are closely

correlated or influence either or both the trainee's perceived learning and learning transfer collectively and independently.

While the literature continues to report a training transfer problem in organizations, little attempts have been made to examine what organizations do to improve transfer. Saks & Belcourt (2006) investigated whether organizations are implementing some of the practices that have been studied in research on transfer of training. Specifically, they examined the extent to which organizations incorporated training activities before, during, and after training into their training programs, as well as the relationship between these activities and transfer of training. While, the literature continues to claim that only about 10 percent of training is transferred back to the workplace, Saks & Belcourt (2006) found that the amount of transfer is not as low as once believed. Training professionals reported that 62%, 44%, and 34% of employees apply training material on the job immediately, six months, and one year after training. The authors also found that organizations rarely incorporate training activities into their training programs to improve the transfer of training. In addition, organizations are more likely to do so during training rather than before or after and more likely to do so after training than before. Activities that occur in the work environment before and after training were more strongly related to transfer, but this study's results suggest that organizations are not doing as much as they can to facilitate the transfer of training.

Comparison of Baldwin & Ford's (1988) Suggestions and Current Research

Studies on transfer research since 1988 did not focus solely on one dimension of the transfer process model. Rather, the studies simultaneously focused on multiple influences on the transfer of skills in the workplace, as suggested by Baldwin & Ford (1988). The 1990's saw a decrease in the number of studies focused on training design. While researchers did not focus on design characteristics, per se, they did include design elements (e.g. relapse prevention), within the training context. Increases in research aimed at capturing the impact of trainee characteristics and work-environment factors on conditions of transfer were also evident after this time period. After 2000, there was an increase in the number of multi-national transfer studies.

One of Baldwin & Ford's (1988) criticisms was the lack of generalizability due to short-term tasks and short-term retention. In that sense, one can still criticize the current research as few studies considered the longitudinal effects of training transfer. Most studies collected data immediately after training completion and/or within 3-4 months of training completion. Yet, as other authors have mentioned (Guadine and Saks, 2004; Cromwell & Kolb, 2004), there is still a need to measure transfer over a longer period of time (i.e. beyond one year). Generalizability remains a concern. Most studies focused on very specific samples (e.g. military personnel). A need to develop studies from larger and more diverse samples across multiple industries remains.

Another of Baldwin & Ford's (1988) criticisms was on the lack of criterion measures of transfer. Current research continues to lack in this area as most studies relied on self-report measures and single-source data. Given the nature of transfer research, the use of self-report measures is likely to continue. Collecting supervisor and peer report data along with the self-report data is recommended.

Baldwin & Ford (1988) suggested that work-environment variables needed to be operationalized. To that extent, Holton et al. (1997, 2000) did provide early evidence of content, construct, and criterion validity through use of factor analysis and structural equation modeling. More of this type of research is needed.

Baldwin & Ford (1988) proposed that transfer researchers should take into account other literatures when studying training transfer. In the remainder of this study, I draw on

entrepreneurship literature, building upon Oviatt & McDougal (2005) framework of internationalization, as well as aspects of Baldwin & Ford (1988) model, presenting how training transfer (generalization and maintenance) is influenced by various factors.

A MODEL OF TRAINING GENERALIZATION & MAINTENANCE

Oviatt & McDougal (2005) provided a model of entrepreneurial internationalization which proposed that the speed of entrepreneurial internationalization was impacted by enabling, motivating, mediating, and moderating forces. By combining Oviatt & McDougal (2005) general framework with aspects of Baldwin & Ford (1988), a model of factors that influence the generalization & maintenance of training (Figure 1) is derived.

Figure 1: A Model of Factors Influencing Training Generalization & Maintenance
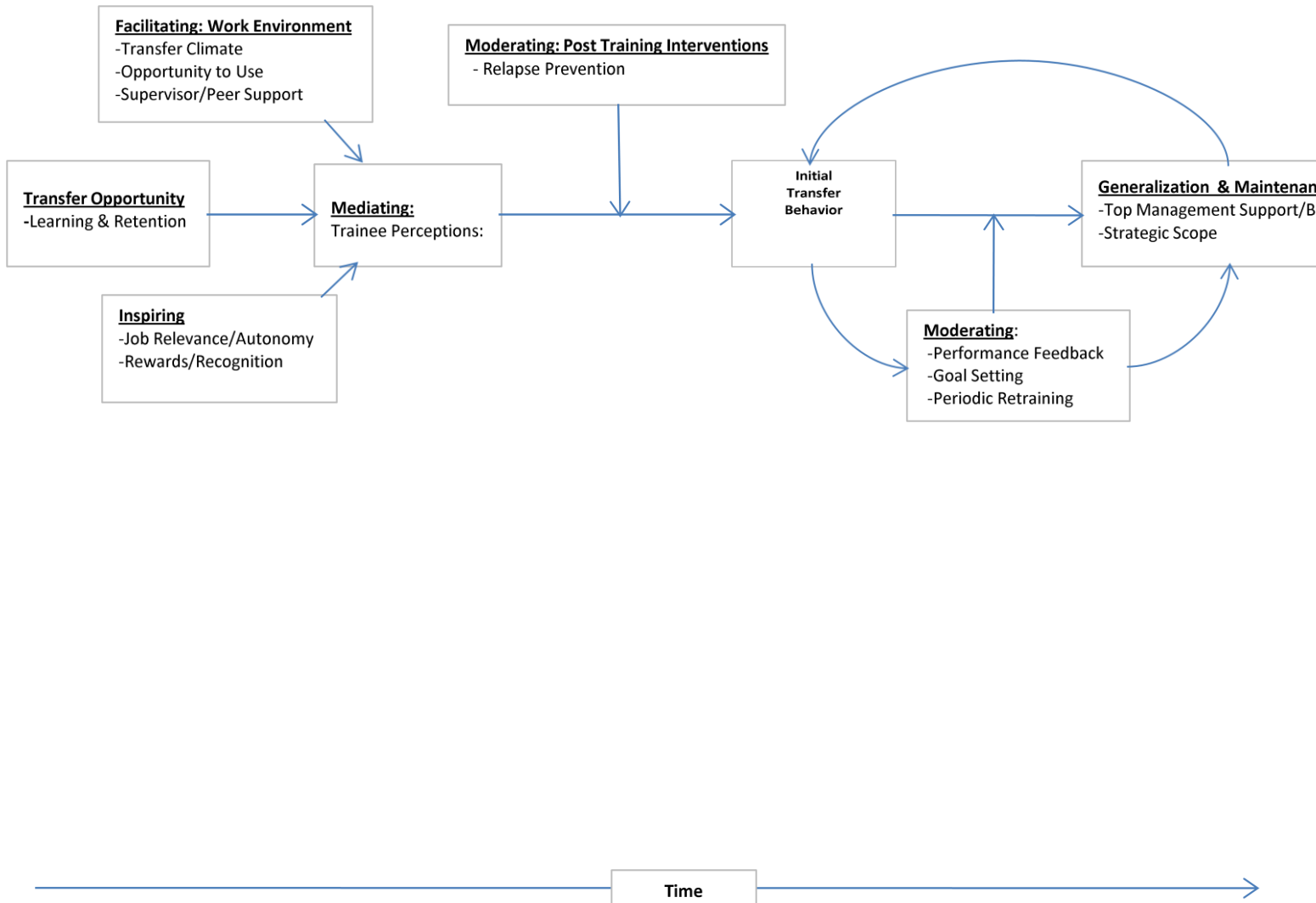
The process of generalization and maintenance begins with the commitment demonstrated by the organization's top management. Cromwell & Kolb (2004) found that management support was one of the biggest barriers to transfer. Hawley & Barnard (2005) found that upper management seemed to lack an understanding of training. Thus, in order to reap the benefits associated with the investment made in training, senior managers must have an understanding of training and how it fits into the strategic scope of the organization.

In this model, learning is assumed to have occurred as a result of training. Upon completion of a particular training course (e.g., statistical process control (SPC), six-sigma), trainees are confronted with a training opportunity. What trainees do with this opportunity is the focus of the proposed model. The proposed model shows that four types of factors influence transfer behavior: *facilitating, inspiring, mediating, and moderating*.

The facilitating factors include those that are found within the work environment: transfer climate, opportunity to use, supervisor support, as well as peer support. Rouiller & Goldstein (1993) found support that a positive organizational transfer climate appears to be at least as important if transfer of training behavior was to occur. Their study also confirmed that individuals who learned more in training performed better in transferring those behaviors. Similarly, Xiao (1996) found that learning was a significant factor related to improved performance on the job.

A number of authors have suggested that the perception of environment favorability to training transference influences motivation to transfer knowledge and skills acquired in training (Noe, 1986; Tziner & Fable, 1993; Facteau, et al., 1995, Lim & Morris, 2006). Huczynksi & Lewis (2001) found that management style and attitudes of the trainee's boss to be the single most important factor in management training transfer.

Ford et al., (1992) defined and operationalized the construct of the opportunity to perform. Their results suggest that differential opportunities to perform exist in the work setting and are more closely related to work context than individual factors. Seyler et al., (1998) examined the relationship of motivation to transfer skills and knowledge learned in a computer-based training program. They found that opportunity to use had the greatest influence on motivation to transfer.

The inspiring factors impacting training transference are those that motivate trainees to transfer what they have learned back to the workplace. In this model, job relevance, current rewards/recognition, and future opportunities (e.g. job promotions, salary increases) are posited to influence a trainee's perceptions. Axtell, Maitlis, & Yearta (1997) found that trainee's perceptions of relevance and usefulness of the training course were key variables in determining the level of transfer of training. They also found that the degree of autonomy within the job was an important factor.

Holton, Bates, & Ruona (2000) developed a higher order factor model to address training transfer, suggesting a 3-factor second-order structure of climate, job utility, and rewards. The study was based on a large, diverse sample, providing a high level of confidence that their instrument would work well across many types of training and in most organizations. Supervisor support (e.g. praise, extrinsic rewards) serves as a reward to employees by signaling to them that their learning application efforts are viewed positively.

The individual trainee is the mediating factor. Through the interweaving of their personal characteristics (e.g. locus of control, self-efficacy, experience, knowledge, skills, and abilities) and personal convictions about the transfer climate and relevance of the training received, individual trainees view the opportunity to transfer and ultimately determine whether or not to transfer what they have learned back to the workplace. Thus, training transference cannot be explained solely from the perspective of training inputs or outputs, but rather by considering how the interaction of the transfer opportunity, facilitating, and inspiring factors are mediated by the individual trainees. This is consistent with Baldwin & Ford (1988), who suggest that future training research should take an interactive perspective. Thus, the following proposition is put forth:

Proposition 1: Individuals who frame their perceptions in a positive manner will exert the effort to transfer the knowledge and skills back to the workplace.

Post-training interventions comprise the moderating factors existing between the transfer opportunity and transfer behavior. Researchers have demonstrated that the inclusion of a relapse prevention module to training can significantly contribute to higher levels of post-training mastery of training content and higher intentions among trainees to transfer their skills (Tziner, Haccoun, & Kadish, 1991; Burke & Baldwin, 1999). Additional moderating factors (e.g. performance feedback, goal-setting, re-training) are proposed to exist between transfer behavior and generalization and maintenance. The loop between transfer behavior, moderating factors, and generalization and maintenance is depicted as an effort that must be continuous if transfer behaviors are to be effectively maintained in the workplace.

Proposition 2: Performance feedback, goal-setting, and periodic retraining positively influence whether transferred training behavior is generalized and maintained in the workplace.

Finally, the horizontal line at the bottom of the model represents the time between the transfer opportunity and the generalization and maintenance of training content. Researchers have demonstrated that the period immediately following the training is critical for the effective transfer of training (Axtell, Maitlis, Yearta, 1997; Pidd, 2004).

Proposition 3: Transfer behaviors that occur sooner (relative to training completion), rather than later, will be positively correlated with behavior that is generalized and maintained.

Discussion

Nearly every piece of transfer literature cited a common estimate that only 10 percent of training actually transfers to job performance. Kupritz (2002) cautioned that this number has not been empirically documented. However, most training researchers agree that very little training is actually transferred to the workplace. Saks & Belcourt (2006) found that the amount of transfer is not as low as once believed. Training professionals reported that 62%, 44%, and 34% of employees apply training material on the job immediately, six months, and one year after training. Literature needs to continue to report on what organizations are doing to improve transfer (Saks & Belcourt, 2006). The influence of the supervisor was vital to training transfer in numerous studies and research is needed that identifies what organizations are doing to assure that supervisors understand and support training initiatives sponsored by the organization.

The proposed model takes into account the importance of supervisor support in facilitating a work environment that is conducive to training transference, but also implicates the role of top management, drawing attention to the importance of their support and inclusion of training as part of an organization's strategic scope if training is to be transferred and, perhaps most importantly, generalized and maintained in the workforce. However, the model is comprehensive, recognizing that other factors facilitate, inspire, mediate and moderate training transference, generalization and maintenance. Thus, it is hoped that the proposed model will inspire future theoretical and empirical research on the interplay of factors highlighted in the training transference, generalization and maintenance process. Further research is needed that documents the amount of training that is actually transferred to the workplace but equally important is the need to document the amount of training that is generalized and maintained in the workforce as it is in the latter that we may begin to truly understand the beneficial training effects posited in the literature.

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INFLUENCE OF EXTERNAL POWER RELATIONSHIPS ON ABSORPTIVE CAPACITY:
A RESOURCE DEPENDENCE PERSPECTIVE

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ABSTRACT

External power relationships are theorized to have an influence on the absorptive capacity of an organization (Peters & Johnston, 2009); however, the precise nature of the influence is unclear. In this study, resource dependence theory is used to investigate the varied influences of external power relationships on the knowledge acquisition, assimilation, transformation, and exploitation dimensions of absorptive capacity (Zahra & George, 2002). Structural modeling techniques are incorporated to empirically examine the proposed relationships. The findings yield insight into the nature of the relationship between external power relationships and absorptive capacity, such that external power relationships have varying degrees of influence on the dimensions of absorptive capacity. External power relationships range from a strong influence on knowledge acquisition to a limited (and slightly negative) influence on knowledge exploitation. Following the results, the limitations and future implications of the study are discussed.

INTRODUCTION

Organizational networks are valuable conduits of knowledge (Gulati, 1998). Organizations can utilize network relationships to aid with the learning process. The concept of organizational learning has gained prominence among researchers and practitioners as organizations seek to develop structures adaptable to their ever-changing environments given the modern influences of technology, heightened competitiveness, and limited resources (Dodgson, 1993). Organizations capable of responding to changing demands are better positioned to respond to needs of consumers; thus, learning capabilities can be a strategic advantage for organizations (Levinthal & March, 1993). For organizations to utilize learning capabilities as a strategic advantage, organizations must have a learning orientation that supports the ability to identify and integrate new knowledge (Huber, 1991). Organizations with high levels of absorptive capacity are better able to integrate new knowledge.

Absorptive capacity is defined as an organization's ability to acquire, assimilate, transform, and exploit new knowledge (Cohen & Levinthal, 1990; Zahra & George, 2002; Todorova & Durisin, 2007). Organizations able to efficiently identify, internalize, and use new knowledge are likely to be more capable of responding to changing environmental demands. While learning capabilities are beneficial for organizations, numerous forces influence an organization's ability to absorb new knowledge.

Effective communication networks are essential to absorptive capacity (Tu, Vonderembse, Ragu-Nathan, & Sharkey, 2006). To communicate with and learn from peers, organizations must have access to external information sources (i.e., peer organizations) and have an internal capacity (i.e., absorptive capacity) to support the acquisition of new knowledge (Tsai, 2001). External access to peer organizations is supported through several channels, one of which is organizational networks. Organizations engage in numerous forms of network relationships including cooptation (Selznick, 1949), alliances and joint ventures (Salancik & Pfeffer, 1978; Inkpen, 1998), involvement with professional associations (Staber & Aldrich, 1983), and other forms. These types of organizational relationships typically exist due to an organization's need to acquire a desired resource.

Objective of this Study

Numerous theoretical lenses have been applied to studies of interorganizational networks. For example, researchers have used social capital theory (Bourdieu & Wacquant, 1992; Walker, Kogut, & Shan, 1997), structuration theory (Sydow & Windeler, 1998), interorganization theory (Ghoshal & Bartlett, 1990), and social exchange theory (Cook & Emerson, 1978) to name a few. Although studies examining external power relationships and absorptive capacity are limited in number, those conducted have used theoretical frameworks such as network closure theory (Bae & Gargiullo, 2004), cognitive consistency theory, contagion theory, and homophily theory (Peters & Johnston, 2009).

Resource dependence theory has been proposed to describe the way organizations respond to institutional pressures (e.g., Oliver, 1991) and how interorganizational relationships exist in the context of power relationships (Emerson, 1962). In this study, interorganizational relationships are examined as external power relationships to explain how the knowledge acquired through the relationships influences the organization's absorptive capacity at varying levels. As organizations engage in business activities, external power relationships are formed, and an opportunity for knowledge sharing between organizations emerges. It is the interorganizational exchange of knowledge within the relationships that is the focus of this investigation.

Researchers have examined the influence of external power relationships on numerous organizational-level factors including profitability (Galbraith & Stile, 1983; Cool & Henderson, 1998), product diversification (Kim, Hoskisson, & Wan, 2004), decision making (Provan, 1982), opportunism (Provan & Skinner, 1989), and outsourcing decisions (Caniels & Roeleveld, 2009) among others. However, research on the relationship between external power relationships and absorptive capacity is limited.

George, Zahra, Wheatley, and Khan (2001) show that the characteristics of an organization's external relationships directly influence absorptive capacity. Todorova and Durisin (2007) expand on this research and propose external power relationships as a contingent factor that influences the valuation of new knowledge and moderates the relationship between the organization's absorptive capacity and competitive advantage. Peters and Johnston (2009) further develop the theoretical support for this relationship between external power relationships and absorptive capacity and posit that external power relationships moderate absorptive capacity capabilities. The current studies, however, are more focused given the tangential references made to the influence of external power relationships on the internal capabilities of absorptive capacity. Additionally, empirical investigations that examine the relationship between external power relationships and absorptive capacity are limited. Therefore, this study seeks to (1) expand the current theoretical framework of external power relationships by proposing the influence of external power relationships on the internal dimensions of absorptive capacity and (2) empirically

examine the relationships between external power relationships and the individual absorptive capacity dimensions.

This study begins with a brief overview of resource dependence theory followed by a discussion of external power relationships and absorptive capacity. The hypothesized relationships are presented, and the data collection process is described. Structural equation modeling is used to conduct an empirical investigation from which the results are reviewed. Last, a discussion of the findings is examined, and implications are discussed.

LITERATURE REVIEW

Resource Dependence Theory

This study uses the perspective of resource dependence theory to investigate the relationships between external power relationships and absorptive capacity given its capability of offering a unique insight into the present phenomena. The underpinning of the resource dependence perspective was developed by Emerson's (1962) study of external power relationships in which he proposed that the power of actor A over actor B is related to the dependence of actor B on actor A. The resource dependence perspective examines the exchange of resources among organizations and proposes that exchanges are dependent on the power relationships between organizations (Ulrich & Barney, 1984). Resource dependence perspective is based upon three core ideas: (1) the social context in which organizations exist influences the relationships between organizations, (2) organizations use of various strategic methods to increase autonomy and pursue goals, and (3) essential role of power in understanding the internal and external actions of organizations (Scott & Davis, 2007).

Resource dependence theory is suitable for the context of examining external power relationships given that the foundation of the theory is supported by the analysis of power between external organizational relationships. External power relationships are founded on the need of organizations to obtain limited resources (e.g., knowledge); hence, organizations that lack essential resources will seek to establish power relationships with other organizations that possess the scarce resources (Casciaro & Piskorski, 2005). As organizations seek to obtain limited resources within the environment, external power relationships emerge to support the exchange of valuable resources. If resources are scarce, then interorganizational exchanges are essential to achieving organization goals and remaining adaptive to the changing environment (Levine & White, 1961). Hence, resource dependence theory provides an insightful view into the power-driven relationships between organizations, and it is used within this study to provide a unique perspective into the influence of external power relationships on absorptive capacity.

External Power Relationships

The acquisition of new knowledge can be a motivating factor for creating interorganizational relationships (Hamel, 1991). To obtain external resources like knowledge, organizations may modify their external power relationships through increasing the dependence of other organizations or seeking organizations with valuable resources (Ulrich & Barney, 1984). Based on the tenets of the resource dependence perspective, organizations successful at maximizing the external power relationships will be successful in obtaining necessary resources (Pfeffer, 1981). Thus, organizations with increased power in external relationships are more likely to have access to valuable knowledge that will be used for a competitive advantage.

To access limited external resources, the organization may choose to engage in formal or informal agreements with other organizations (i.e., bridging mechanisms) (Scott & Davis, 2007). Interorganizational bridging mechanisms include cooptation (Selznick, 1949), which incorporates external groups and/or individuals into internal decision-making processes; alliances and joint ventures (Pfeffer & Salancik, 1978; Inkpen, 1998); involvement with trade associations (Staber & Aldrich, 1983); and other forms of power relationships.

An organization with numerous external power relationships is likely to have access to more sources of knowledge through strong and weak ties with other organizations (Granovetter, 1973). External organizational relationships are shown to influence organizational innovation and learning (Capaldo, 2007; Kraatz, 1998). Peters and Johnston (2009) propose a link between an organization's external power relationships and absorptive capacity. Therefore, as an organization engages in external power relationships, it is more likely to receive information through its ties with other organizations. When the scare resource within the industry is a specific type of knowledge, organizations with more external power relationships are likely to benefit from access to valuable knowledge through such power relationships. This study examines the influence of new knowledge gained through external power relationships on an organization's absorptive capacity.

Absorptive Capacity

Organizations seek to remain congruent with their environments to survive (Nadler & Tushman, 1980). To remain aligned, organizations must "learn" by identifying new knowledge, absorbing and transforming the information, and ultimately changing behaviors or structures within the organization (Huber, 1991). In addition, the organization must possess relevant prior knowledge before it can absorb new knowledge (Cohen & Levinthal, 1990). This ability to accumulate new knowledge is referred to as the absorptive capacity of an organization (Cohen & Levinthal, 1990; Zahra & George, 2002). Absorptive capacity consists of four dimensions that allow organizations to develop a competitive advantage: acquisition, assimilation, transformation, and exploitation of new knowledge (Eisenhardt & Martin, 2000; Zahra & George, 2002). A brief overview of each dimension is offered below (for a detailed description see Zahra & George, 2002 or Todorova & Durisin, 2007).

Acquisition. Acquisition is defined as the organization's ability to identify and acquire beneficial external knowledge (Zahra & George, 2002). The acquisition of knowledge occurs when organizations have the required amount of previous knowledge to realize the value in new, external knowledge (Lane & Lubatkin, 1998). Organizations are likely to encounter new knowledge through interorganizational relationships (Freeman & Barley, 1990). Therefore, when these relationships are external power relationships, organizations that hold the power are likely to have access to more knowledge, which enhances its ability to acquire new knowledge.

Assimilation. Knowledge assimilation is defined as an organization's ability to "analyze, process, interpret, and understand" newly acquired knowledge (Zahra & George, 2002: 189). In the assimilation process, the organization seeks to understand if the new knowledge corresponds to the prior knowledge of the organization and whether the existing knowledge must be altered to fit with the new knowledge (Lefkowitz & Lesser, 1988). Organizations with numerous external power relationships are more likely to have access to knowledge resources that assist with the assimilation process.

Transformation. Transformation is defined as the process of combining newly acquired knowledge and existing knowledge when the newly acquired knowledge does not have a precise fit within the current knowledge structure of the organization (Lane, Koka, & Pathak, 2006). When new knowledge enters the organization, the organization may find

incompatibility between the new and existing knowledge during the assimilation process; thus, organizations may transform the knowledge structures to ensure proper fit (Todorova & Durisin, 2007). Similar to the assimilation process, organizations with numerous external power relationships have access to more external knowledge resources, which are likely to enhance an organization's ability to successfully transform newly acquired knowledge.

Exploitation. Knowledge exploitation is an incremental change or refinement within an organization (Benner & Tushman, 2003; March, 1991) and may result in the creation of new goods, processes, knowledge, or new organizational forms (Spender, 1996). In the exploitation phase of absorptive capacity, the application of new knowledge is applied within the organization (Cohen & Levinthal, 1990). External organizations are likely to have knowledge beneficial for exploitation and may seek to control the exploitation process (Todorova & Durisin, 2007), yet the extent to which exploitation is influenced is dependent on the exact nature of the relationship.

Absorptive capacity has a role in how organizations engage in interorganizational knowledge exchange and learning (Lane & Lubtakin, 1998; Lane, Salk, & Lyles, 2001; Lyles & Salk, 1996). Given the divergent functions of the absorptive capacity dimensions and the diverse nature of power relationships, organizations are likely to experience variation in the manner in which power relationships influence the idiosyncratic dimensions of absorptive capacity. Therefore, it is the purpose of this study to propose and empirically examine the influence of external power relationships on each dimension of absorptive capacity.

Proposed Relationships

Todorova and Durisin (2007) proposed that external power relationships influence the valuation of new knowledge and moderate the relationship between the organization's absorptive capacity and competitive advantage. Additionally, Peters and Johnston (2009) theoretically propose that external power relationships moderate the absorptive capacity capabilities. The precise nature of the influence of external power relationships on the absorptive capacity capabilities is not fully explored in earlier studies; therefore, the purpose of this investigation is to examine these relationships. A graphical model of the relationships proposed is presented in Figure 1.

If organizations engage in external power relationships, it is likely the new information received from peer organizations will influence the model of absorptive capacity in ways beyond the relationships proposed in earlier models. Specifically, when organizations have numerous external power relationships with other organizations, it is probable that the knowledge exchanged between the organizations will facilitate the organization's likelihood to encounter new knowledge complementary to the organization's prior knowledge (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998). Additionally, when organizations engage in numerous external power relationships, they are exposed to various forms of knowledge through their ties with other organizations (Granovetter, 1973). Therefore, it is likely that the organization's acquisition of knowledge will be altered by the presence of such external relationships.

FIGURE 1
Structural Equation Model of the Linkages among External Power Relationships and Absorptive Capacity

γ_{21}
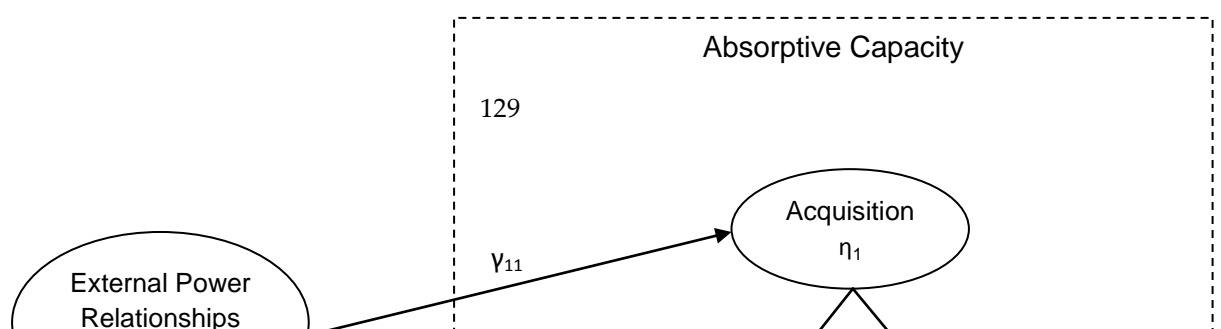
γ_{41}

Note: The error terms are not included in the graphical representation of the model.

> *Hypothesis 1: The level of external power relationships is positively related to an organization's ability to acquire knowledge.*

During the knowledge assimilation process, organizations seek to understand, comprehend, and interpret new knowledge (Zahra & George, 2002). Peter and Johnston (2009) support the influence of external power relationships on assimilation using contagion theory: the strength and number of external relationships build social capital and allow organizations to better assimilate newly acquired knowledge. Resources from external organizations – available through external power relationships – are likely to facilitate the assimilation process by supporting organizations in their quest to interpret and understand the new knowledge. If external organizations have experience with the assimilation process, experiential knowledge from external organizations may have value for the organization. Therefore, knowledge available through external power relationships are likely to influence assimilation.

> *Hypothesis 2: The level of external power relationships is positively related to an organization's ability to assimilate knowledge.*

Knowledge transformation occurs when organizations alter internal knowledge structures and newly acquired knowledge to achieve congruence between the new and prior knowledge (Todorova & Durisin, 2007). Peters and Johnston (2009) apply contagion theory

to explain how information available through external power relationships is likely to aid the organization as it seeks to transform new knowledge. The authors state that organizations are better able to transform knowledge given the increased exposure to new ways of knowledge use. External organizations with experience transforming knowledge or with innovative ideas on how to transform knowledge are likely to provide valuable knowledge resources to organizations engaging in knowledge transformation. The knowledge resources available through external power relationships are likely to enhance an organization's ability to transform recently acquired knowledge into knowledge that fits within the organization's existing knowledge structure.

Hypothesis 3: The level of external power relationships is positively related to an organization's ability to transform knowledge.

When knowledge is exploited, it is applied within the organization and used for commercial ends (Cohen & Levinthal, 1990). Stakeholder demands are shown to shape resource allocation with an organization (Christensen & Bower, 1996). An organization's commitment to external stakeholders (e.g., customers, suppliers, alliance partners, etc.) is posited to hinder the exploitation of new knowledge because organizations have a propensity to become driven by stakeholder influences (Todorova & Durisin, 2007). In this circumstance, the power within the external power relationship is controlled by the stakeholder rather than by the organization.

Organizations engage in external power relationships with a vast array of stakeholders; therefore, the extent to which the external stakeholders influence the allocation of organization resources is likely to be a result of the power present within the external power relationship (Scott & Davis, 2007). Organizations successful at maximizing external power relationships will be successful in obtaining necessary resources (Pfeffer, 1981). However, organizations not able to effectively utilize external power relationships will not obtain the needed resources. Additionally, organizations may be subject to the pressures of external stakeholders and may relinquish control over the exploitation process. The choice to yield control over exploitation is likely to be dependent upon several conditional factors (e.g., nature of the relationship, type of industry, etc.).

The scope of this study is not to examine the influence of each of the conditional factors, yet their influence is mentionable because of the likely influence on the direction of the relationship between external power relationships and exploitation. Although the direction of the influence is likely dependent upon the exact nature of the relationship, the existence of a significant relationship between external power relationships and knowledge exploitation is likely given the influence of knowledge from the external power relationship on the exploitation process (Todorova & Durisin, 2007; Peters & Johnston, 2009). Additionally, it is likely that given the shift in power, the relationship will be negative in influence.

Hypothesis 4: The level of external power relationships is negatively related to an organization's ability to exploit knowledge.

METHODOLOGY

Sample and Procedure

The data for this investigation was collected using a student sample from a large university in the Southwestern United States. The students surveyed were enrolled in a Business Policy (Capstone) course, which is among the final courses for undergraduate business students prior to graduation. The course is designed to provide students with an

integration of the various areas of study within the business curriculum and to enhance higher-level critical thinking and problem-solving skills. Students work in teams consisting of a cross-section of majors, and throughout the semester students teams work competitively to analyze case studies and offer recommendations for improvements to the strategies of the companies studied. In this environment, groups are separate entities much like organizations working to meet customer demands in industry.

Additionally, the groups engage in external power relationships similar to those experienced by organizations. For example, groups may receive information from peer groups with whom they have formed a relationship, or groups may build a relationship with a source external to the classroom from which they gather information. The instructor also provides valuable information to groups through in-class communication or via online.

Groups are encouraged to use multiple sources to obtain the information necessary to complete the strategic analysis process, and many groups utilize numerous resources for collecting and analyzing data. This process is similar to organizations that engage in parallel external knowledge sharing relationships. Therefore, based on the congruency of relationships between the student groups and organizations and the competitive environment of the classroom, the generalizability of results from the classroom to industry is enhanced, and thus, a student sample is used.

To collect data, an online survey was administered to the students after the final case competition. To minimize the response bias, no extra points were offered to the students to complete the survey. A total of 264 students were enrolled in the course, and after eliminating partial responses, a total of 186 responses were used (70.5 %).

Measures

Perceptions of absorptive capacity were measured using an adapted 21-item scale from Jansen, Van Den Bosch, and Volberda (2005), which assessed the individual dimensions of absorptive capacity. Perceptions of external power relationships were measured using an adapted 4-item scale of external relationship information exchange from Boyle and Dwyer (1995). Details on the scale content, reliabilities, and sample items are presented in Table 1.

TABLE 1
Measurement Summary

Constructs[a]	Content[b]	Reliability[c]	Sample Scale from Present Study[d]
Acquisition	Ability of group to acquire new, external knowledge. (1)	0.84	Members of our group regularly visit with other groups in the class.
Assimilation	Ability of group to use newly obtained knowledge. (1)	0.80	Our group recognizes improvements made by other group members to the case analysis.
Transformation	Ability of group to apply new, external knowledge to internal knowledge. (1)	0.82	Our group quickly recognizes the usefulness of new external knowledge to existing knowledge.

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| Exploitation | Ability of group to apply new knowledge to useful means. (1) | 0.88 | It is clearly known how activities within our group should be performed. |
| External Power Relationships | Extent to which information is exchanged via external power relationships. (2) | 0.88 | Instructions provided by our professor influenced our group's work on the project. |

[a] Items from all scales were utilized after confirmatory factor analysis conducted. (No items warranted removal.)
[b] Chief sources of scales noted in parentheses: (1) Jansen, Van Den Bosch, and Volberda (2005) and (2) Boyle and Dwyer (1995).
[c] Values denote reliabilities achieved in this study.
[d] All items rated using a 5-point Likert scale with anchors ranging from strongly disagree to strongly agree.

Data Analysis

Given that the purpose of this study is to explore the relationship between external power relationships and its influence on the individual dimensions of absorptive capacity, structural equation modeling techniques were implemented to test the theoretical and structural relationships of the proposed model. The statistical benefits of structural equation modeling, along with its ability to test structural theory, warranted its use in this investigation.

Confirmatory Analysis

The internal reliabilities for each construct were assessed using SPSS software version 17. All reliabilities were above Nunnally's (1978) recommended value of 0.70. A confirmatory factor analysis was run using LISREL software version 8. Chi-square values for two of the constructs did not yield significance; however, this was expected given the known sensitivity of the test (Bagozzi & Yi, 1998). The overall fit indices for each construct were within acceptable limits; therefore, overall support for the measures was obtained, and all items were allowed to remain. Summaries of the fit indices are presented in Table 2.

TABLE 2
Confirmatory Analysis: Factor Structure Diagnostics

Factor Structure Diagnostics	Construct				
	Acquisition	Assimilation	Transformation	Exploitation	External Power Relationships
Chi-square	57.4	(3-factor	9.94	38.98	1.14
df	9	model)	9	9	2
p-value	0.00		0.37	0.00	0.57
GFI	0.91		0.98	0.93	1.00
AGFI	0.78		0.96	0.85	0.98
RMR	0.07		0.02	0.03	0.01
NFI	0.92		0.98	0.95	1.00
NNFI	0.88		1.00	0.94	1.00

CFI	0.93	1.00	0.96	1.00
IFI	0.93	1.00	0.96	1.00
RFI	0.86	0.97	0.92	0.99
RMSEA	0.17	0.02	0.13	0.00

A test of discriminant validity was conducted to determine the extent to which the operationalizations of the constructs measure phenomena theoretically different than other operationalizations. Measures of internal reliabilities were compared with intertrait correlations, and all correlation values were found to be less than the reliabilities. In one instance, a correlation was the same value as the reliability, but overall, the measures did not correlate, indicating an acceptable level of discriminant validity (Churchill, 1995). Examinations of convergent and discriminant validity were within recommended ranges (Byrne, 1998), thus indicating the data was suitable for hypothesis testing and further analysis. Detailed evidence of discriminant validity is provided in Table 3.

TABLE 3
Confirmatory Analysis: Evidence of Discriminant Validity

Correlational Analysis and Reliabilities*

Construct	Acquisition	Assimilation	Transformation	Exploitation	External Power Relationships
Acquisition	(0.84)				
Assimilation	0.64	(0.80)			
Transformation	0.52	0.72	(0.82)		
Exploitation	0.46	0.66	0.82	(0.88)	
External Power Relationships	0.51	0.41	0.40	0.32	(0.88)

Reliabilities are shown in parentheses.

Results

Before examining the outcomes of the individual hypothesized relationships, an overall evaluation of the model fit was conducted. The goodness of fit (GFI = 0.82) and adjusted goodness of fit (AGFI = 0.78) measures were lower than the recommended level of 0.90 (Hu & Bentler, 1995), although this was expected given the exploratory nature of the study. An overall assessment of the other global fit indices indicated a proper model fit (χ^2 = 506.89, $p < 0.05$, NFI = 0.93, NNFI = 0.96, CFI = 0.96, IFI = 0.97, and RFI = 0.92). Given that the model received overall support from the majority of fit indices, the analysis proceeded to an examination of hypotheses. Detailed item analyses and global fit indices are displayed in Tables 4 and 5.

TABLE 4
Item Analysis

Parameters	Identifier	Standardized Estimate	t-value
Acquisition (η_1)	AC1	0.73	8.83
	AC2	0.76	9.19
	AC3	0.61	7.6
	AC4	0.70	8.23
	AC5	0.79	λ set to 1
	AC6	0.72	9.1
Assimilation (η_2)	AS1	0.62	9.5
	AS2	0.75	λ set to 1
	AS3	0.72	10.47
Transformation (η_3)	T1	0.55	8.73
	T2	0.68	13.02
	T3	0.72	λ set to 1
	T4	0.62	11.79
	T5	0.29	4.41
	T6	0.59	9.24
Exploitation (η_4)	E1	0.72	10.79
	E2	0.54	8.7
	E3	0.72	9.97
	E4	0.71	12.42
	E5	0.60	12.02
	E6	0.75	λ set to 1
External Power Relationships (ξ_1)	EPR1	0.80	13.13
	EPR2	0.80	11.98
	EPR3	0.91	λ set to 1
	EPR4	0.65	10.65

TABLE 5
Global Fit Indices

Measure	Value
Chi-square	506.89

df	266
p-value	0.00
RMSEA	0.07
GFI	0.82
AGFI	0.78
RMR	0.06
NFI	0.93
NNFI	0.96
CFI	0.96
IFI	0.97
RFI	0.92

Support for the hypothesized relationships is derived from an examination of the gamma (γ) weights and the significance of the relationships. All proposed relationships were found to be significant ($p < 0.05$) as displayed in Table 6. Overall, external power relationships were shown to have a positive relationship on acquisition, assimilation, and transformation and a negative relationship with exploitation of knowledge. The findings are discussed in more detail in the following section.

TABLE 6
Test of Hypotheses

	Identifier	Standardized Estimate	t-value
H1: External Power Relationships → Acquisition	γ_{11}	0.51	6.05
H2: External Power Relationships → milation	γ_{21}	0.12	4.88
H3: External Power Relationships → Transformation	γ_{31}	0.11	4.94
H4: External Power Relationships → Exploitation	γ_{41}	-0.03	3.96

DISCUSSION AND CONCLUSION

These findings are among the first to find support for the direct influence of external power relationships on individual dimensions of absorptive capacity. Based on the findings, the varying strength and direction of the relationships yields interesting results.

The findings indicate that external power relationships have a positive influence on knowledge acquisition. This relationship is among the strongest relationships of those examined (standard estimate = 0.51), which implies that external power relationships have the most influence on knowledge during the process of acquisition. During the knowledge acquisition process, organizations search for new, external knowledge and seek to transfer the knowledge across the organization's boundary (Lane & Lubatkin, 1998). The array of external power relationships increases the amount of knowledge to which the organization is exposed, and thereby influences the amount of knowledge the organization is able to internalize. Organizations that have more external power relationships are more likely to receive exposure to larger amount of knowledge complementary to their own prior knowledge. Therefore, external power relationships yield the most influence on this initial step of the absorptive capacity process.

Knowledge assimilation and transformation both yield positive relationships with external power relationships; however, both relationships are of lesser strength than the relationship between external power relationships and acquisition. When information is assimilated into the organization, organizations seek to understand how the knowledge fits within the scope of prior knowledge held within the organization. If the knowledge fits precisely, then minimum alterations are needed. However, if the new knowledge does not have a precise, exact fit within the organization, a transformation of internal knowledge structures must be made to accommodate the new knowledge (Lefkowitz & Lesser, 1988; Lane, Koka, & Pathak, 2006). During these processes, external information (provided through the external power relationships) may aid the organization in assimilating and transforming knowledge. It is possible that external organizations have undergone similar knowledge assimilation and/or transformation processes and are able to offer experiential insight to assist the organization with the process(es). The empirical results support the positive flow of knowledge during the secondary stages of the absorptive capacity process.

Once knowledge has undergone the acquisition, assimilation, and transformation phases, the new knowledge is then exploited. Knowledge exploitation can be in the form of incremental internal changes or the creation of new goods, processes, etc. (Spender, 1996). Todorova and Durisin (2007) posit that organizations are influenced by external stakeholders during the exploitation phase, which results in organizations not exploiting new knowledge to their own advantage but rather using current processes to satisfy the stakeholder (e.g., customer). Furthermore, organizations with numerous external power relationships were expected to receive many (sometimes conflicting) influences, which may negatively influence the exploitation process. Empirical results support this hypothesis and find a significant negative relationship between external power relationships and exploitation, even though the relationship is minimal in strength. The direction and strength of this relationship indicates that while organizations may be engaged in numerous power relationships and have vast exposure to new knowledge, once the new knowledge is integrated, factors other than external power relationships are likely to influence the knowledge exploitation process. Future researchers are encouraged to further empirically examine this relationship to assess the role of other influences on knowledge exploitation.

Overall, the results indicate that the information available through external power relationships influences the model of absorptive capacity. External power relationships have various magnitudes and directions of influence on each dimension of absorptive capacity. Knowledge available through external power relationships is most influential during the acquisition phase and has moderate influence during the assimilation and transformation stage. External power relationships are limited in their ability to provide information to

organizations during the exploitation phase of absorptive capacity, which may be the result of extraneous demands from external stakeholders. The influence of external power relationships on absorptive capacity has a decreasing influence as the process develops. Figure 2 graphically displays the varying magnitudes and directions of the relationships.

Limitations

While the findings of the study provide a unique insight into the relationships between external power relationships and absorptive capacity, the investigation is not without limitations. First, the study uses a student sample, which may limit the generalizability of the results. Even though a competitive classroom context was used (which mimics the competitive nature of industry), data rely on students' perceptions of the phenomena. However, Ashton and Kramer (1980) and Pitt and Nel (1989) support the use of a student sample claiming that responses from student surrogates are generally in line with practitioner responses.

The current investigation is limited to an examination of the influence of external power relationships on absorptive capacity. Scholars of absorptive capacity propose numerous forces that influence the construct; however, this study seeks to further examine the nature of one influence: external power relationships. Therefore, a limitation of the proposed model is that it is underspecified. Future researchers should consider the inclusion of other forces on the model of absorptive capacity; specifically, the influence of additional forces on the exploitation dimension of the model may yield interesting findings given the limited, negative relationship found between external power relationships and exploitation.

FIGURE 2
Graphical Representation of the Strength of Relationships between External Power Relationships and Dimensions of Absorptive Capacity
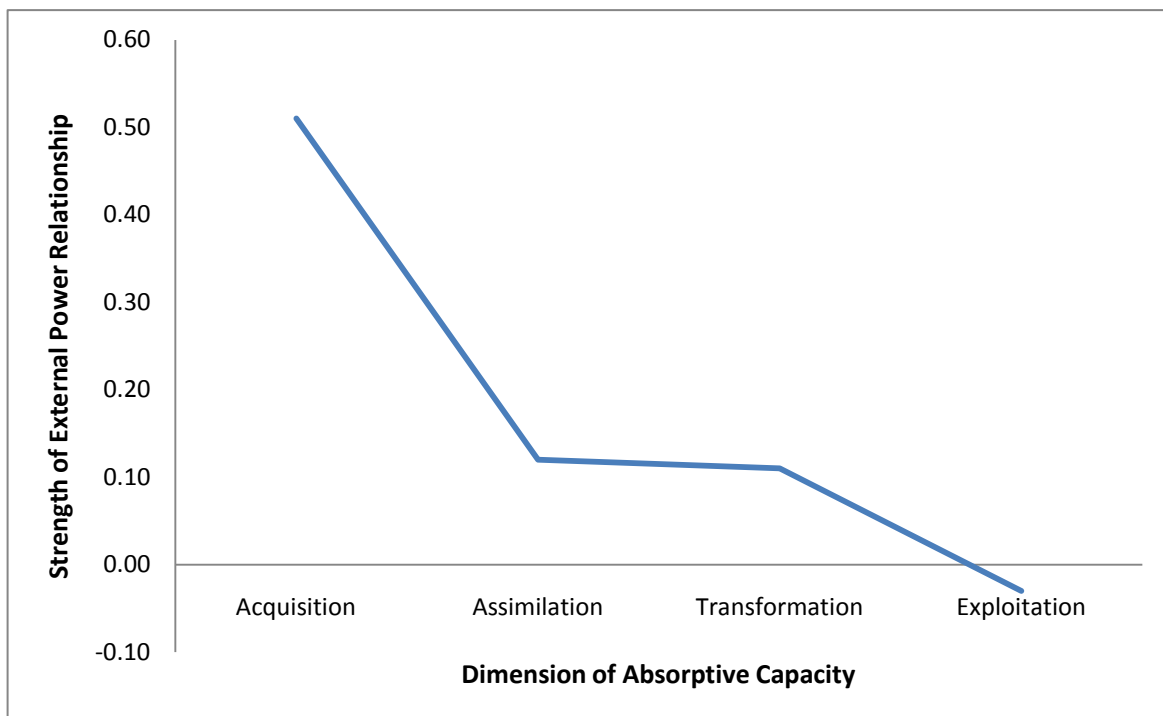
Furthermore, the nature of the influence of external power relationships on exploitation may be indicative of a limited measurement scale. The intent of this study was to examine how the exchange of knowledge through external power relationships influences the individual dimensions of absorptive capacity, yet it is likely that other operationalizations of external power relationships may provide a more detailed understanding of how external power relationships influence the absorptive capacity process and specifically alter knowledge exploitation. Future researchers may consider the use of more comprehensive measures (inclusive of other influences of external stakeholder power like formalization of power, relationship performance, requests, etc.) to assess the influence of other phenomena.

Last, it is also acknowledged that the current scale – while based upon valid and reliable measures – was altered to fit the context of the environment. Further empirical testing of the scale, or development of other scales to measure the proposed constructs, is encouraged to move toward more refined perceptual measures of the relevant variables.

Conclusion

The purpose of this study was to further investigate the influential role of external power relationships on absorptive capacity. The exchange of knowledge through external power relationships was empirically examined, and the proposed hypotheses were supported. Results of the investigation yield insight into the nature of the relationship between external power relationships and absorptive capacity, such that external power relationships have varying degrees of influence on the dimensions of absorptive capacity. External power relationships range from a strong influence on knowledge acquisition to a limited (and slightly negative) influence on knowledge exploitation.

The results from this investigation yield a unique perspective into how knowledge exchanges in external power relationships contribute to an organization's ability to acquire, assimilate, transform, and exploit new knowledge. Future researchers are encouraged to continue the investigation of the influence of external power relationships on the absorptive capacity process. Both managers and researchers will benefit from studies that seek to further define how information is transferred through organizational relationships. It is hoped that the insights garnered from this investigation will foster the continued development of the model of absorptive capacity and will lead to a better understanding of the nature of external influences on the process.

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GROUP POLARIZATION IN BOARD DECISIONS ABOUT CEO COMPENSATION
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ABSTRACT
This study examines how group polarization may influence boards' decisions about CEO compensation. The group polarization theory suggests that when past compensation experience would lead directors to on average support a relatively high(low) level of CEO compensation prior to a board meeting, they will tend to pay the focal CEO even higher(lower) after board discussions. I also examine several key moderators of the polarization effect. Results based on Fortune directors' decisions provided strong support to the theory. This study introduces group polarization into research on corporate governance and compensation, and explains how group discussions may distort/strengthen the network diffusion effect.

GROUP POLARIZATION IN BOARD DECISIONS A BOUT CEO COMPENSATION

Theories and studies on corporate governance have flourished across different disciplines. A large number of studies have been built on economics perspectives, primarily represented by agency theory. Assuming that managerial interests may not align with shareholders' interests, this stream of research has emphasized formal structures in governance such as executives' incentive contracting and the monitoring structures of boards (Fama & Jensen, 1983; Jensen & Meckling, 1976). Behavioral scholars have advanced corporate governance research by suggesting how behavioral processes may influence governance efficiency. In particular, numerous studies have focused on power and politics in management and board relationships, suggesting that executive compensation and board monitoring can be both influenced by management power over the board (Pollock, Fischer, & Wade, 2002; Zajac & Westphal, 1996). In addition, research on interlock networks suggests that directors tend to imitate decisions that they were previously exposed to on other boards, resulting in the diffusion of governance practices and structures from one board to another (Davis, 1991; Davis & Greve, 1997; Haunschild, 1993; Palmer, Jennings, & Zhou, 1993; Rao & Sivakumar, 1999). Recent studies further suggest that CEOs tend to adopt a range of inter-personal tactics to influence the decisions made by key groups of constituents such as security analysts and institutional investors (Westphal & Bednar, 2008; Westphal & Clement, 2008).

While these studies have significantly enhanced our understanding of behavioral processes in corporate governance, there has been little systematic theoretical development or empirical research on group processes in governance decisions. In particular, although boards of directors as decision-making groups have long been a central focus in governance research (see a recent review by Finkelstein, Hambrick, & Cannella, 2008) and there is a large literature in social psychology suggesting how group decision-making biases may influence group decisions (Moscovici & Doise, 1994), little systematic research has been done to examine how group decision-making biases may influence governance decisions made by boards (Hambrick, 2007). In this study, I address this gap by examining how a fundamental group decision-making bias referred to as group polarization may influence board decisions about CEO compensation.

Group polarization is said to occur when group members' pre-meeting average inclination was amplified in their post-meeting collective decision (Isenberg, 1986). For example, students who initially perceived a faculty as favorable rated the faculty even more favorably after group discussions; while students who initially perceived a faculty as unfavorable rated the faculty even more unfavorably following group discussions (Myers & Lamm, 1976). Group polarization has been documented in different situations and is emerging as a fundamental group decision–making bias (Baron & Kerr, 2003; see reviews by Isenberg, 1986; Moscovici & Doise, 1994). In this study, I draw from theory and research on the social psychology of groups to explain how and why group polarization can occur in board decisions about CEO compensation. I begin by building on social and psychological research to suggest that a director's pre-meeting position on CEO compensation decisions tends to reflect well on the director's overall prior experience with compensation decisions across different boards. More specifically, I suggest that a director tends to support a relatively high (low) level of CEO compensation prior to a board meeting when the director on average approved a relatively high (low) level of compensation in prior decisions across different boards. The group polarization theory then suggests that when directors on average would support a relatively high level of CEO compensation (by virtue of their prior experience across different boards) prior to a board meeting, they tend to pay the focal CEO even higher following board discussions; but when directors on average would support a relatively low level of CEO compensation prior to a board meeting, they will pay the focal CEO even lower after board discussions. I also suggest several specific factors that may moderate the extent to which group polarization occurs on boards (i.e., the similarity between the focal decision and prior decisions experienced by directors with minority opinions, the degree of demographic homogeneity among directors, and the power of outside directors over management).

The present paper thus contributes to the corporate governance literature by studying how a fundamental group decision-making bias may influence key governance decisions made by boards. Although a substantial body of research in social psychology has emphasized how group decision-making bias may influence group decisions and there is an increasing interest in research on behavioral processes in corporate governance, very little systematic research has built on social psychological theories on group dynamics to understand governance decisions (Hambrick, Werder, & Zajac, 2008; Westphal & Bednar, 2005). The group process approach advanced in this study also complements existing economic and sociological perspectives on corporate governance and yields novel insights into board behavior. For example, in contrast to prevailing perspectives on governance, which generally suggest that outside directors' power over management tends to correct suboptimal decision-making (Fama & Jensen, 1983; also see reviews by Finkelstein et al.,

2008), the theory and findings from this study suggest that greater outsider power over management can sometimes make certain group-level biases (i.e., group polarization biases) more prominent in strategic decisions.

Studying the social psychology of groups on boards also has important implications for research on interlock networks. The interlock network is an important channel through which directors bring the knowledge and insights that they obtained on other boards to influence focal board decisions. As discussed earlier, directors have been shown to diffuse a wide range of corporate practices and structures from one board to another, including corporate acquisition activities (Haunschild, 1993), response to take-over threats (Davis, 1991), the multidivisional form of organization (Palmer et al., 1993), and the creation of an investor relations office (Rao & Sivakumar, 1999), among others (see reviews by Davis, Yoo, & Baker, 2003; Mizruchi, 1996). One central argument from this literature is that directors tend to make a focal decision that is **similar** to the average decision experienced by them on different boards such that practices tend to diffuse through interlock networks. This literature has greatly enhanced our understanding of network diffusion and mechanisms of inter-organizational influence. However, it has largely viewed directors as information carriers and has paid very limited attention to how directors as groups may exchange and process information in making strategic decisions. The present study addresses this issue by explaining how board discussions can induce directors to approve a focal decision that is **more extreme** than the average prior decision experienced by them on different boards, thus suggesting how group processes may distort/strengthen the network diffusion effect. More generally, the present study addresses the recent call for more research on behavioral processes underlying network ties (Gulati & Higgins, 2003; Mizruchi, Stearns, & Marquis, 2006) by proposing a social psychological approach to studying social network effects.

Group polarization theory also has important implications for research on executive compensation. Although a substantial body of corporate governance research has been focused on executive compensation and the role of directors in determining executive pay, little is known about how group decision-making biases may contribute to this important and controversial decision. In suggesting how group polarization may influence compensation decisions, this study thus offers a novel behavioral mechanism through which executive compensation is determined. More generally, the present study addresses the calls for more research on CEO compensation from novel theoretical perspectives (Devers, Cannella, Reilly, & Yoder, 2007; Gomez-Mejia & Wiseman, 1997) by proposing a group process-oriented approach.

THEORY AND HYPOTHESES

Group Polarization

A large number of studies have documented group-induced polarization in different situations (see reviews by Baron & Kerr, 2003; Isenberg, 1986; Moscovici & Doise, 1994). In his classic study, Stoner (1961) observed that the collective decision following a group discussion was riskier than the initial average member position. This 'risky-shift' phenomenon soon motivated a series of investigations of group risk taking. Scholars had speculated that group polarization may be explained by the diffusion of responsibility or by the normative value of risk-taking behavior in the western culture. However, these interpretations were soon rejected as subsequent studies also found that on certain decisions post-discussion collective decision tended to be more cautious than the initial average

member position (Burnstein & Vinokur, 1973). Moreover, studies also showed that on issues unrelated to risk-taking (such as opinions towards race, feminism, pacifism, equality, and teenager drinking), the post-discussion group decision also amplified the initial average member position (see reviews by Baron & Kerr, 2003; Isenberg, 1986; Moscovici & Doise, 1994). Accordingly, scholars restated these findings in a more general term as "group polarization". Group polarization is thus said to occur when the pre-discussion average member position is amplified in the group's post-discussion decision. More recent studies on group polarization have examined choices of investment projects (Williams & Taormina, 1993) and positions towards given target groups (Brauer, Judd, & Jacquelin, 2001).

Group polarization can result from biases in both group information exchange and group information processing (Isenberg, 1986; Myers & Lamm, 1976). More specifically, group information exchange can be biased for several reasons. For one thing, individuals tend to emphasize position-consistent arguments in group discussions and avoid expressing counterarguments so that they can present the self favorably and confidently before others (Leary, Nezlek, Downs, Radforddavenport, Martin, & Mcmullen, 1994; Vohs, Baumeister, & Ciarocco, 2005). Accordingly, arguments in favor of the initial average member position tend to be over-emphasized during the discussion while arguments that can reveal uncertainties of supporting such a position tend to be poorly expressed. In addition, as group discussions reveal the prevailing position supported by most members, individuals may tend to avoid expressing concerns about the prevailing position because of social risks of voicing minority opinions (Moscovici & Doise, 1994). A substantial body of group research suggests that individuals who voice minority opinions tend to receive more negative evaluations from others (see reviews by Wood, Lundgren, Ouellette, Busceme, & Blackstone, 1994). Therefore, as group members emphasize position-consistent arguments and avoid revealing minority opinions, arguments that are consistent with the initial average member position tend to prevail while counterarguments tend to be poorly represented during group discussions.

Groups may also be biased in processing information during decision-making processes. More specifically, members may develop enhanced confidence about the initial average member position when arguments in favor of the position prevail and become particularly salient and accessible (see reviews by Echterhoff, Higgins, & Groll, 2005). By contrast, counterarguments may appear to be less salient to group members as fewer people tend to raise them. Members may also become increasingly certain about the position that they initially supported when they observe that most members seem to share similar views. Social psychology research suggests that individuals tend to become particularly certain about their judgments when they perceive others to share similar opinions (Baron, Hoppe, Kao, Brunsman, Linneweh, & Rogers, 1996). By contrast, members with minority opinions may become even less confident about questioning the prevailing position when most people seem to have few concerns about that position.

The tendency to develop enhanced confidence about the group's initial position can be further amplified by a general "lay dispositionalism", an attribution bias in interpreting others' public behaviors (Ross & Nisbett, 1991). Specifically, an individual may tend to overattribute others' support of the prevailing position to their confidence about the position while underattributing such support to other avoidance motivations, such as motivations to avoid voicing minority opinions or motivations to avoid revealing position-inconsistent information. Accordingly, group members can become excessively confident about the prevailing position when they overestimate the confidence of others about that position; conversely they may become particularly hesitant to raise concerns about the prevailing

position as they underestimate the extent to which others share such concerns. Consequently, group members tend to reach a final collective decision that amplifies the initial average member position.

Group Polarization on Corporate Boards

Although group polarization has not been studied in the context of boards, there are a number of reasons to believe that it may be particularly likely to occur among directors. Qualitative research on boards suggests that social norms encourage directors to express views in a confident manner, which leads directors to suppress arguments that may convey uncertainties about their supported positions (Lorsch & MacIver, 1989). Accordingly, information in favor of the initial average director position may be particularly likely to be over-emphasized while counterarguments may tend to be especially poorly represented during board meetings. Moreover, social risks of voicing minority opinions can be particularly high in the context of board decisions, as voicing minority opinions has been shown to prompt social distancing (Westphal & Khanna, 2003), and a lower likelihood of receiving recommendations for important opportunities and positions (Westphal & Bednar, 2005). Survey evidence even suggests that making favorable impressions on fellow directors and building social capital is a major motivation for directors to join boards (Lorsch & MacIver, 1989). This further implies that concerns about social risks of voicing minority opinions can be especially prominent for directors, and that board information exchange can be especially biased.

Group Polarization and Board Decisions about CEO Compensation

CEO pay in the United States has increased by about 600% in the past two decades (Gabaix & Landier, 2008). Such a dramatic rise of executive compensation has triggered much public controversy and academic research. Hundreds of academic publications from management, finance, accounting, and economics have intensively examined the determinants of CEO pay. Agency theory suggests that executive compensation based on firm performance should help to align executives' and shareholders' interests (Fama, and Jensen, 1983). Effective corporate governance practice should further ensure that such performance-based pay is implemented. However, a meta-analysis of this research reveals that firm performance only explains 5% of the variations in CEO pay (Tosi, Werner, Katz, & Gomez-Mejia, 2000). A recent review of this literature further suggests that traditional indicators of corporate governance quality (such as the proportion of outside directors and institutional ownership) only have limited influence on executive compensation (Devers et al., 2007; Finkelstein et al., 2008; Gomez-Mejia & Wiseman, 1997). Moreover, empirical studies have largely found that the use of performance-based pay often leads to managerial manipulations on how their payments are realized and actually causes more misalignment of incentives (Aboody & Lev, 2000; Yermack, 1997).

Behavioral scholars have expanded agency theory by suggesting how behavioral processes may explain how executive compensation is determined and have found relatively consistent results. For example, Westphal and Zajac (1995) suggests that outside directors who are economically independent of an organization may not be truly independent. They found that powerful CEOs tend to select outside directors that are more sympathetic to management and that outside directors selected by powerful CEOs tend to approve higher CEO compensation. Subsequent studies have provided consistent evidence that CEO power is positively related to executive compensation (Devers et al., 2007; Finkelstein et al., 2008). In addition, a series of studies have found evidence that executive compensation decisions are

significantly influenced by social categorization (Porac, Wade, & Pollock, 1999) and social comparison processes (Ezzamel & Watson, 1998; O'Reilly, Main, & Crystal, 1988). These findings suggest that the level of CEO compensation in a firm's primary industry served as basis for social comparison in the process of determining CEO pay.

Interestingly, although directors directly determine CEO compensation as a group and there is much controversy about this important decision, little is known about how group decision-making biases may contribute to board decisions about CEO pay. In the present study, I suggest that group polarization theory offers a novel behavioral approach to study executive compensation. I begin by suggesting that directors often use the market or peer group level of CEO compensation as a reference point in determining whether a given level of compensation is relatively high or low (Ezzamel & Watson, 1998; O'Reilly et al., 1988). As summarized by Bizjak, Lemmonb, and Naveen (2008: p154), "…the compensation committee often uses information on pay practices at comparison or peer companies, which are usually similar-size firms from the same industry. In most firms, salary and, either directly or indirectly, target bonuses and option pay are anchored to the peer group. In assessing target pay levels, salary and bonus and total pay below the 50th percentile are usually considered below market."

I then suggest that a director tends to support a relatively high (low) level of CEO compensation prior to a board meeting when this director on average approved a relatively high (low) level of CEO pay previously across various boards. Research on group dynamics suggests that individuals' pre-meeting positions on a given issue tend to be determined by the availability of pro and con arguments about the issue (Burnstein & Vinokur, 1977; Isenberg, 1986). There is abundant evidence that individuals tend to recall information that is consistent with their overall past decisions better than information that is inconsistent (Albarracin & Wyer, 2000; Trope & Thompson, 1997; Wood, 1982). It is suggested that individuals tend to neglect information that may challenge their past decisions due to self-protection needs, and therefore tend to recall such information poorly (Sedikides, 1993; Sedikides & Green, 2000). Moreover, retrieving information that is inconsistent with past decisions may lead to dissonance, a uncomfortable motivational state that tends to reduce the frequency and accuracy of such information retrieval over time (Cooper & Fazio, 1984; Festinger, 1954). Accordingly, although directors need to consider pro and con arguments when they approved prior compensation decisions, these arguments are usually not memorized and recalled equally well in the future. Directors tend to recall arguments that support their overall past decisions better than arguments against those decisions. Accordingly, the biased information recall process tends to cause directors to formulate pre-meeting positions that reflect well on their overall past compensation experience.

A large body of behavioral research in organizations further provides evidence that individuals are particularly likely to be influenced by their past experience in complex organization decisions such as decisions about CEO compensation (Cyert & March, 1963; Hambrick & Mason, 1984). This literature suggests that the limited cognitive abilities of decision-makers often force them to repeat past actions in face of the overwhelming demands of analyzing complex and uncertain issues. Some scholars even suggest that poor performance feedbacks in organization decisions such as in compensation decisions[8] may explain individuals' tendency to repeat past actions even when such actions were quite questionable (Haleblian & Finkelstein, 1999; Levinthal & March, 1993). This pattern that

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[8] Recent reviews of the CEO compensation literature have consistently reported insignificant relationships between CEO pay and performance (see a meta-analysis by Tosi et al., 2000).

individuals tend to develop opinions to be consistent with their average past decision is also evidenced by a stream of research on board decisions. A series of studies suggest that directors' influence on board decisions reflected well on their average prior exposures to related decisions across different boards (Davis, 1991; Haunschild, 1993; Palmer et al., 1993).

The group polarization theory then suggests that when directors on average tend to support a relatively high level of CEO compensation prior to a board meeting by virtue of their past experiences on different boards, arguments that support high CEO compensation tend to prevail while counter arguments may be suppressed during board discussions due to directors' tendency to speak confidently about their favored position (Leary et al., 1994; Lorsch & MacIver, 1989). For example, directors may stress that high compensation is necessary to reward the CEO for his or her talent and hard work (Davis, Schoorman, & Donaldson, 1997; Wasserman, 2006), that high compensation is important for retention of the CEO (Fong, Misangyi, & Tosi, 2010), and that high compensation is very common in other companies (Ezzamel & Watson, 1998; O'Reilly et al., 1988), and so on. They may also avoid betraying uncertainties about their support to high compensation by withholding concerns about high compensation. By contrast, when directors on average tend to support a relatively low level of CEO compensation, they may emphasize that restricted CEO compensation has been demanded by the public (Gabaix & Landier, 2008), that low CEO compensation will help motivate other managers (Wade, O'Reilly, & Pollock, 2006), and that low compensation is also occurring on other boards that they served (Ezzamel & Watson, 1998), and so on. Accordingly, arguments supportive to the board's initially favored position tend to prevail during board discussions.

Moreover, as board discussions reveal that the board as a whole tends to support a relatively high (low) level of CEO compensation those who initially have reservations about such prevailing views may tend to suppress their private opinions to avoid social risks of voicing minority opinions (Westphal & Bednar, 2005; Westphal & Khanna, 2003; Williams & O'Reilly, 1998; Wood et al., 1994). For example, when most directors are advocating high compensation for the focal CEO and arguing that the talent and hard work of the focal CEO should be rewarded, directors who prefer a relatively low level of compensation may face substantial risks of arguing against the majority. Accordingly, information exchange during board discussions tends to be further biased towards favoring high (low) CEO compensation when directors initially on average tend to support high (low) CEO pay.

In addition, directors also tend to become increasingly confident about approving a relatively high (low) level of CEO compensation when arguments supporting high (low) compensation prevail and become particularly salient and accessible (Echterhoff et al., 2005), when directors perceive such arguments to be shared by others (Baron et al., 1996), and when they tend to overattribute fellow directors' support for high (low) compensation to their confidence about high (low) compensation and underattribute others support to avoidance motivations (e.g., motivations to avoid revealing minority status or to avoid expressing uncertainties underlying the supported position) (Ross & Nisbett, 1991). By contrast, they may become less confident about questioning the prevailing position when they recognize the unpopularity of doing so, when poorly represented concerns about the prevailing position make counter arguments less salient, and when they underattribute others' support to the prevailing position to avoidance motivations. As a result, when prior experience of directors would lead

directors to on average support a relatively high level of CEO compensation prior to a board meeting, they will become even more confident and certain about supporting high compensation following board discussions; but when prior experience of directors would lead them to on average support a relatively low level of CEO compensation prior to a board meeting, they will develop enhanced confidence about supporting low compensation following board discussions. The group polarization effect is illustrated in Figure 1.

Figure 1. Group polarization effect
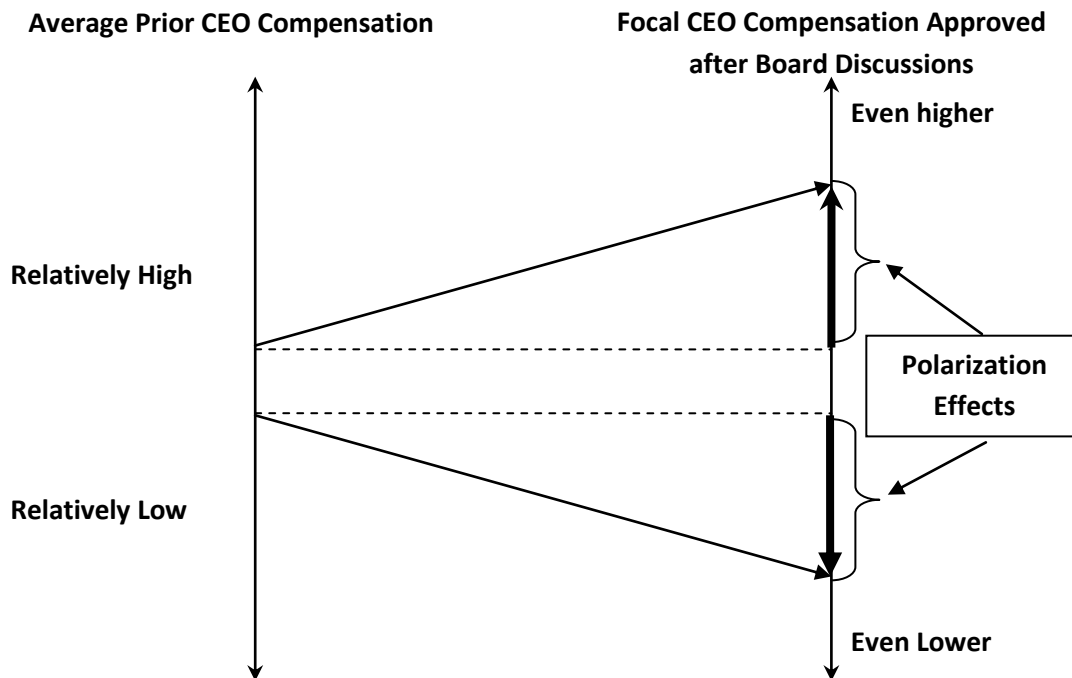
More specifically,

Hypothesis 1: When directors on average approved a relatively high (low) level of CEO compensation in previous decisions across different boards, the focal CEO's compensation determined after board discussions will be even higher (lower) than the average CEO compensation previously approved by directors across different boards.

Similarity of Prior Decisions (Minority vs. Majority)

The term "minority" is consistently used in the present paper to refer to group members that support a minority position (i.e., the position with a relatively small number of supporters on the focal board). It does not describe members' demographic characteristics. As discussed earlier, one important source of group polarization bias is the poor representation of minority opinions during group decisions. Directors with minority opinions often hesitate to voice their views during group decisions because betraying such minority opinions can lead to less positive professional evaluations, reduced chances of obtaining valuable positions and opportunities, and social distancing (Moscovici & Doise, 1994; Westphal & Khanna, 2003; Williams & O'Reilly, 1998). However, minority opinions may be better represented to the

extent that the minority's prior compensation decisions are more similar to the focal decision than the majority's prior decisions.

More specifically, as board discussions reveal that the board on average tends to support a relatively high (low) level of CEO compensation, those who initially have concerns about high (low) compensation may be more likely to voice their concerns when their previous compensation decisions are more similar to the focal one. This is because similar prior experience is often considered as having close relevance to the focal decision (Greve, 2003; Levinthal & March, 1993) and social psychology research suggests that sharing such relevant information is likely to be interpreted as an effort to be objective rather than an attempt to voice different opinions (Wood et al., 1994). Accordingly, minorities may have lowered concern about voicing different views when fellow directors are likely to interpret their behaviors as revealing related facts rather than as creating conflicts in opinions (Moscovici & Doise, 1994). By contrast, when minorities' prior compensation decisions are quite different from the focal one, it can be particularly risky to voice minority opinions because the lack of relevance can easily make fellow directors to interpret the expressions of minority views as attempts to create conflicting opinions hence can lead to particularly negative evaluations about the minority. These arguments suggest that minority opinions are more likely to be raised when the minority's past compensation decisions are similar to the focal decision relative to the majority's past decisions. Reduced biases in group information exchange should result in reduced group polarization bias.

In addition, when the minority has more relevant prior experience than the majority, biases in group information processing may also be reduced. More specifically, the similarity between the minority's prior decisions and the focal decision can grant their arguments more credibility, making arguments that challenge the prevailing position especially convincing, and reducing the dominance of arguments that support the majority's position. There is rich evidence from organization research that executives tend to rely on similar prior experience in making uncertain decisions (Davis, 1991; Davis & Greve, 1997; Haunschild, 1993; Levinthal & March, 1993; Palmer et al., 1993; Rao & Sivakumar, 1999). Accordingly, while arguments supportive of the majority's position may still prevail in board discussions, the relevance and credibility of the minority's arguments may help dampen the board's confidence about the prevailing position, thus reducing biases in group information processing and the resulting group polarization effect.

In sum, although directors in general tend to be biased in exchanging and processing information regarding CEO compensation, such biases tend to be weaker when the minority's prior compensation decisions are more similar to the focal decision than the majority' prior decisions. Extant research on executive compensation suggests that firm size and primary industry affiliation are two key dimensions to consider in compensation decisions (Devers et al., 2007; Gomez-Mejia & Wiseman, 1997). Therefore,

Hypothesis 2: When directors on average approved a relatively high (low) level of CEO compensation in previous decisions across different boards, the more the minority's prior compensation decisions are similar to the focal decision than the majority's prior decisions in terms of a) firm size or b) primary industry affiliation the smaller the extent to which the focal CEO's compensation will exceed (fall below) the average level of CEO compensation previously approved by directors across different boards.

Demographic Homogeneity

The level of demographic homogeneity among directors may also influence the extent to which group polarization is present on corporate boards. A substantial body of research on

demography and group decisions suggests that similarity on salient demographic characteristics tends to increase interpersonal trust and promote open communications among group members (Smith, Smith, Olian, Sims, Obannon, & Scully, 1994; Williams & O'Reilly, 1998). It is suggested that members are more likely to openly communicate with each other when their common backgrounds and experiences provide a common vocabulary and the basis for interpersonal trust and mutual understanding (Smith et al., 1994). In contrast, groups with diverse demographic backgrounds tend to have increased conflict and reduced social cohesion (see reviews by Hambrick, Cho, & Chen, 1996; Milliken & Martins, 1996; Stewart, 2006). Recent research on board decisions also provides evidence that demographic homogeneity among directors similarly increases open communications and interpersonal trust (Westphal & Bednar, 2005). Therefore, although directors generally tend to present arguments to support their positions and suppress counterarguments, they are more likely to acknowledge counterarguments on homogeneous boards where there is a relatively high level of interpersonal trust and relatively open communications. In addition, concerns about voicing minority opinions can also be reduced when directors trust each other and tend to be less hesitant to have open discussions (Moscovici & Doise, 1994). These arguments suggest that biases in information exchange tend to be reduced by demographical homogeneity.

Moreover, although arguments in favor of a high (low) level of CEO compensation may still prevail when directors on average tend to support a high (low) level of compensation prior to a meeting, directors may perceive these arguments to be less salient and accessible when they publicly express both pro and con arguments and observe that both pro and con arguments are shared by others. Thus, biases in information processing may also be less pronounced on more homogeneous boards. Taken together, these arguments suggest that group polarization biases may be reduced by the degree of demographic homogeneity among directors. That is,

Hypothesis 3: When directors on average approved a relatively high (low) level of CEO compensation in previous decisions across different boards, the greater the demographic homogeneity among directors the smaller the extent to which the focal CEO's compensation will exceed (fall below) the average level of CEO compensation previously approved by directors across different boards.

Outside Director Power over Management

To the extent that group polarization results from biases unique to group decision-making, the degree to which group polarization occurs on boards may also depend on the extent to which directors make CEO compensation decisions as a group. Although directors formally decide CEO compensation as a group and there is rich evidence that directors are very involved in compensation decisions, research also suggests that the extent to which outside directors influence compensation decisions may vary across boards (see reviews by Devers et al., 2007; Finkelstein et al., 2008). In particular, there is evidence that outside directors' power over management is a key factor that may determine the degree of outsiders' influence over compensation decisions (Westphal & Zajac, 1995). It is suggested that powerful management can often manipulate the process of determining executive compensation but powerful boards can also effectively control compensation decisions (Barkema & Pennings, 1998; c.f., Devers et al., 2007; Westphal & Zajac, 1995). Therefore, outside directors' power over management should reflect the degree to which outside directors can influence compensation decisions, and hence the extent to which outside and inside directors make compensation decisions as a group. To the extent that group polarization results from biases unique to group decision-making, I expect that outside

directors' power over management will be positively associated with the degree to which group polarization is manifested on boards. More specifically,

Hypothesis 4: When directors on average approved a relatively high (low) level of CEO compensation in previous decisions across different boards, the greater outside directors' power over management the greater the extent to which the focal CEO's compensation will exceed (fall below) the average level of CEO compensation previously approved by directors across different boards.

DATA AND METHOD

Sample and Data

The sample included CEO compensation decisions made by Fortune 500 boards between 1995 and 2006. I used the list of Fortune 500 companies in 1995 which includes both manufacturing and non-manufacturing firms. Compensation decisions were excluded from the final sample if data on CEO compensation, board characteristics, or firm characteristics were not available. The final sample includes 326 companies and 2467 compensation decisions. Two-sample t-tests revealed no significant differences between the initial and final samples with respect to the dependent variable or the control variables (e.g., firm size, firm performance, degree of diversification, etc.).

Data about board memberships were collected from the Compact Disclosure database (1991-2006). Data about CEO compensation were obtained from COMPUSTAT Executive Compensation database. Biographies of directors were mainly obtained from Capital IQ, supplemented by other sources that have been extensively used in prior research such as the Social Register, Marquis' Who's Who, corporate proxy statements, and annual company reports (Westphal & Bednar, 2005; Westphal & Zajac, 1995). Two research assistants independently coded these biographies and the inter-coder reliability is very high (.89). Information about firm size, performance, diversification, and other variables was obtained from various sources, including COMPUSTAT, CRSP, Thomson Financials, and RiskMetrics.

Dependent and Independent Variable

Focal CEO compensation was measured as

$$Comp\_peer = \frac{FocalComp_t - PeerMedianCom_{t-1}}{PeerMedianCom_{t-1}}$$

, where $FocalComp_t$ is the total compensation of the focal CEO in year t, $PeerMedianCom_{t-1}$ is the median level of CEO compensation in year t-1 for a peer group of companies. Following the procedures recommended by Bizjak, Lemmonb, and Naveen (2008), and consistent with prior studies (Ezzamel & Watson, 1998; O'Reilly et al., 1988), I created peer groups in two steps. First, for each year and each industry (based on two-digit SIC codes), I ranked all firms by their total sales. Firms with above-median sales were classified into the large firm group and firms with below-median sales were classified in to the small firm group. Second, for each size-group in an industry-year, I calculated the median CEO compensation. This approach is also consistent with research findings that firm size and industry are two most well documented factors that influence CEO compensation decisions (Devers et al., 2007; Gomez-Mejia & Wiseman, 1997).

The dependent variable, focal CEO compensation, thus captures the extent to which the focal CEO's compensation is above or below the market (or peer group median compensation). Existing research on CEO compensation has documented the widespread use of peer groups in board decisions about CEO compensation. For example, Bizjak, Lemmonb, and Naveen (2008) found that 96% of their sampled S&P 500 companies used peer groups in determining CEO compensation

(reported in corporate proxy statements) and that directors widely consider compensation below the 50th percentile of peer compensation as below-market. Accordingly, this variable captures the core aspect of board decisions on compensation (i.e., to what extent CEO compensation should be above or below the market).

Average prior compensation approved by directors across different boards. To create this variable, I first calculated the extent to which a prior compensation (i) approved by a given director (j) exceeded or fell below the market level (i.e., peer group median level of CEO compensation). Next, I calculated the median compensation experience of each director and then created the average experience of all directors.

$$Average\_prior\_comp = Mean[Median_j(\frac{FocalComp_{it} - PeerMedianCom_{it-1}}{PeerMedianCom_{it-1}})]$$

The variable **average prior compensation** thus captures the average extent to which prior CEO compensations approved by directors exceeded or fell below the market level. In separate analysis, I also used each director's mean prior compensation experience to create this variable and found very consistent results. Results also hold when directors' experiences in the prior two years were used to create this variable.

Similarity of prior decisions (minority vs. majority). When over 50 percent[9] of directors on a board approved above-market (below-market) levels of CEO compensation in prior decisions across different boards, directors whose median level of prior CEO compensation was below (above) the market were considered as minorities. Similarity in firm size (minority vs. majority) was calculated as the difference between the focal firm's size and the average size of firms where majorities served as directors in the past (standardized) divided by the same number for the minorities. Similarity in terms of industry affiliation was calculated as $Similarity\_ind = \dfrac{\dfrac{\sum ind\_sim_i}{num(\min)}}{\dfrac{\sum ind\_sim_j}{num(maj)}}$, where *ind_sim* is set

to 4 if the focal firm and the tied-to firm shares the same 4-digit SIC code; 3 if the same 3-digit SIC code is shared; 2 if the same 2-digit SIC is shared; 1 if the same 1-digit SIC is shared; and 0 if the focal firm and the tied-to firm are in unrelated industries (Finkelstein & Haleblian, 2002).

Demographic homogeneity was measured according to functional background, industry of employment, highest degree, and gender. These four demographic characteristics have been shown to be salient bases for promoting interpersonal trust and open communications among directors. Following existing studies on demographic homogeneity, I calculated homogeneity on each demographic characteristic by using a variant of Blau's index (Blau, 1977), defined as $\sum(P_i)^2$, where P_i is the proportion of directors in the ith category (i.e., functional background, primary industry of employment, highest degree obtained, and gender). These four measures were then combined into a single index of demographic homogeneity using principal components analysis. Principal components analysis is a data reduction technique and has been shown to be appropriate for combining causal (vs. reflective) indicators of a construct (MacCallum & Browne, 1993).

Outsider power over management was measured by an index based on the average tenure of outside directors on the focal board relative to the average tenure of insiders (i.e., directors that are executives of the focal firm), the total number of board appointments held by all outside directors divided by the total number of board appointments held by all insiders, the proportion of outside directors, and the separation of the CEO and the board-chair positions. I

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[9] In separate analyses, 55 percent and 60 percent are also used and the findings are very consistent.

combined these four measures of board influence into a single index by using principle component analysis (Jackson, 1991).

Controls Variables

I controlled **firm size** (log of total sales), **firm industry, year, industry-adjusted return on assets**, industry-adjusted **market-to-book ratio, the lagged value of focal CEO compensation** in comparison to peer groups in all models (in separate analyses, I also specified this variable as an instrumented variable and found very similar results), t**otal level of diversification** (entropy measure**), insider ownership**, **institutional ownership**, the index of **outsider power over management, and** demographic homogeneity. I also controlled for the diversity of directors' pre-meeting positions on compensation decisions (**pre-meeting position diversity**), measured by the widely used Blau's index of heterogeneity (Blau, 1977), $Position\_diversity = 1 - \sum (P_i)^2$, where P_i is the proportion of directors in the ith category (i.e., minority vs. majority). I also included the **interaction of pre-meeting position diversity** with **the average prior compensation** variable because research in group polarization suggests that the diversity of members' initial opinions may influence the degree of polarization (Burnstein & Vinokur, 1977).

Analytical Methods

As suggested by prior group polarization research (e.g., Friedkin, 1999), a straightforward method of detecting group polarization effect is to regress the **focal CEO compensation** determined after board discussions on **the average prior CEO compensation** approved by directors in the past across different boards

Figure 2. Group polarization effect in regressions
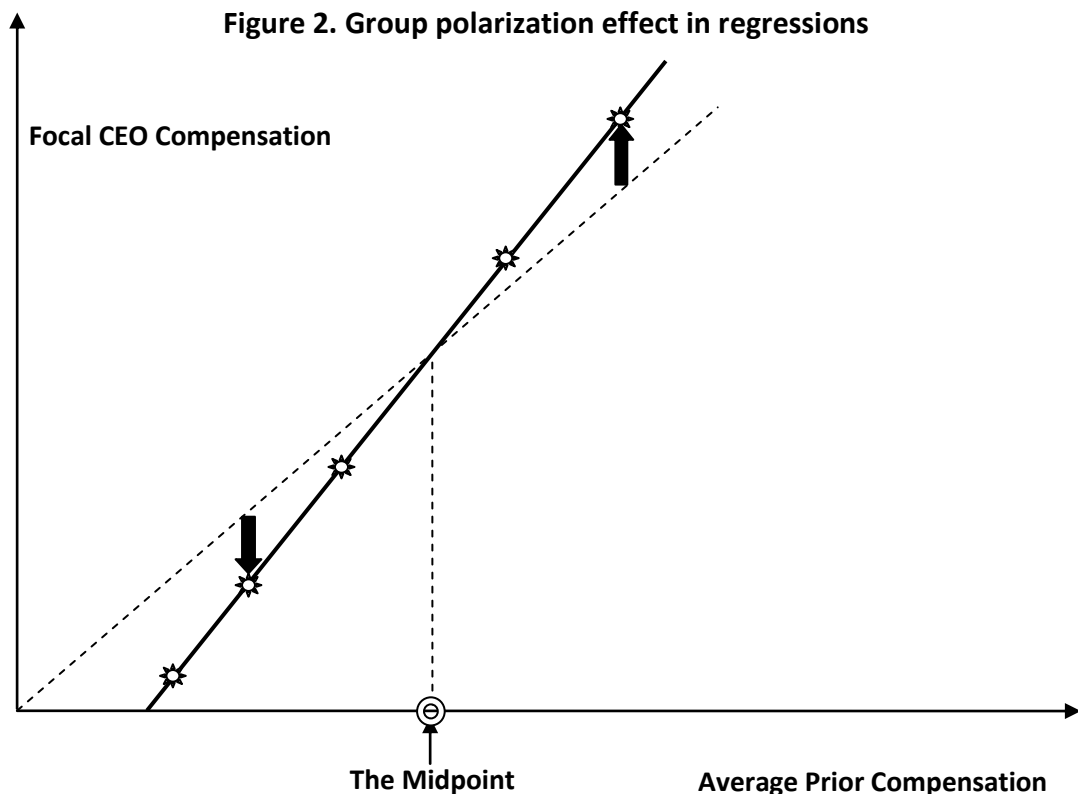
As illustrated in Figure 2, the 45 degree line suggests where post-meeting focal CEO compensation would converge to the average CEO compensation previously approved by directors across different boards. Holding everything else constant, a regression line with a slope that is greater than 1 indicates a group polarization effect (i.e., if we call the intersection of the 45 degree line and the regression line the mid-point, when the average prior CEO compensation approved by directors is higher than the mid-point, directors tend to approve a focal compensation that is even higher than the average prior compensation after board discussions; when the average prior compensation approved by directors is lower than the mid-point, directors tend to approve a focal compensation that is even lower following board discussions). To test the hypothesized moderating effects, I can examine the interaction effects between the average prior compensation variable and the proposed moderators.

The CEO compensation data include both cross-sectional and time-series components. The sample is unbalanced because some firms didn't survive the whole study period. Accordingly, I used the random-effects regression models with generalized least squares (GLS) estimators (Beckman & Haunschild, 2002). The Hausman test further suggests that the coefficients estimated by the fixed-effects and random-effects models are not systematically different, demonstrating that the random-effects model is appropriate.

RESULTS AND DISCUSSIONS

Table 1 presents descriptive statistics and bivariate correlations for key study variables. Table 2 reports findings based on a Paired T-test and Table 3 reports results of the GLS random-effects analyses. The dependent variable is the focal CEO compensation relative to peer CEOs. Model 1 of Table 3 is the base model, containing only the control variables. Model 2

adds the average prior compensation variable. Model 3 to Model 6 add the interaction terms. Findings are discussed based on the complete model (i.e., Model 6)

Table 1

Descriptive Statistics and Pearson Correlation Coefficients (N=2467)*

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Focal CEO compensation	0.869	1.670													
2. Average prior CEO compensation	0.757	1.034	0.869												
3. Similarity in firm size	2.016	24.225	0.007	0.016											
4. Similarity in industry	0.552	1.839	-0.097	-0.108	0.015										
5. Demographic homogeneity	0.000	1.183	0.059	0.091	-0.006	-0.047									
6. Outsider power	0.000	1.445	0.059	0.060	0.001	-0.030	-0.173								
7. Pre-meeting position diversity	0.152	0.168	0.383	0.418	-0.038	-0.235	0.094	-0.072							
8. Focal CEO compensation t-1	0.851	1.689	0.424	0.380	0.162	-0.045	-0.069	0.054	-0.183						
9. Log of total sales	9.160	0.907	0.255	0.250	0.045	-0.038	-0.298	0.092	-0.090	0.257					
10. Adjusted return on assets	0.036	0.084	0.114	0.111	0.062	-0.020	-0.158	-0.002	-0.056	0.104	0.095				
11. Adjusted market to book	1.661	8.617	0.061	0.067	0.012	0.066	-0.0	0.035	-0.0	0.004	0.029	0.113			

| ratio | | | | | | | 63 | 44 | 1 | | | | | | |

Table 2

Results from Paired T Test (N=2467)				
	Average prior compensation (relative to peers)	Focal CEO compensation (relative to peers)	Difference	p-value (one-tail)
Boards where directors on average approved an above-market level of CEO compensation (N=1780)	1.091	1.337	0.246•••	0.000

							-	-		-	0.			-		
	1.7	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	07	0.1	0.1	0.0		
12. Diversification	41	79	57	64	34	11	06	03	21	5	16	17	20		
	61.	21.			-	-	-		-	0.	-		-		
13. Institutional	83	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	02	0.0	0.0	0.0	0.0	
ownership	4	0	23	45	10	21	76	39	22	9	52	03	20	13	
					-	-		-	-	0.	-	-		-	-
14. Insider	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	01	0.0	0.0	0.0	0.0	0.0
ownership	26	61	05	15	03	07	09	04	23	4	23	03	21	23	57

* coefficients are significant at p< 5% when absolute values are greater than 0.04

	(1)	(2)	(3)	(4)
Boards where directors on average approved a below-market level of CEO compensation (N=687)	-0.106	-0.344	-0.238•••	0.000

• p< 10%; •• p< 5%; ••• p< 1%

Table 3

Results from GLS Random-effects Regression of Focal CEO Compensation (N=2467)[†]

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Average prior CEO compensation		1.330***	1.295***	1.295***	1.302***	1.314***
		(0.019)	(0.020)	(0.020)	(0.020)	(0.020)
Average prior CEO compensation X Similarity in firm size			-0.001•••	-0.001•••	-0.001•••	-0.001•••
			(0.0003)	(0.0003)	(0.0003)	(0.0003)
Average prior CEO compensation X Similarity in industry				-0.010	-0.010	-0.011
				(0.014)	(0.014)	(0.014)
Average prior CEO compensation X Demographic homogeneity					0.035•••	-0.030••
					(0.012)	(0.012)
Average prior CEO compensation X Outsider power						0.063•••
						(0.010)
Demographic homogeneity	-0.016	0.049•••	0.049•••	0.049•••	0.071•••	0.065•••
	(0.026)	(0.015)	(0.015)	(0.015)	(0.017)	(0.017)
Outsider power	0.056•••	0.014	0.011	0.011	0.011	-0.031••
	(0.020)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
Pre-meeting position diversity	-3.099•••	-0.214••	-0.424•••	-0.425•••	-0.386•••	-0.328•••
	(0.176)	(0.109)	(0.119)	(0.119)	(0.119)	(0.119)

Average prior CEO compensation			0.784•••	0.817•••	0.786•••	0.738•••
X Pre-meeting position diversity			(0.171)	(0.178)	(0.178)	(0.177)
Focal CEO compensation t-1	0.305•••	0.098•••	0.101•••	0.101•••	0.101•••	0.102•••
	(0.018)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Log of total sales	0.282•••	0.064•••	0.059•••	0.059•••	0.057•••	0.054••
	(0.037)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Adjusted return on assets	0.983••	0.172	0.182	0.179	0.180	0.138
	(0.384)	(0.220)	(0.219)	(0.219)	(0.219)	(0.217)
Adjusted market to book ratio	0.004	0.001	0.001	0.001	0.001	0.001
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Diversification	-0.018	0.021	0.026	0.026	0.026	0.025
	(0.056)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
Institutional ownership	0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Insider ownership	0.001	-0.050	-0.048	-0.048	-0.049	-0.058
	(0.109)	(0.063)	(0.062)	(0.062)	(0.062)	(0.062)
SIC 0	-0.274	0.337	0.399	0.404	0.353	0.342
	(0.513)	(0.294)	(0.292)	(0.293)	(0.293)	(0.291)
SIC 1	0.661•	0.025	0.052	0.053	0.083	0.106
	(0.399)	(0.229)	(0.228)	(0.228)	(0.227)	(0.226)
SIC 2	0.057	0.149	0.150	0.153	0.169	0.192
	(0.355)	(0.203)	(0.202)	(0.202)	(0.202)	(0.201)
SIC 3	0.257	0.117	0.115	0.118	0.131	0.143
	(0.357)	(0.205)	(0.204)	(0.204)	(0.203)	(0.202)
SIC 4	0.145	0.226	0.223	0.225	0.241	0.264
	(0.364)	(0.209)	(0.208)	(0.208)	(0.207)	(0.206)

Table 3 (continued)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
SIC 5	0.022	0.161	0.170	0.172	0.189	0.214
	(0.364)	(0.208)	(0.207)	(0.207)	(0.207)	(0.206)
SIC 6	-0.008	0.083	0.089	0.093	0.112	0.152
	(0.365)	(0.209)	(0.208)	(0.208)	(0.208)	(0.206)
SIC 7	0.562	0.682•••	0.720•••	0.721•••	0.741•••	0.752•••
	(0.379)	(0.217)	(0.216)	(0.216)	(0.216)	(0.215)
SIC 8	0.128	0.015	0.042	0.043	0.045	0.051
	(0.527)	(0.302)	(0.300)	(0.300)	(0.300)	(0.298)
year1995	0.140	0.160•	0.155•	0.154•	0.145•	0.169••
	(0.148)	(0.085)	(0.084)	(0.084)	(0.084)	(0.084)
year1996	0.273•	0.097	0.089	0.089	0.090	0.122
	(0.147)	(0.084)	(0.084)	(0.084)	(0.083)	(0.083)
year1997	0.329••	0.189••	0.175••	0.176••	0.173••	0.176••
	(0.148)	(0.085)	(0.084)	(0.084)	(0.084)	(0.084)
year1998	0.122	0.127	0.122	0.122	0.114	0.131
	(0.147)	(0.084)	(0.084)	(0.084)	(0.084)	(0.083)
year1999	0.186	-0.019	-0.025	-0.026	-0.030	-0.018
	(0.145)	(0.083)	(0.083)	(0.083)	(0.082)	(0.082)
year2000	0.312••	-0.043	-0.062	-0.062	-0.065	-0.057
	(0.147)	(0.085)	(0.084)	(0.084)	(0.084)	(0.084)
year2001	0.053	-0.055	-0.053	-0.052	-0.055	-0.052
	(0.148)	(0.085)	(0.084)	(0.084)	(0.084)	(0.084)
year2002	0.091	0.163•	0.150•	0.150•	0.151•	0.154•
	(0.151)	(0.087)	(0.086)	(0.086)	(0.086)	(0.085)
year2003	0.076	0.102	0.100	0.100	0.097	0.124
	(0.152)	(0.087)	(0.086)	(0.086)	(0.086)	(0.086)

year2004	0.199	0.076	0.073	0.072	0.070	0.075
	(0.150)	(0.086)	(0.086)	(0.086)	(0.086)	(0.085)
year2005	0.120	0.142	0.142	0.143•	0.140	0.159•
	(0.152)	(0.087)	(0.087)	(0.087)	(0.087)	(0.086)
Constant	-1.891•••	-1.022•••	-0.942•••	-0.943•••	-0.951•••	-0.979•••
	(0.572)	(0.328)	(0.328)	(0.328)	(0.327)	(0.325)
Wald Chi-square	1584•••	8419•••	8475•••	8474•••	8507•••	8669•••

• p< 10%; •• p< 5%; ••• p< 1%; one-tailed tests for hypothesized variables, two-tailed tests for controls

••• coefficients for 'Average prior CEO compensation' are significantly greater than 1 at p<1%

† Standard errors in parentheses

Overall, the findings provided strong support for the elaborated theory about group polarization on corporate boards. The results from various models consistently showed a tendency towards group polarization in board decisions about CEO compensation. The focal CEO compensation approved after board discussions exceeded the market level of CEO compensation in a significantly greater degree than the average prior compensation approved by directors across different boards when the average prior compensation was above the market level. In contrast, the focal CEO compensation fell below the market level in a significantly greater degree than the average prior compensation approved by directors across different boards when the average prior compensation was below the market level. Additional results provided strong evidence for specific social and psychological factors that can attenuate or exacerbate group polarization biases on corporate boards. In particular, the findings suggested that the group polarization effect was significantly attenuated when the minorities' prior decisions were more similar to the focal decision in terms of firm size than the majority's prior decisions. The degree of demographic homogeneity among directors was also found to reduce group polarization significantly. Consistent with the theoretical prediction, the findings also suggested that increased outside directors' power over management was associated with a greater degree of group polarization effect.

The theory and findings in this study make significant contributions to the corporate governance literature. While research on boards of directors has long been a central focus in governance research and there is an increasing interest in understanding behavioral processes in corporate governance, there is very little systematic research on group decision-making processes in governance decisions (Finkelstein et al., 2008; Hambrick, 2007). The present study fills this gap by introducing a fundamental group decision-making bias into the study of boards. In suggesting how the social psychology of groups may influence board behaviors, the present study also complements prevailing economic and sociological research on corporate governance, which has largely focused on social and structural characteristics of

boards (such as interlock ties, board structure, composition, and demography). Group polarization theory also has important implications for the literature of social networks, especially for research on the diffusion of practices through interlock networks. A substantial body of research in organizations suggests that norms, practices, and policies tend to diffuse through interlock network ties (Davis & Greve, 1997; Haunschild, 1993; Palmer et al., 1993). In the present paper, I extend this literature by suggesting how the diffusion of norms, policies, and practices through directorial ties may be subject to the influence of group processes. Specifically, while network diffusion research would suggest that directors tend to make a focal decision similar to the average prior decision experienced by them across different boards, group polarization theory suggests that biases in group information exchange and processing during group decision-making can cause directors to approve a collective decision that is more extreme than the average decision previously experienced by them on different boards. Accordingly, I advance a group-level mechanism through which network diffusion effects can be distorted or strengthened. More generally, the present study addresses the recent call for more research on behavioral processes underlying network ties (Gulati & Higgins, 2003; Mizruchi et al., 2006) by proposing a group process oriented approach to studying network effects.

The theory and findings in this study also has important implications for research on executive compensation. While a substantial body of organization research has been focused on executive compensation, little systematic research has been done to examine how group decision-making biases may influence CEO compensation decisions. In suggesting how group polarization may explain this key decision made by boards, this study thus offers a novel social psychological mechanism through which executive compensations are determined. Moreover, the theory and findings from this study also yields novel insights into research on executive compensation. For example, while social comparison theory would suggest that the market level of CEO compensation is positively associated with the focal CEO compensation (O'Reilly et al., 1988), the group polarization theory explains how board discussions can induce directors to pay the focal CEO above or below the market level based on board dynamics and directors' average prior experience with compensation decisions. More generally, the present study advances a group dynamics perspective to study executive compensation and hence addresses the calls for more research on CEO compensation from novel theoretical perspectives (Devers et al., 2007; Gomez-Mejia & Wiseman, 1997).

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SOCIAL-CONTACT INDUCED FAVORABILITY AND THE SELECTION OF NEW DIRECTORS

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ABSTRACT

We build on social inference theory to explain why powerful CEOs may favor new directors who previously worked on other boards where CEOs are demographically similar to the focal CEO. We then suggest that such social inference processes are especially likely to influence director candidates who are either demographically different or socially distant from the focal CEO. Moreover, we explain how and why new directors selected by CEOs through such social inference processes may view the focal CEO more favorably, leading to more generous CEO compensation packages. Results based on longitudinal analysis of Fortune companies' new director selections provided strong support for our theory.

SOCIAL-CONTACT INDUCED FAVORABILITY AND THE SELECITN OF NEW DIRECTORS

Board diversity as a primary feature of the board has received much attention from academic research and popular press. Cognitive perspectives of board diversity suggest that directors' diverse backgrounds can bring in different perspectives and lead to more effective decision-making (Hambrick & Mason, 1984). In contrast, homogeneous boards tend to have limited cognitive resources and may suffer from group decision-making biases such as groupthink (Peterson, Owens, Tetlock, Fan, & Martorana, 1998). Social psychological perspectives further suggest that increased homophily in terms of demographic backgrounds between CEOs and directors tend to reduce board control over management (Westphal & Zajac, 1995). It is suggested that similarity-based attraction tends to cause directors to be more sympathetic to demographically similar CEOs, reducing the degree of board control over management and increasing CEO compensation. Alternatively, greater demographic differences between CEOs and directors should increase board control and reduce CEO pay. Accordingly, CEOs in recent years are increasingly pressured by powerful shareholders and reform advocates to appoint new directors who have different backgrounds, not only to increase diversity on the board but to reduce homophily between CEOs and directors. The Securities and Exchange Commission has even required all public companies to reveal information about their considerations of diversity in the director nominating processes starting from 2010. In fact, there is evidence that the general level of board diversity has increased and the level of homophily between CEOs and directors has been reduced (Hillman, Cannella, & Harris, 2002). However, primary indicators of board control over management remain rather weak. For instance, CEO compensation has remained extremely high with a generally tenuous relationship to firm performance (Devers, Cannella, Reilly, & Yoder, 2007; Finkelstein, Hambrick, & Cannella, 2009; Gabaix & Landier, 2008), indicating that increased board diversity and reduced homophily between CEO and directors have not improved board control as much as expected. Thus, it is critical for corporate governance researchers and reform advocates to further investigate the relationship between board diversity and board effectiveness.

In the present study, we build on social inference theory to examine how powerful CEOs may infer the social favorability of demographically different new directors from their prior experiences and how the social inference processes may explain the failure of increased board diversity in strengthening independent board control over policy outcomes such as CEO compensation. More specifically, we suggest that the focal CEO may infer the social favorability of a director candidate from the candidate's prior experience working as an outside director with other CEOs who are demographically similar to the focal CEO. We explain why and how a candidate's prior social contacts with other CEOs who are similar to the focal CEO may enhance the perceived social favorability of the candidate to the focal CEO and

increase the likelihood that the candidate will be selected to the focal board. We then suggest that such social contact-induced favorability can be especially important for candidates who are either demographically different or socially distant from the focal CEO. In addition, we explain how and why a new director's prior social contacts with other CEOs who are similar to the focal CEO may cause the new director to view the focal CEO more favorably, resulting in more generous CEO compensation. Results based on longitudinal analysis of Fortune companies' new director selections provided strong support for our theoretical expectations.

This study thus contributes to the corporate governance literature by providing a theoretical explanation for the paradox that increased board diversity and reduced homophile between CEOs and directors often fail to strengthen board control over major policy outcomes. Our social inference theory suggests that when powerful CEOs need to appoint demographically different or socially distant directors, they are especially likely to favor candidates who previously worked on other boards where CEOs are demographically similar to the focal CEO. In suggesting why directors selected through the social inference process are likely to view the focal CEO more favorably and pay the CEO more generously, this study thus explains why and how increased board diversity and reduced homophile between CEOs and new directors often failed to improve board control over key policies such as CEO compensation decisions. More generally, we extended corporate governance research on board composition from focusing on board diversity to the social psychological processes underlying the creation of a diverse board.

In addition, our study introduced social inference theory into corporate governance research. Whereas an increasing number of studies have built on social psychological perspectives to understand governance processes (Chatterjee & Hambrick, 2007; McDonald & Westphal, 2010; Westphal & Bednar, 2005; Westphal & Khanna, 2003; Zajac & Westphal, 1996), and there is a large literature in social psychology suggesting how social inference processes may influence individual decisions (Hastie, 1983; Johnson-Laird, 1999; Kruglanski & Orehek, 2007), very limited attention has been given to the social inference processes in governance decisions. In suggesting how social inference processes may influence new director selections and subsequent board decisions about CEO compensation, this study also generates novel insights into board research. For example, whereas prior research has emphasized the benefits of having demographically diverse boards (Westphal & Zajac, 1995), our theory explained why social inference processes in creating diverse boards may account for the tenuous relationship between board diversity and board control over key policy outcomes.

Moreover, in suggesting how powerful CEOs may rely on social inference tactics to create a diverse board without increasing actual board control over key policy outcomes, our social inference theory also has important implications for symbolic management research. Whereas extant symbolic management research has largely focused on social and political processes of symbolic management (Westphal & Zajac, 1994, 1998, 2001), the present study is perhaps the first study that examined the social psychological processes underlying symbolic actions. More specifically, while Westphal and Zajac (1994, 1998, 2001) have focused on how CEO power relative to the board can allow CEOs to take symbolic actions, our social inference theory explains how CEOs can rely on social inference tactics to symbolically satisfy institutional demands for increased board diversity without increasing actual board control over major policy outcomes. In addition, the present study also extends symbolic management research from focusing on the decoupling between the adoption and implementation of stock repurchase plans and long-term incentive plans to the decoupling between board diversity and board control over other major policy outcomes, namely CEO compensations.

THEORY AND HYPOTHESIS

Social-contact Induced Favorability and New Director Selection

Social life is full of uncertainty and can become especially uncertain when it involves interactions with an unfamiliar person (Gilbert, 1998; Gudykunst, 1984). The social uncertainty associated with an unfamiliar person may include whether the person shares the basic social norms that we obey, whether the person accepts some specific norms related to the social context in which we will interact with each other, and how much we can comfortably predict the person's behaviors. To maintain a sense of control over the uncertain social world, we constantly try to infer the social uncertainty and favorability of unfamiliar others from available cues. In particular, a large body of social psychological research has examined how individuals may infer the social uncertainty and favorability of an unfamiliar person from the person's social contacts.

Social comparison theory suggests that we constantly rely on the behaviors of a reference group in making decisions (Festinger, 1954). The reference group is often consisted of people that have similar demographic characteristics as us, such as those with the same gender, race, and/or age. When judging the social uncertainty and trustworthiness of an unfamiliar person (Kanter, 1977), we also tend to rely on the reference group. When the unfamiliar person has social ties to those in the reference group, we may infer that this unfamiliar person has relatively low social uncertainty and is more trustworthy. For one thing, the social ties that the unfamiliar person has with the reference group members suggest that we will face a level of social uncertainty that has already been accepted by individuals who are similar to us. This may imply that the unfamiliar person is more likely to be aware of the norms of interacting with people like us and is more likely to be trusted in subsequent social interactions. There is also strong evidence from psychology research that individuals often rely on the risk level taken by similar others in deciding the acceptable level of social risks (Suls & Wheeler, 2000). Accordingly, if individuals like us can form social ties with the unfamiliar person, we are more likely to infer that the social uncertainty of interacting with this unfamiliar person is relatively low. For example, a young CEO is likely to infer that a senior director candidate has relatively low level of social uncertainty and is more trustworthy to the extent that the senior director candidate had experience working as an outside director with other young CEOs before. Moreover, having interacted with those similar to us, the unfamiliar person may also be perceived as having positive views towards people like us. Research in social psychology suggests that people often tend to assume that individuals spending time or working together will develop more positive attitudes or more tolerance towards each other's characteristics (Fiske & Taylor, 2008). There is also evidence that people, including CEOs, tend to favor a person who seems to have favorable views towards them (McDonald & Westphal, 2003; Milton & Westphal, 2005). Therefore, an unfamiliar person with social ties to those similar to the social perceiver is more likely to be perceived as relatively easy to interact with, more trustworthy, and hence socially more favorable.

This is also consistent with social categorization theory, which suggests that perceived social distance can be an important basis for categorizing individuals into in-group and out-group members (Tajfel & Turner, 1979; Turner, 1987). More specifically, the theory suggests that individuals derive self-esteem and social identity from their group memberships, and tend to have more favorable views towards in-group members over out-group members. There is also evidence that individuals tends to cluster people into in-group and out-group members according to their perceived physical and social similarity. In particular, there is rich evidence from social network research that network ties can be primary bases for social categorization and social identity (Coleman, 1988; Wellman, Carrington, & Hall, 1988; Wellman & Wortley, 1990). It is suggested that a person's social network ties convey "a sense of personal belonging within a collectivity" (Podolny & Baron, 1997: p674). Research on corporate elites also suggests that network ties among corporate leaders can facilitate social identification (Useem, 1984). Therefore, the social perceiver may categorize a person as an in-group member to the extent that the person has social ties to the perceiver or to those that the perceiver identifies with. For instance, we tend to view a stranger as an in-group member when we recognize that he or she is a friend of one of our friends. A substantial body of research on social categorization also suggests that salient demographic characteristics such as race and gender can also be primary bases for social identity formation (Tsui, Egan, & O'Reilly, 1992). Accordingly, when an unfamiliar person has social ties to those

demographically similar to us, we are more likely to view this person as a socially favorable in-group member. Research further suggests that this happens even when the unfamiliar person has different demographic characteristics from us. More specifically, recent research on cross-cutting categorization suggests that in-group categorization on one dimension can promote in-group categorization and neutralize out-group categorization on another dimension (Gaertner et al., 1999; Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1994; Urban & Miller, 1998). For example, when a white boy sees an African American girl in a shopping mall, he is more likely to perceive her as an in-group member and less likely to view her as an out-group member when she is shopping with a white boyfriend. It is suggested that the social ties between the demographically different target (i.e., the person who is under the focus of the social perceiver) and demographically similar others may cause the perceiver to recategorize the target as part of a superordinate in-group to reduce cognitive dissonance (Festinger, 1957; Hogg & Abrams, 1988; Hogg & Terry, 1990). In recategorizing the target as an in-group member, the perceiver can resolve the cognitive dissonance generated by the simultaneously perceived (social) similarity and (demographic) difference of the target (Gaertner et al., 1999; Gaertner et al., 1994). Therefore, social categorization theory also suggests that the social perceiver tends to view a person that has contacts with demographically similar others as especially favorable.

The social favorability generated by contacts to similar others may be especially likely to occur when CEOs select new directors. For one thing, there is evidence that avoiding social uncertainty often becomes a major concern in CEOs' decisions about new director selections (Westphal & Zajac, 1995). Quantitative research on board room dynamics suggests that directors are often expected to follow many social norms during board meetings, such as not to openly criticize the CEO or the CEO's position, not to ask questions during board meetings that may surprise the CEO, not to assert leadership over other directors, and not to spend too much time on discussing one issue, etc. (Lorsch & MacIver, 1989: p91-95). Since individuals with different demographic backgrounds often follow different cultural norms (Markus & Kitayama, 1991; Ross & Nisbett, 1991), CEOs may try to appoint new directors who are more likely to follow shared cultural norms, so that unnecessary conflicts and power struggles can be avoided (Alexander, Fennell, & Halpern, 1993). Accordingly, a director candidate's prior experience working with other CEOs who are demographically similar to the focal CEO may be used by the focal CEO as an important source of information about the potential social risks associated with this candidate.

Moreover, demographic characteristics of other CEOs are readily available to the focal CEO, and there is rich evidence that CEOs often rely on salient demographic characteristics such as race, gender, age, and functional background to identify other CEOs as in-group members (Hillman, Shropshire, & Cannella, 2007; Westphal & Zajac, 1995; Zajac & Westphal, 1996). Accordingly, a director candidate who worked as an outside director with other CEOs whose demographic characteristics are similar to the focal CEO is especially likely to be viewed favorably by the focal CEO. In addition, there is abundant evidence that the social ties between CEOs and outside directors are typically assumed to be stronger than acquaintanceship ties (McDonald, Khanna, & Westphal, 2008; McDonald & Westphal, 2003). Research on cross-group contacts suggests that while an individual's random contacts with a group may not lead to this individual's favorable views towards members of the group, acquaintance or friendship ties with members of a group are often sufficient to cause this individual to view this group more favorably. Therefore, CEOs are likely to infer that a candidate's experience of working as an outside director with other CEOs who are similar to the focal CEO can cause the candidate to be more favorably disposed toward the focal CEO. As discussed above, individuals including CEOs tend to favor a person who is expected to have positive views towards them (McDonald & Westphal, 2003; Milton & Westphal, 2005).

Our theoretical arguments thus suggest that the focal CEO may infer the social favorability of a director candidate from the candidate's prior experience of working as an outsider director on other boards where CEOs are demographically similar to the focal CEO. We draw from social comparison theory to suggest that the focal CEO tends to use other demographically similar CEOs as a reference group in selecting new directors. Our theoretical arguments suggest that the focal CEO tends to perceive a candidate as having a relatively low level of social risk and as being more trustworthy when the candidate

had prior experience working with other CEOs who are similar to the focal CEO. Our theory explains that a candidate's social ties to other similar CEOs can convey that the social risk of interacting with the candidate is accepted by those similar to the focal CEO, and hence is likely to be perceived as more acceptable and trustworthy by the focal CEO. Moreover, we suggest that the focal CEO may presume that a candidate is likely to have developed more positive views or greater tolerance toward his or her demographic profile when the candidate has spent time working with other CEOs who have similar demographic characteristics. In addition, we build on social categorization theory to suggest that social ties and demographic similarity can be two primary bases for individuals to categorize others as in-group and out-group members. We then suggest that the focal CEO tends to perceive other CEOs who are similar on salient demographic dimensions as in-group members, and is more likely to cluster a director candidate tied to these similar CEOs as a more favorable in-group member. In sum, our theoretical arguments suggest that a new director who worked as an outside director on other boards where CEOs are demographically similar to the focal CEO is more likely to be perceived as socially favorable by the focal CEO.

While CEOs can have significant influence over director selections, prior research suggests that there is nevertheless considerable variance in the extent to which CEOs dominate the selection process (Ocasio, 1999; Shen, 2003; Westphal & Zajac, 1995). Accordingly, although our theoretical arguments suggest that the focal CEO tends to favor new directors who had experience as outside directors on other boards where CEOs are demographically similar to the focal CEO, we expect that more powerful CEOs will be more likely to appoint such socially favorable directors through influencing the selection process. In contrast, a less powerful CEO may not be able to appoint a director that he or she favors, reducing the likelihood for other CEOs who worked with the new director on other boards to be demographically similar to the focal CEO. Therefore, we suggest that the power of the focal CEO will positively influence the likelihood for a new director to have experience working as an outside director on other boards where CEOs are demographically similar to the focal CEO, resulting in greater demographic similarity between the focal CEO and CEOs of other companies where the new director served as an outside director. Thus,

H1. CEO power will positively influence the demographic similarity between the focal CEO and CEOs of other companies where the new director served as an outside director.

Demographic Difference between the Focal CEO and the New Director

Our theoretical arguments so far suggest that a powerful CEO is more likely to favor a director candidate who worked as an outside director on other boards where CEOs are demographically similar to the focal CEO. In this section, we further suggest that the social contact-induced favorability is more likely to be a determining factor in evaluating candidates who are demographically more different from the focal CEO.

More specifically, when the director candidate has similar demographic characteristics to the focal CEO, the CEO is more likely to directly infer the attractiveness of the candidate based on demographic similarity and less likely to use the candidate's social ties with other CEOs as primary bases for inferring the candidate's social favorability. Research on organizational demography has provided strong evidence that demographic similarity on salient dimensions often provides a basis for in-group categorization and that individuals often view a person as a more favorable in-group member when the person has similar demographic characteristics (Tsui et al., 1992; Williams & O'Reilly, 1998). There is also evidence that powerful CEOs tend to favor director candidates who have similar demographic backgrounds (Westphal & Zajac, 1995). Therefore, although the focal CEO may generally favor a candidate who had board appointments at other firms where CEOs are demographically similar, the social contact-induced favorability is likely to become less important when the focal CEO can directly infer the candidate's social favorability from their demographic similarity.

However, when the candidate is demographically different from the focal CEO, the candidate's prior contact with other CEOs who are demographically similar to the focal CEO is more likely to be a determining factor in the focal CEO's decisions. A demographically different candidate without prior ties

to other CEOs who are similar to the focal CEO is likely to be perceived by the focal CEO as both demographically different and socially distant, and hence is especially unlikely to be viewed favorably by the focal CEO. In contrast, a demographically different candidate with experience working with other CEOs who are similar to the focal CEO will be more likely to get the board appointment. As discussed above, although a demographically different candidate is generally viewed as less favorable, social comparison theory suggests that a candidate's ties to other similar CEOs may indicate that the social risk of selecting the candidate is acceptable to CEOs who are similar to the focal CEO, and hence should be more acceptable by the focal CEO as well. In addition, the focal CEO may presume that such a candidate may have developed more positive perceptions or greater tolerance towards his or her demographic profile through prior interactions with other CEOs who have similar demographic profiles. Moreover, the social closeness created by the candidate's ties to other similar CEOs is also likely to induce the focal CEO to recategorize the demographically different candidate as part of a superordinate in-group to reduce cognitive dissonance (Festinger, 1957; Gaertner & Insko, 2000; Hogg, 1992). Therefore, the positive impact of social ties to other similar CEOs on the perceived favorability of a new director candidate will be especially important when the candidate is demographically different from the focal CEO. Given that powerful CEOs are more likely to appoint socially more favorable director candidates, the theoretical mechanism described above thus suggest that powerful CEOs will be especially likely to appoint a new director tied to other similar CEOs when the new director is demographically different from the focal CEO. Accordingly, although powerful CEOs are more likely to appoint new directors tied to other CEOs who are similar to the focal CEO, resulting in a positive relationship between the focal CEO's power and the demographic similarity between the focal CEO and other CEOs, our theoretical arguments above suggest that this positive relationship will be stronger when the new director is demographically more different from the focal CEO. Thus,

H2. The positive relationship between the focal CEO's power and the demographic similarity between the focal CEO and CEOs of other companies where the new director served as an outsider director will be stronger when the new director is demographically more different from the focal CEO.

Shared Board Membership between the CEO and the New Director

The existing social contacts between the focal CEO and the director candidate may be another factor that can moderate the social contact-induced favorability effect. When the director candidate previously served as an outside director together with the focal CEO on another board, the focal CEO is more likely to rely on information directly available from such social ties to assess the candidate and is less likely to use the candidate's social ties with other CEOs as primary bases for inferring the candidate's social favorability. However, if the candidate has never served on a board together with the focal CEO, the candidate's ties to other similar CEOs are more likely to be a determining factor in the focal CEO's decisions about new director selections. A candidate who had no shared board memberships with the focal CEO and never worked as an outside director with other similar CEOs will be perceived as especially distant from the focal CEO, and hence will be less likely to secure an appointment to the focal board. In contrast, a candidate who does not have a shared board membership with the focal CEO but who has a tie to other similar CEOs will be more likely to secure the appointment. As discussed above, such ties to other similar CEOs can allow the focal CEO to make meaningful inferences about the potential social risk of communicating and working with the candidate. As suggested by social comparison theory, although a candidate without a shared board membership with the focal CEO is generally viewed as socially more uncertain and less favorable, the ties that the candidate had to other similar CEOs may imply a more acceptable level of social risk for the focal CEO (Festinger, 1954; Suls & Wheeler, 2000). The focal CEO may also develop favorable views towards the candidate under the assumption that the candidate might have developed more positive perceptions or greater tolerance towards the focal CEO's profile through prior interactions with other similar CEOs. Moreover, the social closeness created by the candidate's prior ties to other similar CEOs is also likely to cause the focal CEO to perceive the candidate as a more favorable in-group member, and hence a more attractive candidate (Coleman, 1988; Wellman et

al., 1988; Wellman & Wortley, 1990). Therefore, whereas powerful CEOs are more likely to appoint candidates tied to other similar CEOs, leading to a positive relationship between the focal CEO's power and the demographic similarity between the focal CEO and other CEOs tied to the new director, our theoretical arguments above suggest that this positive relationship will become stronger when the new director has not had any shared board memberships with the focal CEO. Thus,

H3. The positive relationship between the focal CEO's power and the demographic similarity between the focal CEO and CEOs of other companies where the new director served as an outside director will be stronger when the candidate had no shared board memberships with the focal CEO.

Social-contact Induced Favorability and CEO Compensation

Our theoretical arguments so far have suggested that powerful CEOs are more likely to favor a director candidate who worked as an outsider director on other boards where CEOs are demographically similar to the focal CEO and that this tendency will be more pronounced when the new director is either demographically more different or socially more distant from the focal CEO. In this section, we explain how and why the focal CEO's propensity to favor director candidates who had ties to other similar CEOs can lead to more generous board decisions about CEO compensation.

Social psychology research suggests that although random contacts with members of a social category (e.g., people with certain demographic characteristics) may not improve an individual's perception about the category, relatively close social contacts based on sustained relationships are often very effective in enhancing the individual's perception about members of the social category (Gaertner & Insko, 2000; Gaertner et al., 1994). It is suggested that sustained contacts with members of a social category can facilitate the formation of a group identity based on the strength of social ties, reducing an individual's biases towards the social category and enhancing this individual's perceived favorability of members of the category. This is also consistent with social psychological research on the contact-effect, which suggests that relatively close social ties to members of a social category can foster the development of knowledge about specific members of a group, reducing the reliance on stereotypes about the whole group and fostering more favorable perceptions about members of the social category (Bettencourt, Brewer, Croak, & Miller, 1992; Pettigrew, 1998). For example, a coffee chat between a director and a CEO who never attended college (e.g., Henry Ford) may not help the director to overcome some unfavorable perceptions about executives who lack elite educational backgrounds. However, if the director served on the board of the CEO's company for a year and helped the company expand its businesses, the director can significantly reduce his stereotypical views about executives who lack elite educational backgrounds after he witnessed the CEO's creativity, knowledge, and perseverance during multiple board meetings and board recesses. As discussed earlier, the relationships between outside directors and CEOs are typically stronger than acquaintance relations, and hence directors who worked with CEOs of a certain demographic profile are more likely to have less stereotypical views and more favorable perceptions about anther CEO who has a similar demographic profile. Accordingly, for instance, when the director in the above example served on another board where the CEO also lacks elite educational background (e.g., Walt Disney or John Rockefeller) he may be already disposed to view this CEO more favorably. Thus, we expect that new directors' prior experience working as outside directors with other CEOs who are demographically similar to the focal CEO will lead to directors' more positive perceptions of the focal CEO.

The positive perceptions that directors have about the focal CEO can further cause them to pay the CEO especially generously. Specifically, compensation decision has long been characterized by existing research as an ill-structured complex decision that often involves performance attributions (Westphal & Zajac, 1995). Research on performance appraisals further suggests that the positive perception about a person may cause individuals to overattribute high performance to this person's superior capability and decision-quality rather than to favorable external factors. In contrast, unfavorable perceptions about a person may cause individuals to overattribute low performance to this person's poor capability and decision-making rather than uncontrollable factors in the external environment (Martell, Guzzo, & Willis,

1995; Maurer & Alexander, 1991). These biases in performance appraisals were also found in directors' decisions about CEO compensations. Whereas research by Westphal and Zajac (1995) suggests that directors tend to be biased in favor of demographically similar CEOs in compensation decisions, the present study builds on inter-group relations research to suggest that directors may also be biased in favor of CEOs whose demographic profile is similar to other CEOs whom directors previously worked with on other boards. As we discussed earlier, new directors may be disposed to view the focal CEO more favorably when they had prior experience working with other CEOs who are demographically similar to the focal CEO. Such favorably views about the focal CEO may further cause directors to overattribute high firm performance to the focal CEO's leadership and decision-making (rather than to favorable factors in the industry environment) and overattribute low firm performance to uncontrollable external factors (rather than to the CEO's poor leadership). In addition, directors' positive perceptions about the focal CEO may also make them to become more optimistic about the performance prospect of the CEO's current strategies. There is evidence from social psychological research that individuals often have better expectations about a person's future performance when they have more positive perceptions about the person while expecting a person to have worse future performance when they have more negative perceptions about the person (Biesanz, Neuberg, Smith, Asher, & Judice, 2001; Copeland, 1994). For example, when new directors previously worked with other CEOs who do not have elite educational backgrounds, they are less likely to be influenced by unfavorable stereotypes about such CEOs and may even developed positive perceptions about these CEOs through sustained prior interactions with them. Accordingly, when the focal CEO also lacks elite educational background, these new directors are more likely to attribute low performance to uncontrollable factors in the industry environment while expecting the CEO's current strategies to improve future firm performance, leading to more generous CEO compensations. In contrast, directors without prior contacts with CEOs who lack elite educational backgrounds may be more likely to attribute low form performance to the CEO's questionable leadership and decision-making while being pessimistic about the prospect of the CEO's current strategies in improving future performance, leading to less generous CEO compensation.

In sum, we suggest that directors can develop positive perceptions about CEOs with a particular demographic profile through their prior experience of working as outside directors with such CEOs. Accordingly, the appointment of new directors who served as outside directors on other boards where CEOs are demographically similar to the focal CEO tends to improve directors' perceptions about the focal CEO, which will further increase support for relatively generous CEO pay packages. Thus,

H4. Increases in demographic similarity between the focal CEO and CEOs of other companies where new directors served as outside directors will increase the focal CEO's compensation.

DATA AND METHOD

Sample and Data Collection

The sample frame of this study included the largest industrial and service companies, as listed in the 1995 Fortune 500 indexes. Companies were excluded from the final sample if complete data were unavailable. Our final sample included 275 companies, 1114 new director selections, and 786 CEO compensation changes between 1992 and 2006. We conducted two-sample t-tests and found no significant difference between the initial and final samples in terms of firm size (measured by total sales and total number of employees) or performance (measured by return on assets).

We collected board membership data from the Compact Disclosure database which included all US public companies that filed reports to SEC. We developed a set of computer programs to clean director names and used the name and birth year of a director to identify the director's board appointments across companies over time. A director was identified as new if the director's name was first reported in a given year. CEO compensation data were obtained from COMPUSTAT Executive Compensation database. Demographic data were obtained from several sources that have been extensively used in prior research, including Capital IQ, the Social Register, Marquis' Who's Who,

corporate proxy statements, and annual company reports (Hambrick, Cho, & Chen, 1996; Westphal & Zajac, 1995). Other information was obtained from COMPUSTAT, CRSP, Thomson Financials, and RiskMetrics.

Measures

Dependent Variables. Demographic similarity between focal and other CEOs who worked with the new director on other boards was measured according to four characteristics that have been shown to be salient bases for social comparison and social categorization among CEOs, namely gender, ethnicity, age, and functional background. We followed existing studies to code functional backgrounds into three categories: throughput functions (engineering, operations, or research and development), output functions (marketing or sales), and peripheral functions (finance and law) (Hambrick & Mason, 1984)).

We tracked each new director's appointment as an outside director on other boards in the previous 3 years and created a dichotomous variable under each of the above four dimensions to measure similarity between the focal CEO and other CEOs who worked with the director on other boards. Functional background similarity was coded as one if the new director served on another board where the CEO's functional background is in the same area as the focal CEO and 0 otherwise. Gender and ethnicity similarity were created similarly. Following prior research (Westphal & Zajac, 1995), age similarity was coded as 1 if the new director served on another board where the CEO and the focal CEO differed by less than one standard deviation in age (9 years, calculated from all Fortune 500 CEOs). We also used 5 years and 7 years in creating the age similarity measure and results are highly consistent. These four measures were then combined into a single index of demographic similarity using discrete principal components analysis (i.e., 'polychoricpca' in STATA 11) (Kolenikov & Angeles, 2009).

Change in CEO compensation was measured as the logarithm of total compensation in the year subsequent to the new director selection (t+1) minus the same measure in the previous year (t-1) (Kerr & Kren, 1992; Westphal & Zajac, 1995). CEO total compensation includes salary, bonus, options, and grants made in a given year (Crystal, 1984). Following existing research, stock option grants were valued using the Black-Scholes method (Black & Scholes, 1973), and other long-term grants (e.g. performance shares and restricted stock) were valued at the market price on the date of grant (Crystal, 1984). We used total compensation in year t+1 to measure changes in CEO compensation to eliminate the possibility that compensation decisions were made prior to the selection of a new director in a given year (Westphal & Zajac, 1995).

Independent Variables. CEO power was measured by an index based on four different measures that have been often used in prior research on CEO power, namely the tenure of the CEO, the total number of board appointments held by the CEO, the proportion of inside directors on the board, and whether the CEO is also the board chair. We combined these four measures of CEO power into a single index by using discrete principle component analysis (Jackson, 1991).

CEO-new director demographic difference was also measured according to gender, ethnicity, age, and functional background as described above. We coded gender difference as 1 if the CEO and the new director have different gender. Ethnicity and functional background difference were created similarly. Age difference was coded as 1 if the CEO and the new director differed by more than one standard deviation. Following the same discrete principle component analysis procedure that we described above, we combined four measures of demographic difference into a single index (Kolenikov & Angeles, 2009). **Prior common board membership** between the CEO and the new director was coded as 1 if the CEO and the new director previously served on another board together and 0 otherwise.

Increase in demographic similarity between the focal and other CEOs who worked with newly appointed directors on other boards was also measured accordingly to gender, ethnicity, age, and functional background. Increase in gender similarity was coded as one if there was a newly selected director who worked as an outside director on another board where the CEO has the same gender as the focal CEO, and zero otherwise. Increase in similarity on other demographic dimensions was also created similarly. Our measure of increase in similarity between the focal and other CEOs will be different from our dependent variable of demographic similarity between the focal and other CEOs. The former measure

was calculated based on all new directors selected to the board in a given year while the latter measure was calculated based on the selection of each new director.

Controls. We controlled for the **logarithm of total sales, return on assets, debt to equity ratio, the average number of board positions held by outside directors, the average tenure of outside directors, institutional ownership,** and **insider ownership.** In models that predict the demographic similarity between the focal and other CEOs, we also included our measure of **CEO-new director demographic difference** and further included our measure of **shared board membership.** In models that predict changes in CEO compensation, we also controlled for the **prior compensation level** of the focal CEO and **increase in CEO-board demographic difference** (Westphal & Zajac, 1995)**.** Increase in CEO-board gender difference was coded as one if there was a newly selected director who has different gender from the focal CEO and zero otherwise. Increases in ethnicity and functional background difference were created similarly. Increases in age difference was coded as one if there was a newly appointed director whose age differed from the focal CEO's age by more than one standard deviation and zero otherwise. These four measures were then combined into a single index using discrete principle component analysis as described above**.** We also included **industry and year dummies** in all models.

Analytical Methods

We used feasible General Least Square (FGLS) regressions with firm-wise heteroskedasticity in analyzing the demographic similarity between focal and other CEOs. The GLS method is applied when the assumptions underlying Ordinary Least Square regressions are not satisfied. Through transformations of the variance-covariance matrix, GLS regressions can obtain unbiased, consistent, efficient, and asymptotically normal estimators. The feasible GLS method is very similar to the GLS method except that it uses an estimated variance-covariance matrix when the true matrix is not directly known. The results for the hypothesized relationships are also consistent when we used the Maximum Likelihood Random Effects models.

We used the same analytical method in our primary analysis of change in CEO compensation. Since the dependent variable is a change variable, we further followed the procedures recommended by Edward (1995) to test the hypothesized relationships and found very consistent results. In addition, following existing studies that estimated change as the dependent variable (McDonald & Westphal, 2003; Westphal, 1998), we further estimated compensation level in the subsequent year (e.g., t+1) while controlling for the prior compensation level (i.e., t-1). The results also provided consistent support to our theoretical expectations.

RESULTS AND DISCUSSIONS

Table 1 and Table 3 report descriptive statistics. Table 2 reports results from Feasible GLS regressions on the demographic similarity between focal and other CEOs. Table 4 reports results from Feasible GLS regressions on the focal CEO's compensation change. As shown in Table 2 and Table 4, the results provided strong support to the theoretical expectations of this study. CEO power positively increases the demographic similarity between the focal CEO and other CEOs who worked with new directors on other boards. In addition, this positively relationship becomes stronger when the demographic difference between the focal CEO and the new director is greater and when the new director has not had any shared board appointments with the focal CEO in the past. Moreover, increases in demographic similarity between the focal CEO and other CEOs who worked with new directors in the past significantly increases subsequent focal CEO compensation. More generally, the findings are very consistent with our theory of social inference. Specifically, powerful CEOs tend to favor new directors who worked on other boards where CEOs are demographically similar to the CEO, and the social inference process seems to be especially prominent when the new director is either demographically different or socially distant from the focal CEO. Moreover, prior contacts with other CEOs who are demographically similar to the focal CEO seems to indeed cause new directors to view the focal CEO favorably, resulting in more generous CEO pay packages.

This study thus provides a novel theoretical explanation for the paradox in the corporate governance literature that increased board diversity and reduced homophile between CEOs and directors often do not lead to improved board control over major policy outcomes. In suggesting why powerful CEOs tend to favor and appoint demographically different or socially distant directors who previously worked on other boards where CEOs are demographically similar to the focal CEO, and why directors selected through the social inference process are likely to view the focal CEO more favorably and pay the CEO more generously, this study also contributes to corporate governance research by extending the focus from board diversity to the social psychological processes underlying the creation of a diverse board. Moreover, in advancing a social inference perspective, our study also introduces a fresh theoretical perspective into research on the social psychological processes in governance decisions.

In addition, our theory of social inference also has important implications for symbolic management research. While prior symbolic management research has largely focused on social and political mechanisms underlying symbolic management (Westphal & Zajac, 1994, 1998, 2001), the present study starts to examine the social psychological processes underlying symbolic actions. Specifically, in contrast to prior research by Westphal and Zajac (1994, 1998, 2001) who have focused on how CEO power can allow CEOs to take symbolic actions, our social inference theory explains how CEOs can use social inference tactics to symbolically satisfy institutional demands for increased board diversity without increasing actual board control over major policy outcomes. Moreover, whereas prior symbolic management research has mainly focused on the decoupling between the adoption and implementation of stock repurchase plans and long-term incentive plans, the present study extends this stream of research to understand the decoupling between board diversity and board control over other major policy outcomes, namely CEO compensations.

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Table1. Descriptive Statistics and Pearson Correlation Coefficients for New Director Selection Data (N=1114)*

Variables	Mean	Std	1	2	3	4	5	6	7	8	9	10
1. Demographic similarity between focal and other CEOs	0.126	0.521										
2. CEO power index	-0.018	1.003	0.105									
3. CEO-new director demographic difference	-0.001	0.720	-0.103	-0.007								
4. Prior common board membership	0.042	0.201	0.043	0.049	-0.023							
5. Outsider average number of board positions	3.569	0.913	0.075	0.096	-0.063	0.071						
6. Outsider average tenure	2.134	1.575	-0.057	-0.037	0.051	-0.060	-0.232					
7. Log of sales	9.423	1.086	0.012	0.035	0.034	0.080	0.064	0.164				
8. Return on assets	0.045	0.061	0.033	0.015	0.020	-0.040	-0.050	0.026	0.052			
9. Debt to equity ratio	4.237	7.931	-0.138	-0.011	-0.002	0.070	-0.027	-0.019	0.086	-0.167		
10. Institutional ownership	60.847	17.873	0.013	-0.060	0.018	-0.079	-0.070	0.029	-0.301	0.012	-0.122	
11. Insider ownership	0.016	0.067	0.016	-0.053	0.031	-0.011	-0.072	-0.009	0.054	0.069	-0.036	-0.109

* coefficients are significant at $p < 5\%$ when absolute values are greater than 0.023

Table 2. GLS regressions on the demographic similarity between focal and other CEOs*

Variables	Model1	Model2	Model3	Model4	Model5
CEO power		0.046***	0.045***	0.050***	0.049***
		(0.008)	(0.009)	(0.008)	(0.009)
CEO power X CEO-new director demographic difference			0.030**		0.030**
			(0.014)		(0.014)
CEO power X Prior common board membership				-0.089**	-0.088**
				(0.047)	(0.046)
CEO-new director demographic difference	-0.025**	-0.026**	-0.031**	-0.027**	-0.031***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Prior common board membership	0.086***	0.081***	0.086***	0.125***	0.125***
	(0.027)	(0.027)	(0.027)	(0.036)	(0.036)
Outsider average number of board positions	0.029***	0.027***	0.029***	0.030***	0.032***
	(0.009)	(0.007)	(0.008)	(0.007)	(0.008)
Outsider average tenure	-0.001	-0.007	-0.007	-0.006	-0.006
	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)
Log of sales	0.007	0.011	0.009	0.010	0.008
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Return on assets	0.509***	0.475***	0.485***	0.488***	0.492***
	(0.184)	(0.179)	(0.175)	(0.179)	(0.175)
Debt to equity ratio	-0.003***	-0.002	-0.002*	-0.002	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Institutional ownership	0.001	0.001*	0.001*	0.001**	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Insider ownership	0.033	0.098	0.094	0.107	0.100
	(0.158)	(0.164)	(0.171)	(0.164)	(0.171)
Industry 1	0.082	0.119	0.149	0.121	0.151
	(0.126)	(0.136)	(0.132)	(0.136)	(0.133)
Industry 2	-0.011	0.041	0.051	0.043	0.053
	(0.100)	(0.108)	(0.106)	(0.109)	(0.106)
Industry 3	0.034	0.080	0.090	0.080	0.090
	(0.101)	(0.109)	(0.106)	(0.109)	(0.106)
Industry 4	0.061	0.091	0.104	0.095	0.107
	(0.100)	(0.108)	(0.105)	(0.108)	(0.105)
Industry 5	-0.055	-0.021	0.002	-0.015	0.009
	(0.102)	(0.109)	(0.106)	(0.109)	(0.106)
Industry 6	-0.362***	-0.328***	-0.320***	-0.325***	-0.317***
	(0.100)	(0.108)	(0.105)	(0.108)	(0.105)
Industry 7	0.026	0.097	0.104	0.098	0.105
	(0.122)	(0.129)	(0.127)	(0.129)	(0.127)
Industry 8	0.031	0.143	0.281	0.160	0.295
	(0.237)	(0.233)	(0.249)	(0.234)	(0.250)
Year 1	-0.055	-0.106	-0.115	-0.103	-0.111
	(0.067)	(0.070)	(0.073)	(0.070)	(0.073)

Table 2. continued

Variables	Model1	Model2	Model3	Model4	Model5
Year 2	-0.037	-0.047	-0.049	-0.044	-0.046
	(0.074)	(0.070)	(0.070)	(0.070)	(0.070)
Year 3	-0.107*	-0.138**	-0.142**	-0.138**	-0.140**
	(0.061)	(0.057)	(0.057)	(0.057)	(0.057)
Year 4	-0.093	-0.119	-0.131	-0.108	-0.118
	(0.119)	(0.119)	(0.118)	(0.119)	(0.118)
Year 5	-0.093	-0.109*	-0.118**	-0.100*	-0.110*
	(0.060)	(0.056)	(0.056)	(0.056)	(0.056)
Year 6	0.081	0.052	0.041	0.054	0.043
	(0.063)	(0.056)	(0.055)	(0.056)	(0.055)
Year 7	-0.009	-0.026	-0.026	-0.022	-0.022
	(0.059)	(0.054)	(0.054)	(0.055)	(0.054)
Year 8	-0.084	-0.082	-0.091*	-0.079	-0.087
	(0.058)	(0.054)	(0.054)	(0.054)	(0.054)
Year 9	-0.064	-0.078	-0.088	-0.076	-0.087
	(0.061)	(0.058)	(0.057)	(0.058)	(0.057)
Year 10	0.051	0.045	0.037	0.045	0.038
	(0.056)	(0.052)	(0.052)	(0.052)	(0.052)
Year 11	-0.043	-0.043	-0.053	-0.048	-0.057
	(0.060)	(0.055)	(0.055)	(0.055)	(0.055)
Year 12	-0.194***	-0.223***	-0.211***	-0.224***	-0.212***
	(0.068)	(0.063)	(0.064)	(0.063)	(0.064)
Year 13	-0.214***	-0.231***	-0.221***	-0.226***	-0.217***
	(0.065)	(0.063)	(0.063)	(0.063)	(0.063)
Year 14	-0.196***	-0.201***	-0.215***	-0.197***	-0.211***
	(0.072)	(0.068)	(0.067)	(0.068)	(0.067)
Constant	0.127	0.039	0.045	0.034	0.043
	(0.169)	(0.170)	(0.169)	(0.170)	(0.169)
Observations	1114	1114	1114	1114	1114
Number of Firms	275	275	275	275	275

* Standard errors in parentheses; `·` $p< 10\%$; `··` $p< 5\%$; `···` $p< 1\%$; one-tailed tests for hypothesized variables, two-tailed tests for controls

Table3. Descriptive Statistics and Pearson Correlation Coefficients for CEO Compensation Change Data (N=786)*

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Change in compensation	0.193	1.206											
2. Increase in focal and other CEOs demographic similarity	-0.024	0.648	0.007										
3. Increase in CEO-board demographic difference	0.148	0.835	-0.016	-0.323									
4. CEO power index	-0.025	1.015	-0.011	0.080	-0.048								
5. Compensation level in t-1	8.553	1.079	-0.556	0.003	-0.008	0.015							
6. Outsider average number of board positions	3.319	0.869	-0.021	0.117	-0.144	0.046	0.008						
7. Outsider average tenure	2.448	1.705	-0.055	-0.064	0.074	-0.089	0.256	-0.174					
8. Log of sales	9.334	1.005	-0.032	-0.007	-0.052	-0.011	0.447	0.043	0.207				
9. Return on assets	0.050	0.062	0.114	0.082	0.016	0.009	0.095	-0.054	-0.051	0.062			
10. Debt to equity ratio	4.720	24.578	-0.010	-0.021	-0.021	-0.005	0.050	-0.041	0.020	0.017	-0.115		
11. Institutional ownership	62.005	16.968	0.004	0.007	0.034	0.012	-0.032	-0.003	-0.001	-0.262	-0.044	-0.066	
12. Insider ownership	0.020	0.088	-0.001	0.043	0.088	-0.032	-0.013	-0.063	-0.012	0.119	0.064	-0.020	-0.120

Table 4. GLS regressions on changes in CEO compensation*

Variables	Model1	Model2
Increase in focal and other CEOs demographic similarity		0.028*
		(0.021)
Increase in CEO-board demographic difference	-0.028*	-0.021
	(0.015)	(0.016)
CEO power	0.019	0.015
	(0.012)	(0.012)
Compensation level in t-1	-0.812***	-0.803***
	(0.020)	(0.020)
Outsider average number of board positions	-0.030**	-0.036***
	(0.013)	(0.014)
Outsider average tenure	-0.035***	-0.036***
	(0.008)	(0.009)
Log of sales	0.353***	0.348***
	(0.015)	(0.015)
Return on assets	3.707***	3.619***
	(0.175)	(0.191)
Debt to equity ratio	0.001	0.001
	(0.001)	(0.001)
Institutional ownership	0.006***	0.006***
	(0.001)	(0.001)
Insider ownership	-0.248	-0.264
	(0.241)	(0.235)
Industry 1	-0.393	-0.390
	(0.440)	(0.439)
Industry 2	-0.370	-0.363
	(0.433)	(0.433)
Industry 3	-0.243	-0.246
	(0.433)	(0.433)
Industry 4	-0.427	-0.421
	(0.434)	(0.434)
Industry 5	-0.627	-0.620
	(0.434)	(0.434)
Industry 6	-0.018	-0.012
	(0.433)	(0.433)
Industry 7	-0.593	-0.581
	(0.445)	(0.446)
Industry 8	-0.762	-0.763
	(0.966)	(0.955)
Year 1	-0.813***	-0.801***
	(0.074)	(0.076)
Year 2	-0.767***	-0.747***
	(0.057)	(0.058)
Year 3	-0.693***	-0.678***
	(0.144)	(0.144)

Table 4. continued

Variables	Model1	Model2
Year 4	-0.499***	-0.486***
	(0.060)	(0.060)
Year 5	-0.915***	-0.922***
	(0.204)	(0.203)
Year 6	-0.335***	-0.301***
	(0.063)	(0.061)
Year 7	-0.038	-0.038
	(0.058)	(0.058)
Year 8	-0.196***	-0.177***
	(0.059)	(0.057)
Year 9	-0.165***	-0.155***
	(0.060)	(0.058)
Year 10	-0.150***	-0.147***
	(0.054)	(0.054)
Year 11	-0.117*	-0.107
	(0.067)	(0.066)
Year 12	-0.072	-0.047
	(0.051)	(0.051)
Year 13	-0.194***	-0.180**
	(0.075)	(0.076)
Constant	4.113***	4.093***
	(0.470)	(0.470)
Observations	786	786
Number of firms	275	275

* Standard errors in parentheses; **˙** p< 10%; **˙˙** p< 5%; **˙˙˙** p< 1%;
  one-tailed tests for hypothesized variables, two-tailed tests for controls

A NEW APPROACH: FORMAL AND INFORMAL INTRA-UNIT RELATIONSHIP

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Abstract

This study explores the growing industry need for organizations to be versatile in order to be truly transformed into learning organizations. Although, previous literature have found informal linkages to enhance knowledge sharing and knowledge transfer more than formal structures within organizations, in this paper, which is grounded in information processing theory, I posit that voluntary, formal relationships are likely to help units accumulate more intellectual capital than informal relationships. Furthermore, the former relationship is enhanced by technological uncertainty and resource complementarity. Relationship data was collected from a cross-sectional sample of business units to test the hypotheses. Partial Least Square (PLS) technique is used to analyze the data and the results support the hypotheses.

Previous research studies have primarily focused on both formal structures and informal relationships and networks within organizations (Chang, 2003; Kleinbaum, 2006). Formal structures are considered to be the hierarchies within the organizations that prescribe adoption of task force, committees, and liaison to accomplish assigned tasks. Informal linkages and ties, on the other hand, prevail or are deliberately created through patterns of interaction where the content of the relationship may be work-related, social, or a combination of both (Li, 2007; Nohria & Eccles, 1992; Tsai, 2002). Most of the research studies conclude that the latter allows for more knowledge and information sharing than the former (Allen, James & Gamlen, 2007; Uzzi & Lancaster, 2003) but a few others have stressed the importance of both (Chang, 2003; Kleinbaum, 2006).

To address the growing industry recommendation (Bryan, Matson, & Weiss, 2007) and to extend existing literature on formal and informal relationships within organizations, distinctly differentiating between formal structures or prescribed relationships and formal relationships, I conducted an empirical study. In this paper, *formal relationships* are referred to as '*verbal or written contractual agreements between business units involving exchange, sharing and co-developing tangible and intangible resources*', similar to an alliance definition. *Informal relationships*, on the other hand, involve '*informal exchange of information and advice among business units*'. *Intellectual capital* is defined as the '*creative, technical, and collaborative knowledge and knowing capabilities of a firm*' (McGaughey, 2002; Nahapiet & Ghoshal, 1998). The research questions addressed in this study are: (1) do formal and/or informal relationships allow units to accumulate new knowledge, which is considered to be the critical competitive asset of any firm? (Grant, 1996) and (2) are units able to accrue more knowledge in times of uncertainty and when lacking internal knowledge?

Using the information processing theory as the underpinning and business unit as the unit of analysis, I propose that formal relationships help units accumulate more intellectual capital than informal relationships. In addition, when technological uncertainties prevail and complementary resources are shared, formal relationships exemplify knowledge sharing and accumulation.

Background

The phenomenon of formal and informal relationship within organizations can be dated back to the 1960s when Burns and Stalker (1961) and Lawrence and Lorsch (1967) called organizations with these characteristics as 'organic organizations', where formal relationships are composed of a set of normally specified relationships between superior and subordinates, and informal relationships encompass sets of flexible, decentralized relationships created by quasi-structure: committees, task forces, teams and dotted line relationships represented by the organizational chart. More recently, it has been noted that all organizations are loosely connected divisions or units within an organization, and show patterns of roles and relationships, which are called networks (Baker, 1992: 399; Birkinshaw, 2000: 7; Ghoshal & Barlett, 1990; Nohria, 1992: 12). The chief characteristic of "network organizations" is a high degree of formal or informal integration across formal boundaries, both within and across organizational boundaries. Integration covers vertical and spatial differentiation as well as horizontal differentiation (Baker, 1992). This study looks at relationships in the context of network organizations.

THEORY AND HYPOTHESES

The information processing theory essentially views organizations as information processors, predisposed to reducing their *uncertainty, or lack of knowledge*, by processing information (Keller, 1994). The most basic assumption of this theory is that organizations are open social systems that must process information. Information is processed to accomplish internal tasks, to coordinate diverse activities and to interpret the external environment (Daft & Lengel, 1986). Managers try to find decision rules, information sources, and structural designs that provide adequate understanding to cope with uncertainty (Tushman, 1978; Tushman & Nadler, 1978). The second assumption pertains to the level of analysis. Although individuals send and receive information, the processing of the information is more complex and integrated (Daft & Lengel, 1986). It involves coordination, open communication and diverse problem-solving skills to resolve uncertainties and this is what makes processing more ambiguous and multifarious. The final assumption is that organization level information processing is influenced by the different tasks or functions assigned to individual units, divisions or departments within the organization. For organizations to perform well, the units should be aligned with organizational policies and procedures and should show consistency with the functions of the other units to maintain coherency with the organization (Daft & Lengel, 1986).

In this paper, I propose that formal and informal relationships within organizations can be the viewed as information processing mechanisms. Both these types of relationships create channels for information and resource exchange, and processing among units. Greater use of such channels implies increased access to and interaction with peers (Gupta, Govindrajan, & Malhotra, 1999), diffusion of new ideas and transfer of new knowledge among units, resulting in increased performance (Ghoshal, Korine, and Szulanski, 1994; Leonard-Barton & Sinha, 1993). Previous studies have found informal relationships to enhance knowledge transfer more than formal structures due to sharing of private information, diverse array of skill sets and candid communication

(Uzzi & Dunlop, 2005). It has been acknowledged that operational, personal and strategic benefits accrue from the same (Ibarra & Hunter, 2007). Two apparent differences highlighted in this paper are: (1) formal structures have a bureaucratic component to it and are prescribed rather than being voluntary, and (2) previous studies have measured knowledge sharing and not knowledge accumulation.

Thus, in this paper, I argue that although both formal and informal relationships allow units to accumulate intellectual capital, formal relationships help units accrue more intellectual capital than informal relationships, as they have a specific task or goal at hand for which they form the relationship and hence, have the motivational disposition to be more receptive and accepting of new knowledge (Gupta and Govindrajan, 2000). Formal relationships can also be managed well as they are more structured than informal relationships (Bryan, et. al, 2007).

Furthermore, as tacit knowledge and knowing capabilities are not easily imitated and non-tradable (Barney, 1986), it remains largely embedded in the routines and practices of the unit (Kogut & Zander, 1992). These routines and practices can be observed, transferred, and assimilated more easily in units that have more formal, focused and specific work related interaction than simply informational conversation. This, in turn, enhances reciprocity, cohesiveness and connectivity that further facilitate the exchange of tacit know-how and knowledge intensive skills (Khoja & Maranville, 2009). Efficient transfer and sharing of tacit knowledge, allows units to build intellectual capital. Informal networks, on the other hand, are adhoc, so their effectiveness varies considerably (Bryan, et. al., 2007). Hence,

Hypothesis 1: Formal relationships are more likely to help units accumulate intellectual capital than informal relationships.

Solution to overcome uncertainty

Derived from two dimensions of the degree of change and degree of complexity, perceived environmental uncertainty is defined "as the perceived inability of an organization's key manager or managers to accurately assess the external environment of the organization or the future changes that might occur in that environment" (Milliken, 1987: 133). As part of environmental uncertainty, technological uncertainty is the complexity and volatility in the external environment (Milliken, 1987).

One would assume that when technological uncertainty prevails in the environment, units would prefer non-committal, informal relationship with their siblings, as they are less likely to make sense of the environment and the change the industry will undergo. This is a less risky approach. However, in this paper, I argue that contrary to popular belief, units create formal relationships to try to make sense of the uncertainty and to create stability for themselves. They are likely to take an explorative approach and avail opportunities in times of uncertainty, which may be more beneficial to the units in the long run, by allowing them to become market leaders or develop standardized products. Though a risky proposition but units are inclined to take this approach because of sibling support. Increased interaction and exposure to each others' competencies and capabilities allows units to exemplify their existing knowledge. Hence,

Hypothesis 2: The relationship between formal relationships and intellectual capital is further enhanced with increased technological uncertainty.

Solution to overcome lack of knowledge

Complementarity refers to the lack of similarity or overlap between the units' core business knowledge or capabilities (the lower the similarity, the greater the complementarity) (Kale, Singh, & Perlmutter, 2000; Stuart, 2000). When units are making the decision to work close together, similarities in competencies are comfortable, in that there are relatively few uncertainties in understanding the limitations, processes, and nature of the other parties' competencies. However, the redundancy of capabilities can hinder the units' ability to create new knowledge beyond what individuals units possess (Harrison, Hitt, Hoskisson & Ireland, 2001). On the other hand, complementarity ensures that units bring different but valuable capabilities or resource endowments to the relationship. Differences in the resource endowments of factors such as technologies, engineering and production capabilities, and product and market presence, create the potential for units to combine complementary assets in order to pursue new business opportunities (Dussuage, Garrette, & Mitchell, 2000). It also creates the potential for each unit to learn from its partners and gain knowledge from other units (Kale, et. al., 2000). Formal relationships with increased time of interaction and structure, allow units to come close enough to acquire complementary tacit knowledge from their partners (Lane & Lubatkin, 1998). Due to limited and random communication, informal relationships do not present units with the opportunity. Thus,

Hypothesis 3: The relationship between formal relationships and intellectual capital is further enhanced with resource complementarity.

Research Model

Intellectual capital= $\beta 0$ + $\beta 1$ (Formal relationships) + $\beta 2$ (formal relationship*technological uncertainty) + $\beta 3$ (formal relationship* resource complementarity).

METHODOLOGY

"Company and Business Database" provides business and industry content bringing together company profiles, brand information, rankings, investment reports, company histories, chronologies and journal articles. The sample was restricted to multi-divisional companies with at least 5 business units or divisions with revenues of above $500,000 for the year 2000. Surveys, with a cover letter, a dollar bill and a return envelope, were mailed to 375 business unit heads (high level managers). The key informant approach has been successfully employed in several studies and high-level respondents are considered to be ideal candidates for such surveys (Rindfleisch & Moorman, 2001) and to make certain, two questions on the survey confirmed their knowledge about the ongoing relationships with other business units within the organization and their involvement (Johnson, Sohi & Grewal, 2004). Although most high levels managers were not involved in the formation of networks, per se, they were found to be very knowledgeable of relationship activities.

Sample

In all, 75 surveys were returned, giving a response rate of 23%. Responses from varying divisions of 55 companies in 23 different industries were received. To test for

non-response bias, differences between respondents and non-respondents were examined. A t-test showed no significant difference ($p<0.05$) between the two groups based on the number of full-time employees and total sales and asset of the units.

To analyze the data, Partial Least Square technique (PLS) is used. It is a second-generation method of analysis with minimal demands on measurement scales, consisting as it does of a series of ordinary least-square analyses (Chin, 1998). The PLS technique focuses on predictor specification and on the variance of dependent variables. No assumptions are made regarding the joint distribution of the indicators or the independence of the sample cases. Because of its orientation to prediction, factors are determinate, and the unique case values of the latent variables are estimated (Chin, 1998; Chin & Newsted, 1999).

The interpretation of the results generated by PLS is identical to that of traditional regression technique. Effect size or R^2 for the endogenous variables of the measurement model and corresponding standardized path estimates are examined and interpreted. To estimate the t-statistics for the weights and loadings of the indicators of the latent variables and the path coefficients of the measurement model, bootstrapping technique is used. Bootstrap represents a non-parametric approach where 'n' sample sets are created in order to obtain 'n' estimates of each parameter in the PLS model. To assess the internal consistency for a given block of indicators, composite reliability is calculated. In addition, average variance extracted (AVE) attempts to measure the amount of variance that a latent variable component captures from its indicators, relative to the amount due to measurement error.

Constructs of technological uncertainty, resource complementarity and intellectual capital are measured using reflective items and to measure formal and informal relationships, seven-point likert scale items, adapted from previous literature and in consultation with academic experts. In this study, factors of size, industry, and age of the units that reflect availability of organizational slack, experience and industry volatility (Anand & Khanna, 2000; Osborn & Baugh, 1990; Tsai, 2001) are controlled for.

Results

Table 1 shows the correlations matrix with the diagonals indicating the square root of average variance extracted (AVE) to check for discriminant validity, which ranges from 0.902-1.00. The latent variables are seen to be distinct from each other, as they share more variance with their own block of indicators than with another component representing a different block of indicators.

Table 2 highlights the composite reliabilities and AVEs of independent latent variables. In general, the composite reliabilities range from 0.893-1.00, indicating internal consistency of latent variables. AVE scores range from 0.735-1.00, which explain reasonable variance shared among the latent variables and their respective block of indicators.

Table 1
Correlation Matrix [a]

Variables	1	2	3	4	5	6	7	8
1- Formal relationship	**0.912**							
2- Informal relationship	0.687***	**0.935**						
3- Intellectual Capital	0.186	0.174	**0.902**					
4-Technological uncertainty	--0.024	0.013	0.224*	**0.903**				
5- Resource complementarity	0.186	0.174	0.195	0.224*	**0.930**			
6- Industry	0.105	-0.012	-0.046	0.215*	0.245*	**1.00**		
7- Size	-0.026	-0.004	-0.061	-0.089	-0.091	-0.188	**1.00**	
8- Age	-0.06	0.053	-0.068	-0.217*	-0.122	-0.132	0.297**	**1.00**

[a]n = 75. Standardized coefficients indicating two-tailed significance.
*$p < 0.5$; **$p < 0.01$; ***$p < 0.005$

Table 2
Composite Reliabilities and Average Variance Extracted (AVEs) of Latent Variables

Variables	**Composite Reliabilities**	**AVE**
Formal relationship	0.937	0.832
Informal relationship	0.954	0.874
Intellectual Capital	0.946	0.813
Technological uncertainty	0.930	0.816

Resource complementarity	0.927	0.865
Industry	1.00	1.00
Size	1.00	1.00
Age	1.00	1.00

Modest composite reliability = 0.7

Control Variables							

Modest AVE score = 0.5

[a]n= 75

†p< 0.1; *p< 0.5; **p< 0.01; ***p< 0.005

Hypotheses 1 is supported as formal relationships significantly impact intellectual capital ($\beta 1$= 0.227, p<0.05) explaining only 5.2% variance, whereas informal relationships are mildly significant ($\beta 1$= 0.203, p<0.1). Hypothesis 2 and 3 are also supported. Technological uncertainty, and resource complementarity further foster the relationship between formal linkages and intellectual capital ($\beta 2$= 0.816, p<0.01) and ($\beta 3$= 0.546, p<0.01). The R^2 for the moderating relationships are 21%; and 14.7% respectively. Tables 3 summarize the hypothesized measurement models.

Table 3
The Interrelationships among Formal and Informal Relationships and Intellectual Capital Moderated by technological Uncertainty and Resource Complementarity [a]
Dependent Variable- Intellectual Capital

Age	-0.002	-0.079	-0.102	-0.019	-0.023	-0.069	-0.008
Size	-0.125	-0.062	-0.066	-0.037	-0.038	-0.054	-0.131
Industry	0.094	-0.054	-0.03	-0.121	-0.141	-0.075	0.062
Independent Variables							
Formal Relationship		0.227*		0.28**	0.903***	0.186	0.714**
Informal Relationship			0.203†				
Moderating Factors							
Technological uncertainty				0.234*	0.902***		
Technological uncertainty* Formal relationship					0.816**		
Resource complementarity						0.15	0.815**
Resource complementarity* Formal relationship							0.546**
R²	0.029	0.052	0.041	0.13	0.210	0.072	0.147
Effect size-*f2*		0.039	0.28	0.106	0.177	0.047	0.111
df	3,72	4,71	4, 71	5,70	6,69	5,70	6,69

Posthoc

Table 1 indicates a high correlation between formal and informal relationships, which may cause concern on the validity of the study. To obliterate any such possibility, I ran the research model with informal relationship and found it to be insignificant, further confirming the hypotheses.

Discussion

Strong relationships are the "grease" of any organization (Prusak, 2001). Business gets done without them, but not for long and not very well. Relationships may be both formal and informal and previous literature studies have stressed the importance and significance of advice, work and social informal relationships that erupt or are made to

develop within organizations, primarily for the purposes of knowledge sharing and knowledge transfer (Li, 2007; Nohria & Eccles, 1992; Tsai, 2002). Formal structures that prescribe relationships lack the internal motivation to succeed. In this paper, the definition of formal relationship has been changed and it is not considered to be prescribed but rather voluntary, which perhaps intrinsically and willfully motivates units to create and to reap maximum benefits- in this case accumulation of intellectual capital. In addition, these relationships assist units to reduce levels of uncertainties and knowledge disparity gap.

Barney (1986), while developing the notion of external factor markets, noted that contrary to the I/O model, external resource analysis alone cannot lead to valuable resources, knowledge predominantly considered one of them (Grant, 1996). However, by nurturing internal competencies and applying them to appropriate external environment, in particular, when uncertainties prevail, firms can develop viable strategies (Jap, 1999; Russo & Fouts, 1997). However, when uncertainties are high, units may not possess all the relevant resources within their own unit and they may prefer to share the risks with other units willing to make sense of the uncertain environment and perhaps be the market leaders when the dust settles down. Hence, formal collaboration among individual units may provide the units with joint opportunities to take advantage of the uncertain environment and to reap benefits from the same, in terms of profits and enhanced intellectual capital, as they are more than likely to share know-how and capabilities. However, it is important that units bring different and valuable capabilities or resource endowments to a relationship that would allow business units to learn and internalize new knowledge that the business units do not possess. Formal relationships, which involve commitment and goals, among other factors, contribute to candid sharing and transfer of know-how and capabilities.

Conclusion

Grounded in information processing theory, this study explores how voluntary, formal relationships created by units' own initiatives are more intellectually beneficial than informal relationships, as the former are more goals and task oriented and involve commitment. These relationships favorably create opportunities to acquire and assimilate new knowledge in times of uncertainties and knowledge deficiencies. This study is not without limitations. First, as this study empirically explore formal relationships within organizations, it's legitimacy and validity is in question, till accepted by the research community. Second, this study is very limited in its scope and can be further explored by identifying other organizational factors that may foster or hinder their use within organizations. Lastly, due to subjective reporting of all the variables by a single respondent, business unit heads or managers – measurement error and common method variance can be seen as a limitation of this study (Collins & Clark, 2003).

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Track: Strategy/Public & Nonprofit/ Health Care Management

STIMULUS OR BUREAUCRATIC QUAGMIRE?
MANAGING AMERICAN RECOVERY AND REINVESTMENT FUNDS IN ACADEMIA

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ABSTRACT

As a highly regulated industry, academicians report to a variety of entities. Higher education has accrediting bodies that oversee the delivery and quality of education, the administration, the financial aid segment, and the operating components. Assessment of student learning is an ongoing and highly scrutinized area of higher education reporting. Assessment reports, self-studies, and program reviews are integral elements of daily operating procedures inherent in the bureaucratic framework of academia. Financial aid is tightly controlled through the federal and state government. Concomitantly, state agencies oversee the operations of universities and colleges. Given the extensive oversight and reporting inherent in academia, this paper specifically focuses on the additional reporting requirements mandated through the American Recovery and Reinvestment Act (ARRA) as it relates to academia. Specific costs experienced by the state of Oklahoma, and one university within the state of Oklahoma, further document the benefits and drawbacks of accessing the ARRA funds.

American Recovery and Reinvestment Act Reporting Regulations

Signed into law in February 2009, the American Recovery and Reinvestment Act (ARRA) program provided $789 billion in nationwide funding to improve the nation's economy (Oklahoma State Regents for Higher Education, 2009). "Oklahoma's share of the ARRA stimulus money is $2.6 billion with approximately $316.8 million specifically designated for education" (Oklahoma State Regents for Higher Education, 2009, p. 1). Higher education received approximately $68.8 million, or 21.7% of the total funds, representing 3.5% of the total annual budgeted income for higher education in Oklahoma (Oklahoma State Regents for Higher Education, 2009, p.13). Additional allocations of ARRA funds distributed to higher education derive from categories such as workforce, environment, health, budget stabilization and other categories (Oklahoma State Regents for Higher Education, 2009, p.12). According to the Oklahoma Regents for Higher Education in their report titled, "Educational and General Budgets Summary and Analysis for Fiscal Year 2010" (2009), the intent of the ARRA funds was quick distribution and investment in a productive and transparent manner that best meets "short-term

and long-term educational interests of children and adults" (p. 1). Furthermore, according to this same source, "all Stabilization Funds for higher education will use the existing allocation formula, managed and implemented by the State Regents for Higher Education, to determine the amount of funding which individual institutions will receive" (p. 1). The intent of using this same formula was to access a pre-established system or process, and thereby avoid the creation of new systems that would generate reporting inefficiencies.

The ARRA program identified four goals: (1) Preserving and creating jobs and promoting economic recovery; (2) assisting those most impacted by the recession; (3) investing in transportation, environmental protection, and other infrastructure to provide long-term economic benefits; and (4) stabilizing state and local government budgets (GAO-09-453T, Highlights, Sidebar).

The Government Accounting Office (GAO) was assigned the oversight responsibility to assist and promote accountability and transparency throughout the ARRA process. The GAO, operating as an oversight agency, selected 16 states and localities to audit and create bi-monthly reviews. The GAO, with responsibilities for reviewing reports from all 50 states, foci on the efforts of various government agencies to determine compliance, fraud prevention, waste, and abuse. The GAO is also responsible for coordinating with the "Office of Management and Budget, especially with regard to reporting requirements and other guidance to fund recipient and on what information should be collected in order to adequately evaluate how well the Recovery Act achieves its objectives" (GAO-09-453T, Highlights, p.1). With responsibilities for identifying reporting criteria, and oversight compliance, the GAO is accountable for a vast network of reporting systems. Additional contributors to the creation of the reporting requirements are the "Inspectors General, state auditors, local government auditors as well as the Chair of the Recovery Accountability and Transparency Board (Board)" (GAO-09-453T, Highlights, p.2) and the Chair of the Council of Inspectors General on Integrity and Efficiency (CIGIE) (GAO-09-453T, Highlights, p.4). These organizations were charged with creating processes and reporting requirements that would prevent fraud and abuse and insure proper reporting of information. The denouement of their efforts resulted in the creation of section 1512 of the ARRA.

Section 1512 applies to the quarterly reporting requirement section of the ARRA that applies to state agencies and four-year institutions of higher education that have received $25,000 or more of ARRA funds. Recipients are defined in Section 1512 as any entity that receives recovery act funds *directly* from the federal government. There are two categories of recipients, primary recipients, and sub-recipients. The primary recipient is the entity that

originally receives the funds. The sub-recipients are secondary entities that benefit from the funds. To explain the difference between primary recipients and sub-recipients as applicable to higher education, the specific university receiving ARRA funds is the primary recipient, subsequent distributions of ARRA funds to a research laboratory falls into the classification of the sub-recipient. Both entities are required to comply with the reporting requirements, although the primary recipient is ultimately responsible to conduct data quality review and is the primary responsible entity for reporting purposes (Retrieved February 4, 2010 from http://www.newamerica.net/blog/ed-money-watch/2009/guidance-arra-reporting-requirements-omb-13081). Data quality review must be conducted during the 10 days following the initial submission of data with the Department of Education who is responsible for reviewing each prime recipient's data quality review process (Newamerica.net, ¶3). The Department of Education has eight days to conduct the "review of the submitted data to ensure that it appropriately reflects the funds distributed to each recipient. Any corrections must be completed by the prime recipient within 29 days of the end of the fiscal quarter" (Newamerica.net, ¶4). The intent of this process is for all data to be publicly available on www.Recovery.gov within 30 days of the end of the fiscal quarter (Newamerica.net, ¶4). According to Newameric.net, there are over 14,000 local education agencies and over 1,600 public institutions of education. This results in a significant reporting quagmire. To complete this reporting task, each primary recipient must have the capacity to implement a data quality review process. Secondly, the Department of Education must have the capacity to review each submitted record, report any errors or inconsistencies, and assume that the primary recipient accurately enters the information. The first review of the final quarterly reports identified errors ranging from incorrect state abbreviations, to incorrect computations of number of jobs created or preserved (Retrieved January 20, 2010 from http://www.gao.gov/new.items/_d091016.pdf). The report noted errors resulting from the continual changes in data due to the timeliness of information resulting in amended reports, lack of understanding of the requirements, lack of knowledge on how to compute job creation and preservation, over and under expenditure of funds, incompatible computer systems, and input errors.

On April 1, 2009, the Office of Management and Budget (OMB) published the data required for Section 1512 reports in the Federal Register. The OMB requires the following information in the quarterly reports submitted by all ARRA fund recipients: (1) the total amount of Recovery funds received; (2) the amount of funds that were expended or obligated to projects or activities; (3) a detailed list of all projects or activities for which the recovery funds were expended or obligated; and (4) information on any subcontracts or sub-grants awarded by the

recipient that includes the data elements required to comply with the Federal Funding Accountability and Transparency Act of 2006.

Reporting Problems

The detailed list under item (3) above includes the name of the project or activity, a description of the project or activity, and an evaluation of the completion status of the project or activity. Furthermore, Section 1512 requires the inclusion of the estimated number of jobs created and the number of jobs retained by the project or activity. For infrastructure investments made by state and local governments, Section 1512 requires the purpose, total cost, and rationale of the agency for funding the infrastructure investment with funds made available under this Act, and the name of the person to contact at the agency if there are concerns with the infrastructure investment. GAO noted that the information required in item (3) was incompatible with state computer systems. Some state's computer systems only allow the capture of data for disbursed funds, not funds allocated but not yet disbursed as required in the ARRA. Additionally, detailed information on any sub-awards (sub-contracts or sub-grants) made by the grant recipient need to include the data elements required to comply with the Federal Funding Accountability and Transparency Act of 2006 (Retrieved February 4th 2010 from http://research.brown.edu /stimulus/communications/osp_arra-reporting.php).

Each state must also create a website to comply with the transparency requirements of the ARRA. The website must disclose items relevant to tax payers such as, spending by program, spending by county, spending correlated to economic distress area or category, recipient job information, geographical displays of projects, and user aids such as search abilities. A non-sanctioned independent watchdog group titled, "goodjobsfirst.org" ranks each state in their public reporting transparency of ARRA funds. Oklahoma received a ranking of 42 in the state ranking and a score of 18 out of 100 from goodjobsfirst.org. The report states:

> Oklahoma's Recovery Act website is very sparse. The state hasn't posted a list of its spending for specific ARRA program areas and completely lacks information about individual projects. Many of the program information links contain outdated information or are dead. (Retrieved January 22, 2010 from http://www. Goodjobsfirst.org/stimulusweb.cfm.)

Oklahoma's response to this low ranking was to hire Oracle to more effectively manage and increase the transparency of the website using Oracle software. The cost of this improved information reporting was projected to be $305,000 with a revamp date set for February of 2010. As of February 8, 2010, website changes or improvements have not occurred.

Recipients must account for each ARRA award and sub-award (sub-grant and sub-contract) separately using the North American Industry Classification System Code (CFDA), drawing down ARRA funds on an award-specific basis. Pooling of ARRA award funds with other funds for drawdown or other purposes is not permitted, thus requiring separate line items for each award. Recipients must agree to separately identify to each sub-recipient, and document at the time of sub-award and at the time of disbursement of funds, the Federal award number, any special CFDA number assigned for ARRA purposes, and amount of ARRA funds (2 CFR 215.26, 45 CFR 74.26, and 45 CFR 92.26).

This same source (http://research.brown.edustimulus/communications/osp_arra-reporting.php), also states that any sub-award equal or larger than $25,000 requires the following information:

- The name of the entity receiving the sub-award;
- The amount of the sub-award;
- The transaction type;
- The North American Industry Classification System code or Catalog of Federal Domestic Assistance (CFDA) number;
- Program source;
- An award title descriptive of the purpose of each funding action;
- The location of the entity receiving the award;
- The primary location of performance under the award, including the city, state, congressional district, and country; and
- A unique identifier of the entity receiving the award and of the parent entity of the recipient, should the entity be owned by another entity.

To cover all of the reporting requirements, ARRA allows recipients to use half of one percent of received funds to pay for the administrative costs associated with ARRA reporting requirements. For the state of Oklahoma, the reporting costs associated with the ARRA funds for higher education could equal 3.4 million dollars as the allowable expenditure.

State Fiscal Stabilization Fund

The State Fiscal Stabilization Fund (SFSF) under the American Recovery and Reinvestment Act (ARRA) was approved by Congress and signed by President Obama in February 2009 under Title XIV of Division A Publication L. 111-5 (U. S. Department of Education, 2009). The SFSF provides $53.6 billion nationally and $578 million to Oklahoma to maintain education and other state spending over the next two years with another $950 million

for health coverage (Retrieved February 2, 2010 from http://www.OKPolicy.org). The U. S. Department of Education in their April 2009 report titled, 'Guidance on the State Fiscal Stabilization Fund Program,' identified the following four educational reforms as required reparation for receipt of these stabilization funds:

> The U.S. Department of Education (Department) will award to Governors to help stabilize State and local budgets in order to minimize and avoid reductions in education and other essential services, in exchange for a State's commitment to advance essential education reform in four areas: (1) making improvements in teacher effectiveness and in the equitable distribution of qualified teachers for all students, particularly students who are most in need; (2) establishing pre-K-to-college-and-career data systems that track progress and foster continuous improvement; (3) making progress toward rigorous college- and career-ready standards and high-quality assessments that are valid and reliable for all students, including limited English proficient students and students with disabilities; and (4) providing targeted, intensive support and effective interventions for the lowest-performing schools. (p. 1)

SFSF Reporting Requirements

According to the June 2009 fact sheet from the Oklahoma Policy Institute, SFSF are the most flexible funding sources for states. The SFSF includes the education block grant, which represents 81.8 percent of the total SFSF and the general purpose, or flexible, block grant that makes up 18.2 percent of the total SFSF. The acceptance of these funds also requires specific reporting requirements. For each year of the program, the state receiving SFSF must submit a report describing eight identified elements. For example, the Section 14008 annual state report must include, among the eight requirements, the state's progress in:

- Reducing inequalities in the distribution of highly qualified teachers; and
- Implementing a State longitudinal data system; and
- In developing and implementing valid and reliable assessments for limited English proficient students and children with disabilities;
- A description of each modernization, renovation and repair project funded, including the amounts awarded the project costs; and
- Reporting on tuition and fee increases and enrollment trends of in-state students for public institutions of higher education; and more (Retrieved February 5, 2010 from http://www.cde.ca.gov/ar/rr/documents/arrarpting.ppt.)

As with Section 1512, the report requires a description of the uses of funds and the number of estimated jobs saved or created with the funds. Unlike Section 1512 reporting, however, the focus is less on recipient information, description of activity, and evaluation of progress. Section 14008 is tightly focused on the education assurances of the SFSF. Local Educational Agencies (LEAs) must track all their recovery funds separately and maintain accurate, complete, and reliable documentation of all recovery expenditures across all ARRA investments. LEAs that receive ESEA Title I Part A funds under the Recovery Act must file a school-by-school listing of per-pupil expenditures from state and local sources during the 2008-2009 academic year. This is due to the State Education Agency (SEA) no later than December 1, 2009 and each SEA must report that information to ED by March 31, 2010. States will be expected to monitor sub-grantees to help ensure data quality and the proper expenditure of ARRA funds. If an SEA or LEA fails to comply with requirements governing the use of targeted ARRA funds, ED may, consistent with applicable administrative procedures, take one or more enforcement actions:

- Withhold or suspend, in whole or in part, targeted funds or
- Recover misspent funds following an audit.

Recipients of Federal awards from funds authorized under Division A of the ARRA must comply with all requirements specified in Division A of the ARRA (Public Law 111-5), including reporting requirements outlined in Section 1512 of the Act. For purposes of reporting, ARRA recipients must report on ARRA sub-recipient (sub-grantee and sub-contractor) activities quarterly beginning with June 30, 2009. This reporting requirement included a due date of not later than 10 days after the end of each calendar quarter. The reports must be submitted to Recovery.gov with additional reporting required for Section 14008 ARRA SFSF annual reports (February 5, 2010 from http://www.cde.ca.gov/ar/rr/documents/arrarpting.ppt).

Benefits of ARRA Funds for a Specific University in Oklahoma

The 1.4 million of ARRA funds received via the Oklahoma State Education and General Budget significantly alleviated the budget shortfall experienced by one university. The 68.8 million of ARRA funds that Oklahoma received to offset budget shortfalls was allocated throughout the higher education system using the existing formula for distribution of state education funds, fulfilling item four of the intended goals originally established by Congress, i.e. stabilizing state and local government budgets. Faculty, employees, and students benefited from these funds through continued employment and stabilized tuition. If Oklahoma universities did not receive these funds, available options would include; cutting programs,

cutting positions, increasing student tuition, or using a combination of these options. According to the Vice President of Academic Affairs for one university, the 1.4 million dollars represents 27 employment positions.

Reporting Burdens of ARRA Funds for One University in Oklahoma

The negative consequence of the ARRA funds included a variety of reporting burdens. Each recipient was required to comply with individual reporting as covered earlier in this paper. Oversight analysis and reporting adds a secondary level of reporting responsibility, as does the creation of associated web sites for inputting data and ongoing individual state transparency requirements. On a macro level, a significant consequence of the ARRA funds was the tremendous deficit that the United States, and thereby, the taxpayers face as the burden of offsetting the ARRA expenditures affects our future economic situation.

For one university, every department has reporting requirements tied to oversight organizations or agencies of some sort. For some departments, a reported 75% of an employee's time is spent in complying with regulatory agencies. The frustrations connected to preparing and submitting reports revolves around the fact that reports become redundant as the same information is required for different organizations, but with the information categorized in different formats. The one area that appears to be a bit more bothersome than other reporting requirements resulted from the state accepting ARRA funds for student workers. One university received $75,000 designated for student workers. One employee spent at least 16 hours gathering and completing documents required under the ARRA reporting requirements as required for the acceptance of the $75,000 (personal interview with university officials, February 3, 2009). Because the ARRA funds are not continuous, most organizations do not anticipate creating computer programs to manage the data and instead rely on employees to manually create the necessary reports.

Catherine Gorodentsev, director of Harvard University's office of sponsored programs, cites a 30% increase in the reporting her office was required to do, while Kerry Peluso, associate vice president for research administration at Emory University stated, "everyone is kind of struggling to pull together information that our systems were not designed to gather" (Retrieved February 2, 2010 from www.the-scientist.com/blog/print/57129). Peluso estimated that for every $1 million in ARRA funding, the university had to spend $14,000 to $15,000 above the 26% overhead rate cap allowed for federal grants (Retrieved February 2, 2010 from http://www.the-scientist.com/blog/print/57129).

Findings: ARRA Reporting Results for 2009

After the completion of two calendar quarters of ARRA reporting, GOA found that "due to fiscal constraints, many states reported significant declines in the number of oversight staff-limiting their ability to ensure proper implementation and management of Recovery Act funds" (http://www.gao.gov/new.items/d09580.pdf, Highlights, Accountability Approaches, ¶1). Fraud, a significant concern throughout the implementation of the ARRA, contines to be a source of concern. Three areas of concern identified by OMB under the category of 'Accountability and Transparency Requirements' include: (1) a need to adjust the single audit process to provide for review of internal controls during 2009 before distributing funds in 2010; (2) a need to continue efforts to identify methodologies that can be used to determine jobs created and retained from projects funded by the Recovery Act; and (3) a need to evaluate current requirements to determine whether sufficient, reliable and timely information is being collected before adding further data collection requirements (Retrieved January 20, 2010 from http://www.gao.gov/new.items/d09580.pdf).

Under the category of 'Communications', GAO recommended three areas for improvement: (1) timely and efficient notification to prime recipients in states and localities when funds are made available for their use; (2) timely and efficient notification to states, where the state is not the primary recipient of funds, but has a state-wide interest in this information; and (3) timely and efficient notification to all recipients, on planned releases of federal agency guidance and whether additional guidance or modifications are expected (Retrieved January 20, 2010 from http:// www.gao.gov/new.items/d09580.pdf). Considering the urgency instilled in the passing of the ARRA in February 2009, the vast amount of reporting involved, and the significant amounts of monies expended, the typical recipient might be amazed that the process has operated with such few recommendations.

GAO-09-1016 titled, "Recovery Act: Funds Continue to Provide Fiscal Relief to States and Localities, While Accountability and Reporting Challenges Need to Be Fully Addressed" (2009), identified the need to move to a risk-based assessment of state monitoring. This risk-based assessment identified 18 states to receive monitoring visits. These 18 states were flagged based on factors such as previous findings, and state coordinator turnover. Oklahoma fell into this category of a high-risk state. Title I Education officials altered their monitoring cycles from three years to two years to comply with the ARRA with additional questions related to "…the rate at which Recovery Act funds are drawn down and spent, how the funds were being used, and how reporting requirements were being met" (GAO-09-1016, p. 55). Title I Education intends to offer customized assistance to the high-risk states and on-site visits focused on compliance and cash management concerns.

The OMB in the GAO-09-1016 (2009) report noted the unprecedented public disclosure of information required by the ARRA and the quarterly expectations of accurate information as raising concerns among reporting officials. State officials expressed concerns regarding the release of Recovery Act funds and their inability to determine when and who received the funds. Since OMB's preference was to issue guidance incrementally as reporting and monitoring suggested changes and improvements, state and local recipients can only check regularly for updates and guidance resulting in an unclear compliance audit trail. Thus, the levels of bureaucracy involved in managing the ARRA funds have created a quagmire of reporting requirements that diminish the value of the funds. In short, although the ARRA funds were essential for most university operating budgets, efficiency levels dramatically diminished due to the reporting and oversight requirements associated with the ARRA funds.

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THE USE OF SIX SIGMA IN HEALTHCARE MANAGEMENT: ARE WE USING IT TO ITS FULL POTENTIAL?

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ABSTRACT

Background: Popular quality improvement tools such as Six Sigma (SS) claim to provide health care managers the opportunity to improve health care quality based on sound methodology and data. However, it is unclear whether this quality improvement tool is being used correctly and improves health care quality. **Methods:** The authors conducted a comprehensive literature review to assess the correct use of SS and the empirical evidence relating SS to improved quality of care in health care organizations. **Results:** The authors identified 282 articles on SS published in the last fifteen years. However, only 40 were empirical peer-reviewed papers, 16 of which reported the correct use of SS. Only 7 of these articles included statistical analyses to test for significant changes in quality of care, and only 12 calculated defects per million opportunities or sigma level. **Conclusions:** This review demonstrates that there are significant gaps in the Six

Sigma health care quality improvement literature and very weak evidence that Six Sigma is being used correctly to improve health care quality.

Keywords: Six Sigma, quality, health care, evidence-based management]

Although manufacturing industries have long used structured quality improvement tools based on scientific methods such as Total Quality Management, Lean, Plan-Do-Study-Act (PDSA), Continuous Quality Improvement, and Continuous Process Improvement to reduce process and outcomes variability, the concept of evidence-based management in health care is still an evolving practice. Evidence based management is "…the idea that managers should adopt practices that scientific inquiry has shown to be effective" (McDaniel & Lanham, 2009). Evidence-based management is particularly important in the area of health care quality improvement because of the need to evaluate the efficacy of practices being used by managers of health care organizations to improve quality of care. Since the release of the Institute of Medicine report *To Err is Human*, which estimated that there are as many as 98,000 deaths from medical errors per year, there has been a strong push by consumers, payers, and the federal government for health care organizations to improve quality of care (IOM, 2000). Although there are many quality improvement (QI) tools used in health care management today, Six Sigma is a relatively new, but popular quality improvement tool being used in the health care industry (DelliFraine & Langabeer, 2009; Pande et al., 2000). There have been numerous articles on the use of Six Sigma in health care settings. In fact, over the last 15 years we found 282 articles in relevant journals, and the trend in publications on this topic is rising. Figure 1 presents the annual number of citations for SS by year.

Figure 1: Six Sigma Diffusion in Healthcare, Articles over Time
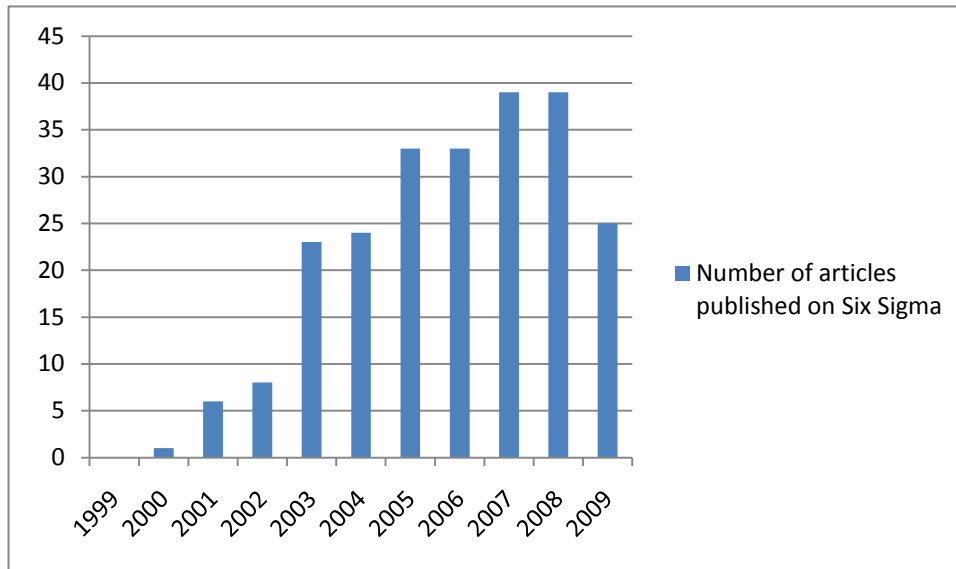
SS is a QI tool that emphasizes using data and quantitative methods to document quality improvement and progress toward a stated goal. Numerous books have been written on Six Sigma, and today it is one of the leading improvement tools in manufacturing industries. Six Sigma was developed in the mid-1980s at Motorola as an improvement concept that focused on reduction of errors by establishing aggressive goals for quality (Harry & Schroeder, 2000). Six Sigma measures quality in terms of defect rates, and sets a target error rate of no more than 3.4 defects per million opportunities, or six standard deviations from the process mean. Six Sigma's core philosophy focuses mainly on reducing output variability. Output variability is reduced by implementing a tightly controlled process. This is done through a methodology that uses five basic processes – defining, measuring, analyzing, improving, and controlling (DMAIC). In short, a problem is defined, outcome data is measured and collected, and statistical methods are used to analyze sources of variation and opportunities to improve. Processes are then adjusted to improve the outcome of interest, and data is collected and analyzed multiple times to check for improvement in error rates. Finally, processes are put in place to ensure continued monitoring of the outcome of interest in order to control future variation. In order to determine if a SS intervention was effective, defects per million opportunities (DPMO) (or an error rate) must be calculated before and after an intervention. Ideally, statistical tests will be performed to determine if there was a significant improvement in the outcome of interest, and the DMPO will be calculated to determine the sigma level. Prior research suggests that many organizations must undergo a cultural change for the use of Six Sigma to result in performance improvement (Antony & Banuelas, 2002; Banuelas et al., 2002).

The health care industry has been slow to adopt manufacturing methods, and the use of SS in health care did not become popular until 1999, but recent rhetorical evidence suggests it is being used in hospitals on an increasing basis (Pande et al., 2000). However, the question of industry "fit" is the topic of debate for many physicians, administrators, and health care management researchers (Kassirer, 1998). A previous comprehensive literature review found little solid evidence that the use of SS improves clinical outcomes (DelliFraine et al., 2010). However, it is unclear from this literature review if SS was applied and implemented correctly, using the DMAIC process, in these health care settings. Since SS appears to be a popular trend in health care management, it is important to examine how it is being used and if it is being correctly applied in health care, as well as examine the evidence that it improves quality of care (including clinical outcomes or processes of care). Specifically, in what service areas is SS being applied in health care, and is it being applied and used correctly? If used correctly, is there evidence in the literature that SS improves quality of care? The purpose of this article is to examine the evidence in the literature that SS is being applied and used correctly in the health care industry (by using the DMAIC process), and the evidence that SS improves quality of care when applied and used correctly. To achieve this purpose, we conducted a systematic literature review of the research on SS in the health care industry. We assessed the empirical evidence that SS was applied correctly using DMAIC, and if there were associated improved clinical outcomes or processes of care in health care organizations. We then identify gaps in the health care management literature regarding the use and application of SS, and identify practical recommendations and conclusions for health care managers.

METHODS

We conducted a structured systematic review of articles on the use of Six Sigma in health care settings/organizations that were published between 1999 and August 2010. We selected 1999 as our start year because the use of SS in health care did not become widespread until 1999 (Pande et al., 2000). We searched the research literature using five electronic bibliographic databases: Pub Med, Medline, Proquest, Academic Search Complete, and Business Source Complete. We did not limit our search to health care journals because of the possibility that relevant articles may have appeared in business or general interest journals. We searched the five databases using the following key words and word combinations: "Six Sigma" and "health*" and "outcomes" or "quality" or "process" or "performance". These key words and phrases were chosen to capture as many articles related to the use of SS in health care as possible. To ensure

the comprehensiveness of our search, we also extracted articles from the bibliographies of the articles found in our primary search. Our search yielded 282 journal articles related to Six Sigma in the health care industry.

The first two authors independently reviewed the abstracts of the 282 articles using predetermined inclusion/exclusion criteria and resolved disagreements through discussion until they reached consensus. The criteria for article inclusion were: (1) article was published in a peer-reviewed journal; (2) article described the implementation of a quality improvement project utilizing SS in a health care organization as well the outcome or result of the project; and (3) article was an empirical study that included data pre and post Six Sigma implementation. To make the search as inclusive as possible, we did not exclude any articles based on type of health care organization or quality improvement project studied. Thus, our review covers a wide range of organizations and projects. However, because of our criteria, our review excludes articles that were commentaries, letters to the editor, book reviews, case studies that only described the use of SS without providing outcome data, studies that only provided pre-SS outcome data (simply calculating error rates), only discussed the potential use or application of SS, only used simulation data, or only commented on the appropriateness of using SS in health care organizations.

Using these criteria, we excluded 224 articles after abstract review. The remaining 58 articles were independently reviewed by the first two authors using the same criteria and process for resolving disagreements used at the abstract stage. After article review, 18 additional articles were excluded (4 of which were excluded because they duplicated results of previously published studies). The 40 studies that met our inclusion criteria are listed in Table 1.

Table 1. Empirical studies examining Six Sigma.

Authors	**Define**	**Measure**	**Analyze**	**Improve**	**Control**	**Outcome of Interest**	**Quality Improved**	**Sigma Level**
Aakre, K., Valley, T., and O'Connor, M.	Yes	Yes	Yes	Yes	Not reported	Turn-around time for bone density scans	Yes	Not reported

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Adams, R., Warner, P., Hubbard, B., and Goulding, T.	Yes	Yes	Yes	Yes	Not reported	OR turn-around time, revenue potential gained	Yes*	2.13
Ahmed-Jushuf, I., and Griffiths, V. (a)**	Yes	Yes	Not reported	Yes	Not reported	Clinic capacity	Yes	Not reported
Beard, G.	Yes	Yes	Yes	Yes	Yes	Reaching patients by phone	Yes*	Not reported
Benedetto, A.	Yes	Yes	Yes	Yes	Yes	Turn-around time for radiology film library	Yes	Not reported
Bisgaard, S., and Does, R.	Yes	Yes	Yes	Not reported	Not reported	Length of stay	Yes	Not reported
Bush, S., Lao, M., Simmons, K., Goode, J., Cunningham, S., et al.	Yes	Yes	Yes	Yes	Yes	Wait times for new OB visits, patient time spent in clinic, return	Yes	Not reported

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Castle, L., Franzblau-Isaac, E., and Paulsen, J.	Yes	Yes	Yes	Yes	Yes	Medication errors	Yes	Not reported
Chan, A., and Pharm, B.	Yes	Yes	Yes	Yes	Yes	Medication errors, incuding drug type and dose	Yes	Not reported
Chan, W., Chiu, W., Chen, W., Lin, M., and Chu, B.	Yes	Yes	Yes	Yes	Not reported	MRI examination time	Yes*	2.15
Chassin, R.	Yes	Yes	Yes	Yes	Yes	Medication errors, lab turn-around time, bed availability, revenue enhancement, revenue capture	Yes	Not reported
Chen, S., Pan, F., and Chen, H.	Yes	Yes	Yes	Yes	Not reported	Needle stick events	Yes	≥4
Chen, Y., Lin, J., and Chang, C.	Yes	Yes	Yes	Yes	Not reported	X-ray film defects	Yes	3.3

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Christianson, J., Warrick, L., Howard, R., and Vollum, J.	Yes	Yes	Not reported	Yes	Yes	ED throughput time, medication errors, clinic throughput, Medicare profitability	Yes	Not reported
Christopher, D., Campbell, A., and Dateshidze, J.	Yes	Not reported	Not reported	Not reported	Not reported	Intravenous medication pump errors	Not reported	Not reported
Does, R., Vermaat, T., Verver, J., Bisgaard, S., and Van Den Heuvel, J.	Yes	Yes	Yes	Yes	Not reported	OR start time delay	Yes	Not reported
Dupree, E., Martin, L., Anderson, R., Kathuria, N., Reich, D., Porter, C., and Chassin, M.	Yes	Yes	Yes	Yes	Yes	Patient Satisfaction in pain management	Yes	Not reported
Drenckpohl, D., Bowers, L., and	Yes	Yes	Yes	Yes	Yes	Breast milk administration	Yes	3.4

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Cooper, H.						errors		
Elberfeld, A., Goodman, K., and Van Kooy, M.	Yes	Yes	Yes	Yes	Yes	Correct use of aspirin, beta-blockers, and angiotens in enzyme inhibitors	Yes	Not reported
Eldridge, N., Woods, S., Bonello, R., Clutter, K., Ellingson, L., et al.	Yes	Yes	Yes	Yes	Yes	Hand hygiene practices	Yes*	Not reported
Fischman, D.	Yes	Yes	Yes	Yes	Not reported	Clinic throughput	Yes*	Not reported
Frankel, H., Crede, W., Topal, J., Roumanis, S., Devlin, M., and Foley, A.	Yes	Yes	Yes	Yes	Yes	Catheter-related blood stream infections	Yes*	Not reported
Gorman, A., Donnell, L., Hepp, H., and Mack, T.	Yes	Yes	Yes	Yes	Not reported	Radiology report turn-around times	Yes	6

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Johnson, T., Currie, G., Keill, P., Corwin, S., Pardes, H., et al.	Not reported	Yes	Not reported	Yes	Not reported	Patient wait times, turn-around times, LOS in multiple areas of the hospital	Yes	Not reported
Kang, J., Kim, M., Hong, S., Jung, J., and Song, M.	Yes	Yes	Yes	Yes	Not reported	PACS system errors	Yes	≥6
Kelly-Nichols, M. and Miles, B.	Yes	Yes	Yes	Yes	Not reported	ED wait times	Yes	Not reported
Kemper, B., Koopmans, M., and Does, R.	Yes	Yes	Yes	Yes	Yes	Cost of maintaining infusion pumps	Yes	Not reported
LeBlanc, F., McLauglin, S., Freedman, J., Sager, R., and Weissman, M.	Yes	Yes	Yes	Yes	Not reported	Cardiac cath lab throughput	Yes	≥2

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Morgan, S., and Cooper, C.	Yes	Yes	Yes	Yes	Not reported	Unavailable medications, IV starts, supply and equipment availability, nursing satisfaction	Yes	Not reported
Neri, R. Mason, C., and Demko, L.	Yes	Yes	Yes	Yes	Yes	Blood product defects and inappropriate utilization	Yes	Not reported
Pexton, C., and Young, D.	Yes	Yes	Yes	Yes	Not reported	Timely post-operative antibiotic administration	Yes	2.86
Reibling, N., and Tria, L.	Yes	Yes	Yes	Yes	Yes	Laboratory turn-around time	Yes	4.5
Shukla, P., Barreto, S., and Nadkarni, M.	Yes	Yes	Yes	Yes	Not reported	Sphincter preservation in rectal cancer	Yes	2.1

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Taner, M., and Sezen, B.	Yes	Yes	Yes	Yes	Yes	Physician turnover intentions	Yes	3.83
Thompson, J., Miller, T., Krantz, A., and Thomas, T.	Yes	Yes	Yes	Yes	Not reported	Blood stream infections, pressure ulcers, and ventilator-acquired pneumonia	Yes	Not reported
van den Heuvel, J., Bogers, A., Does, R., van Dijk, S., and Berg, M.	Not reported	Yes	Not reported	Yes	Not reported	Number of surgical operations, number of admissions, LOS, number of new-patient visits, and others	Yes	Not reported
van den Heuvel, J., Does, R., Bogers, A., and Berg, M.	Yes	Yes	Yes	Yes	Not reported	Cost savings, number of patients receiving IV antibiotic	Yes	Not reported

Authors	Define	Measure	Analyze	Improve	Control	Outcome of Interest	Quality Improved	Sigma Level
Veluswamy, R., and Price, R.	Yes	Yes	Yes	Yes	Yes	Falls	Yes*	Not reported
Yamamoto, J., Malatestinic, B., Lehman, A., and Juneja, R.	Yes	Yes	Yes	Yes	Yes	Food delivery and insulin administration coordination	Yes	Not reported
Zaroukian, M., and Sierra, A.	Not reported	Yes	Not reported	Yes	Not reported	Clinic efficiency and financial performance	Yes	Not reported

*Indicates statistical significance in improvement at *p* ≤ 0.05.

**Additional data on this same project is also reported in (Ahmed-Jushuf & Griffiths, 2007b; Ahmed-Jushuf & Griffiths, 2007c).

Each of the 40 SS studies was reviewed to assess the quality of the study, including whether or not the authors clearly followed and reported on each element of the DMAIC method, whether quality was improved (based on reported improvement in the outcome of interest), if statistical tests were used to determine significant improvement in the outcome(s) occurred, and if DPMO or sigma levels were calculated before and after the quality improvement intervention. The criteria for meeting the DMAIC method are presented in Figure 2.

Figure 2: Six Sigma DMAIC Method Criteria

Define	Were the project goals, deliverables, and desired outcomes defined?

Measure	Were the processes or outcomes measured to determine current performance?
Analyze	Were analyses used to determine the root cause(s) of the defects?
Improve	Were the processes or outcomes improved by eliminating defects?
Control	Was future process performance controlled?

RESULTS

Level of Evidence Supporting Six Sigma

There were 44 articles that met our review criteria. However, 4 of these articles were eliminated because the authors presented the same data in multiple journals. In these cases, we chose the articles with the most complete data. Of the 40 articles that met our review criteria, 16 reported the correct use of SS, describing in detail how they used the DMAIC method to improve quality of care. Only 7 of these articles included statistical analyses to test for significant changes in quality of care, and only 12 calculated defects per million opportunities or sigma level. Two of these articles actually achieved six sigma level quality of care (Gorman et al., 2007; Kang et al., 2005). Out of the 24 articles that did not adequately report on the DMAIC method, 22 did not discuss the Control aspect of DMAIC. Some articles were published immediately after the improvement, and discussed plans for quality control, but had not actually implemented any control mechanisms at the time of publication. However, most articles either briefly mentioned the need to continue to monitor process and outcomes, or did not mention any aspect of controlling quality. Out of these 24 articles that didn't adequately describe the DMAIC process, 5 failed to discuss how they analyzed their data to determine barriers to processes. Two articles didn't provide any data regarding improvement in processes or outcomes, but simply stated that outcomes were improved (Bisgaard and Does, 2009; Christopher, et al., 2008). In one case, it was very vague as to whether or not the outcome of interest was actually improved (Christopher, et al., 2008). Three articles did not clearly define what the goals of the SS project were, other than to 'improve quality' (Johnson, et al., 2005; van den Heuvel et al., 2006b; Zaroukian & Sierra, 2006).

Sixteen studies used SS to improve clinical outcomes or improve processes that directly affect patient health. These studies used SS to reduce medication administration errors (Castle et

al., 2005; Chan & Pharm, 2004; Chassin, 2008; Christianson et al., 2005; Christopher et al., 2008), reduce inappropriate utilization of medication or other products (Drenckpohl et al., 2007; Neri et al., 2008; van den Heuvel et al., 2006b), improve pain management (Dupree et al., 2009), improve hospital hand hygiene practices (Eldridge et al., 2006), and improve the utilization of appropriate medications (Elberfeld et al., 2007; Pexton & Young, 2004). In all the articles except one, the implementation of a SS program was effective at reducing medication errors. In the case of Christianson et al., the Six Sigma initiative was not implemented due to lack of participant support (2005). Several factors were identified that led to medication errors in hospital settings, including dispensing the wrong medication, dispensing the wrong dosage, dispensing a contraindicated medication, duplicate order entries, order entry failure or missing order entry, dispensing medication to the wrong patient, dispensing the wrong frequency, and dispensing the medication in the wrong route (oral instead of intravenous). Of the 5 articles that examined the use of SS to reduce medication errors, none tested for statistically significant improvement or calculated the sigma rate.

Other clinical outcomes that were examined include patient falls (Veluswamy & Price, 2010), blood stream infections, hospital acquired pressure ulcers, ventilator acquired pneumonia (Thompson et al., 2008), catheter-related blood stream infections (Frankel et al., 2005) and sphincter preservation rates for patients with rectal cancer (Shukla et al., 2008). Among the 16 studies that looked at clinical outcomes or processes that directly impact patient health, all but one (Christopher et al., 2008) clearly reported an improvement in clinical outcomes or processes. However, out of these 16 studies, only 3 tested for statistically significant improvement in outcomes (Eldridge et al., 2006; Frankel et al., 2005; Veluswamy & Price, 2010), and only 3 reported the sigma level achieved (Drenckpohl et al., 2007; Pexton & Young, 2004; Shukla et al., 2008). None of the 3 studies that calculated sigma level were able to achieve SS level care. Although the other studies also reported improved outcomes (reduced pressure ulcer rate, and improved cardiac medication administration) from implementing Six Sigma, the studies either did not report the outcome data in detail or did not report statistics demonstrating that the improved outcomes were a significant improvement over the pre-intervention period.

Twenty articles focused on using SS to improve processes of care; these varied considerably in breadth of the projects and depth of project description. Some articles contained descriptions of SS projects that were implemented throughout several areas in a hospital or health system (such as the hospital pharmacy, hospital laboratory, and emergency department), and therefore reported outcomes for process improvement projects in multiple areas of the

hospital of health system (Chassin, 2008; Christianson, et al., 2005; Johnson et al., 2005; van den Heuvel et al., 2006b; van den Heuvel et al., 2006a). These articles reported positive results for the process improvement projects, indicating SS was effective at improving processes of care. While broad in scope, these papers did not report in-depth statistics on the outcomes of the projects that were implemented, or calculate the sigma level for the projects.

Other articles focusing on processes of care were more narrow in scope and focused on using SS to improve multiple processes in one area of the hospital, health system, or organization (such as number of return visits, patient satisfaction, and wait times for new patient visits in an obstetrics/gynecology clinic) or simply on one specific problem (such as turn-around time for the radiology film library). In general, the articles that focused more narrowly on more targeted areas were able to present stronger in-depth evidence that SS can improve processes of care. Out of the 15 articles that were narrower in scope and focused on processes of care, only 4 reported a statistically significant improvement in the process (Adams et al., 2004; Beard, 2008; Chan et al., 2005; Fischman, 2010), and 7 calculated sigma level (Adams et al., 2004; Chan et al., 2005; Chen et al., 2005; Gorman et al., 2007; Kang et al., 2005; LeBlanc et al., 2004; Reibling & Tria, 2008). These results suggest that articles with a narrow focus present stronger in-depth evidence, through calculation of statistical significance and sigma levels, that SS was applied correctly and can improve processes of care.

The articles in our review contained some common types of projects for improving processes of care in specific service areas. Common process improvement projects included improving operating room (OR) throughput or turn-around time (Adams et al., 2004; Does et al., 2009; Johnson et al., 2005; van den Heuvel et al., 2006a), improving emergency department (ED) throughput (Christianson et al., 2005; Johnson et al., 2005; Kelly-Nichols and Miles, 2005), reducing patient wait times in clinics or for tests (Bush et al., 2007; Fischman, 2010; Johnson et al., 2005; LeBlanc et al., 2004), reducing other turn-around times (not OR or ED) (Aakre et al., 2010; Benedetto, 2003; Chan et al., 2005; Chassin, 2008; Gorman et al., 2007; LeBlanc et al., 2004; Reibling & Tria, 2008), eliminating technological errors (Chen et al., 2005; Christopher et al., 2008; Kang et al., 2005; Kemper et al., 2009) and improving efficiency by increasing capacity or reducing length of stay (Ahmed-Jushuf and Griffiths, 2007a; Bisgaard and Does, 2009; Chassin, 2008; Christianson et al., 2005; Johnson et al., 2005; van den Heuvel, et al., 2006a; Zakourian and Sierra, 2006).

There were several factors identified that impacted OR throughput, including room cleanup, unclear staff assignments, complete case carts (Adams et al., 2004), OR planning, scheduling and anesthesia technique (Does et al., 2009), and physician arrival time (van den Heuvel et al., 2006b; Does et al., 2009). In all of these examples, the use of Six Sigma was used to target these factors in order to reduce start-time delays and decrease turnaround time between surgical cases. In two cases, improved OR throughput resulted in overall increased surgical volumes for the hospitals in the study (Adams et al., 2004; Does et al., 2009). Adams et al., provide especially detailed descriptions and statistical analyses of the problems slowing OR throughput, the solutions implemented, and the supporting statistical evidence that the SS intervention was effective, reporting a sigma level of 2.13. Although not all of the studies on OR throughput examined cost savings associated with improved throughput, one study estimated the cost savings to range from $350,000 - $500,000 annually (Does et al., 2009), while another study estimated potential revenue gained to be $617,000 annually (Adams et al., 2004).

There were three articles that focused on using SS to improve ED throughput Christianson et al., 2005; Johnson et al., 2005; Kelly-Nichols and Miles, 2005), and all of these articles found that SS was effective in improving ED throughput. Outcomes examined in these articles include ED workload or volume (Christianson et al., 2005), patient wait time (Kelly-Nichols and Miles, 2005), ambulance diversion (Johnson et al., 2005), patient walkout rate (Christianson et al., 2005; Johnson et al., 2005), and length of stay (Christianson et al., 2005). There were several factors identified that impacted ED throughput, including appropriate triage of patients, turn-around time of other services such as laboratory and radiology, lack of available beds, registration and discharge processes, and staffing patterns. In these articles, the use of Six Sigma was used to target these factors in order to improve ED throughput. All articles found that after the SS implementation, patient length of stay or wait time decreased while ED workload and capacity increased. However, none of the studies on ED throughput tested if improvements were statistically significant or calculated to sigma level.

Another set of SS articles was focused on improving throughput or reducing patient wait times in clinics (Bush et al., 2007; Christianson et al., 2005; Fischman, 2010; Johnson et al., 2005). Although all of these studies saw an improvement in patient throughput and reduction in wait times, only Fischman (2010) reported a statistically significant improvement in patient throughput. None of these studies calculated sigma level. Several studies aimed to reduce other turn-around times (such as radiology or laboratory) (Aakre et al., 2010; Benedetto, 2003; Chan et al., 2005; Chassin, 2008; Gorman et al., 2007; LeBlanc et al., 2004; Reibling & Tria, 2008). Out

of these 7 studies, only one reported a statistically significant reduction in turn-around time, and this was for MRI examinations (Chan et al., 2005). Four out of seven of these studies calculated sigma level (Chan et al., 2005; Gorman et al., 2007; LeBlanc et al., 2004; Reibling & Tria, 2008) and one (Gorman et al., 2007) achieved a six sigma error rate. These studies examined turn-around times for different areas of the hospital, including MRI (Chan et al., 2005), radiology (Gorman et al., 2007), cardiac catheterization lab (LeBlanc et al., 2004), and the laboratory (Reibling & Tria, 2008).   Three studies sought to use SS to reduce technological errors (Chen et al., 2005; Christopher et al., 2008; Kang et al., 2005). These errors include intravenous medication pump errors (Christopher at al., 2008), PACS system errors (Kang et al., 2005) and x-ray film defects (Chen et al., 2005). Two out of three of these studies reported a decrease in the number of errors (Chen et al., 2005; Kang et al., 2005) and both calculated sigma levels. Only Kang et al., reported achieving a six sigma level error rate (2005).

Other articles in our review sought to improve efficiency by increasing capacity or reducing length of stay in various areas of hospitals or health clinics (Ahmed-Jushuf and Griffiths, 2007a; Bisgaard and Does, 2009; Chassin, 2008; Christianson et al., 2005; Johnson et al., 2005; van den Heuvel et al., 2006a; Zaroukian and Sierra, 2006). While all of these articles reported a reduced length of stay or increased patient capacity, none calculated whether the improvements were statistically significant or calculated the sigma level. All but two articles (Christianson et al., 2005; Chassin, 2008) failed to report the control aspect of DMAIC, so it is unclear if the efficiencies gained were sustained.

In addition to improving patient care, 3 articles in our review focused on using SS to improve personnel-related issues (Chen et al., 2008; Morgan & Cooper, 2004; Taner & Sezen, 2009). These issues include employee needle stick events (Chen et al., 2008), physician turnover intentions (Taner & Sezen, 2009), unavailable supplies, equipment, and nursing satisfaction (Morgan & Cooper, 2004). All of these articles reported improvements in the respective outcomes of interest, but none calculated whether the improvements were statistically significant. However, 2 of the articles (Chen et al., 2008; Taner & Sezen, 2009) calculated sigma levels.

Seven articles in our review explicitly stated cost savings and/or revenue generation as a goal (Adams et al., 2004; Chassin, 2008; Christianson et al., 2005; Kemper et al., 2009; Neri et al., 2008; van den Heuvel et al., 2006b; Zaroukian & Sierra, 2006). Even when cost savings was not an explicit goal or outcome of the study, many studies reported cost savings as a result of the

SS improvement project. For example, in Bush et al., the authors estimated an increased revenue of 73% for the OB/GYN clinic in the first six months (2007). Other estimated cost savings and revenue generated from these studies ranged from $36,000 saved from reduced length of stay (Bisgaard and Does, 2009), $75,000 by switching from intravenous to oral antibiotics (van den Heuvel et al., 2006b), $121,000 by reducing inappropriate blood product utilization (Neri et al., 2008), to an increased revenue of $1.2 million (Elberfeld et al., 2007) and an increased revenue of over $5 million by using SS for multiple system-wide projects (Chassin, 2008).

DISCUSSION

The purpose of this article was to conduct a comprehensive literature review to assess the empirical evidence that Six Sigma is being applied correctly in health care settings, which service areas SS is being used to improve, and whether the use of SS improves health care quality. Our review shows that the empirical evidence that SS improves health care quality is relatively sparse, both in the number of studies and in the diffuse nature of the studies, and the rigor of the reported statistical findings inadequate. However, there were 2 studies that clearly demonstrated that SS level health care can be achieved, and significant improvements can be made by applying SS methods correctly (Gorman et al., 2007; Kang et al., 2005). We identified 40 empirical research articles on Six Sigma published between 1999 and 2010. While this number of studies is over twice the number of studies (n=18) found in an earlier review (Vest and Gamm, 2009), which did not include the two most recent years, this is a small number of studies relative to the research base for other QI tools. For example, Shortell et al., identified 55 studies in their review of the research evidence for CQI in health care, using similar inclusion criteria to ours over a shorter time frame (5 years v. our 9 years) (1998). Nevertheless, several conclusions about the current evidence of effectiveness of SS QI programs in healthcare settings can be drawn from our review.

First, we found that the level of evidence that SS is being applied correctly in health care settings is relatively weak. The majority of studies in our review did not adequately report the DMAIC method applied to the problem. Additionally, of the studies that did not completely report on DMAIC, most failed to describe the control aspect of DMAIC. This finding raises two questions. First, were the improvements in these projects sustained over time? If not, the use of SS may only be effective for a limited time, and it is unclear if the costs of implementing the SS project outweigh a short-term benefit. Second, are the organizations in these studies controlling variation in outcomes but not reporting it in published manuscripts? Several articles discussed

future plans to control process variation, but it was clear the articles went to press before the control plans were implemented. This finding insinuates that the authors and editors may find the control aspect of DMAIC less important than the other steps in the process. However, given the financial cost and personnel effort to implement SS QI programs, the cost of training may be more than temporary financial gains.

Another indication that would suggest SS is being applied correctly to health care settings are the calculation of error rates (DPMO) and corresponding sigma levels. However, only 12 out of 40 studies calculated sigma levels. This may have more to do with the correct application of SS to a problem in health care rather than authors forgetting to report this step in the SS process. For example, some articles reported on the application of SS to technological problems or defect rates, such as radiology film errors (Chen et al., 2005), which are similar to traditional manufacturing applications of SS. Other issues specific to the health care industry, such as length of stay, clinic/hospital capacity, and patient satisfaction, may not as easily translate into defects per million opportunities. While the DMAIC process may be applicable to these issues, as well as establishing a target goal for QI, having no more than 3.4 million defects per opportunity may not be realistic or applicable to many QI issues faced by health care organizations.

Second, we found that the level of evidence supporting a positive relationship between the use of SS and statistically significant improvement in quality was weak. Only 7 of 40 articles in our review reported results of statistical tests indicating significant improvements were achieved. Although the gains made in many of these articles more than likely would have been significant if statistical tests had been used, in other studies it is difficult for the reader to know if the improvements are statistically significant. Hence there is little rigorous evidence validating the effectiveness of SS for quality improvement, except on a more 'anecdotal' reporting basis. The overall evidence for these studies would be stronger with better study designs. Although several articles reported data and results, only one article used a non-equivalent control group design. Pre-post statistical testing of intervention implementation, along with an equivalent control group, and reporting DPMO and sigma levels would provide stronger evidence of the effectiveness and appropriateness of SS in health care settings. Without comparison groups, it is difficult to tell if clinical and process improvements were due to the SS intervention or other explanations.

Most studies focused on SS to improve processes of care, while fewer studies focused on SS to improve clinical outcomes. This may be because clinical outcomes are often more difficult

to measure. However, given the link between processes of care and clinical outcomes, it stands to reason that the demonstrated effectiveness of SS to improve processes of care translates into effectiveness to improve clinical outcomes as well. For example, Eldridge et al., demonstrated a statistically significant improvement in best practices of care for the correct use of hand hygiene practices (2006). The correct use of hand hygiene practices is directly linked to a decrease in the number of nosocomial infections acquired by patients in the hospital. Therefore, we might hypothesize that nosocomial infections diminished in the hospitals they studied. Unfortunately, they did not examine this outcome. Likewise, several articles demonstrated the use of SS to reduce the number of medication administration errors. Medication errors can be directly linked to adverse events, but none of these studies examined the number of adverse events in patients. These linkages are of paramount importance to establish to assist healthcare organizations attempting to utilize evidence-based best practices to optimize clinical outcomes for their patients.

Our review suggests that there is a trade-off between breadth and depth in SS research. Studies of the implementation of SS in several areas of a health care system reported results from multiple projects, but did not report in depth statistical findings or calculated DPMO for individual projects. In contrast, other articles focused on one specific project in one area of a hospital or health system, and reported detailed results of the project, including sigma levels and statistical results. This tradeoff likely exists due to space limitations in most journals, and authors reporting results from a very large study may sacrifice detail to include all aspects of the study. However, a better understanding of the effectiveness of SS would be provided by additional detailed studies focusing on specific areas that demonstrate statistically significant improvements after SS implementation. This would help provide evidence that the changes were due to SS and not other factors.

Additionally, more studies need to report the cost effectiveness of SS QI tools. Although many of the studies we reviewed contained some information on the cost savings or revenue generated after implementing SS, cost savings and revenue generation were not the primary focus of the studies. While improving health care processes and quality is certainly the main purpose of most SS QI tools, studies should carefully consider the value (benefit relative to cost) of implementing these tools as well. No studies discussed the costs of training and/or hiring personnel for these QI tools, or the indirect costs of labor spent implementing these tools. Several articles we reviewed reported financial savings and described SS as a potential cost saving mechanism, but managers in health care systems would benefit from detailed studies

describing actual costs of implementation. Consultant fees and training in Six Sigma is not inexpensive, and in some instances the costs of training and implementation may outweigh the benefits, especially if there are less expensive QI options.

Finally, we found limited literature on the failures of SS. Only one study in our review described an instance where SS was attempted but not implemented due to lack of support (Christianson et al., 2005), and no studies reported negative results from the SS implementations. This may be because SS usually results in desired performance improvement. Alternatively, the absence of articles reporting no or negative findings may reflect a publication bias. If the latter is the case, the current literature may overstate the effectiveness of SS and therefore may be misleading for health care managers considering implementing this QI tool in their organizations. Given the adage that we learn more from our failures as our successes, studies on the failures of SS to improve processes of care would serve as valuable teaching lessons.

CONCLUSION

This review demonstrates that there are significant gaps in the Six Sigma health care quality improvement literature and limited evidence that Six Sigma is being implemented correctly in health care systems, and mainly anecdotal evidence that SS improves health care quality. Moreover, we found the absence of reported SS levels and the lack of statistical support for the effectiveness of SS as a critical deficit that impedes the creation of an evidence-based healthcare SS literature base founded in sound methods and data. We conclude that the literature provides some guidance on potential applications of SS to managers wishing to implement Six Sigma in their own health care organizations, and caution that the literature contains few examples of failures or partial successes of SS projects, or a full scope of costs. While there certainly is potential for quality improvement and cost savings from implementing SS in healthcare settings, more research with rigorous designs and detailed statistical reporting are needed to bolster the evidence base for the use of these QI tools. Without this dedicated attention to SS research studies, the objectives of evidence-based management cannot be achieved; thus presenting a continuous challenge to the reaching the goals of efficacious patient care as outlined by the IOM (2000).

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GENERATIONAL DIFFERENCES IN HEALTHCARE EMPLOYEE VOLUNTARY TURNOVER: ONE RETENTION STRATEGY DOESN'T FIT ALL

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ABSTRACT

Voluntary turnover is a key problem faced by heath care organizations today. Although considerable research has been devoted to understanding the causes of voluntary turnover, is known about age and generation related determinants. Yet employees of different generations have vastly diverse needs, expectations and challenges, which have a bearing on their decisions to leave an organization. Drawing on lifecycle and generational differences literatures, we examined how the reasons for turnover varied across generations in a large sample of health care employees over an 8-year period. We found that reasons underlying decisions to leave differed significantly across generational cohorts.

The voluntary turnover of key talent has become a critical problem in the healthcare industry as the population of skilled employees ages and retires (Aiken, Clarke, Sloane, Sochalski & Silber 2002). For example, the average age of the healthcare workforce population has been projected to reach 45.1 years in 2010 (Buerhaus, Staiger, & Auerbach 2000). Approximately half of US healthcare employees are over 40 and will be eligible for retirement over the next 10 years (Cordeniz 2002). Estimates suggest that turnover in the healthcare industry costs $12.3 billion annually, representing more than 5% of the total annual operating budget of healthcare organizations today (Waldman, Kelly, Aurora, & Smith 2004). These factors make a strong business case for understanding turnover determinants. Accordingly, much empirical research has sought to understand the causes of turnover in the healthcare industry, and has identified job stress, work environment, job satisfaction and compensation as key factors (Chiu, Chung, Wu, & Ho 2009; Lum, Kervin, Clark, Reid, & Sirola 1998). These findings suggest that managers can improve retention though job redesign, improving organizational culture, and restructuring compensation and benefits policies.

However, despite considerable illumination, the causes of employee turnover in the healthcare industry are not fully understood. In particular, a growing body of scholars and practitioners have noted the challenges of managing an intergenerational workforce that differs dramatically in work values, life challenges and expectations of their employer Apostolidis (&

Polifroni 2006; Hershatter & Epstein 2010; Ng, Schweitzer & Lyons 2010). Hence, one size does not fit all in designing and implementing employee retention strategies, particularly in healthcare where top talent remains in high demand. Unfortunately to date, little empirical research is available to guide healthcare managers in accounting for generational differences in retention initiatives. Thus, the purpose of this study is to advance the turnover literature in the healthcare sector by examining how the reasons underlying voluntary employee turnover differ across generational cohorts. To that end, we empirically examine turnover decisions in a large sample of healthcare employees over an 8 year period.

GENERATIONAL COHORTS IN THE HEALTHCARE WORKFORCE

The healthcare workforce today is an ensemble of employees hailing from various generational cohorts defined as a group of people who have a common range of birth years, and have hence experienced similar social, political, cultural climates growing up that shaped their personal values (Sherman 2006). As each cohort demonstrates different behavioral traits and holds different beliefs from one another, what motivates and interests them also varies. Generational cohorts are further defined by common stages in the lifecycle; employees in the same cohort tend to face similar challenges, and have similar resources as they progress through life (Duchsher & Cowin 2004). We begin by briefly reviewing the common values and life cycle issues confronting three key generational cohorts, Baby Boomers, Generation Xers, and Millennials.

Baby Boomers

Baby Boomers were born between the years 1947-1964 (Cordeniz 2002). Often described as the "individualistic" generation, the Baby Boomers grew up in a fast-growing and rapidly changing economy of the post-World War II period (Zemke, Raines, & Filipczak 2000). As children they constituted 40% of the entire population, resulting in constant competition at schools due to overcrowding, making them highly ambitious, independent and competitive (Hays 1999). Political developments such as the Watergate scandal incited them to not respect authority but to challenge it (Wiley 2000). Baby Boomers known as the driven and dedicated generation who equates work with self-worth (Cordeniz 2002), value helping, and seek to benefit society (Twenge Campbell, Hoffman & Lance 2010). Many employees from this generation occupy leadership positions in health care organizations (Buerhaus et al. 2000).

Today, Baby Boomers are between 47-64 years old and are approaching eligibility for retirement. At this stage of their lifecycle, Baby Boomers often have grown children and may have lesser time commitments towards their children than they did earlier in life (US Census Board Release 2009). They face increasing health problems that affect their ability to meet the physical demands of healthcare work (Santos, Carroll, Cox, Teasley, Simon, Bainbridge, Cunningham & Ott 2003).

Generation X

Generation X employees (or GenXers) were born between 1965 and 1977 (Cordeniz 2002). Unlike the Baby Boomer generation that enjoyed lot of attention as children, many GenXers were brought up in single-parent households or in families where both parents worked, resulting in lesser face-time with their parents (Wiley 2000). Consequently, work-life balance is believed to be a top priority for GenXers (Cordeniz 2002). GenXers began their careers in an economic era of massive corporate layoffs and downsizing (Cordeniz 2002), which is believed to have influenced how they view the employment relationship. Indeed, researchers argue that GenXers view the employment relationship as temporary (Weston 2006). Accordingly, this generation is known for job mobility and maintaining marketability through training (Walker, Martin, White, Norwood, & Haynie 2006).

Today, GenXers are anywhere between 33 to 45 years of age, and commonly have school-age children and aging parents to care for. According to the US Census (2005) 56% of GenXers are married. Of these couples, 80% have children and both parents work full-time. Consequently, GenXers seek balance between family and work life (Apostolidis et al. 2006).

Millennials

Millennials (or Generation Yers), were born between 1978 and 1989 and were raised by parents who could afford them attention and structured upbringing (Cordeniz 2002). Raised in times when violence and terrorism dominated the news, they looked to their family for a sense of security. They grew up to appreciate the value of proper schooling, structured coaching and mentoring (Sherman 2006). Due to their exposure to structured schooling and extra-curricular programs, they are serious about academics have clear career goals and interests (Walker et al. 2006). The American Association of Colleges of Nursing (2005) notes that this generation has shown a keen interest in healthcare careers.

Today, Millennials, who fall in the age range 21 to 32 years, are entering the workforce and establishing a career. They are typically single and do not yet have a family to support, which affords them greater freedom to move geographically (Weston 2006). Millennials form the fastest growing segment of today's workforce (Walker et al. 2006).

 In summary, employees in each of these generations had very different formative experiences, currently face different life stages, and confronting very different life challenges. Table 1 summarizes these differences. As noted above, these generational and lifecycle differences pose dramatic implications for the design of retention practices and policies in healthcare organizations. To provide managers with evidence based prescriptions on retaining top talent, we examine how five common reasons for voluntary turnover (due to scheduling conflicts, inadequate job challenge, better pay elsewhere, educational advancement and health concerns) differ as a function of generational cohort membership (i.e., Baby Boomer, Generation X, and Millennial).

Table 1: Characteristics, Job Expectations and Life Priorities of Generations

	Millennials	GenXers	Baby Boomers
Characteristics	• Expert multi-taskers • Work well in teams • Embrace technology	• Self-reliant • Loyal to self and career not job or organization	• Optimistic • Strong work ethic • Attach themselves to work
Life Cycle Stages	• Mostly single • Fewer family commitments	• Most have wage earning spouse • Younger children	• Emerging health concerns • Children grown

Job Expectations	• Advancement	• Work-life balance	• Rewards for good performance
	• Technology-rich environment	• Fun on job	• Societal impact
	• Higher pay	• Informality	• Opportunities to help others
		• Focus on outcome, not processes	

Sources: Cordeniz (2002), Walker et al. (2006), Hays (1999), Twenge et al. (2010), Weston (2006), Wiley (2000), Zemke et al. (2000)

Schedule Conflicts

Anecdotal evidence suggests that scheduling problems are a common reason for turnover in the healthcare industry (Chandra 2003) because healthcare is an around the clock endeavor. Healthcare organizations often struggle to ensure that each department is adequately staffed, and that employee skills match department needs. Managers often confront employees who express difficulty or unwillingness to work overtime, on weekends, holidays, or on particular shifts. Yet we know of no research has been devoted to how much generations differ in leaving over concerns about scheduling conflicts.

Generation X employees are the most likely cohort to have schedule conflicts because they typically have younger families which make their schedules less flexible (US Census Board Release 2005). Employees with such familial responsibilities are often pressed for time as they balance home and work demands (Higgins, Duxbury, & Lee 1994). Moreover, as a generation that grew up with relatively less parental attention (Wiley 2000), and witnessed major organizational restructuring and layoffs as they entered the workforce (Cordeniz 2002), GenXers learned to view jobs as means to an end and continuously strive for work-life balance. Thus, GenXers are more likely than other cohorts to be unwilling to be flexible in meeting schedule demands. Baby Boomers also have scheduling conflicts, but given that their children are older, we expect them to be less likely to present scheduling conflicts with work. Thus, drawing on lifecycle and generational difference perspectives, we hypothesize that:

Hypothesis 1: Voluntary turnover due to schedule conflicts will vary significantly by generation such that it will be highest for Generation X employees, followed by Baby Boomers, followed by Millennials.

Stimulating Work or Job Challenge

Job challenge is defined as the perceived "opportunity for professionals to make full use of their skills" (Raelin 1986: p. 60). Research shows that when employees feel that their talents are underutilized, they experience low job satisfaction, low engagement and higher intentions to leave the organization (Lambert 2001). This is especially so in the healthcare industry where alternative employment opportunities continue to entice top talent. Perceptions of inadequate job challenge can result from numerous factors including a lack of variety in job tasks, organizational policies restricting employee control or autonomy over work, and a lack of opportunity for skill enhancement or career development.

Typologies of work values (Borg 1990; Elizur 1984) distinguish between those that are intrinsic (intellectual stimulation, making societal contributions and job challenge) and those that are extrinsic in nature (job security, salary, promotions, etc). Research suggests key intergenerational differences on these values. Baby Boomers have been found to place a high degree of importance on personal improvement, impact and workplace creativity, reflecting an intrinsic value set (Jurkiewicz 2000) entering the healthcare profession because they wanted to make a difference in the world (Cordeniz 2002). On the other hand, Millennials tend to value extrinsic work characteristics such as pay and status (Cennamo & Gardner 2008; Twenge et al. 2010). Thus, we reason that due to their characteristic needs for achievement and career fulfillment, Baby Boomers turnover decisions may be especially sensitive to job challenge concerns.

Hypothesis 2: Voluntary turnover due to dissatisfaction with job challenge will vary significantly by generation such that it will be highest for Baby Boomers, followed by Generation X employees, followed by Millennials.

Better Pay

In healthcare, it is increasingly common to see top talent leave organizations for better compensation elsewhere (Gering & Conner 2002; Shader et al. 2001). Decades of research show that pay satisfaction is a consistent predictor of employee retention (Cotton & Tuttle 1986). Given the shortage of qualified personnel in the healthcare industry, competitive pay has become

an important component in retention (Cohen 2006; Gering & Conner 2002; Numerof 2001; Schweiters 2010).

According to generational difference models, voluntary turnover for better pay elsewhere is likely to vary significantly across generations. Research shows that GenXers place more importance on 'Work Environment' and collectively on 'Work Life Balance' factors than they do on pay (Wieck, Dols, & Northam 2009). Given their characteristic need for achievement Baby Boomers are likely to place more of a premium on wage advancement (Cordeniz 2002). However, Baby Boomers' barriers to mobility (e.g., social ties and health concerns) may temper the likelihood of leaving for better compensation elsewhere. In contrast, Millennials have fewer barriers to mobility (Twenge 2006), value extrinsic rewards, and seek a more materialistic lifestyle (Twenge 2006). Hence we reason that Millennials are most likely to quit for better pay elsewhere.

Hypothesis 3: Voluntary turnover for better compensation elsewhere will vary significantly by generation such that it will be highest for Millennials, followed by Baby Boomers and Generation X employees.

Higher Education

The amount of training required to keep pace with the scientific advances in healthcare delivery today is unprecedented. Educational advancement in vocational, degree, and non degree programs is another key reason why healthcare employees leave organizations (Wieck et al. 2009).

Millennials are often noted to have defined career goals and plans (American Association of Colleges of Nursing 2005) and are in the early stage of their careers characterized by skill and knowledge acquisition. In contrast, family commitments and retirement planning are more likely to dictate the employment decisions of GenXers and Baby Boomers. Therefore, we hypothesize that Millennials are more likely to quit for educational advancement.

Hypothesis 4: Voluntary turnover due to educational advancement will vary significantly by generation such that it will be highest for Millennials, followed by Generation X employees, followed by Baby Boomers.

Health Concerns

Research shows that the Baby Boomers' per capita healthcare expenditures are more than twice those of younger generations (Collins, Davis, Schoen, Doty & Chris 2006). Moreover, the increasing physical demands of healthcare work may be a growing concern for Baby Boomers who may be unable or less motivated to perform such jobs, particularly if less strenuous job alternatives or better healthcare benefits are available in other organizations. As indicated in a study conducted by the American Nursing Association (2001), 88% of the nurses indicated that health concerns had an impact on their decision of continuing working and the kind of work they chose to do. In contrast, GenXers and Millennials are likely to be more physically capable of handling increased physical job demands stress and have fewer health concerns. Thus, drawing on a lifecycle perspective we reason that:

Hypothesis 5: Voluntary turnover due to health related concerns will vary significantly by generation such that it will be highest for Baby Boomers, followed by Generation X employees, followed by Millennials.

METHODOLOGY

To study how reasons for turnover vary across generational cohorts, we analyzed an archival turnover dataset from a large healthcare organization in the Southeastern United States. This organization employs approximately 5,000 employees annually, and consists of 312 departments that provide a variety of healthcare services across two hospitals, a regional physician's network, and several clinics and outpatient facilities. Positions in this organization include a wide range of office and clerical staff, professional services, technical services, nurses, physicians, managers, and administrators. Over the past eight years this organization maintained a stable relationship with its employees, with no significant changes to its leadership, organizational structure, human resource practices, or culture. Pay and benefits remained stable over this period, which included a merit pay system, an annual profit sharing plan and competitive benefits package that had been in place for several years. None of the employees were unionized, and turnover rates remained stable around the industry average.

This organization provided us with personnel records containing information about when and why turnover events occurred, based on exit interviews conducted by immediate supervisors of employees leaving the organization. Our dataset includes all of the turnover events (n = 2,567) that occurred in the organization between 2001 and 2008. In addition to the dates and reasons for

turnover, the records also contained age, position and tenure data. We did not include all reasons for employee turnover in the dataset, instead focusing on those reasons that were most theoretically relevant to generational differences.

To test for generational differences in the cited reasons for turnover we followed Cordeniz (2002) by categorizing employees into 3 cohorts based on age: Baby Boomers (born 1947-1964), GenXers (born 1965-1977), and Millennials (born 1978-1989). We used Pearson's Chi-Square significance tests to examine our hypotheses because both our turnover reasons data and generation data were categorical (Agresti 1996).

Results

The results of our chi-square analyses revealed several interesting generational cohort differences in the reasons for turnover (see Figures 1-4). In support of Hypothesis 1, we found that GenXers were the most likely cohort to leave voluntarily over schedule conflicts, followed by Millennials and Baby Boomers respectively ($\chi^2 = 10.21$, p < .01). In Hypothesis 2 we predicted that Baby Boomers would be most likely to leave over job challenge concerns. Although we did find a significant difference in exits due to lack of job challenge across the three generational cohorts ($\chi^2 = 8.94$, p < .01) the pattern was not as we expected; GenXers were the most likely to leave over lack of job challenge followed by Baby Boomers and Millennials. Contrary to Hypothesis 3, we found no generational differences on turnover to for better pay ($\chi^2 = 1.60$, p > .05). In partial support of Hypothesis 4, we found that Millennials were statistically equivalent with GenXers on leaving for educational advancement, but significantly different than Baby Boomers ($\chi^2 = 20.53$, p < .01). Finally, in supporting Hypothesis 5, we found that Boomers were most likely to leave for health reasons, followed by GenXers and Millennials respectively. ($\chi^2 = 50.35$, p < .01). In summary, we found full support for hypotheses 1 and 5, partial support for hypotheses 2 and 4, and no support for Hypothesis 3.

Figure 1. Generational differences in schedule concerns as a reason for voluntary turnover

Leaving Due to Schedule Concerns

Millennials: 25.3%
Gen Xers: 51.9%
Baby Boomers: 22.7%
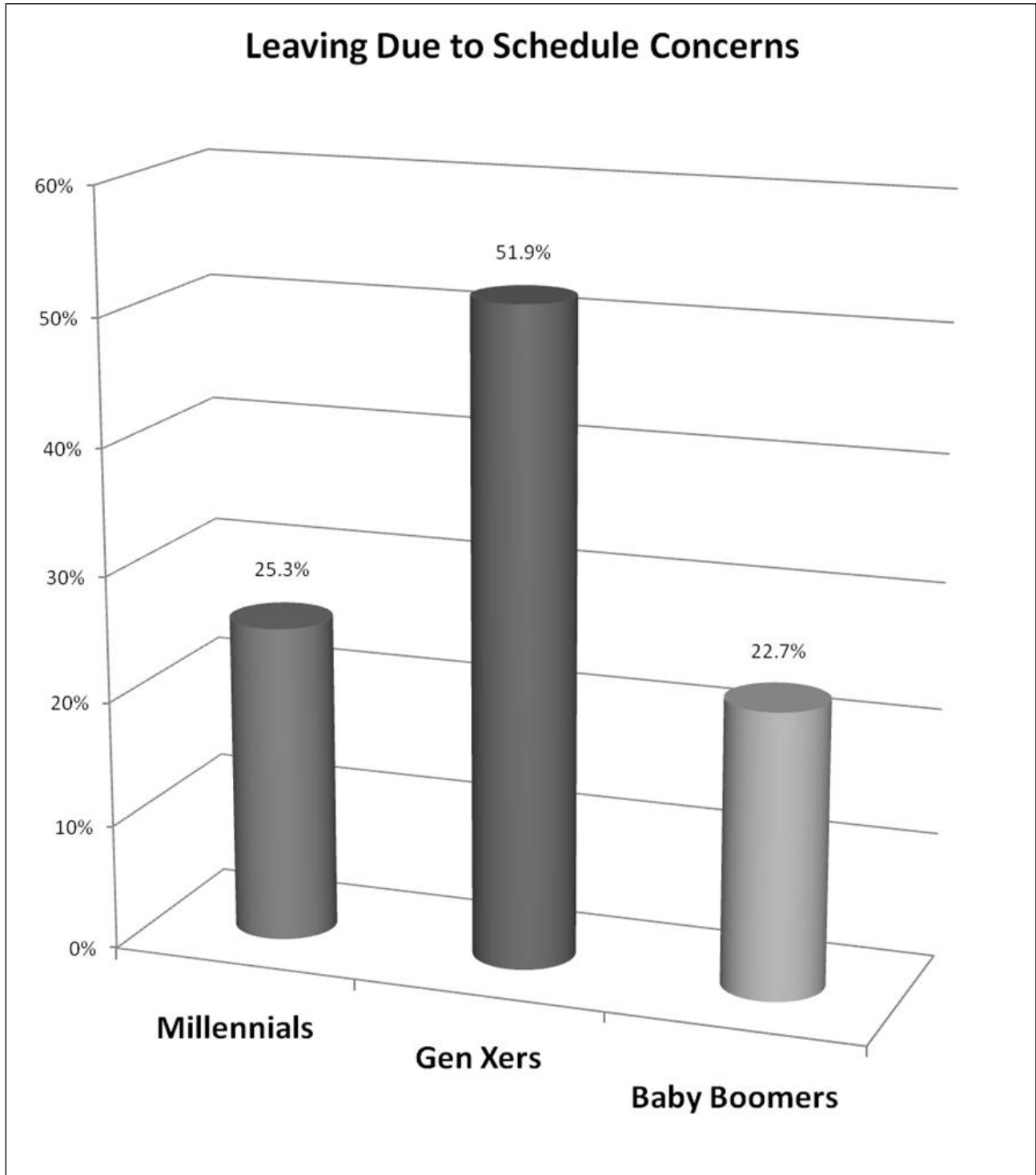
Figure 2: Generational differences in job challenge concerns as a reason for voluntary turnover

Leaving Due to Lack of Job Challenge

Millennials	23.2%
Gen Xers	40.2%
Baby Boomers	36.6%
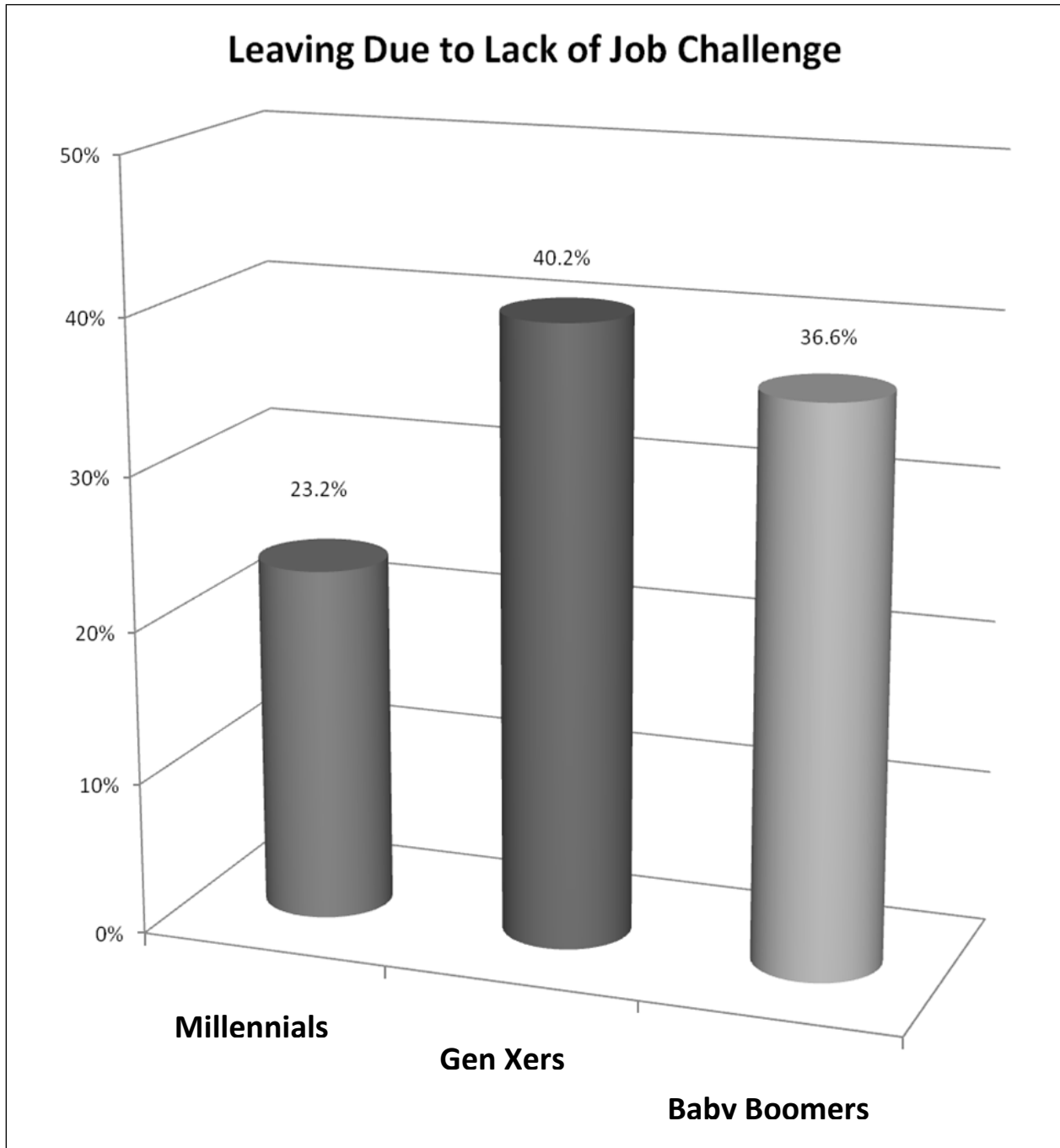
Figure 3: Generational differences in educational advancement as a reason for voluntary turnover

Leaving for Educational Advancement

Millennials 40.8%
Gen Xers 42.1%
Baby Boomers 17.1%
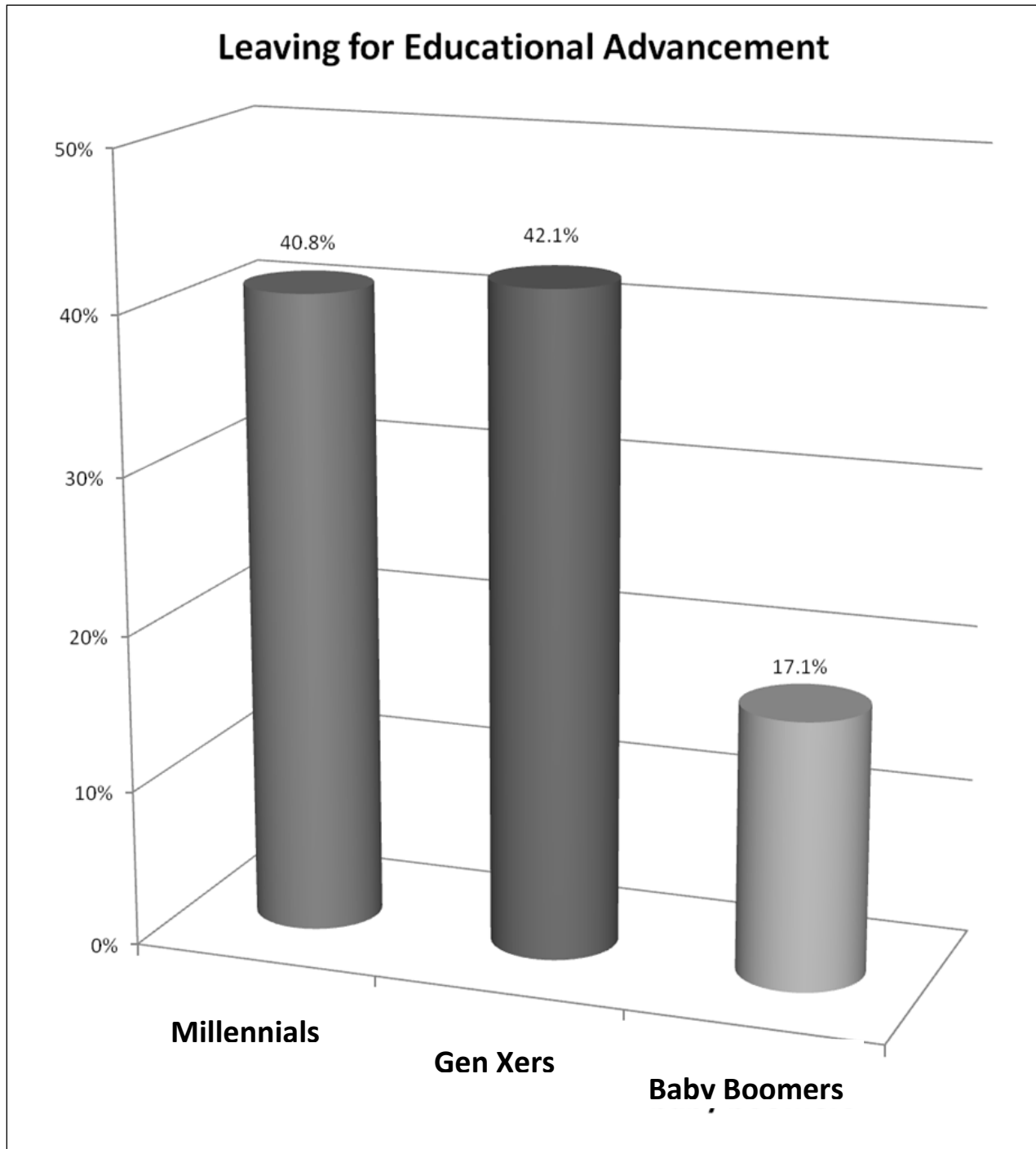
Figure 4: Generational differences in health concerns as a reason for voluntary turnover

Leaving Due to Health Concerns

60%	58.5%
50%	
40%	34.1%
30%	
20%	
10%	7.4%
0%	

Millennials

Gen Xers

Baby Boomers

Discussion

250
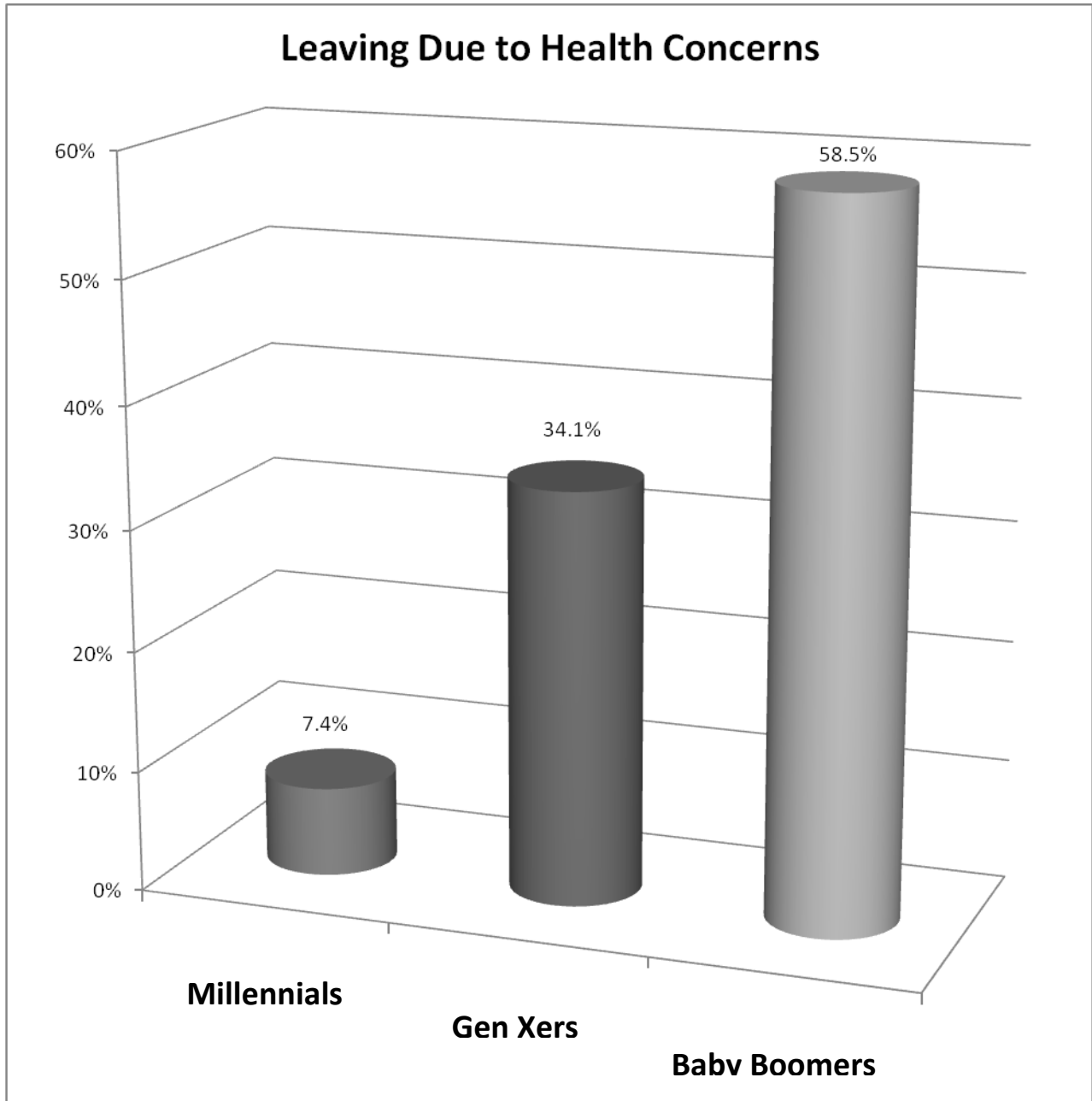
Our results contribute to the literature on the causes of turnover in the healthcare industry by showing that the reasons for turnover varied significantly across generational cohorts in both expected and unexpected ways. Contrary to our expectations we found that turnover for job challenge and educational advancement was highest for GenXers, and that the generational cohorts did not significantly differ on exits for a better pay in other organizations. The primary implication of our results is that one size does not fit all in terms of retaining employees from different generational cohorts. Indeed, healthcare managers should take an evidence-based approach to accommodating generational and lifecycle differences in the development of talent management policies and practices. More research is needed to fully understand how generational differences impact turnover, yet several interesting patterns emerge from this study.

Baby Boomers appear to be voluntarily leaving in part for health related reasons. This may be due to the increasing physical and psychological demands of work in the healthcare space. It is possible that Baby Boomers may be either unable or unwilling to cope with the increasing demands with work, favoring retirement or positions in other organizations, presumably with more favorable work conditions or better health care benefits. In light of these findings, health care managers might consider ways to help Baby Boomers deal with emerging health issues or potential concerns about job stress, either through job redesign or reassignment. The human capital of Baby Boomers is extremely vital to the effectiveness of organizations in the healthcare industry where there is a shortage of top talent. It is essential to retain the tacit knowledge, experience, mentoring and leadership skills of Baby Boomers. Aside from competitive health care benefits and flexible work schedules, participative management practices and reward systems may be helpful to retain them. Indeed, research shows that healthcare employees are more likely to choose working over an early retirement if they have a say in the decision making process and are recognized for their contributions (Sherman 2006).

On the other hand, our data suggest that GenXers may be prone to leave for scheduling conflicts, inadequate job challenge and educational enhancement reasons. GenXers are likely to have growing families, may have spouses that move to pursue other employment or education, or may move for better jobs or educational opportunities themselves. Thus, organizational policies and procedures that grant employees latitude to take care of non-work issues, such as flexible work schedules, telecommuting, non-traditional work weeks, and job sharing may be effective. Moreover, rewards for skill or competency enhancement, funding or time off for educational pursuits, may also be effective retention practices for GenXers who value education. Finally, career and professional development opportunities such as job enrichment, job rotations, job

redesign, cross functional training, and internal labor markets may help to retain GenXers who want to be challenged.

Millennials also demonstrated a tendency to exit for reasons relating to educational advancement, which is consistent with their career development life stage and value of education. Providing Millennials with in-house training, funding and time off for educational advancement will help satisfy their need for skill and knowledge acquisition. Finally, healthcare organizations may simultaneously meet the needs of two generational cohorts by pairing Baby Boomers with Millennials in mentoring programs. Organizations would not only benefit from the dissemination of knowledge by Baby Boomers, but also fulfill the needs and expectations of both cohorts (career development focus for Millennials and work involvement for Baby Boomers) thereby reducing the likelihood of turnover. Figure 5 offers evidence based suggestions for how managers could optimize retention strategies for each generational cohort.

Figure 5. Recommended retention strategies for generational cohorts Limitations and Future

Retention Strategies

Millennials
- In-house training
- Mentoring, e.g., from Baby Boomers
- Benefits focusing on education and human capital development
- Flexible work schedules

GenXers
- Promotion opportunities e.g., internal hiring
- Job enrichment, e.g., cross-functional training
- Benefits focusing on dependent care and family leave
- Mentoring/training responsibilities

Baby Boomers
- Benefits focusing on education and human capital development
- Pay for performance and recognition programs
- Job redesign/reassignment to accomodate health needs
- Benefits focusing on healthcare and retirement

Research

Although our research has a number of strengths, in terms of both contributions to the literature and methodology, it has some limitations. First, our study's focus on a single organization places constraints on the generalizability of its findings. It is possible that the patterns we observed in the data may be different in other organizations. Future research should examine how generational differences impact turnover in other organizations, industries and cultures.

A second limitation is that we were not able to track where employees went after leaving the organization, i.e., to a rival organization, retirement, or to start a different vocation. In future research it would interesting to examine how generational differences impact not only the likelihood of voluntary exit, but the nature of employees' job or career changes. This research would extend the practical insights of this study.

Third, we did not collect data on retention practices themselves, and were limited to information obtained in exit interviews explaining why employees were leaving. Thus, we cannot make definitive conclusions about the efficacy of specific retention practices for various cohorts. Future research testing the efficacy of various types of retention strategies across generations would be helpful to that end.

Finally, we did not examine a comprehensive list of reasons for why employees leave organizations, instead focusing on theoretically relevant reasons across generations. Future research should examine turnover for a broader variety of voluntary and involuntary reasons including dissatisfaction with co workers or supervisors and disciplinary action.

CONCLUSION

Most research conducted on healthcare employee turnover has focused on pay, job satisfaction and culture (Chiu et al. 2009; Lum et al. 1998) revealing little about the impact of generational differences in retention. This research takes a step forward in filling that gap by showing that the reasons for voluntary employee turnover differed significantly for Millennials, GenXers, and Baby Boomers. These results suggest that it's imperative for healthcare managers to account for generational differences in designing and implementing retention strategies to minimize the loss of talent.

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Track Title: Organizational Behavior

Transformational Leadership, Personality, and the Apparent Holographic Constructs of Implicit Leadership in a Virtual Environment

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ABSTRACT

This research was designed to test the theoretical relationship between personality, implicit leadership, and transformational leadership in a setting void of face-to-face communication, entitled virtual communication. Specifically the study was designed to link traits from the 5-factor model of personality (the Big 5) by utilizing the International Personality Item Pool (IPIP), to a followers' perception of the leadership style of a virtual leader based on Bass and Avolio's (1994) MLQ5X. A voluntary sample consisting of N = 323 undergraduate and graduate students from two universities in the south Texas area. Respondents to the virtual communication rated Leader 1 communication which utilized previously identified

transformational language, (Salter, Carmody-Bubb, Duncan, & Green, 2007), as significantly more transformational the Leader 2 communication using words not associated with transformational leaders. Subjects who scored high in the Big 5 personality traits of agreeableness, openness to experience, conscientiousness, and extraversion rated the leader as more transformational while those high in neuroticism rated the leader as less transformational.

INTRODUCTION

Nelson and Quick, (2009) estimate that approximately 28 million Americans are currently working in virtual settings or telecommuting from home, while the Business Journal of San Antonio (2008) states that 42% of all companies nation-wide offer telecommuting as an alternative form of full time employment. Additionally, an article by Elearning Yellow Pages (2009) suggests that two-thirds of all traditional universities currently offer online degree programs. Giving these high numbers and the rising costs of energy one would speculate would increase these trends in the future we should then take this opportunity to at least begin the study of leadership from leader-follower distance perspective. The question we should be concerned with is: What methods or leadership styles can leaders utilize to motivate followers with whom we will never have face-to-face communication, or in a virtual setting?

There has been little research on how virtual communications affect the individual leader follower relationship. However, Sosik, Avolio, Kahai, & Jung (1998) and Hoyt and Blascovich (2003), have done research on transformational leadership in groups and virtual environments. Their findings indicate that higher levels of transformational leadership lead to group effectiveness. Cassell, Huffaker, Tversky, and Ferriman (2006) found that teenagers emerge as leaders in virtual online email communications by using language that referred to group goals rather than themselves.

Early leadership researchers acknowledged that effective leadership is dependent upon the characteristics of the *leader* and the *situation* (Jones & George, 2009). Unquestionably, communication technologies have drastically changed the work environment (situation) and presented new challenges for effective leadership. The virtual work environment is one of the many *situations* forever changed by the technology evolution. It is essential that the virtualization be considered a key social process rather than mere technological advancements (Diemers, 1998). Obviously, "virtual team leaders and members need to learn and use facilitation techniques that work for virtual teams. Technology cannot make up for poor planning or ill-

conceived meetings" (Duarte & Snyder, 2001). Nonetheless, managers still need to manage and leaders still need to lead even in a virtual environment.

Perceptibly, transformational leadership and the manner in which we work together are also changing. Most agree that transformation leaders are charismatic who arouse others' enthusiasm, loyalty and trust in themselves (Schermerhorn, 2002). Traditionally, charisma leaders have built trust through face to face environments. Distance workers tend to believe that no news is bad news and consequently the lack of interactions erodes trust (Fisher & Fisher, 2001). In an effort, to replicate a face to face environments, "Richard Their, an organization effectiveness manager at Xerox suggests imbedding pictures of team members into computer technology so that when communicating on the intranet team members can see each other and you" (Fisher & Fisher, 2001). Others recommend trust be achieved through an open culture that shares information, cultivates teamwork, and promotes positive commitment to an organization's goal (Dess & Picken, 1999). Conversely, trust-building words or phrases in a virtual environment are not offered.

The virtual work environment triggers enthusiasm at first because employees are excited about the new arrangement; however, the fervor fades rapidly as one experiences the feeling of isolation. To counter these feelings, leadership should keep the knowledge transfer alive (Crandall & Wallace, 1998). Educators generally agree that students, similar to employees, often experience isolation if there is not a continual and open communication link. In presenting education modules via the Internet, Cree and Macaulay believed that the ability to convey encouragement and enthusiasm via the written word with no supportive non-verbal signals was a must (2000). Irregardless of whether the virtual environment is a business or educational institute specific words or phrases to promote enthusiasm are absence.

If transformational leaders are enthusiastic and there is indeed minimum research regarding these types of leadership skills and virtual communications (Igbaria, 1998); then the focus of this study is identify some specific words or phrases associated with charismatic transformational leaders in virtual environments.

This article purports to investigate leadership communications from a virtual setting and the relationship of those communications to follower's rating of the leader based on (Bass & Avolio, 1994) Full Range Leadership Model of transformational leadership and follower's personality rating.

Transformational Leadership and Its Outcomes

Avolio, Bass, and Jung (1999) identified the components of transformational leadership to be: 1) Idealized Influence – leaders serve as role models for their followers, 2) Inspirational

Motivation – leaders motivate their followers and inspire those around them by giving meaning to follower's work, 3) Intellectual Stimulation – leaders stimulate followers by encouraging them to be creative and question old beliefs, and 4) Individualized Consideration – leaders attend to each individual follower's needs through two-way communication, as identified in their Full Range Leadership Model.

Since this time transformational leadership has been found to lead to higher employee loyalty, trust, commitment, performance, profitability, and satisfaction, (Rai & Sinha, 2000; Kark & Shamir, 2002; Kark, Shamir, & Chen, 2003; Dumdum, Lowe, & Avolio, 2002; Hoyt & Blascovich, 2003; LeBrasseur, Whissell, & Ojha, 2002; Elenkov, 2002; Jung & Sosik, 2002; Dumdum, Lowe, & Avolio, 2002) to name a few.

Personality Traits and Transformational Leadership

The personality of effective leaders has been well researched. From the studies of Raymond Cattell (1944) who studied personality characteristics in an attempt to connect leadership effectiveness and leader personality, to Tupes and Christal (1992) who combined Cattell's sixteen taxonomies into what we know as the Big 5 Personality traits of today, leaders' personality has been of primary importance as a guide for leadership researchers. Costa and McCrae (1988) continued research on these personality traits: extraversion, conscientiousness, openness to experience, neuroticism, and agreeableness and concluded that a significant supply of these Big 5 Personality traits were those needed by successful individuals in business organizations. Saldago (1997) found that the Big Five Personality Model of traits was present in other cultures around the world, and suggested a universality of these traits.

The research on trait theory reinvigorated by research on transformational leadership presented by Bass and Avolio (1994) in their Full Range Leadership Model: transformational, transactional, management by exception active, management by exception passive, and laissez-faire leadership has lead to the continuing study of follower perceptions of leadership and cognitive prototypes possessed by perceivers in implicit leadership theories. Avolio and Gibbons (1998) stated that while transformational leadership is a behavioral theory, it does not mean that these behaviors could not have their origin from one's background characteristics or traits. Bass (1990) suggested that if transformational leadership could be based on one's background characteristics or traits, then these traits were universal to mankind.

Ehrhart and Klein (2001) found that perceptions and attribution of transformational leadership are influenced by a follower's values and needs. Howell and Frost (1989) stated that personality traits may influence perception and acceptance of the leader. Ehrhart et al. (2001) further assert that the follower's personality traits based on a perceived similarity between the

follower and the leader, influenced the follower's preference for transformational leadership. Felfe and Schyns (2006) examined follower' personality and how it related to follower' perception of the leader and found that those followers who rated themselves high in extraversion, tended to perceive the leader as more a transformational leader than did followers with low extraversion.

Implicit and Transformational Leadership

The beginning of a discussion on follower's expectancies of leader behavior or implicit leadership began by Eden and Leviathan (1975) who found that leader' behaviors guide a perceiver's encoding of relevant information. Further research has indicated that the leader's traits are encoded by a follower's cognitive schema and when the leader has been positively prototyped by the follower memory and communication are enhanced, (Mischel, 1977; Carlisle & Phillips, 1984; Winter & Uleman, 1984; Lord, DeVader, & Alliger, 1986; Lord & Maher, 1991; Keller, 1992; Lord, Brown, & Freiberg, 1999).

Kark and Shamir (2002) asserted that transformational leaders have dual influence on followers. These authors state that transformational leaders' influence over the follower is derived by their ability to change the personal identity and the social identity of the follower through communication. The personal identity of the follower models the leader, and the social identity forms identification with the work unit. Identities they say are formed by personality traits, quality of relationships, and group norms.

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Lord, Brown, and Freiberg (1999) suggested that implicit leadership theories were a category system, which emphasized how prototypical behavior influenced the leadership perceptions and distortions in memory about leaders by perceivers.

Little research has been done on whether follower's personality affects the prototyping of leader behavior in a virtual environment and this is essentially the purpose of the present study. Stated more plainly the purpose of this study was to test the theoretical proposition that in a virtual environment there is a relationship between follower's personality and its effect on follower's assessment of leadership behavioral style as it aligns with Bass & Avolio's (1994) Full Range Leadership Model. If a follower's personality predisposes them to recognize one style of

leadership when the leader is attempting to engage another style, theoretically this could result in miscommunications, faulty memory of instructions, and lack of employee security, all of which may lead to under performance of the follower.

This correlational research examined the degree to which follower's personality, as measured by the five-factor model of personality, is related to follower's ratings of the leader as a transformational leader as assessed by the Multifactor Leadership Questionnaire published by Bass & Avolio (1994), in a virtual environmental setting.

This study is designed to investigate the relationship between follower's scores on the IPIP, (test for Big 5 Personality traits), and the transformational, transactional, and passive leadership ratings followers assign to two virtual transformational and transactional leadership communications, when controlling for age, gender, and ethnicity.

Methodology

Overview

The current research examined the relationship between language previously associated with transformational and transactional leaders (Salter, Carmody-Bubb, Duncan, & Green, 2007) and their usage in virtual communications or communications in the absence of face to face interaction.

Participants

The sample for this study consisted of 306 respondents which were given two surveys, rendering a sample size of 612 responses. Participants consisted of 156 females and 150 males, with 92% 29 years of age or less, 3.9% between the ages of 30-43, with 4.1% between the ages of 44-51, from two universities. Approximately 22% of the respondents were working toward a graduate degree, while 78% were undergraduates. The ethnicity of the sample subjects consisted of 219 White, 72 Spanish/Hispanic/Latino, 12 Black/African American/Negro, and 3 Japanese. Because of the statistical challenges associated with extremely small sample sizes, for the purposes of this study the independent variable known as ethnicity has only two components: White and Hispanic participants.

Instruments and Operational Definitions

The research questionnaire contained, the MLQ-5X founded on Bass and Avolio's (1994) Full Range Leadership Model, which rated the dependent variable known as leadership behavior. The Full Range Leadership Model consists of 5 separate styles of leadership: 1) transformational, 2) contingent reward, 3) management by exception active, 4) management by exception passive, and 5) laissez-faire. Bass and Riggio (2006) state that management by exception active and passive are corrective transactions, and these two leadership styles are rated within the MLQ

questionnaire. Antonakis (2001) found a significant relationship between management by exception passive and laissez-faire leadership styles. The dependent variable was assimilated with two scenarios using transformational and non-transformational language found by (Salter, Carmody-Bubb, Duncan, & Green, 2007), one scenario with transformational words identified as Leader 1 and one scenario using transactional words identified as Leader 2.

The independent variable of personality of the follower (participant) was assessed with the IPIP, a self-assessment instrument based on McCrae and Costa's (1997) *Big 5 Personality Scale*. The reliability and validity of these measures have been thoroughly investigated. The IPIP is the equivalent of the NEO-PI, whose reliability scores range from $r = .86$ to $r = .95$ and whose validity correlates range from . 77 to .92 (Block, 1995; Costa & McCrae, 1988; Gough, 1990; Goldberg, 1990; John, 1990). The MLQ-5X has been tested (Avolio, Bass, & Jung, 1999; Judge, Piccolo, & Ilies, 2004; Rowold & Herrera, 2003) and has been found to have reliability ratings $r = .74$ to $r = .94$, while validity ratings are between $r = .56$ to $r = .91$. Due to low participant ethnic variability in the convenience sample, the independent variable termed ethnicity has only two components: White and Hispanic.

Procedure

The questionnaire was administered to voluntary participants from two universities in Texas. The researchers delivered the anonymous data collection instrument in person, in a classroom setting, and through email. Each respondent signed a detached informed consent notice prior to participation in the study. The collection instrument consisted of three parts. The first part was constructed of demographics, the success rating, and the two leader scenarios, the second part the MLQ 5X leader rating survey, and the third part consisting of the IPIP personality rating instrument. Each participant was given two MLQ 5Xs, one to rate the leadership style of Leader 1, the virtual communication consisting of words considered utilized more on average by transformational leaders and one to rate the Leadership style of Leader 2, words utilized on average less by transformational leaders.

The virtual communication for Leader 1 consisted of approximately 80 words 11 taken from Table 1, which have previously been identified as words associated with leaders scoring above the group mean as transformational leaders and the scenario for Leader 2 consisted of 70 words 8 of which were taken from words previously utilized more often by leaders rated below the group mean for transformational leadership.

Table 1

	Chi^2	P (2-tails)

Words Used More Frequently By Leaders

Below the Group Mean for Transformational Leadership

	Chi^2	P (2-tails)
Don't	46.46	0.00
Schedule	26.67	0.00
Tell	21.70	0.00
Time	13.38	0.00
Focused	13.33	0.00
Performance	9.34	0.01
More	8.51	0.01
Employee	7.35	0.03

Words Used More Frequently By Leaders
Above the Group Mean for Transformational Leadership

	Chi^2	P (2-tails)
Encourage	19.39	0.00
Fun	13.50	0.00
Future	10.80	0.01
Effort	10.00	0.01
Expected	10.00	0.01
Order	10.00	0.01
Plan	10.00	0.01
Listen	9.01	0.01
Teammates	8.10	0.02
Results	6.41	0.04
Brainstorm	5.40	0.05

This study was a correlational design, the central topic of which was the relationship between the usage of words found to be utilized by leaders rated above the mean as transformational leaders and words found to be used by leaders rated below the mean as transformational leaders in (Salter, Carmody-Bubb, Duncan, Green, 2007). The purpose of the study was to extract the influence of face-to-face communication in order to rate transformational leadership in a virtual setting. Said in another way, researchers wanted to measure the impact single words, in the absence of face to face interaction with the leader, had on the leadership ratings of participants. Leadership style ratings were defined operationally by the Full Range Leadership Model and the respondent's personality was defined by the Big 5 Personality traits in virtual settings, when controlling for ethnicity, gender, and age.

Results

Transformational Ratings

A series of analyses was conducted on the three styles of leadership in the Full Range Leadership Model: transformational, transactional, and passive versus the independent variables: demographics: gender, age, and ethnicity and the virtual leadership communications (Virtual Communication from Leader 1, consisting of words used by leaders scoring above the mean as transformational leaders and Virtual Communication from Leader 2, words used more often by leaders scoring below the mean as transformational leaders) and personality type, as described by the Big 5 Personality traits.

Initially a Univariate Analysis of Variance of the two virtual communications, as presented in Table 2, indicated that there was a significant difference in the transformational leadership ratings of Leader 1 and Leader 2. A significant interaction, also existed for transformational speech and gender, $p < .05$, $F(1, 610) = 24.91$.

Table 2

Analysis of Variance for Transformational Ratings

Variable	Df	F	Sig.
TFSpeech	1	65.187	.000
Gender	1	.493	.483
Ethnicity	3	.472	.702
TFSpeech * Gender	1	24.916	.000
TFSpeech * Ethnicity	3	2.184	.089
Gender * Ethnicity	1	1.951	.163

Further analysis of the mean scores indicated respondents found the virtual communication from Leader 1 to be significantly more transformational, with a mean transformational rating of 3.289, and a mean difference of 1.048, than the virtual communication from Leader 2, with a mean rating of 2.241, as shown in Table 3 and Figure 1.

Table 3

Scheffe Post Hoc Test for Transformational Ratings

Leaders	Mean Difference	Std. Error	Sig.
Leader 1	1.048	.103	.000
Leader 2	-1.048	.103	.000

Figure 1

Estimated Marginal Means of Transformational Rating
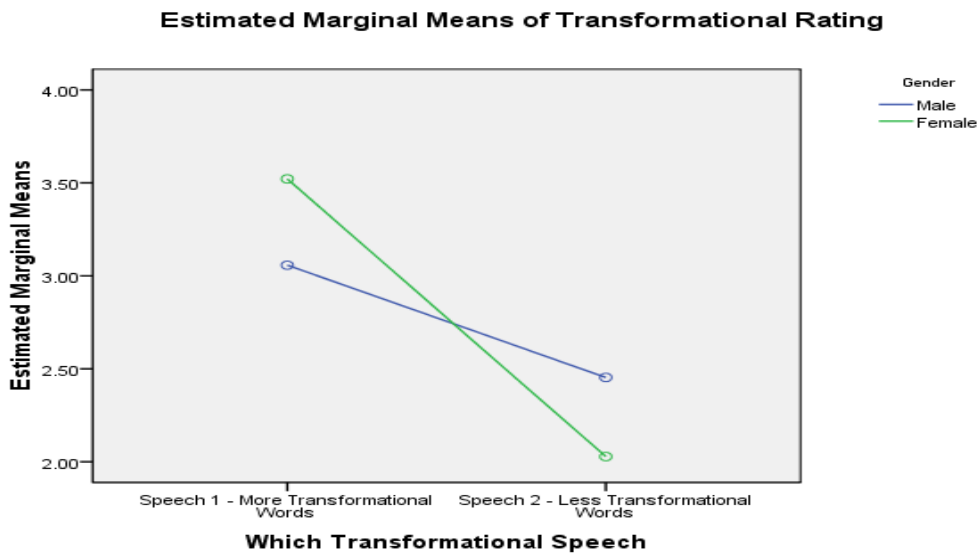
As presented in Figure 2, a further investigation of the mean differences based on gender shows that males found Leader 1, (the communication utilizing words associated with leaders who score above the mean for transformational leadership), to be less transformational than females. Noted on the same figure is the result that males found Leader 2, (the communication utilizing words associated with leaders who score below the mean for transformational leadership) to be more transformational than female participants.

Figure 2

Estimated Marginal Means of Transformational Rating
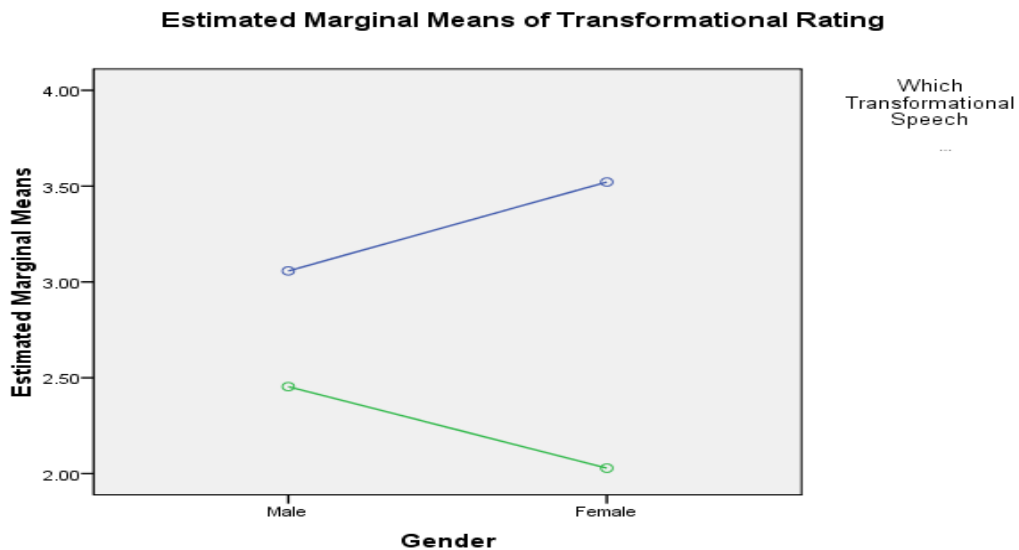
Transactional Ratings

There were no significant relationships found between the virtual communications of Leader 1 and Leader 2 and the transactional ratings of the respondents.

Passive Ratings

An Analysis of Variance on the passive leadership ratings of the two virtual communications identified as Leader 1 and Leader 2 revealed that a significant relationship existed between the passive ratings of respondents and gender and ethnicity, along with a

significant interaction between gender and transformational speech or the virtual communication, p. $< .05$, $F(1, 610) = 4.76$.

Table 4

Analysis of Variance for Passive Ratings

Variable	Df	F	Sig.
Gender	1	6.28	.012
Ethnicity	3	4.69	.003
TFSpeech	1	.612	.434
Ethnicity * TFSpeech	3	.132	.941
Gender * Ethnicity	1	.035	.851
Gender * TFSpeech	1	4.76	.029

Further analysis of the mean scores based on gender indicated female respondents found the virtual communication from Leader 1 and Leader 2 to be significantly less passive, with a mean transformational rating of 1.207, and a mean difference of .630, than males who had a mean passive rating of 1.836, as shown in Table 5 and Figure 3.

Table 5

Scheffe Post Hoc Test for Transformational Ratings

Leaders	Mean Difference	Std. Error	Sig.
Leader 1	.630	.165	.000

| Leader 2 | -.630 | .165 | .000 |

Figure 3

Estimated Marginal Means of Passive Rating
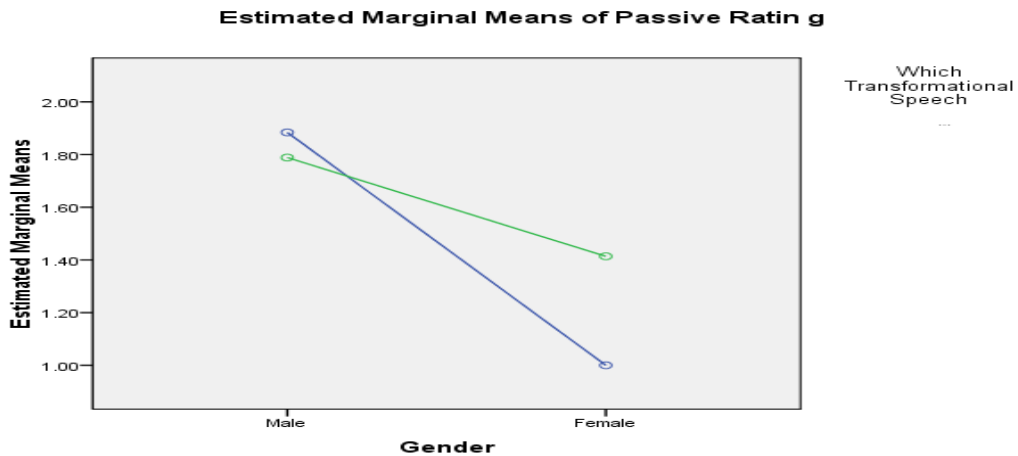
As presented in Figure 4, a further investigation of the mean differences based on gender shows that males found Leader 1, (the communication utilizing words associated with leaders who score above the mean for transformational leadership), to be more passive than females. Noted on the same figure is the result that males found Leader 2, (the communication utilizing words associated with leaders who score below the mean for transformational leadership) to, also, be more passive than female participants.

Figure 4

Estimated Marginal Means of Passive Rating
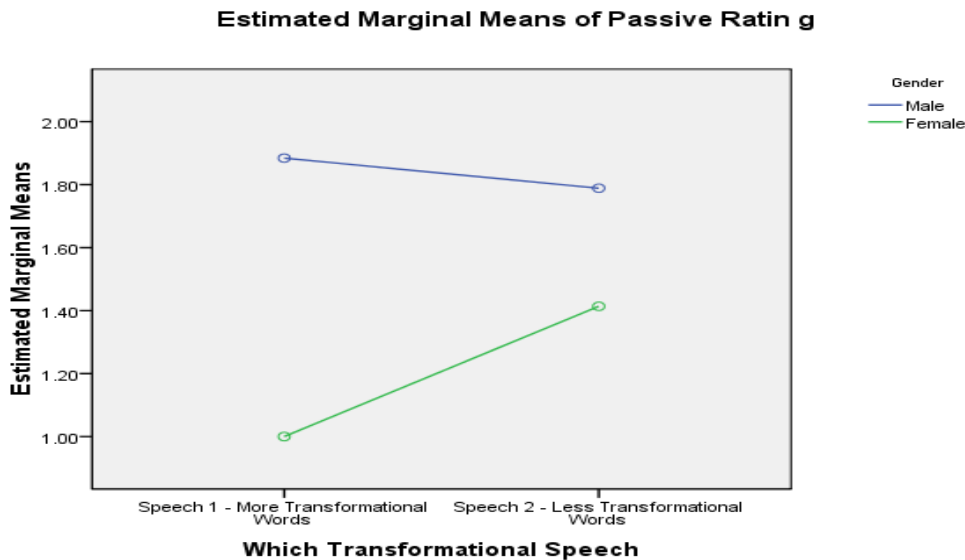
Leadership Ratings and Personality

A series of correlations was used to investigate the relationships between the demographic variables, age and personality type and the transformational ratings of Leader 1 and Leader 2.

The correlation for Leader 1, (the communication using words used more often by leaders rating above the mean for transformational leadership), revealed a significant relationship between transformational leadership ratings and the Big 5 personality traits of *agreeableness, r =* +.131, n = 306, p < .05, and *openness*, $r = +.115$, n = 306, p < .05, two tails. This finding suggests that the more agreeable the respondent and the more open to new experiences the higher transformational rating for Leader 1.

A correlation done on the communication consisting of words more often utilized by leaders rated below the mean for transformational leadership, known as Leader 2, showed a significant relationship between the Big 5 personality trait known as *conscientiousness* and respondent's transformational ratings, $r = .243$, n = 305, p < .01, two tails. This significant correlation intuitively suggests that those who have high conscientious personality ratings may find transformational leadership styles even in words not normally associated with words utilized by leaders who score above the mean for transformational leadership.

Discussion

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The intent of this study was to discern whether there was any relationship between the words more readily used by leaders scoring above/below the mean for transformational leadership when used in virtual communications, and respondent's personality traits, as measured by the *International Personality Item Profile*, IPIP Big 5 Personality Traits, and their ratings of a leader according to Bass and Avolio's *Mulit-Factor Leadership Questionnaire* MLQ 5X.

The importance of this research to organizational leaders is relevant to a better understanding of motivational language, follower's personality traits, and these traits' propensity or lack of propensity to influence follower's perception of a leader's style. Leader's change styles in order to better motivate their followers to higher productivity. If leaders utilize language that is readily recognized by followers as a style of leadership then leaders' have a beginning tool, that of language, to more fully motivate and engage followers. Also, if follower's personality and a follower's perception of leadership effectiveness and styles can be found, then leaders could more productively communicate leadership styles to followers of varying personality.

These findings suggest that women react to word usage to a greater degree than men, when assigning transformational ratings and passive ratings to virtual leaders or leaders with which they have no face-to-face interaction. This study also suggests that individuals who possess the Big 5 Personality Traits of *agreeableness* and *openness to experience* are more apt to rate leaders, who use words used by leaders scoring above the mean as transformational leaders, as transformational leaders.

Limitations to the Findings

These findings should be limited to the convenience sample from which they were taken. Convenience sampling consisting of only those seeking a higher education in a population might not be representative of the population as a whole. Therefore, these findings are not necessarily similar to the findings of a representative sample of the entire population. This study should be repeated with a more representative sample.

Recommendations of Future Research

Future research should look further into implicit leadership theory and its effect on the behavior of the follower, the personality traits of followers, and the relationship those behaviors have with follower motivation. Full investigation of leadership behaviors and follower's perception is an interdisciplinary pursuit in an attempt to blend the disciplines of: psychology, physiology, neurology, verbal and non-verbal communication, and leadership studies into more encompassing theories of leadership.

Lastly, researchers should continue to study the power of a leader's words and communications utilized to motivate followers. Bass (1998) and others point out that transformational leaders create more productivity in organizations than transactional leaders. Bennis and Nanus (1997) and others say that transformational leaders utilize highly emotional language which creates a change in the values of themselves and their followers, but what is this language? Bass & Avolio (1994) say that transformational leaders use metaphors to create highly emotive reactions from their followers, which spurs them to higher productivity. The question is what about this language creates the emotion, which energizes others to high performance?

This study suggests that the implicit leadership schema are accessible to respondents even if with only a minimum of communication and in the absence of face-to-face communication.

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THE IMPACT OF OPINION LEADER-MEMBER EXCHANGE AND IDEALIZED INFLUENCE ON ORGANIZATIONAL IDENTIFICATION AND PERCEIVED ORGANIZATIONAL SUPPORT

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ABSTRACT

This study focuses on examining opinion leadership from the perspectives of social exchange theory and transformational leadership. Specifically, it examines whether opinion leaders form leader-member exchange relationships similar to those experienced between a supervisor and a subordinate and whether opinion leaders persuade opinion seekers in a way that is similar to the idealized influence aspects of transformational leadership. In addition, this study examines whether opinion leader member exchange (OLMX) and idealized influence are related to opinion seekers' organizational identification and their perceptions of organizational support. Hypotheses are offered, results are provided, and a discussion of the results, limitations, and future research directions are included.

Opinion leaders have been described as "individuals who exert an unequal amount of influence on the decisions of others" (p. 435, Rogers & Cartano, 1962). Opinion leadership has been studied since the 1940s, beginning with research to explain voter preference (Berelson & Gaudet, 1948). Later research examined the concept as it related to consumer preferences (Cartwright & Zander, 1960; Rogers, 2003; Rogers & Cartano, 1962) and the diffusion of information (Arie, Durand, & Bearden, 1979; Keller & Berry, 2003; Rogers, 2003;

Weimann, 1994). Opinion leadership research has also focused on public health (e.g., Kelly, Lawrence, Diaz, & Stevenson, 1991), organizational change (Lam & Schaubroeck, 2000), and merger situations (Vitale, 2008).

Many researchers have suggested that direct persuasion by authority figures and peripheral information (e.g., rewards and changes in task structure) are the most effective in changing employee behavior (Hackman & Wageman, 1995). However, Lam and Schaubroeck (2000) opined that opinion leaders can help or hinder organizational initiatives and that proper inclusion of them may help motivate behavioral change among opinion seekers. Opinion leaders may be more effective than higher-level transformational leaders as change agents because of their strategic proximity to the change recipients (Weiman, 1991) and because they are strongly tied into an organization's communication network (Lam & Schaubroeck, 2000; Rogers, 2003). Research suggests that employees are more easily influenced by the opinions of other people whom they see as being similar in occupation, organizational level, socioeconomic condition, and linguistic norms (Rogers, 2003). This suggests that factors aside from the credibility of the source determine whether someone is an opinion leader.

The greater the credibility of an information source, the stronger the influence (Hovland & Weiss, 1951). Research has pointed out a number of situational factors, such as personal trust and sociability (Katz & Lazarsfeld, 1955); innovativeness (Rogers, 2003); and expertise in a particular area of interest (Montgomery & Silk, 1971), that may influence credibility as an opinion leader (Umphress, Labianca, Brass, Kass, & Scholten, 2003).

Similarity of Leaders

Individuals are more likely to be attracted to other individuals who are similar to themselves (Chattopadhyay, Glick, Miller, & Huber, 1999). This similarity-attraction paradigm suggests that demographic similarity (Tsui & O'Reilly, 1989) and attitudinal similarity (Byrne, 1969) matter. Individuals are also more likely to believe that those who share similar demographic characteristics will likely possess their same values, principles, and beliefs (McGrath, 1998; Milliken & Martins, 1996). Age, gender, wealth, occupation, and other socio-economic attributes have been shown to affect the influence that opinion leaders have on their opinion seekers (Feder & Savastano, 2005).

As such, the following hypothesis is offered:

Hypothesis 1: Most opinion seekers will be more similar in terms of personal characteristics to their opinion leaders from whom they seek information than they are dissimilar.

Influence on Opinion Seekers

Rogers and Cartano (1962) clearly defined *influence* as the salient effect of opinion leadership. Nevertheless, there remains a dearth of empirical research on the nature of the influence opinion leaders generate and the dynamics of the relationships between opinion leaders and opinion seekers. This study focuses on two constructs that may serve to describe opinion leadership, namely, opinion leader-member exchange (OLMX) and idealized influence of opinion leaders, a dimension of Avolio and Bass's (1988) research focused on transformational leadership. The research investigates the actual influence of opinion leader-seeker exchange (OLSX) and idealized influence of the opinion leaders on opinion seekers' organizational identity and perceptions of organizational support.

Opinion Leader-Member Exchange (OLMX)

OLMX is actually the application of LMX to informal dyadic relationships developed among peers. This has been examined in previous research (Vitale, 2008), but without the specific application of LMX theory. Given that the influence of opinion leaders on opinion seekers is based on a social exchange relationship, the concepts within leader and member exchange theory are applied within this study to opinion leaders to investigate the exchange relationships between opinion leaders and followers. LMX represents the dyadic relationship shared by a supervisor and a subordinate (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975). It has been found to influence employee attitudes (Dienesch & Liden, 1986; Erdogan & Liden, 2002; Wayne, Shore, & Liden, 1997).

The original focus on opinion leadership was on the willingness to communicate (King & Summers, 1970), and, in the consumer behavior and diffusion of technology, it continues to be on the process rather than on the outcome of such influence (Rogers, 2003). This leaves out the importance of social concepts such as interdependence and reciprocation (Goldsmith & DeWitt, 2003), as defined in social exchange theory (Blau, 1964).

Building on social exchange theory and earlier work on LMX (Dansereau et al., 1975), Liden and Maslyn (1998) developed four dimensions of LMX: *contribution, loyalty, affect*, and *professional respect*. This conceptualization of LMX used as the basis for OLMX in this study.

The affect dimension is defined as the mutual affection between leaders and members as part of the exchange process. Affect is considered to be interpersonal attraction rather than personal professional values. Given how formal relationships between subordinates and supervisors and informal relationship involving opinion seekers and opinion leaders are similar in terms of the interpersonal nature of the relationships, it would seem likely that there would be affect between opinion seekers and opinion leaders. As such, the following hypothesis is offered:

Hypothesis 2: OLMX- affect positively relates to influence of opinion leader on seeker.

The loyalty dimension of LMX is defined as the extent to which leaders and members publicly support each other's action. Leaders are more likely to ask the loyal members to take independent responsibility rather than they are to simply not support their loyal members. Within the context of opinion leadership, it is likely that loyalty would develop between opinion leaders and opinion seekers representing a level of trust and support. As such, the following hypothesis is offered:

Hypothesis 3: OLMX- loyalty positively relates to influence of opinion leader on seeker.

The dimension called contribution focuses on the task related behaviors of members. Based on a subordinates' high quality performance, leaders will provide the subordinates with more resource in order to further the subordinate's high quality performance. Therefore, high quality exchange means that a greater exchange of valued resource takes place between leaders and members. When applied to the context of opinion leaders and opinion seekers, it is likely that a relationship exists, since opinion leaders usually control knowledge resources.

As such, the following hypothesis is offered:

Hypothesis 4: OLMX- contribution positively relates to influence of opinion leader on seeker.

The professional respect dimension is a crucial factor for leaders who can demonstrate their professional knowledge to win the respect from subordinates. Yale and Gilly (1995) suggested that the influence possessed by opinion leaders is related to perceptions of their knowledge level. Opinion leaders may gain strong attitudinal influence over opinion seekers since the opinion leaders are sought out for their knowledge of a subject (Goldsmith & De Witt, 2003). Since opinion seekers trust in the knowledge of opinion leaders, the following hypothesis is offered:

Hypothesis 5: OLMX- profession respect positively relates to influence of opinion leader on seeker.

Contribution

Research on LMX suggests that employees seek information not directly related to their job from high status professionals, but, rather, also seek information from their supervisors or managers as part of exchange relationships. Similarly, research suggests that individuals are more likely to be motivated by leaders who can help them fulfill their own needs (Kouzes & Posner, 1995). Social exchange theory, in general, suggests if an employee is in a high-quality exchange relationship a supervisor, this obliges the subordinate to repay the supervisor for benefits derived from the relationship (Coyle-Shapiro & Conway, 2004). As such, the following hypothesis is offered:

Hypothesis 6: OLMX-contribution will be greater for supervisor opinion leaders than for non-supervisor opinion leaders.

Idealized Influence from Opinion Leaders

Transformational leadership is defined by Bass and Avolio (1993) as a composite of several behavioral constructs, including attributed charisma, idealized influence, inspirational leadership, intellectual stimulation, and individualized consideration. Transformational leadership is considered an augmenter of transactional leadership, which is based on social exchange (Bass & Avolio, 1993).

Opinion leaders influence opinion seekers' ideas and decision (Goldsmith & De Witt, 2003; Rogers, 1995). That influence seems to be captured well within the content domain of the idealized influence dimension of transformational leadership. Idealized influence consists of subordinate attributions concerning whether the leader articulates goals, exudes self-confidence and success, shares a sense of purpose, and arouses the subordinate's emotions (Bass, 1985). Opinion seekers may incorporate the opinions of their opinion leaders within their own beliefs through internalization, and through identification they may seek behave in ways similar to their opinion leaders (Lewis, Agarwal, & Sambamuthy, 2003). Extant research has posited that idealized influence is perhaps the core component of transformational leadership (Bass & Avolio, 1993; Dubrin, 2007). As such, the following hypotheses are offered:

Hypothesis 7: OLMX-affect will be positively related to the idealized influence of opinion leaders.

Hypothesis 8: OLMX-loyalty will be positively related to the idealized influence of opinion leaders.

Hypothesis 9: OLMX-contribution will be positively related to the idealized influence of opinion leaders.

Hypothesis 10: OLMX-professional respect will be positively related to to the idealized influence of opinion leaders.

Influence by both supervisors and non-supervisor opinion leaders

Researchers have described opinion leaders as people of a social status similar to or slightly higher than their opinion seekers who provide advice during the decision-making process (Chan & Misra, 2001; Rogers, 2003). Organizational research, however, suggests that opinion leaders are likely to be coworkers, particularly influential peers (Lam & Schaubroeck, 2000).

Organizational Identification

Organizational identification has been defined as the phenomenon of employees perceiving themselves as belonging to an organization, with employees experiencing positive

feelings and psychological benefits as a result of their organizational membership (Ashforth & Mael, 1989; Dutton, Dukerich, & Harquail, 1994). When an employee experiences high identification, there is a feeling of "oneness" with the organization, feeling psychologically intertwined with it (Pratt, 1998), with the organization's successes and failures being felt personally (Mael & Ashforth, 1992).

Previous research has suggested that LMX facilitates organizational identification. When employees experience high exchanges they are more likely to perceive themselves as in-group, valued members of the organization (Tyler & Blader, 2000). This sense of membership may be related to the employee taking a sense of ownership and pride in the organization, thus incorporating it into their own personal identities (Kraimer, Wayne, & Jaworski, 2001).

Opinion seekers may seek out and be influenced by more than particular solicited opinions, and might seek out advice, assurances, and confirmation of feelings. Opinion seekers may be influenced by opinion leaders' more subtle behaviors, even emulating their opinion leaders' opinions and behaviors (Engel, Blackwell, & Miniard, 1990).

The following hypotheses are offered:

Hypothesis 11: OLMX will be positively related to organizational identification.

Hypothesis 12: More specifically, OLMX for non-supervisor opinion leaders will be positively related to organizational identification.

Hypothesis 13: Idealized influence of opinion leaders will be positively related to organizational identification.

Hypothesis 14: More specifically, idealized influence of non-supervisor opinion leaders will be positively related to organizational identification.

Opinion Leadership and Perceived Organizational Support

Perceived organizational support (POS) concerns the extent to which employees believe that their organizations care about their well-being and values them (Eisenberger et al., 1986). High POS in an employee is often accompanied by a feeling of trust and a willingness to work toward the organization's goals (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001).

Wayne et al (1997) argued that social exchange theory applies to both LMX and perceived organizational support (POS). POS and LMX are associated with one another and have been found to influence one another. Their content domains have been well defended as distinct, with each one leading to different organizational outcomes. LMX has been found to be a crucial factor in influencing employees' perspectives of organizational support both directly and indirectly. Similarly, Zagenczyk (2001) found that reciprocity in social network relationships is

positively related to similarity in POS, suggesting that employees in dyadic relationships are more likely to share their opinions regarding treatment by their organizations.

POS is believed to be associated with LMX because employees typically ascribe humanlike characteristics to their organizations, particularly motives for that organization (Rhoades & Eisenberger, 2002). As such, when they deal with agents of the organization, they are more likely to ascribe the motives of those agents to the organization rather than to their own personal intent (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002). Because of this, employees hold their organizations responsible for legal, moral, and financial actions of their agents (Rhoades & Eisenberger, 2002). Often, for lower level employees, their only interaction with management are their supervisors, and, as such, they view the organization through the lens of their supervisor's attitudes and actions (Levinson, 1965). Thus, when LMX is high, employees are more likely to view their organization as being more supportive than when they have low exchange relationships (Wayne et al., 1997).

Employees may be less likely to ask their supervisors about the extent to which they are really supported by their organization since they may believe that their supervisors will give them biased responses favoring their organizations (Morrison, 1993). They will more likely discuss POS with their coworkers since they are more accessible (Morrison, 1993) and are of a similar level in the organizational hierarchy (Levine & Moreland, 1986). As such, the following hypotheses are offered:

> *Hypothesis 15: OLMX will be positively related to organizational support.*
>
> *Hypothesis 16: More specifically, OLMX for non-supervisor opinion leaders will be positively related to organizational support.*
>
> *Hypothesis 17: Idealized influence of opinion leaders will be positively related to organizational support.*
>
> *Hypothesis 18: More specifically, idealized influence of non-supervisor opinion leaders will be positively related to organizational support.*

METHOD

Procedures and Participants

Data was collected using a pen-and-paper quantitative instrument composed of Likert-type items from self-report scales consistent with the individual level of analysis. The definition of an opinion leader was given to participants before they began the survey. The participation rate for those asked to participate was over 90 percent of those asked to participate.

The sample for this study was composed of a random sampling of individuals working for a variety of organizations in Georgia and Texas. Participants were contacted either in person or via e-mail and were asked to participate in the research. Participants consisted of 470 individuals. The average age of participants was 24 and the sample consisted of 223 males and 233 females. The average tenure of the participants was 3 years.

Measures

The responses to pre-existing measures for this study were rated using a five-cell Likert-format (1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*). Table 1 provides a summary of the measures used.

Table 1. Summary of Measures

Scale	Source	# Items	α
Opinion Leader-Member Exchange	Liden & Maslyn (1998)	12	.92
LMX - Affect	"	3	.88
LMX - Loyalty	"	3	.92
LMX - Contribution	"	3	.86
LMX – Professional Respect	"	3	.91
Idealized influence	Bass & Avolio (2004)	8	.87
Opinion Leader Influence	Vitale (2008)	4	.83
Organizational Support	Eisenberger et al. (1986)	9	.92
Organizational Identification	Mael & Ashforth (1992)	6	.89

Opinion leader characteristics. While not used in this study, four items were used to represent "opinion leader characteristics." The first item regarded the position of the opinion leader within the organizational hierarchy as compared to the opinion seeker. This was asked with the item, "The person whom I consider to be the most important opinion leader in my work organization, in terms of informing my own opinions, for the purpose of this survey, is . . ." and with answer choices of: 1) my subordinate; 2) my colleague/someone at the same level as myself; 3) my supervisor/manager; and 4) someone in a higher management level than my supervisor/manager.

The second item is the closeness of the opinion leader and opinion seeker in terms of department. The item was "Is this person in your department?" with either a "yes" or "no" response.

The third item was about the social relationship between the opinion seeker and opinion leader. The item was "To what extent do you consider the person you named to be a friend of yours outside of work?" The answer choices were: 1) only know this person through work; 2) acquaintance only through work-related social functions; 3) friendly acquaintance outside work-related social functions; 4) somewhat of a friend; 5) good friend; and 6) best friend.

The fourth item regarded the similarity between the opinion seeker and the opinion leader. The item was "How similar am I to this person in terms of appearance, demographics (age, gender, race), background, religion, personal interests, values, and non-work-related opinions?" The answer stem included: 1) we are extremely different; 2) we share only a few things in common; 3) we share some things in common; 4) we are alike in many ways; and 5) we are practically identical in most every way

Opinion leader-member exchange (OLMX). This measure is a slightly reworded adaptation of the 12-item leader-member exchange (LMX) measure called the LMX-MDM created by Liden and Maslyn (1998) applied to an informal leader rather than to a supervisor. The scale includes such items as: "I respect the opinion leader's knowledge of and competence on the job." and "I like this opinion leader very much as a person." All items were used for this scale. The coefficient alpha for the overall measure used in this study was .92. Each of the four dimensions was examined separately. The coefficient alphas were: .88 for affect; .92 for loyalty; .86 for contribution; and .91 for professional respect.

Idealized influence. This study utilized the eight items representing idealized influence found in the Multifactor Leadership Questionnaire (MLQ) provided by Bass and Avolio (2004). "This opinion leaders displays a sense of power and confidence" and "This opinion leader goes beyond self-interest for the good of the group" are two examples of items from the measure. The coefficient alpha for this study was .87.

Opinion leader influence on perceptions of organizational culture. For opinion-leader influence, the measure consisting of 6 items developed by Vitale (2008) was utilized. The Vitale et al. (2008) measure was developed from four items adapted from Flynn, Goldsmith, & Eastman (1996) and two items developed specifically for that research. Items included "Overall, regarding organizational culture, how likely are you to use the opinion leader's advice?" and "Compared with the other people you work with, how likely are you to ask the opinion leader about organizational culture (e.g., new policies, procedures, programs)?" Items were rated on 5-cell

response format ranging from (1) *very unlikely* to (5) *very likely*. An EFA suggested a single factor (supported by eigenvalues, scree plot, and parallel analysis). The principle components loadings were .67, .75, .76, and .84 for the four items. Because each item loaded on the single factor, all items were used for this scale. For this study, the coefficient alpha for this scale was .83.

Perceived organizational support. Items concerning organizational support are from the shorter version of perceived organizational support (Eisenberger, Huntington, Hutchison, & Sowa, 1986) and they have been tested in the organizational support and leader member exchange literature (Wayne et al., 1997). The measure includes items such as "My work organization cares about my opinions" and "My work organization shows very little concern for me." The coefficient alpha for the study was .93.

Organizational identification. This measure was created by Mael and Ashforth (1992) and it consists of 6 items. It includes such items as "I do not feel a strong sense of "belonging" to my work organization" and "When somebody praises my company, it feels like a personal compliment." The measure's coefficient alpha for this study was .89.

Demographic control variables. The control variables of gender, age, tenure, and education level were included since these variables have been correlated with organizational commitment, organizational identification, and LMX in previous studies. For gender, the item was "What is your gender? " For age, it was "What is your age?" The tenure item was "How long have you been working in your organization?" The item for education was "What is your highest level of education?" with answer choices ranging from "Less than a high school diploma" to "Doctoral degree." Additional demographic data, including job type (full or part time), managerial level, race, organizational size, and industry have also been collected. These demographics data will be used in later studies as covariates or groups in ANOVA and as control variables in regression analyses.

Results

The means and standard deviations are included in Table 2. Table 3 provides the correlations for the variables.

Table 2. Means and Standard Deviations

Demographics			Organizational Variables		
Variable	Mean	SD	Variable	Mean	SD
Gender	1.51	0.50	Similarity with Opinion Leader	2.78	1.03

Education	2.94	0.68	OLMX (Affect)	5.57	1.19
Age	24.05	7.30	OLMX (Loyalty)	5.50	1.16
Type of Position	1.62	0.52	OLMX (Contribution)	5.57	1.13
Position Level	1.65	1.24	OLMX (Professional Respect)	5.87	1.17
Tenure (in Months)	35.98	4.41	OLMX (Overall)	5.63	0.94
Race	1.66	1.10	Opinion Leader Influence	5.40	1.12
Organization Size	4.11	2.43	Opinion Leader's Idealized influence	3.82	0.75
Opinion Leader's Position	2.87	0.70	Organizational Support	4.78	1.22
Opinion Leader's Organizational Distance	1.17	0.41	Organizational Identification	4.63	1.37
Friendship with Opinion Leader	3.05	1.63			

Table 3. Correlations Matrix

Variable	1	2	3	4	5	6	7	8	9
1. Gender									
2. Education	-.04								
3. Age	.04	.40**							
4. Type of Position	.08	-.20**	-.29**						
5. Position Level	-.06	.23**	.33**	-.26**					
6. Tenure (in Months)	-.03	.26**	.66**	-.24**	.39**				
7. Race	.09*	-.05	-.09*	.09*	.09*	-.10*			
8. Organization Size	.05	-.01	.12**	-.06	.00	.08	.04		
9. Opinion Leader's Position	.06	.01	-.05	-.04	-.04	-.06	.01	-.07	
10. Opinion Leader's Organizational Distance	.03	-.07	-.04	.00	.04	.00	.02	-.08	.22**
11. Friendship with Opinion Leader	-.12**	.01	-.02	-.01	.16**	.14	.04	-.19**	-.11*
12. Similarity with Opinion Leader	-.07	.04	-.03	-.05	.08	.08	-.01	-.17**	.02
13. LMX (Affect)	-.03	-.01	-.08	-.02	-.06	.02	-.11*	-.03	-.07

14. LMX (Loyalty)	-.05	.02	-.06	-.01	-.05	.02	-.06	.00	.03
15. LMX (Contribution)	-.03	.01	.02	-.09*	.06	.04	-.06	.01	.17**
16. LMX (Professional Respect)	-.02	-.04	-.07	-.01	-.07	-.03	-.07	-.01	.17**
17. LMX (Overall)	-.04	-.01	-.06	-.04	-.04	.02	-.09*	-.01	.09*
18. Opinion Leader Influence	.08	-.02	-.05	.03	-.09*	-.03	-.08	.01	.14**
19. Opinion Leader's Idealized influence	.05	.01	-.11*	.05	-.05	-.02	-.06	-.03	.15**
2. Organizational Support	.13	-.12	-.15**	.13**	-.03	-.06	.03	-.11*	.18**
21. Organizational Identification	.10*	-.01	.04	.04	.09*	.05	.06	-.08	.15**

Table 3. Correlations Matrix (continued)

Variable	13	14	15	16	17	18	19	20
13. LMX (Affect)								
14. LMX (Loyalty)	.57**							
15. LMX (Contribution)	.47**	.49**						
16. LMX (Professional Respect)	.57**	.52**	.55**					
17. LMX (Overall)	.82**	.80**	.78**	.82**				
18. Opinion Leader Influence	.47**	.39**	.43**	.52**	.56**			
19. Opinion Leader's Idealized Influence	.48**	.49**	.44**	.57**	.62**	.56**		
2. Organizational Support	.29**	.30**	.25**	.35**	.37**	.35**	.39**	
21. Organizational Identification	.20**	.19**	.24**	.21**	.26**	.24**	.29**	.57**

* Significant at the .05 level. ** Significant at the .01 level.

The hypothesis testing for this study consisted of correlation examination, ANOVA, simple regression, and hierarchical linear regression. A summary of all of the hypotheses' results can be found in Table 4.

Table 4. Summary of Hypothesis Results

No.	Hypothesis	Support

1	Most opinion seekers will be more similar in terms of personal characteristics to their opinion leaders from whom they seek information than they are dissimilar.	No
2	The affect dimension of OLMX will be related to opinion leader influence on opinion seeker opinion.	Yes
3	The loyalty dimension of OLMX will be related to opinion leader influence on opinion seeker opinion.	No
4	The contribution dimension of OLMX will be related to opinion leader influence on opinion seeker opinion.	Yes
5	The profession respect dimension of OLMX will be related to opinion leader influence on opinion seeker opinion.	Yes
6	The contribution dimension of OLMX will be greater for supervisor opinion leaders than for non-supervisor opinion leaders.	Partial
7	The affect dimension of OLMX will be related to the idealized influence of opinion leaders.	Yes
8	The loyalty dimension of OLMX will be related to the idealized influence of opinion leaders.	Yes
9	The contribution dimension of OLMX will be related to the idealized influence of opinion leaders.	Yes
10	The profession respect dimension of OLMX will be related to the idealized influence of opinion leaders.	Yes
11	OLMX will be related to organizational identification.	Yes
12	More specifically, OLMX for non-supervisor opinion leaders will be related to organizational identification.	Yes
13	Idealized influence of opinion leaders will be related to organizational identification.	Yes
14	More specifically, idealized influence of non-supervisor opinion leaders will be related to organizational identification.	Yes
15	OLMX will be related to organizational support.	Yes
16	More specifically, OLMX for non-supervisor opinion leaders will be related to organizational support.	Yes
17	Idealized influence of opinion leaders will be related to organizational support.	Yes
18	More specifically, idealized influence of non-supervisor opinion leaders will be related to organizational support.	Yes

Hypothesis 1 simply examined whether opinion leaders are similar to those who seek their opinions. Specifically, a majority of opinion leaders have more in common with their opinion seekers than they are dissimilar. For this hypothesis, a simple examination of the mean for *similarity with opinion leader* reveals that on a scale of 1-5 that the mean is 2.78, which suggests that the opinion seekers are slightly more similar to opinion leaders than they are dissimilar to them. However, an inspection of the actual data reveals that 39 percent of respondents (176 out of 456) reported more dissimilarity than similarity and 35 percent (160 out of 456) reported that there was as much similarity as there was dissimilarity. Thus, only 126 out of 456 respondents reported that they were more similar than dissimilar. Because of this further examination, hypothesis 1 is not supported.

For hypotheses 2 through 5, hierarchical regression was used to determine whether statistically significant relationships exist between the four dimensions of OLMX and opinion leader influence. All four dimensions were included simultaneously, along with gender, education, age, and tenure as control variables, (producing an $R^2 = .33$). Hypotheses 2 through 5 feature the affect, loyalty, contribution, and professional respect dimensions of OLMX, respectively. The results are included in Table 5. Hypotheses 2, 4, and 5 were supported, with statistically significant relationships found, (with $b = .21$, $t = 4.16$, $p = .000$ for affect; $b = .14$, $t = 2.93$, $p = .004$ for contribution; and $b = .29$, $t = 5.50$, $p = .000$ for professional respect). Hypothesis 3, featuring the loyalty dimension of OLMX, was not supported, (with $b = .06$, $t = 1.15$, $p = .251$).

Table 5. OLMX dimensions as IV and opinion leader influence as DV

Variable	Step 1			Step 2		
	b	*t*	*Sig.*	*b*	*t*	*Sig.*
Gender	.08	1.75	.08	.10	2.53	.01
Education	.01	.16	.87	.00	.09	.93
Age	-.07	-1.11	.27	-.00	-.07	.94

Tenure	.02	.36	.72	-.03	-.48	.63
OLMX – Affect				.21	4.16	.00
OLMX – Loyalty				.06	1.15	.25
OLMX – Contribution				.14	2.93	.00
OLMX – Professional respect				.29	5.50	.00

R^2	$Adj\ R^2$	ΔR^2	R^2	$Adj\ R^2$	ΔR^2
.01	.00	.01	.34	.33	.33

Hypothesis 6 stated that supervisors are more likely to have high exchange relationships in the contribution dimension than non-supervisors with their opinion seekers. An ANOVA reveals statistically significant ($F = 6.37$, $p = .000$) differences based on opinion leader position. A comparison of supervisors versus non-supervisors revealed a statistically significant difference ($F = 7.73$, $p = .006$). Specifically, when the means are compared, contribution-related opinion leader-member exchange is greater at the supervisor level than at all other levels. The means are 4.61 for subordinate opinion leaders, 5.30 for opinion leaders of the same level, 5.70 for supervisor opinion leaders, and 5.7 for opinion leaders who are of a higher level than supervisor. A Scheffe post hoc test revealed statistically significant differences in the means for supervisors compared to the means for subordinates ($p = .02$) and opinion leaders of equal level ($p = .02$). However, there was not a statistically significant difference in the means for supervisor and opinion leaders of a level higher than supervisor (p = .99). As such, hypothesis is partially supported.

Hypotheses 7 through 10 stated that a relationship exists between the four dimensions of OLMX (affect, loyalty, contribution, and professional respect) and idealized influence. A hierarchical linear regression with gender, education, age, and tenure as control variables revealed that all four OLMX dimensions were statistically significant predictors ($\Delta R^2 = .39$), and all four hypotheses are supported. The results are reported in Table 6. Specifically, with $b = .13$, $t = 2.63$, $p = .009$ for affect; $b = .19$, $t = 3.96$, $p = .000$ for loyalty; $b = .11$, $t = 2.29$, $p = .023$ for contribution; and $b = .34$, $t = 6.83$, $p = .000$ for professional respect).

Table 6. OLMX dimensions as IV and Idealized influence of opinion leaders as DV

Variable	Step 1			Step 2		
	_b_	_t_	_Sig._	_b_	_t_	_Sig._
Gender	.06	1.31	.19	.08	2.16	.03
Education	.07	1.9	.20	.06	1.49	.14
Age	-.19	-2.94	.00	-.12	-2.23	.03
Tenure	.09	1.42	.16	.04	.78	.44
OLMX – Affect				.13	2.63	.01
OLMX – Loyalty				.19	3.96	.00
OLMX – Contribution				.11	2.29	.02
OLMX – Professional respect				.34	6.83	.00
	R^2	$Adj\ R^2$	ΔR^2	R^2	$Adj\ R^2$	ΔR^2
	.02	.01	.02	.41	.40	.39

Hypothesis 11 stated that OLMX will be related to opinion seeker organizational identification. Similarly, hypothesis 12 stated that OLMX for non-supervisors will be related to opinion seeker organizational identification. Multiple regression was used, controlling for gender, education, age, and tenure. The results are in Table 7. For hypothesis 11, a simple regression reveals that OLMX for all opinion leaders is a statistically significant predictor (b = .27, t = 5.84, p = .000) of opinion seeker organizational identification, thereby supporting the hypothesis. For hypothesis 12, a simple regression with data specifically for opinion leaders who were specifically not supervisors also revealed that OLMX was a statistically significant predictor (b = .26, t = 4.93, p = .000) opinion seeker organizational identification.

Table 7. OLMX as IV and opinion seeker organizational identification as the DV

All opinion leaders				Only non-supervisor opinion leaders			
Variable	_b_	_t_	_Sig._	_Variable_	_b_	_t_	_Sig._

Variable	b	t	Sig.	Variable	b	t	Sig.
Gender	.11	2.42	.02	Gender	.09	1.68	.09
Education	-.02	-.48	.63	Education	-.01	-.09	.93
Age	.04	.69	.49	Age	.06	.85	.40
Tenure	.02	.38	.70	Tenure	.05	.84	.40
OLMX	.27	5.84	.00	OLMX	.26	4.93	.00

R^2	Adj. R^2			R^2	Adj. R^2
.08	.07			.08	.07

Hypothesis 13 stated that OLMX will be related to opinion seeker perceptions of organizational support. Similarly, hypothesis 14 stated that OLMX for non-supervisors will be related to opinion seeker perceptions of organizational support. Multiple regression was used, controlling for gender, education, age, and tenure. The results are in Table 8. For hypothesis 13, a simple regression reveals that OLMX for all opinion leaders is a statistically significant predictor ($b = .37$, $t = 8.60$, $p = .000$) of opinion seeker perceptions of organizational support. As such, hypothesis 13 is supported. For hypothesis 14, a simple regression with data specifically for opinion leaders who were subordinates, similar in organizational level, and higher than supervisor in level also revealed that OLMX was a statistically significant predictor ($b = .38$, $t = 7.67$, $p = .000$) of opinion seeker perceptions of organizational support. Again, support was found for hypothesis 14.

Table 8. OLMX as IV and opinion seeker perceptions of organizational support as the DV

All opinion leaders				*Only non-supervisor opinion leaders*			
Variable	*b*	*t*	*Sig.*	*Variable*	*b*	*t*	*Sig.*
Gender	.15	3.52	.00	Gender	.16	3.30	.00
Education	-.07	-1.47	.14	Education	.01	.23	.81
Age	-.13	-2.22	.03	Age	-.15	-2.38	.02

Variable	b	t	Sig.	Variable	b	t	Sig.
Tenure	.04	.71	.48	Tenure	.07	1.25	.21
OLMX	.37	8.60	.00	OLMX	.38	7.67	.00

	R^2	Adj. R^2			R^2	Adj. R^2
	.18	.17			.19	.17

Hypothesis 15 stated that idealized influence of opinion leaders will be related to opinion seeker organizational identification. Similarly, hypothesis 16 stated that idealized influence of opinion leaders for non-supervisors will be related to opinion seeker organizational identification. The results are included in Table 9. For hypothesis 15, a simple regression reveals that idealized influence of opinion leaders for all opinion leaders is a statistically significant predictor ($b = .30$, $t = 6.60$, $p = .000$) of opinion seeker organizational identification, thereby supporting the hypothesis. For hypothesis 16, a simple regression with data specifically for opinion leaders who were subordinates, similar in organizational level, and higher than supervisor in level also revealed that idealized influence was a statistically significant predictor ($b = .31$, $t = 5.87$, $p = .000$) of opinion seeker organizational identification.

Table 9. Idealized influence of opinion leader as IV and opinion seeker organizational identification as the DV

All opinion leaders				Only non-supervisor opinion leaders			
Variable	*b*	*t*	*Sig.*	*Variable*	*b*	*t*	*Sig.*
Gender	.08	1.85	.07	Gender	.07	1.34	.18
Education	-.04	-.78	.44	Education	-.02	-.41	.69
Age	.07	1.06	.29	Age	.08	1.19	.24
Tenure	.02	.36	.72	Tenure	.05	.88	.38
Idealized influence	.30	6.60	.00	Idealized influence	.31	5.87	.00

R^2	Adj. R^2		R^2	Adj. R^2
.10	.09		.11	.09

Hypothesis 17 stated that idealized influence of opinion leaders will be related to opinion seeker perceptions of organizational support. Similarly, hypothesis 18 stated that idealized influence of opinion leaders for non-supervisors will be related to opinion seeker perceptions of organizational support. The results for both hypotheses are included in Table 10. For hypothesis 17, a simple regression reveals that idealized influence of opinion leaders for all opinion leaders is a statistically significant predictor ($b = .37$, $t = 8.67$, $p = .000$) of opinion seeker perceptions of organizational support. As such, hypothesis 17 is supported. For hypothesis 18, a simple regression with data specifically for opinion leaders who were subordinates, similar in organizational level, and higher than supervisor in level also revealed that idealized influence of opinion leaders was a statistically significant predictor ($b = .38$, $t = 7.68$, $p = .000$) of opinion seeker perceptions of organizational support. Thereby, support was found for hypothesis 18.

Table 10. Idealized influence of opinion leader as IV and opinion seeker perceptions of organizational support as the DV

All opinion leaders				Only non-supervisor opinion leaders			
Variable	b	t	Sig.	Variable	b	t	Sig.
Gender	.12	2.72	.01	Gender	.14	2.79	.01
Education	-.09	-1.85	.07	Education	-.01	-.12	.91
Age	-.11	-1.80	.07	Age	-.13	-2.07	.04
Tenure	.04	.73	.46	Tenure	.08	1.41	.16
Idealized influence	.37	8.67	.00	Idealized influence	.38	7.68	.00

R^2	$Adj.\ R^2$
.18	.18

R^2	$Adj.\ R^2$
.19	.18

DISCUSSION

This study examined the relationships between opinion leaders and opinion seekers. Hypothesis 1 revealed that opinion seekers are not necessarily going to choose opinion leaders that are more like themselves than they are dissimilar from themselves. Hypotheses 2 through 5 suggest that the OLMX dimensions of affect, loyalty, contribution, and professional respect are related to the actual influence of the opinion leader on the opinion seeker's own opinions. As noted in hypothesis 6, employees were found to be more likely to make an effort to help and work harder for supervisors and superiors who were their opinion leaders than they would help and work for opinion leaders who were subordinate those equal to their own level in the organization. In hypotheses 7 through 10, the four dimensions of OLMX were found to be related to idealized influence of opinion leaders, which represents their ability to inspire trust, to make group members feel capable, and to empower fellow employees in terms of their decision making, innovative thinking, and moral reasoning.

Hypotheses 11 through 18 examined the relationships between opinion leaders and both organizational identification and organizational support. The results suggested that both OLMX and the idealized influence of opinion leaders, for all opinion leaders and specifically for non-supervisor opinion leaders, were related to both organizational identification and organizational support.

The importance of these findings, taken as a whole, is that opinion leaders serve a crucial yet informal role in the infrastructure within an organization. It would seem that some opinion seekers are influenced in terms of who much they identify with their organization based on the quality of the opinion leadership they receive. Similarly, opinion seekers would seem to view opinion leaders as sources of organizational support beyond the formal support they receive from their organizations. This suggests that managers should encourage informal opinion seeking relationships rather than view them as subversive or simply counter to management opinions.

Limitations

This research has several limitations. The LMX-MDM scale was modified for use in this research and the influence of opinion leaders on opinion seeker opinion were created based on items asked in extant research. Also, the study's cross-sectional design precludes any inference

of causality and simply implies directionality. Social desirability and common method variance (CMV) also represent potential issues.

Future Research

There are several directions that this research could take. In particular, more attention might be given to gender differences in opinion leadership and opinion seeking given the significance of gender in much of the hypothesis testing. In addition, further focus could be given to differences based on the type of industry, since some types of industries may lend themselves more toward the necessity or value of opinion leadership. Likewise, a comparison of this American sample to a sample from a culture that is very different in terms of Hofstede's cultural dimensions would be very insightful. The differences in organizational level between the opinion leader and the opinion seeker might be further examined as well for potential differences. Future research might also focus on other organizational outcomes, such as organizational commitment or job satisfaction. Finally, the examination of the opinion leadership phenomenon from a qualitative research perspective would also prove very beneficial for answering the question of "why," which quantitative research cannot answer.

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What Do You Know? Knowledge Heterogeneity and Team Performance in an Asian Economy

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ABSTRACT

This paper re-conceptualizes the meaning of knowledge heterogeneity—an important but under-developed collective-level concept that influences innovation. The new conceptualization extends the construct of knowledge heterogeneity beyond the traditional assessments of variability in professional background. The research further explores the quadratic relationship between knowledge heterogeneity and team performance using data collected from 128 new product development teams from companies in the electronics industry and located in Taiwan. Results indicate that there is a quadratic relationship between knowledge heterogeneity and team performance. Results are discussed in terms of the influence of the measure of knowledge heterogeneity and cultural factors.

Knowledge is a key success factor for both intra- and inter-organizational innovation (Brown & Eisenhardt, 1995). By performing tasks that include knowledge creation, acquisition, sharing, and integration, knowledge-intensive units (e.g., teams, groups, work units, etc.) are important for organizations because they contribute to collective innovation activities such as new product development (NPD) (Madhavan & Grover, 1998; Schmickl & Kieser, 2008). Developing a good understanding and governance of the collective knowledge stock has been recognized as a critical step to achieve innovative success in units of professional workers (Kyriakopoulos & de Ruyter, 2004; Troy, Hirunyawipada, & Paswan, 2008).

While the issues of knowledge content and flow have received considerable research attention, there has been less empirical attention directed toward knowledge structures within organizations. Organizations operate in a knowledge economy that emphasizes the combination and utilization of heterogeneous knowledge. Since it has been increasingly accepted that organizations can be treated as diverse knowledge bases, differences in the knowledge (e.g., skills, experiences, cognitive or interpretative schema) are inevitable within an organizing unit (Oosterhof, Van der Vegt, Van de Vliert, & Sanders, 2009). Accommodation and application of heterogeneous knowledge within an organization, accounting for both the benefits and potential

costs of such heterogeneity, is vital for everyday group and organizational functioning (Karakowsky & McBey, 2001). Hence, innovation, as the novel application of knowledge, depends on understanding both the accumulated content and the structure of knowledge (Argote, McEvily, & Reagans, 2003).

A holistic structural perspective on knowledge heterogeneity distinguishes such heterogeneity from individual differences in professional background. In addition to demographic records that imply the potential for knowledge heterogeneity, knowledge heterogeneity should reflect how members differ in their current thoughts, expertise, and cognition with respect to ongoing tasks (Karakowsky, McBey, & Chuang, 2004). That is, knowledge heterogeneity should reflect the different knowledge portfolios made available to the team by its members (Frenz & Ietto-Gilles, 2009; Rodan, 2002; Rodan & Galunic, 2004). As an idiosyncratic configuration of intangible assets, knowledge heterogeneity has great potential to affect both the perceptions and behavior of professionals and, thus, the success of team innovation (Mudambi & Swift, 2009; Rodan & Galunic, 2004).

Previous research on knowledge heterogeneity suffers from two limitations. First, knowledge heterogeneity is assessed using proxy measures based on pre-team formation individual differences in demographic background, usually differences in education or functional background (Leonard-Barton, 1995; Madhavan & Grover, 1998). Surface-level diversity, such as diversity in professional background, and deep-level diversity, such as differences in knowledge portfolios, can both influence significant organizing mechanisms for collective decisions and actions (Williams, Parker, & Turner, 2007). However, these two different sets of diversities may have different direct effects or may differentially influence intervening variables (Elfenbein & O'Reilly, 2007). Conceptualization and measures focusing on knowledge heterogeneity of individuals prior to team formation neglect changes that take place through team member interactions and as a result fail to reflect true knowledge diversity. Scholars increasingly advocate extended conceptualizations of diversity in order to gain a more nuanced understanding of its effects on collective behavior and performance (Tsui, Porter, & Egan, 2002).

Second, the fact that the relationship between knowledge heterogeneity and team performance is often examined in Western contexts suggests a limited understanding of the influence of such heterogeneity in non-Western cultures. For surface- or deep- level constructs, extending heterogeneity research to other contexts may add valuable scientific knowledge to current understandings (e.g., Tsui & Farh, 1997; Tsui, Farh, & Xin, 2000). Culture is a significant factor that may affect deeper-level elements of workforce diversity, resulting in different attitudes, cognitions, and mechanisms relating to knowledge processing (Hedlund &

Nonaka, 1993; Tyran & Gibson, 2008). People in different cultures may respond differently to heterogeneous team knowledge levels (Zaidman & Brock, 2009).

Collective Knowledge Heterogeneity

The knowledge-based view of the firm makes explicit the firm's reliance on intellectual resources in order to successfully compete in its markets and particularly to successfully create value through innovation (Nonaka, 1994). For organizations to create knowledge-based innovative value, management of heterogeneous knowledge at the collective level is critical. However, the management of disperse and embedded heterogeneous knowledge is difficult (Tsoukas, 1996; Tsoukas & Hatch, 2001). Due to differences in context, division of expertise, local inertia with respect to knowledge acquisition, and the developmental path-dependence of knowledge, it is unrealistic to expect full knowledge homogeneity within organizations (Nooteboom, 2000). In addition, individuals, as the basic unit for knowing, often vary in processing and interacting with different aspects of knowledge (Amin & Roberts, 2008; Yakhlef, 2010).

Hence, the concept of knowledge heterogeneity should include the concerns regarding the human capital's ongoing acquisition of knowledge and competences, in addition to pre-team formation differences in educational and functional background After the team forms, people of similar education backgrounds may be involved in different knowledge applications or processes and as a result develop new additions to the original and overall knowledge stocks (Amin & Roberts, 2008). Besides, significant learning for knowledge workers may accompany work designed to satisfy different types of customers and to meet differing customer needs (Sánchez-González, González-Álvarez, & Nieto, 2009), which may intentionally or unintentionally increase knowledge heterogeneity. Moreover, the notion of knowledge heterogeneity may also contain a diverse proccessual element such as different working styles or methods of knowledge communication (e.g., Williams et al., 2007).

In sum, knowledge heterogeneity is defined here as the state of collective knowledge within an organizing unit, which is composed of different domains, forms, contextual meanings and methods of representation. This conceptualization requires the development of a measure of knowledge heterogeneity, which will be offered in this study.

Hypothesis 1: Knowledge heterogeneity is distinct from the demographic diversity of members' professional background (e.g., education and functional records).

The Influence of Knowledge Heterogeneity in NPD Teams

NPD demands high-quality heterogeneous knowledge management. Innovation is a form of collective knowledge dynamics (Frenz & Ietto-Gillies, 2009; Leonard-Barton, 1995). Innovation

generates new knowledge while, in turn, it is also influenced by created knowledge (Nonaka, 1994). Madhavan and Grover (1998) denoted that NPD is a process of re-combining and re-creating internal and external knowledge to be embodied in a product-service bundle. In this sense, the way firms manage their heterogeneous knowledge bases is highly relevant to the effectiveness of NPD (Madhavan & Grover, 1998; Schmickl & Kieser, 2008).

Rodan and Galunic (2004) proposed that knowledge diversity can be represented by the linkages between a focal manager to alters with diverse knowledge domains. Thus, a team with a high level of knowledge heterogeneity is equivalent to a shared knowledge repository, offering the team highly diversified set of sources for knowledge. Based on this perspective, the following hypothesis is proposed:

Hypothesis 2: Knowledge heterogeneity is positively related to NPD team performance.

The relationship between knowledge heterogeneity and team performance may not be so simple, however. On the one hand, diversity in information bases and sources enhances creativity and enables multiple and non-redundant idea generation (Smith, Collins, & Clark, 2005). On the other hand, such diverse resources may result in inaccurate communication, ineffective decision-making processes, distorted perceptions, and intra-group conflict (Pelled, Eisenhardt, & Xin, 1999; Reagans & Zuckerman, 2001; Van der Vegt, Bunderson, & Oosterhof, 2006). Thus, expansion of knowledge has the potential to enhance team innovation, but beyond a certain point knowledge heterogeneity may have a negative effect on innovation due to a lack of mutual understanding across working areas, over-loads in processing complexity and ambiguity in the variety of knowledge, or costs in interpersonal knowledge coordination.

While this discussion suggests a quadratic but inverse (inverted-U) relationship between knowledge heterogeneity and innovation, an alternative view can also be offered. The wide range and complexity of NPD knowledge activities means that many internal and external, objective and subjective factors may influence NPD team success (Frenz & Ietto-Gillies, 2009; Sivadas & Dwyer, 2000). A different context may result in a different type of relationship between knowledge heterogeneity and NPD team performance.

Some past literature suggests that contextual differences may result in differences in contingent effects between diversity and innovative outcomes (Troy et al., 2008). We suggest that culture may offer such a contextual variable. A Chinese culture includes unique intrinsic and extrinsic higher-order coordinative forces (e.g., value systems, belief systems, life style, etc.) influencing team dynamics.

For teams with strong shared values, norms, and coordinative agreements, such as might be found in Chinese society, integration of relatively homogeneous knowledge bases is quite

straightforward.   This integration is facilitated by directing team members to accept the applicable and easily shared (and therefore homogeneous) knowledge possessed by different group members (Nahapiet & Ghoshal, 1998). In such circumstances, utilization of commonality (knowledge that is now shared within the team) is the focus, rather than the generation of novelty. This shared focus reduces the possibility of incomplete implementation of new product developments arising from too much diversity.

By the same token, shared beliefs and eagerness for harmony can also characterize a work environment with a high degree of heterogeneous knowledge.   Tolerance and   non-calculative trust are traditional Chinese virtues, and these values may drive people to understand (or just accept) others knowing what they do not know (Hobman & Bordia, 2006; Peters & Karren, 2009).   The shared meta-belief system emphasizing the value of organizing and collective identification characteristic of a Chinese culture serves to build trust that can bridge the differences professional backgrounds (Mudambi & Swift, 2009).   Team members will struggle to accommodate one another, absorbing and accepting others' heterogeneous knowledge and related behaviors (Gibson, 2001). Dissimilar or incompatible knowledge is valued, with the shared focus on collective identification serving to help team members avoid the trap of unproductive disputes or disagreements arising from knowledge heterogeneity.

The focus on collective achievement may be more difficult to accomplish within groups that encompass moderate levels of knowledge heterogeneity. When the group is characterized as neither heterogeneous nor homogeneous with respect to knowledge possessed by its members, it may be more difficult for members to understand their embedded knowledge state. Given that diversity is a subjective belief as well as an objective phenomenon (Hobman, Bordia, & Gallois, 2004; Homan, Greer, Jehn, & Koning, 2010), team members need clear signals identifying the state of collective knowledge in order to strive for shared sense- and decision-making for knowledge processing. Clear cognitive and symbolic understandings among members are necessary to help remedy the tension between efficiency and consensus (Roberto, 2004). Thus, when knowledge heterogeneity is at a "modest" level, the cognitive signal is ambiguous, and members are less likely to actively seek appropriate ways to utilize one another's heterogeneous knowledge, which, in turn, results in less effective knowledge activities for innovation.

While there is a strong rationale to hypothesize a non-linear relationship between knowledge heterogeneity and NPD team performance, the nature of that relationship is not entirely clear. Given that the setting for our research is in a Chinese culture, we offer the following hypothesis:

Hypothesis 3: There is a positive quadratic relationship between collective knowledge heterogeneity and NPD performance.

METHOD

Sample and Data Collection

We drew our sample from the chemical, semi-conductor, electro-optical, communication and networks, and electronics industries in the Database of the Common Wealth Top 1000 Companies, a database including information on the largest 1000 companies in Taiwan. This source provides data that can be used in studies on knowledge utilization and innovation within organizations (Saxenian, 1994). Taiwan is appropriate as a research context because of its representativeness as an innovation-oriented economy (Dodgson, Mathews, Kastelle, & Hu, 2008; Mathews, 2002) and its increasing emphasis on diverse human capital development (Chi, Huang, & Lin, 2009).

There were 347 companies in the relevant industries included in the Database of Common Wealth Top 1000 Companies. We sent out requests to the most representative NPD team identified in these 347 firms; 148 teams agreed to participate in this study (42.7% response rate). Great care was taken with data collection in order to reduce the effect of same source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and to enhance the ability to draw causal inferences. Thus, data for predictor and criterion variables were collected at different times and from different sources.

Information about knowledge heterogeneity, the predictor variable, was collected first (in November 2006) from the senior project leader in consultation with one team member. The team leader-team member dyad was considered a sufficient source of information with regard to the level and distribution of knowledge within the team (Szulanski, 2000). NPD team performance, the dependent variable, was assessed by the head of the R&D or Marketing Department (depending on which unit was most responsible for innovation in the particular company). In some cases, a top manager was considered the most appropriate source of information on team innovativeness and thus provided the assessment. Data on team performance was collected in April 2008.

To ensure that data collection procedures were followed as specified, we conducted on-site interviews to confirm that different individuals provided predictor and criterion data. In addition, individuals who supplied information on NPD team performance were encouraged to provide their assessments with the aid of objective records whenever possible in order to enhance data quality. For example, development speed is generally objectively documented through organizational records.

Given the length of time that passed between collection of the predictor and criterion data, we were unable to collect criterion data from 15 of the 148 teams due to early termination of the team project. In addition, 5 teams were removed from the study due to incomplete responses on the predictor variables, resulting in a sample of 128 teams (36.9% participation rate). To test for non-response bias, *t*-tests were conducted to look for differences in contextual variables, such as team size, between those teams that responded early and those that responded later (Joshi & Sharma, 2004). No significant differences were found between early and later responses. .

Measures

Independent Variable. The independent variable, knowledge heterogeneity, was rated by the team leader along with a team member. Knowledge heterogeneity was assessed with a three-item scale based on the definition provided in this study and in previous literature (Rodan & Galunic, 2004). Heterogeneity with respect to knowledge domain, knowledge processing, and knowledge tacitness were each assessed with one item. In addition to asking about knowledge domain, or the content of knowledge, two more dimensions of knowledge heterogeneity were utilized in the present measure. Different methods of knowledge processing (e.g., expression styles, metaphor, narrative, symbolic communication, etc.) may result in heterogeneous schema and interpretation of knowledge (Patriotta, 2003; Roberto, 2004). Additionally, the distribution of tacitness is important, because the distribution of knowledge tacitness may influence the proportion of individuals who possess overlapping knowledge bases.

We extended Rodan and Galunic's (2004) measure to account for all three dimensions. In addition, we addressed the issue of knowledge heterogeneity within the group, rather than assessing knowledge domain at the individual level. The three items comprising this measure are: "Please indicate the extent to which colleagues in your team have similar knowledge content (reverse coded)," "Please indicate the degree to which colleagues in your team use similar ways to express and interpret knowledge (reverse coded)," and "Please indicate the extent to which the team members' knowledge varies with respect to whether it is mostly tacit or mostly explicit." To ensure that respondents were utilizing similar definitions of the key concepts, we provided explanations of the terms "knowledge processing," "tacit," and "explicit" in the questionnaire. We added real-life examples and instructions for responses preceding each of the three items in order to enhance comprehension of the constructs assessed.

Dependent variable. NPD team performance was measured with items adapted from Atuahene-Gima's (2003) scale. The scale consists of five dimensions of NPD team outcomes: development speed, product quality, solution found, problem-solving speed, and solution quality. Example items include: "The project duration met the planned time schedule," "The product conformed to performance specifications required by customers," "We identified several alternative solutions for each problem the project team encountered," "Solutions found for problems we faced were not timely" (reverse coded).

Control variables. We controlled for the R&D investment ratio (i.e., R&D investment for each project divided by estimated total investment) and team size (i.e., number of members) as well as heterogeneity in both educational and functional background, as these four variables can potentially influence the outcome variables (Damanpour, 1991).

Information on R&D investment ratio and team size was obtained from company records. Following Blau (1977), the two variables assessing heterogeneity in professional background were calculated as follows:

Professional background diversity = $(1 - \sum p_i^2)$, where

  p - The proportion of a particular category of education or function

  i - the number of different categories represented

RESULTS

Three statistical analyses were conducted to explore Hypothesis 1. First, descriptive statistics (see Table 1) indicated initial evidence of a distinction between knowledge heterogeneity and diversity in professional background. Low and non-significant correlations were found between knowledge heterogeneity and educational diversity (r = .087) and functional diversity (r = .069), which suggested that these variables measure different constructs. Second, we tested for intra-construct congruency with inter-item correlation analysis (Hattie, 1985). Table 2 lists the intra- and inter-construct correlations of the items that measure knowledge heterogeneity and educational and functional diversity. An average inter-item correlation of .15 to .50 indicates acceptable within-construct consistency (Clark & Watson, 1995) and Table 2 shows that the inter-item correlations within constructs all exceed the lower limit of this range. Similarly, inter-item correlations across constructs represent low and non-significant relationships between the knowledge heterogeneity items and the two measures of professional background diversity. Third, a

confirmatory factor analysis (CFA) was conducted for further validation (Arbuckle, 1997). The tests reveal an acceptable fit and statistically support the proposed one-factor structure for knowledge heterogeneity ($X^2(0) = 2.48$, p > .01; GFI = .99; AGFI = .96; RMSR = .03) (Bollen, 1989). When adding the educational and functional diversity indices into the factor model, however, the findings show an oblique two-factor model. This indicates that knowledge heterogeneity is distinct from professional diversity ($X^2(4) = 8.33$, p > .05; GFI = .98; AGFI = .95; RMSR = .024). In contrast, the measurement model that places all items and indices within one latent variable did not demonstrate good fit (see Table 3). The three analyses suggest support for Hypothesis 1.

Hierarchical and curve regression analyses were adopted for Hypotheses 2 and 3. Hierarchical regression was conducted for using each of the five NPD performance measures as outcomes (see Table 4). For each dependent variable, the first model tested the effects of the control variables, including educational and functional diversity. The second model added the effect of knowledge heterogeneity to the control variables. Finally, in the third step of the regression analyses, the quadratic term for knowledge heterogeneity was added to the control variables and the linear effect of knowledge heterogeneity.

The results of hierarchical regression show some interesting results. Knowledge heterogeneity by itself added significant prediction only for the dependent variable of development speed (see Table 4). The linear effect was positive, suggesting that development speed increased as knowledge heterogeneity increased. The knowledge heterogeneity measure did not add predictability over and above the effects of professional background diversity for the remaining four dependent variables. However, it should be noted that the professional background diversity measures did not significantly predict any of the outcome variables. Hypothesis 2, then, received only very limited support, which must be interpreted very cautiously in light of the significant quadratic effects.

In the presence of the quadratic term for knowledge heterogeneity, the linear term was negative and significant for all five dependent variables. The quadratic term was positive and significant for all five models. Thus, it appears that the highest levels of performance are found when knowledge heterogeneity is either low or high, but that intermediate levels of knowledge heterogeneity result in lower levels of NPD team performance. These findings support Hypothesis 3.

DISCUSSION

The results of this study support the distinction between the most commonly used measures of knowledge heterogeneity—educational background and functional background diversity—and the new measure of knowledge heterogeneity. While educational and functional background represent proxy measures of knowledge heterogeneity, the measure introduced in this study is a direct assessment. The results of this study suggest that the direct assessment of knowledge heterogeneity may offer information that is different from and perhaps more current than the proxy measures. That is, the direct assessment reflects the state of knowledge heterogeneity as it exists within the team, whereas the proxy measures reflect the state of knowledge diversity prior to experience within the team.

The curvilinear relationship between knowledge heterogeneity and NPD team performance is consistent with findings in a previous study (Ancona & Caldwell, 1992). Our findings stand in contrast to those of other studies, which suggest that the greatest level of team performance will result when knowledge heterogeneity is at a moderate level (Pelled, Eisenhardt, & Xin, 1999). Our results suggest that the highest level of team performance will be achieved when knowledge heterogeneity is either low or high.

The difference in the nature of the relationship between our results and some of the previous studies may be due to the difference in the measure of knowledge heterogeneity utilized, which reflects diversity in knowledge in use. It could also be the result of the difference in the national culture of the participants in the study (Nakata & Sivakumar, 1996). The research on knowledge heterogeneity to date has focused on Western cultures, whereas the present study was conducted in an Eastern culture. More research is needed in order to provide clarity about the curvilinear relationship between knowledge heterogeneity and NPD team performance and perhaps add some boundary conditions to the relationships proposed.

There are a number of limitations to our study that merit recognition. First, the measure of knowledge heterogeneity is novel. While the lack of a relationship between this measure and heterogeneity in professional background suggests that the assessments are empirically distinct, it is also a cause for some concern. That is, are the two approaches to measurement assessing the same construct? In addition, the reliability of the reports of the team leader and team member can be questioned. It is possible that, even in combination, these two respondents did not have a clear picture of the actual level of knowledge heterogeneity in the NPD team.

Second, we did not actually collect data across multiple cultural settings and compare the results. Nonetheless, the present study offers a new perspective and a potential contingency variable influencing the knowledge heterogeneity-NPD team performance relationship. Third,

although we collected predictor and outcome data at different points in time, this design does not permit the investigation of changes in the relationship between knowledge heterogeneity and NPD team performance over time. The potential for dynamic processes warrants further study.

CONCLUSION AND IMPLICATIONS

Our results and discussion enrich past studies by offering a re-conceptualization of knowledge heterogeneity and an alternative cultural explanation for the relationship between knowledge heterogeneity and innovation. Theoretically, the study explores the concept of heterogeneity in collective knowledge within organizing units. It refines the more traditional measure of diversity in professional background to fit more in the dynamic and cultural-specific realities in globalized knowledge economy.

Practical implications are especially critical for research addressing innovation and knowledge activities. First, a formal policy for diversity makes more organizations more attractive to potential employees (Williams & Bauer, 1994). This paper reminds practitioners communicate clearly the strategic importance of knowledge heterogeneity. Even in contexts of low surface-level diversity in terms of demography (e.g., ethnicity, gender) or professional background (e.g., education, functional experiences), knowledge heterogeneity as deeper-level diversity may still be quite high. Attention must, therefore, be directed to effectively managing such knowledge diversity, leveraging positive aspects of heterogeneity while preventing potential liabilities.

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Table 1

Descriptive statistics

	mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. Team size	8.85	7.09	1.00									
2. R&D Investment	16.45	15.76	-.05	1.00								
3. Educational div.	2.70	1.27	.43**	-.10	1.00							
4. Functional div.	2.37	1.44	.46**	.18*	.26**	1.00						
5. KH	3.61	.75	.06	.08	.087	.069	1.00					
6. NPD Speed	4.38	.99	-.15	-.07	.03	-.02	.10	1.00				
7. Product quality	5.17	.17	.05	.00	.12	.12	.17	.51**	1.00			
8. Solution found	4.94	.72	-.08	-.05	-.08	-.06	.06	.38*	.52	1.00		
9. Problem-solving speed	3.64	.95	-.04	-.17	.07	-.10	.06	.18**	.08	.05	1.00	
10. Solution quality	4.57	.85	-.07	.05	.06	.07	.12	.48**	.55	.60**	-.04	1.00

** p< .01; * p< .05 leve

Table 2

Intra- and Extra-construct Inter-item Correlations[a]

Variable Name	1	2	3	4	5
1. KH-domain	1.00				
2. KH-processing	.68	1.00			
3. KH-tacitness	.66	.75	1.00		
4. Educational div.	.11	.01	.04	1.00	
5. Functional div.	.05	.06	.05	.26	1.00

[a] N = 128; Gray cells: low correlation between items for different constructs

Table 3

Confirmatory Factor Analysis Results

Summary for the Two Measurement Models				
	X^2	GFI	AGFI	RMSR
1. KH & Prof Diversity as one	2.48 (p > .01)	.99	.96	.05
2. KH vs. Prof Diversity as distinct two	8.33 (p > .05)	.98	.95	.02

Table 4

Hierarchical Regression Results

DVs / IVs	Development speed			Product quality			Solution found			Problem-solving speed			Solution quality		
	M1[a]	M2[b]	M3[c]	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
(constant)															
Team size	-.05	-.06	.01	-.24	-.24	-.20	-.04	-.05	-.01	-.06	-.06	-.02	-.18	-.18	-.12
R&D ratio	-.01	-.03	-.03	-.09	-.10	-.10	-.06	-.06	-.06	-.15	-.16	-.16	.03	.02	.02
Edu div.	.11	.10	.02	.10	.10	.05	-.07	-.07	-.12	.11	.10	.05	.12	.11	.04
Func div.	.12	.12	.09	.09	.08	.06	-.01	-.02	-.04	-.08	-.08	-.10	.11	.11	.08
KH		.18*	-2.27***		.14	-1.40*		.07	-1.50**		.08	-1.37*		.12	-2.00**
KH^2			2.47***			1.52**			1.59**			1.46**			2.14**
R^2	.03	.06	.16	.05	.06	.10	.01	.02	.06	.04	.05	.09	.03	.05	.12
ΔR^2	.03	.03	.10	.05	.01	.04	.01	.01	.04	.04	.01	.04	.03	.01	.08
F	.73	1.30	3.24***	1.28	1.31	1.85	.39	.82	.29	1.24	1.12	1.62	.83	.97	2.33
ΔF	.73	3.51*	12.23***	1.28	1.45	4.31**	.39	.61	5.20**	1.24	.64	3.96**	.83	1.53	8.77***

*** p< .01; ** p< .05; * p< .1 level

[a] M1: Predictors: (Constant), Team size, R&D invest. Ratio, Func diversity, Edu diversity

[b] M2: Predictors: (Constant), Team size, R&D invest. Ratio, Func diversity, Edu diversity, KH

[c] M3: Predictors: (Constant), Team size, R&D invest. Ratio, Func diversity, Edu diversity, KH, KH^2

Track: General Management/ Technology/ Management Education

THE IMPACT OF TIMING AND NEW PRODUCT DEVELOPMENT ON SUCCESSFUL R&D ALLIANCES

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ABSTRACT

In this paper, we focus on antecedents to successful R&D alliances. Specifically, we investigate the choice of order of entry into new product markets and how the ability to correctly develop and exit from product markets influences the firm's entry into successful strategic alliances. This longitudinal study examines 10 years of product development in the pharmaceutical industry over a sample of 87 firms. Our findings reveal that firms that are early entrants into product markets are more likely to form successful R&D alliances than later entrants. Further, firms correctly exiting product development are more likely to form successful R&D alliances than firms correctly expanding product development.

We study 87 pharmaceutical firms over a ten year period to determine the impacts of timing and product development and exit choices. Secondly we examine the impact that learning and timing have on the formation of successful R&D alliances. Conditions of alliance success and failure have interested scholars for some time (Anand & Khanna, 2000, Kale & Singh, 2001, Kogut, 1988 Park & Ungson, 2001). We find that firm's that favor early entry into the market and firm's moving out of product markets are more likely to form successful alliances than later entrants and firms that remain in unproductive markets. Third we develop empirical measures for firm's timing decisions for product development in multiple markets allowing a general orientation to be established. This measure allows us to examine the firm's actual behavior across a range of products rather than a perceived behavior by members of the firms. Finally we develop empirical measures to determine the firm's ability to build in growing product markets and to exit from declining product markets. To our knowledge this has not been studied previously in the management literature. The development of this measure opens a new line of research based on the firm's foresight of which products to emphasize and which to deemphasize.

Literature Review and Hypotheses

Alliances are voluntary arrangements between two or more firms, often with competing interests and multiple purposes, that involve sharing resources and knowledge with the purpose of developing products, processes, or services (Gulati, 1998, Sampson, 2005). In the context of the current study, patentable products are developed by the partners through cooperative research and represent R&D alliances.

Although alliances offer promise to businesses that use these arrangements, these alliances often fail (Kogut, 1998). In fact over 40 percent of alliance partners are dissatisfied with the result of their business arrangement (Bleeke & Ernst, 1993). Causes of this failure may include coordination challenges, governance issues, poorly defined scope and fundamental conflicts of interest (Kogut, 1998, Oxley & Sampson, 2004, Sampson, 2005).

Elements leading to alliance success have also been studied. Prior alliance experience with specific partners, general alliance experience with other partners, firm age of alliance participants and possession of complementary assets has all been related to alliance success (Anand & Khanna, 2000, Rothaermel, 2001, Rothaermel & Boeker, 2008, Sampson, 2005). In the following section we will consider the impact of the firm's order of entry on subsequent alliance success.

First movers, proactive product development and strategic alliances
In the current study, proactive firms are early movers that consistently enter product markets earlier than others in their industry while later entrants are late movers. Strategic orientation is viewed as occurring on a continuum from being consistently first to market with new products to being consistently last to market.

Few studies have been conducted on the relationship between proactive product development and strategic alliances. Tomes and Phillips (2003) conducted a case study on the work of the Advanced Product Development Centre. For reactive projects, cost cutting, project selection, and good project planning were critical. For proactive projects, obtaining benefits for participating universities, finding markets for new products, and involving partners with necessary expertise was important. Claude-Gaudillat, and Quelin, (2006) studied the securities brokerage industry when online providers first appeared as competitors. The authors found that reactive firms were less likely to enter alliances than proactive firms. However they explicitly avoided looking at innovation.

First mover research is similar to research on proactive firms. However while proactively is typically treated as an orientation, first mover research focuses more on the individual product. Considerable research has been conducted on the advantages and disadvantages of being first or early to market with products (Lieberman & Montgomery, 1988, Makadok, 2001). Lieberman and Montgomery discuss relevant issues in first mover research including how first movers should be defined. For instance the first mover may be defined by actual market entry, early entry, or preliminary research and development. In the current study first movers are defined by preliminary research and development in specific technological fields.

More recently Suarez and Lanzolla (2008) considered the influence of technological and market evolution on first mover advantages. In their framework, when the pace of technological and market evolution is smooth first mover advantages will occur. In the pharmaceutical industry, drug development problems typically take from 8 to 12 years to develop suggesting a smooth technological evolution. The market evolution should be somewhat smooth as well since drugs are developed to target specific illnesses and the size of the affected market is fairly well understood. Therefore firms moving first in the pharmaceutical industry should expect to accumulate first mover advantages making early drug development a generally desirable activity.

Another line of research examines firm resources that influence the firm's order of entry choice into a new market. Mitchell (1989) considered the impact of specialized assets and the threat of entry on the firm's choice to enter a market. Specialized assets represent assets designed for a particular task that may not be useful in other contexts. Mitchell argues that the need to use these assets or else lose their value provides impetus for firms to enter markets. Further incumbents are more likely to protect threatened markets than later entrants. Finally Schoenecker and Cooper (1998) found that factors influencing early entry into product markets included

larger R&D intensity, possession of a direct sales force, and greater commitments to threatened markets.

Cho, Kim, and Rhee (1998) took a different approach by examining the advantages of reactive firms into markets. In their study of the Korean and Japanese semiconductor industry the authors found that under certain circumstances reactive firms were able to catch up and even surpass earlier entrants. The authors found that firms employing focused product development strategies, that were willing to sustain losses for awhile until the business could break even, and that built economies of scale quickly were more able to catch up with earlier entrants in markets. Late entrants were also able to catch up through licensing agreements and hiring knowledge workers away from established firms

In sum early movers are more likely to seek partnerships than later entrants. Early movers may be more committed to product development through the need to use specialized assets, protect threatened markets or act to prevent other entrants from entering their critical markets. Conversely reactive firms are more likely to rely on hiring away knowledge workers or purchase knowledge through licensing agreements.

Hypotheses 1: Early movers in pharmaceutical product markets will form more successful drug development alliances than those entering later into those markets.

New product development and R&D alliances

The connection between new product development and strategic alliances has received considerable attention. In this section we explore the relationship between the entrance and exit from product markets and the formation of R&D alliances. More specifically we address the question whether firms that accurately move into productive product markets or exit from unproductive product markets are more likely to form successful R&D alliances. Dosi (1988) discusses several ways that organizations develop knowledge bases. The most common method to increase technological knowledge in the firm is through in house R&D. Firms develop products along a particular trajectory which is influenced by prior events. Development of products along a particular trajectory increases the organizations ability to innovate in that direction. Firms may also develop products based on core competences which may include non technological areas of expertise such as marketing. Finally firms must consider transaction costs and the danger of knowledge leakage when engaging others outside of their organization.

The danger of knowledge leakage presents a clear danger to firms engaged in R&D alliances. Liebeskind (1996) goes into some detail about ways that firms can protect their knowledge resources. She argues that the firm acts as a mechanism to protect knowledge in ways that the market cannot accommodate. Grant (1996) also observes that firms can coordinate knowledge more efficiently in many instances. She suggests that when firm's product and knowledge bases are not well aligned, opportunities exist to exchange knowledge outside the firm.

Little research has explored factors influencing the firm's exit as well as entrance in product markets. Green et al (2003) present one notable exception. The authors found that products having greater levels of management advocacy were less likely to be terminated. Management advocacy was also influenced by resource investments and technical and business experience related to the product.

More generally what do firms signal when they build on their existing technological base or exit from product markets? They might be signaling their satisfaction or dissatisfaction with

the product development process. When innovation in a specific area increases, firms may be implying that they are satisfied with their expertise in that area and wish to continue development. Conversely firms exiting product markets may be implying that they lack the expertise or resources to continue innovation in that area.

Another possibility is that the business recognizes that the product market is growing or declining. These businesses demonstrate foresight by anticipating market trends and acting accordingly in this situation. When their market is growing, they can build on their existing knowledge base to capture market share. However, when markets that the firm is engaged in are declining, they may need to seek other avenues of capturing technological expertise. The ability to determine correct markets for new product development is particularly important for the pharmaceutical industry since drug development can take a decade or more and cost as much as 800 million dollars.

Firms exiting existing product markets may free up resources to be used on other projects. The first place for firms to look would be in house R&D. However the needed knowledge and resources may be lacking within the firm. In these instances firms may have sufficient incentive to engage in R&D alliances in spite of the risks of knowledge appropriation by other firms. On the other hand, firms building on existing product knowledge possess fewer reasons to risk losing their valuable knowledge to potential partners.

Hypothesis 2: Firms correctly reducing product development in the pharmaceutical industry will form more R&D alliances than firms that are correctly increasing product development.

METHODS

Sample

The sample consists of publicly traded firms in the pharmaceutical industry (SIC codes 2833 and 2834). This industry is a subset of the industries used by Schilling and Phelps (2007) in their study of interfirm collaboration networks. They specifically chose firms from industries designated as high technology by the Bureau of Labor Statistics. These firms where chosen for two reasons. First, this study examines product market order of entry, product development, and product exit choices. Therefore choosing an industry that has a moderate to large amount of product development occurring is essential in order to examine its effect on alliance formation. Secondly, patent data are used to determine measures of product development. Therefore, it is essential that firms in the selected industry file patents so that other measures can be constructed from the patent data.

Companies were chosen that had data available in January 1997 on Mergent Online. Mergent Online provides a database of 15,000 U.S. companies listed on the NYSE, AMEX, and NASDAQ exchanges. This database consists of active and inactive firms. The list of firms chosen from Mergent was accessed by SIC code and year selections. Firms were chosen that were listed as United States businesses or whose primary headquarters was located in the United States. The primary purpose in choosing firms based in the United States was to control for cultural differences across countries that might influence alliance formation.

Measures

Dependent variable. The dependent variable in this study is total partnerships formed. In this study partnerships represent R&D alliances that produced patents. As a result, this variable

represents successful R&D alliances rather than R&D alliances in general since such alliances are not guaranteed to produce patentable results. The partnerships were obtained from the patents filed. The patent forms filed with the United States Patent Office (USPTO) have a field for assignees. The assignee name field contains the name of the individual or entity to which ownership of the patent was assigned. In the case of partnerships, this field will contain more than one name. In this study, the concern is with alliances formed outside of the company. Therefore, alliances formed between the company and its subsidiary or permanent joint ventures were not included in this measure. All partnerships consisted of two or more companies that were separate entities. Partnerships were considered to be dyadic. Therefore, when these partnerships consisted of more than two entities, all two party combinations were included in the partnership count. Thus a three party alliance contains three two party combinations. Two party alliances were more common but a few firms such as Bristol Myer had multiple three or greater party alliances.

      Independent variables. Four independent variables were chosen for the study of R&D alliance formation. These variables are early mover, follower, correct product development and correct product exit. These four variables was measured using structural decomposition analysis (SDA). SDA is an econometric technique that is designed to isolate the elements of change. The development of these measures followed the work of Mendonca and Fai (2007). The authors developed four measures of technological change using patent data from high technology industries. In the original paper, these measures were constructed for industries, however in the current study; these measures replace industry with firms. At the firm level, Mendonca and Fai's variables can be used to examine the order of entry for firms as well as their product development choices. The measures are calculated as follows:

t-1, t = subscripts for initial year and final year of the period under consideration

Let

p = a patent class (1….N)

j = a firm (1…N)

t = year (1…10)

i = industry (1..3)

τ = technologies share of patents in the patent class. $\tau = \dfrac{p}{k}$ where k is the total of all patents.

ϕ = firm j's share of all patents in a patent class. $\phi = \dfrac{p_j}{p}$

The first measure constructed is early movers. . This measure isolates the extent to which a firm has gained or lost shares of patents through changes in the broader technological environment assuming a fixed technological structure within the firm.

(1) $\displaystyle\sum_{p=1}^{N} (\tau_{pt-}\tau_{pt-1})(\phi_{pt-1})$

The second measure developed is followers. This measure isolates the extent to which a firm has gained or lost shares of total patents through growth into new areas assuming a fixed technological structure in the broader environment.

$$(2) \sum_{p=1}^{N} (\phi_{pt-}\phi_{pt-1})(\tau_{pt-1}).$$

The third and fourth measures represent the extent to which firms have gained or lost total share of patents through movement into the right fields referred to as correct product development or out of the wrong fields referred to as correct product exit. Both measures are defined in the same way; however the fields are separated depending on whether share of patents increased or decreased in the broader technological environment. The following equation defines the measure:

$$(3) \sum_{p=1}^{N} (\tau_{pt-}\tau_{pt-1})(\phi_{pt-}\phi_{pt-1}) \text{ for a firm j in an industry i.}$$

When the second term is positive the measure represents increases in the patent share of a product class in the technological environment from the previous period. When the first term is also positive, the firm is increasing their share of a patent class from the previous period. Taken together the equation represents the growth of the firm's technology in a specific area relative to competitor's when growth in that technological area is also increasing. Thus correct product development is represented.

When the second term is negative, product exit is measured. The measure represents decreases in the patent share of a product class in the technological environment from the previous period. When the first term is also negative, the firm is decreasing their share of a patent class from the previous period. Taken together the equation represents the decline of the firm's technology in a specific area relative to competitor's when the share of patents in the overall technological environment is decreasing. Positive numbers represent a decline in share of patents for correct product exit.

Mendonca and Fai (2007) reduced the patent classes into 9 broader classes. However in the current study, the actual patent classes provided by the United States Patent and Trademark Office (USPTO) were used to avoid contamination of the measure by misclassification. The data for these measures were obtained from the USPTO. First total patents issued by year were obtained. Next, total patents per year for each class that any firm in the database filed was determined. Finally the total number of patents filed by each firm in each class in each year was obtained. From this data, the four above measures were developed.

Control variables. Ahuja (2000) suggests a number of control variables that might affect alliance formation. Four of those variables are included in this study. Current ratio controls for financial liquidity and is the ratio of current assets to current liabilities. Ahuja suggests that the desire for liquidity might drive firms into partnerships. Return on assets (ROA) represents financial performance. Financial performance might influence firms to engage in partnership activity, either in order to improve that performance or perhaps as an indicator that the firm has the financial ability to follow through on partnership obligations. The third variable included is debt/equity ratio which measures the leverage characteristics of the firm. The amount of leverage might affect partnerships linkages due to the need to spread commitment by engaging in partnerships. Another variable, solvency was suggested by Gulati (1995). Solvency indicates long term commitments of the firm. Businesses engaging in long term projects with uncertain

returns, a common occurrence in the pharmaceutical industry, might engage in partnerships to reduce the risk associated with long term commitments and the uncertainty associated with those commitments. Financial data for current ratio, ROA, debt/equity and solvency were obtained from Mergent Online. In some instances data were unavailable for certain companies in a given year. In these instances, additional information about the indicators was obtained by calculating the ratios from balance sheet data supplied by Compustat. Calculated results were compared to Mergent Online results for the same indicators to ensure that the indicators were calculated consistently. Total patents were also used as a control variable in this study since patents are used to obtain information about partnerships, location, and prior experience. It seems reasonable that firms filing more patents will also have more partnerships and more prior partnerships.

Proximity to partners was also added as a control variable. Closer proximity also benefits those firms by lowering coordination costs such as travel by key employees and shipping needed supplies. The ability to work closely with suppliers and complementors lowers the need for vertical integration. Proximity may also lead to closer relationships through better communication. Rich communication channels resulting from face to face meetings could enhance information exchange Individuals in clusters additionally may interact with each other in social situations since they live in close proximity. Familiarity in multiple contexts with individuals from other firms may lead to trust. Trust in turn may increase the possibility that firms will form alliances with one another (Uzzi, 1996, 1997). Actual distance was obtained from the website www.geobytes.com/city**distance**tool.htm.

Finally, prior alliances were added as a control variable. Firms with prior experience in partnerships are more likely to have developed expertise in working with those partners (Li, Eden, Hitt, & Ireland, 2008). This expertise may take the form of routines or even tacit knowledge about how best to work with others to develop new products. Familiarity and expertise reduce uncertainty and make risk sharing with other firms more likely to succeed. In this study, the total number of prior alliances that were repeated in the current year was totaled for each year for each firm.

Model and Estimation

The dependent variable in this study, total partnerships is a positive count variable with a mean of .77 and a variance of 2.4. OLS regression is generally considered inappropriate when the dependent variable exhibits overdispersion. Two alternatives to OLS are Poisson and negative binomial regression. Poisson regression assumes an equal variance and mean while negative binomial regression has been developed to handle forms of count data when the assumptions of Poisson regression are not met as in the current study (Greene, 1997). Negative binomial distribution takes the form: $\ln \lambda_i = \beta' x_i + \varepsilon$. The disturbance term ε can reflect specification error or cross-sectional heterogeneity, λ_i represents the mean and variance of the distribution, and x_i is a vector of regressors.

In the context of panel analysis, another choice must be made between random and fixed effects. The general form of the panel regression equation is $y_{it} = i\alpha_i + X_i \beta + \varepsilon_i$ (Greene, 1997). The difference between fixed and random effects is determined by the approach taken to the term α_i which represents the individual effect. In random effects models, α is a group specific disturbance in which a single draw enters the regression identically in each period. The random effect model preserves degrees of freedom but assumes that individual effects are uncorrelated with other regressors. Conversely, the fixed effects model assumes that the

individual effects are unknown parameters that must be estimated. Fortunately, the Hausman test allows one to determine which model is more appropriate (Greene, 1997). The null hypothesis that random effects was appropriate was rejected (p=.0106). Therefore the model used in this analysis is a fixed effects negative binomial model. Finally, the model uses an unbalanced panel design. In unbalanced designs, groups may be missing data and group sizes may vary. Stata 10 is used to conduct all statistical analysis and provides routines to conduct the model analyses.

Results
Descriptive Statistics

Table 1 reports descriptive statistics for the study variables. Two of the product development variables, early movers and followers are significantly related to total patents which make sense given that patent data was used to generate these variables. However the other two product development variables correct product development and correct product exit are not significantly related to total patents. Among the control variables, current ratio, return on assets and total patents are significantly related to total partnerships. Current ratio is a measure of liquidity and suggests that lower liquidity may be associated with R&D partnership formation since the coefficient is negative. ROA is positively associated with total partnerships suggesting that the size of the firm in financial terms may promote R&D partnerships.

Table 1
Descriptive Statistics and Cross-Level Correlations [a]

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1. D/E	.41	5.14	1											
2. Solvency	.38	.75	.07	1										
3. CR	5.43	6.86	.01	0.16***	1									
4. ROA			.03	.03	.06	1								
5. Distance	1881	1833	-.06	.12	-.01	-.08	1							
6. Prior	.62	.49	-.11	-.05	.14	-.06	.04	1						
7. Total Patents	13.65	38.12	.02	-.05	.14***	.12*	-.13	-.04	1					
8. Early Mover	-.003	.028	.00	.06	-.06	-.02	.11	.05	-.09*	1				
98. Follower	.14	.50	0	-.04	.02	.01	-.07	.08	-.01	.05	1			
10. Correct Product Development	0	.001	.03	.04	.01	.01	.01	-.04	-.02	-.09	.42***	1		
11. Correct Product Exit	.0001	.002	.00	-.01	-.07	.06	-.09	-.04	.20***	-.05	-.04		1	
12. Total partnerships	.77	2.39	.03	.03	-.07*	.08*	0	.15	.23***	.02	.04	-.01	-.03	1

[a]n=870
* p<.05
** p<.01
***p<.001

Table 2[a]
Negative Binomial Models with Fixed Effects for R&D Partnership Creation

Variables	Model 1		Model 2		Model 3		Model 4	
Constant	16.61	1256.80	15.12	475.98	16.32	676.06	16.57	714.02
Independent								
Early mover			2.75	4.08			9.35*	4.49
Follower			-0.24	0.51			0.19	0.56
Correct product development					11.36	49.63	4.61	48.51
Correct product exit					47.49**	16.49	68.47**	19.64
Control								
Prior	0.073**	0.01	0.073**	0.01	0.083**	0.01	0.089**	0.01
Distance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ROA	.004	0.0027	0.004	0.003	0.005	0.003	0.003	0.003
CR	0.00	0.02	0.00	0.02	0.01	0.02	0.02	0.02
Solvency	-0.04	0.12	-0.03	0.12	0.01	0.13	0.03	0.13
D/E	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
Total Patents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
df	7		9		9		11	
Log Likelihood	-201.932		-199.166		-160.904		-156.69	
Log-Likelihood ratio			5.532		76.524		8.428	
Wald X^2	108.87		108.18		102.64		102.62	

n=119
† p<.10
* p<.05
** p<.01

Regression Models
The results of the fixed effects negative binomial regression analysis are reported in Table 2. Model 1 is the controls only model, model 2 adds early mover and follower variables, model 3 adds product development and product exit variables, and model 4 is the full model containing all of the study variables. Model fit is significantly improved when product development and product exit are added to the control variables. However the addition of early movers and

followers does not significantly improve model fit. Finally the full model is an improvement over the model incorporating only the controls and product development and exit variables

In all models, prior experience with alliance partners is significantly related to the likelihood that firm's will have more total partnerships. In model 1, no variables except for prior experience are significantly related to total partnerships. Model 2 does not support hypothesis 1 that early movers are more likely to form product development alliances than followers. However in the full model, early movers have a significant effect on total partnerships supporting hypothesis 1.

In the full model early movers (β=. 9.35 p< .05), product exit (β=. 68.47 p<.001), and prior experience (β=. 089 p<.001) are significant while total patents (β=. 002 p<.10) was marginally significant supporting hypotheses 1 and 2. For the sake of completeness, Poisson fixed effects regression was run on the study variables. Model fit was significantly worse with a log likelihood ratio of -166.

Discussion

In this study we have enhanced our understanding of R&D alliances and innovation. The ability to quickly enter markets with new products and to accurately exit from unproductive products enhances the likelihood of entering successful R&D alliances. Firms that adapt to changing market conditions quickly may hold a competitive advantage over less nimble competitors within their industry.

Alliances and networks provide instances where groups of firms work together for a common goal. Good product development choices and proactive product development might make firms into more attractive partners. Some support for this view was found in the present study. First it appears that only certain elements of product development choices were related to the formation of successful R&D alliances. Specifically early entrants to product markets and firms correctly exiting previous product areas were significantly more likely to form alliances. For early entrants the choice to be early entrants into markets may have driven them to form alliances in order to acquire necessary expertise. For firms exiting product areas, the awareness of the inadequacy of previous products might produce a sufficient incentive to seek alliance partnerships.

Importantly, these firms are entering successful R&D alliances. Sampson (2005) observes that alliances may face considerable coordination challenges, uncertainty, and cultural differences. Thus the success of alliances in this study is all the more remarkable. It may be that the incentive to develop new products outweighs the problems typically associated with alliances. For firms currently engaged in correct product development, the needed expertise may already exist to develop future products for the firm. In these situations, risking knowledge appropriation by partners or simply facing the numerous issues associated with alliances makes less sense. Similarly followers are making improvements to existing products more often than radical innovations. In these situations basic research is probably unnecessary and followers have less need to engage alliance partners than early movers.

Among control variables, prior experience with partners was a highly significant predictor of total partnerships. Two elements might cause this relationship to occur. First firms seem to find it easier and possibly safer to ally with known partners rather than to venture into new alliances. When these alliances occur repeatedly, they contribute to the total number of partnerships. Thus total partnerships represent a way of doing business for firms that repeat alliances with known partners. Secondly, it may be that managerial styles are represented by the use of prior partners such that these decision makers are more oriented to developing partners

and sharing the glory and benefits of R&D discovery. Additionally firms that engage in frequent alliances may have a developed ability to handle alliances in terms of coordination and cultural issues. Some firms have a department dedicated to alliances for instance. The finding that proximity did not influence total partnerships was surprising. Previous research and theory supported the importance of proximity, particularly in industry clusters. One observation when examining the location of partners was that partners chosen by a particular firm may come from a proximate area such as San Francisco yet the firm may be located in a completely different area. An area of future research might examine whether firms choose partners from a cluster or geographically proximate area. The inability to find a relationship in this study may be due to several causes. First it could be that the pharmaceutical industry does not benefit as much as hardware industries from proximity. If true, then research in other areas such as computer hardware might turn up a relationship and the industry could be a critical moderator to the influence of proximity on partnerships. Another possibility is that R&D alliances are not as prone to the influence of proximity as broader strategic alliances. Some forms of research can almost certainly be performed at a distance, especially with the broad number of forms of communication such as teleconferencing, email, and telephone. Therefore the level of interaction could be an important moderator of proximities influence on alliance formation. Finally, a broader network perspective examining indirect ties might lead to insights about alliance formation at remote locales. This study suggests that prior experience with partners was a more important factor than location. It could be that familiarity overrides the influence of distance although in this study distance was not significant even in the absence of prior experience. Although 87 firms were examined over a nine year period, much larger studies could be conducted. Expanding the size of this study might increase the power to find important factors. Ideally, adding several more high technology industries to this study would improve the generality and power of the findings.

This study has several limitations. First the relatively small size of the sample may have hindered the ability to find more significant relationships. Additionally, focusing on pharmaceuticals may fail to uncover important industry effects. Further, the firms used in this study had publicly available information. This precludes privately held firms. However it seems reasonable to believe that the publicly held firms filed more patents and engaged in more R&D partnerships which were the variable of interest in this study. We also incorporated product development variables at the firm level that in Mendonca and Fai's study were previously incorporated as technological change variables at the industry level. It might be argued that the relationship between the industry and the firm level are quite different and that the product development construct might have a different meaning. Nevertheless, the product development variables measure changes in the patenting patterns within the firms studied and provides valuable information not previously available. It might be interesting to consider the broader technological change environment in concert with the product development construct. In this instance, multilevel models over time could produce important discoveries.

On the positive side, this study uses a longitudinal design that allows two elements in the chain of causality to be examined. First the study determines which items covary and the study also examines the change over time in those relationships. Secondly, the inclusion of a ten year period allows the pharmaceutical industry to experience more than one historical change or event reducing the possibility of historical bias which could result from a cross sectional study. Third, the element of product development order of entry, choice, and exit are added as possible antecedents to alliance formation. This is also the first time that product exit choices have been

used in the context of R&D alliances. Finally, understanding the antecedents of successful R&D alliance formation may inform decision makers about the reasonableness of forming partnerships with other firms and entities.

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IMPACT OF RFID TECHNOLOGY UTILIZATION ON ORGANIZATIONAL AGILITY

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Abstract

Purpose – This study examines the impact of RFID technology utilization on organizational agility in manufacturing firms.

Design/methodology/approach – Data from a sample of 328 manufacturers were collected and the model was assessed following a structural equation methodology.

Findings – Findings indicate that adoption of RFID technology utilization directly and positively affects organizational agility which in turn directly and positively affects both operational and logistics performance. Additionally, operational performance directly and positively affects logistics performance.

Research limitations/implications – Data were collected during the growth stage of RFID technology adoption and were only collected from firms in the manufacturing sector. Respondents held operations-level positions in manufacturing organizations. Results should be interpreted with these limitations in mind.

Practical implications – The implementation of RFID technology can result in improved organizational agility resulting in improved performance. Practitioners considering adoption of RFID technology should weigh potential benefits from increased agility and performance against the costs of technology adoption.

Originality/value – This is one of the first empirically based studies investigating the impact of RFID technology implementation on organizational agility.

Keywords: RFID technology, organizational agility, operational performance, logistics performance.

Paper Classification: Research paper

1. Introduction

Radio Frequency Identification (RFID) has been around for a number of years and is touted as one of the most important innovations in several decades (Spiegel, 2005). The initial focus of RFID was on security as is evident in its use in the friend or foe program in Britain during WWII (Hunt, Puglia and Puglia, 2007). However, in recent years the technology has been utilized in areas such as inventory management, process control, tracking, and monitoring (Lee and Park, 2008; Holmqvist and Stefansson, 2006; Zelbst *et al*., 2008). Accordingly, RFID utilization enhances the timeliness of production information (Brandyberry *et al*., 1999), creates tracking ability allowing for traceability of inventories (Green *et al*., 2008; Lee and Park, 2008) and increases service level capabilities (Kincade, Vass, and Cassill, 2001) resulting in organizational growth and profitability (Kotha and Swamidass, 2000; Byrd and Davidson, 2003).

We focus on RFID technology utilization in inventory control and manufacturing processes to see if an organization using the technology will have more agility. We examine organizational agility in terms of capabilities, flexibility in production, and customer responsiveness to see if the utilization of RFID technology increases organizational agility resulting in improved operational performance and logistics performance.

The following section presents a theoretical model with support from the existing literature and develops the study hypotheses accompanied by supporting theoretical and empirical support. The methodology section

follows including discussions of the data collection process, construct measurement, and statistical analyses used to assess the measurement scales and the structural model. The results section presents the results and accompanying interpretations for the measurement model assessment, the structural model assessment, and the individual study hypotheses.

2. Literature review and hypotheses

2.1 The Model and Hypotheses

We theorize a structural model incorporating RFID technology utilization as antecedent to organizational agility, RFID technology utilization and organizational agility as antecedents to operational performance and logistics performance, as well as operational performance as antecedent to logistics performance. Generally, we propose that RFID technology utilization positively impacts organizational agility which, in turn, positively impacts organizational performance. This model is presented in Figure 1.
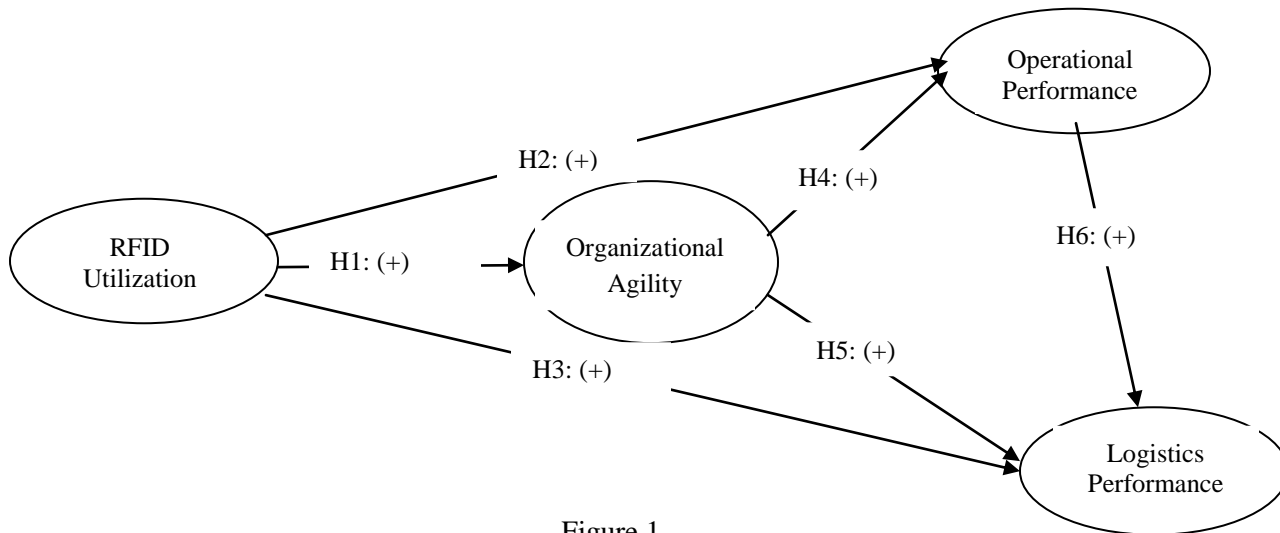
Figure 1
RFID Technology Utilization and Organizational
Agility Performance Model with Hypotheses

.2 Technology diffusion and RFID Utilization

Jalles (2010) found evidence that diffusion of technology can have an advantageous effect on economic growth in and across countries. Frantzen (2004) examined technology diffusion in manufacturing and found that technology diffusion does impact productivity in a manufacturing environment. Ramamurthy *et al.* (2000) found that diffusion of information technology allowed companies to be proactive, reactive and create change. All of these elements are considered to be agile activities according to Conboy *et al.* (2005). The diffusion of technologies such as RFID can provide ways to gather information that allow companies to be both proactive and reactive and to create change.

According to Stambaugh and Carpenter (2009), RFID systems are rapidly replacing Universal Product Codes (barcodes). Cost has been the major barrier to the utilization of RFID (Prater *et al*., 2005). However, more organizations are realizing the benefits of employing RFID to track inventory not only throughout the supply chain but also within the organization. Hozak and Collier (2008) found that RFID utilization enables

improved manufacturing performance. Manufacturing organizations can benefit through greater inventory visibility via the real-time information provided by RFID technology to manage the flow of inventory (Brintrup *et al.*, 2010). According to Klein and Thomas (2009), the use of RFID technology can speed up the flow of information allowing for greater visibility of inventories as they flow through the manufacturing processes. RFID can be utilized to track inventory, such as raw materials, work-in-progress (WIP), and finished goods inventories, through the manufacturing process (Stambaugh and Carpenter, 2009). Zhou (2009) found that the level of tagging can be crucial for an organization; for example, should organizations tag at the item or bulk level? Currently most items are tagged primarily at the case and pallet level, as the cost of the technology goes down, organizations will begin to tag at the item level.

2.3   Hypotheses

As previously stated, organizations that are proactive, reactive and create change reflect the elements of agility (Conboy *et al.*, 2005). Agility requires physical and fiscal quickness to respond to unpredictable events. Narasimhan *et al.* (2006, p. 443) describe agility in a manufacturing context as the ability to "efficiently change operating states in response to uncertain and changing demands." Further, Vance (2005) found that RFID technology has the potential to enhance supply chain agility. However, Vance's work only looked at the supply chain level and did not focus on organizational agility.

Swafford *et al*. (2008) found that the integration of information technology will result in more agility for an organization and should ultimately have a positive influence on competitive business performance in areas such as response to changes in customer demand, response to market changes, and the capability to sense, perceive and anticipate market changes. Neuwirth (2005) found that RFID enabled organizations support proactive management through use of real-time data. Customers' rapidly changing needs emphasize the point that organizations must be able to respond quickly with necessary changes to internal processes and products (Hsieh *et al.*, 2008). Accordingly, technology diffusion theory and prior research suggests that organizations engaged in RFID technology utilization should then be able to efficiently provide information that allows organization to become more agile. Based on this theoretical and empirical justification, we hypothesize the following:

> *H1: RFID technology utilization positively impacts organizational agility.*

As previously stated, Frantzen (2004) argues that technology diffusion in manufacturing impacts productivity in a manufacturing environment. Operational performance is also dependent upon an organization's capabilities and technologies (Hatch, 2008). Operational performance is defined by Feng *et al.* (2006, p. 26) as, "the performance related to organizations' internal operations, such as productivity, product quality and customer satisfaction." Technologies such as RFID can lead to improvement in internal operations. Mabin and Balderstone (2003) and Huckman and Zinner (2008) identified several measures of operational performance as throughput, inventory, and operating expense. According to Huckman and Zinner (2008), organizations focusing on underlying technologies find an improvement in throughput, inventory expense, and operating expense ultimately resulting in a positive impact on operational performance. Based on technology diffusion theory and prior research, we hypothesize the following:

> *H2: RFID technology utilization positively impacts operational performance.*

As previously stated Sharifi and Zhang (2001) identified the need for performance measurement. Logistics performance captures a measure of performance external (manufacturer/ supplier) to the organization (Green *et al*, 2007). Jalles (2010) found evidence that diffusion of technology can have an advantageous effect for organizations. Logistics performance can be measured as a composite of customer satisfaction, responsiveness (Baker, 2008), delivery dependability (Narasimhan and Jayaram, 1998; Olhager and Selldin, 2003), delivery speed (Swafford *et al.*, 2008), flexibility (Tang and Tomlin, 2008) and capacity. It reflects an organization's ability to satisfy customers through the on-time delivery of quality products and services (Bowersox *et al.,* 2000). Organizations utilizing RFID technology can expect to be more responsive to

customers logistically according to Azevedo and Ferreira (2009). In their exploratory study, these authors found that measurements such as lead time went from 497 days to 24 hours immediately. As a result stock level decreased dramatically (60%). Based on technology diffusion theory and prior research, we hypothesize the following:

H3: RFID technology utilization positively impacts logistics performance.

According to Sharifi and Zhang (2001), agility is perceived as vital to maintaining competitive advantage in a manufacturing environment. The focus of Sharifi and Zhang (2001) was on model development for the assessment of agility, but they did include the need for performance measurements. Based on technology diffusion theory and prior research, we hypothesize the following:

H4: Organizational agility positively impacts operational performance.

Logistics performance is the ability to respond to customers' ever-changing wants and needs (Zelbst *et al.*, 2010). According to Abrahamsson *et al.* (2005), the utilization of technologies such as RFID can lead to agility in organizations. Organizations that are agile have the capability to respond to unexpected changes and increase processing speed (Lyytinen and Rose, 2005). Swafford *et al.* (2008) found that the integration of information technology will result in more agility for an organization resulting in better response to market changes as well as enhancing the capability to sense, perceive and anticipate market changes. Based on technology diffusion theory and prior research, we hypothesize the following:

H5: Organizational agility positively impacts logistics performance.

Stank and Lackey (1997) argue that operational performance is influenced by logistics performance. Zelbst *et al.* (2010) found that operational performance positively impacts logistics performance. They also found that operational performance positively impacts logistics performance. They did not, however, test this hypothesis in a context of technology diffusion. Rai *et al.* (2006) examined overall firm performance in a digitally-enabled supply chain and found that information related technology impacted supply chains. However, they did not examine whether operational performance impacts logistics performance. Based on technology diffusion theory and prior research, we hypothesize the following:

H6: Operational performance positively impacts logistics performance.

3. Methodology

3.1 Data collection process

Data were collected via an on-line data service (MarketTools, Inc.) during the spring of 2009. Approximately 2,000 individuals working for manufacturing plants in the U.S. were invited to participate in the survey. Of the 2,000 individuals invited, 328 accessed the survey website and completed the survey for an effective response rate of 16.4%. Respondents were categorized as either managers (plant manager, operations manager, purchasing manager, engineering manager), supervisors (directly supervise operations/production/technical workers), or operations/production/technical workers (work directly within the production process to manufacture products). Of the respondents, 7.6% held manager positions, 14% held supervisor positions, and the remaining 78.4% held operations/production/technical worker positions. Measurement scale item means for the three categories were compared using ANOVA with no significant differences (at the .01 level) noted. Respondents average 8.8 years in their current positions and work for firms averaging 783 employees and $1.5 billion in annual revenues. Respondents were asked to select a manufacturing category for their organizations. Two hundred and twenty-three (68%) selected one of 18 specific SIC categories. The remaining 105 (32%) respondents selected the more general default category "other manufacturing." It should be noted that due to financial constraints it was only possible to contact potential respondents once, precluding assessment of potential non-response bias.

We believe that individuals working within plants are those best suited to answer the measurement scale items for constructs such as RFID technology utilization, organizational agility, operational performance, and logistics performance. As intended, the sample constructed represents a relatively diverse group of

manufacturers with knowledge of their organizations' efforts to implement RFID technology, level of agility in terms of responding to changes in customer demand, and levels of operational and logistics performance. While individuals in corporate level positions develop policy and strategy, those individuals working within the manufacturing plants themselves are best suited to provide information related to the actual implementation and effects of implementation of policies and strategies. While collection of data from the operational level of the manufacturing organization was our intent, we note and understand the potential limitation especially where information related to supply chain performance is concerned. As was our intent, the sample exhibits diversity with respondents representing a diverse cross-section of industries and with knowledgeable respondents representing the plant-level of the manufacturing organizations.

When data for the independent and dependent variables are collected from single informants, common method bias may lead to inflated estimates of the relationships between the variables (Podsakoff and Organ, 1986). As Podsakoff and Organ (1986) recommend, Harman's one-factor test was used *post hoc* to examine the extent of the potential bias. As prescribed by Harman's test, all variables were entered into a principal components factor analysis. According to Podsakoff and Organ (1986), substantial common method variance is signaled by the emergence of either a single factor or one "general" factor that explains a majority of the total variance. Results of the factor analysis (maximum likelihood, varimax rotation) of all scale items listed in Appendix A revealed 4 factors with eigenvalues greater than one, which combined to account for 76% of the total variance. While the first factor accounted for 25% of the total variance, it did not account for a majority of the variance. Based upon these results of Harman's one-factor test, problems associated with common method bias are not considered significant (Podsakoff and Organ, 1986).

3.2   Construct measurement

The structural model under investigation incorporates four constructs: RFID technology utilization, organizational agility, operational performance, and logistics performance. The RFID technology utilization scale was originally developed and assessed by Green et al. (2009). The agile manufacturing scale is taken from Inman *et al.* (2010). The operational performance scale is taken from Zelbst *et al.* (2010). The logistics performance scale is taken from Green *et al*. (2007). All study scales are presented in Appendix A.

3.3   Statistical analyses

The measure scales are assessed individually for unidimensionality, validity, and reliability. The scales are then incorporated into a measurement model and assessed for fit. Summary variables are then computed and descriptive statistics developed. The theorized model is then assessed following a structural equation modeling methodology.

4.   Results

4.1   Measurement scale assessment

Quality measurement scales must exhibit content validity, unidimensionality, reliability, discriminant validity, and convergent validity. Since all scales were taken directly from prior research (Green *et al.*, 2009; Inman *et al.*, 2010; Zelbst *et al.*, 2010), content validity is assumed. Results used to assess all scales are found in Table 1.

Table 1
Scale Assessment Results

Reliability, dimensionality, and convergent validity assessment results

Scale	Alpha	Relative $\chi2$	GFI	RMSEA	NNFI	CFI	NFI
RFID Utilization	.981	3.796	.956	.092	.990	.994	.991

Agile Manufacturing	.955	2.140	.962	.059	.993	.995	.991
Operational Performance	.882	4.838	.971	.108	.969	.985	.981
Logistics Performance	.963	9.56	.945	.162	.966	.983	.981

Unidimensionality was assessed using confirmatory factor analysis on each of the individual study scales (Gerbing and Anderson, 1988). Koufteros (1999) recommends using relative chi-square, non-normed fit index (NNFI), and comparative fit index (CFI) values to assess fit when the sample size is relatively small. Relative chi-square values of less than 2.00 and NNFI and CFI values greater than .90 indicate reasonable fit (Koufteros, 1999). Kline (1998) recommends relative chi-square values of less than the 3.00, while Marsch and Hocevar (1985) apply a somewhat less stringent cut-off of 5.00.

In order to achieve unidimensionality, it was necessary to remove items 4 and 5 from the RFID technology utilization scale, item 8 from the organizational agility scale, items 2, 3, and 4 from the operational performance scale, and item 2 from the logistics performance scale. NNFI and CFI values from the confirmatory factor analyses for all other scales exceed the recommended value of .90. The relative chi-square values for all scales exceeded the most stringent limit of 2.00 recommended by Koufteros (1999). Only the relative chi-square value for the logistics performance scale exceeds the less strict limit of 5.00 recommended by Marsch and Hocevar (1985). This evidence supports a general claim of sufficient unidimensionality for all study scales.

Garver and Mentzer (1999) recommend computing Cronbach's coefficient alpha to assess scale reliability, with alpha values greater than or equal to 0.70 indicating sufficient reliability. Alpha scores for all of the measurement scales exceed the .70 level. Alpha values for RFID technology utilization, organizational agility, operational performance, and logistics performance are .981, .981, .882, and .963, respectively. Thus, the study scales are sufficiently reliable.

Ahire et al. (1996) recommend assessing convergent validity using the normed-fit index (NFI) coefficient with values greater than 0.90 indicating strong validity. Garver and Mentzer (1999) recommend reviewing the magnitude of the parameter estimates for the individual measurement items to assess convergent validity. Sufficient convergent validity is indicated when the estimates are statistically significant and greater than or equal to .70. NFI values for the RFID technology utilization (.99), organizational agility (.99), operational performance (.98), and logistics performance (.98) scales exceed the .90 threshold. All parameter estimates for each of the individual items in the study scales are significant with values greater than .70. All scales exhibit sufficient convergent validity.

Discriminant validity was assessed using a chi-square difference test for each pair of scales under consideration, with a statistically significant difference in chi-squares indicating validity (Garver and Mentzer, 1999; Ahire et al., 1996; Gerbing and Anderson, 1988). All possible pairs of the study scales were subjected to chi-square difference tests with each pairing producing a statistically significant difference.

4.2   Measurement model assessment
Koufteros (1999) recommends that the individual scales be incorporated together in a measurement model and that this model be subjected to an additional confirmatory factor analysis and that relative chi-square, non-normed fit index (NNFI), and comparative fit index (CFI) values to assess fit when the sample size is relatively small. Results of the analysis are reported in Table 2. Relative chi-square values of less than 2.00 and NNFI and CFI values greater than .90 indicate reasonable fit (Koufteros, 1999). Results indicate that the measurement model fits the data relatively well with an NNFI of .98, and a CFI of .98. The relative chi-square of 3.10 is

higher that the recommended value of 2.00., but is well below the 5.00 level recommended by Marsch and Hocevar (1985). The individual measurement scales are considered sufficiently reliable and valid and the fit of the measurement model is considered sufficient to support further analysis.

Table 2

Measurement Model Results

Chi-square ratio = 3.10; RMSEA = .08; NFI = .97; NNFI = .98;
CFI = .98; IFI = .98; GFI = .82

Construct/Measures	Std. Coefficients	*t*-values
RFID Technology Utilization		
RFID1	.95	23.36
RFID2	.95	23.30
RFID3	.93	22.17
RFID6	.97	24.16
RFID7	.97	24.18
RFID8	.94	22.65
RFID9	.92	21.76
Organizational Agility		
OA1	.82	18.20
OA2	.85	18.94
OA3	.88	20.23
OA4	.92	21.93
OA5	.88	20.12
OA6	.88	20.33
OA7	.83	18.47
OA9	.90	20.94
OA10	.86	19.50
Operational Performance		
OP1	.83	18.20
OP5	.86	19.04
OP6	.85	18.87
OP7	.75	15.53
OP8	.74	15.32
Logistics Performance		
LP1	.91	21.45

LP3	.93	22.33
LP4	.96	23.44
LP5	.93	22.38
LP6	.94	22.65

4.3   Structural equation modeling results
Summary values for the study variables were computed by averaging the items in the scales. Descriptive statistics and the correlation matrix for the summary variables are presented in Table 3. All correlation coefficients are positive and significant at the .01 level.

Table 3
Descriptive Statistics and Correlations

Summary Variable	Mean	St. Dev.	RFID	OA	OP	LP
RFID Utilization (RFID)	3.778	1.914	1.00			
Organizational Agility (OA)	5.282	1.291	.401**	1.00		
Operational Performance (OP)	5.101	1.173	.411**	.743**	1.00	
Logistics Performance (LP)	5.662	1.212	.326**	.787**	.770**	1.00

** Correlation is significant at the 0.01 level (2-tailed).

 Figure 2 illustrates the model with the structural equation modeling results. The relative chi-square (chi-square/degrees of freedom) value of 3.10 is slightly higher than the 3.00 maximum recommended by Kline (1998) but less than the 5.00 recommended by Marsch and Hocevar (1985). The NNFI (.98) and CFI (.98) exceed the .90 level recommended by Koufteros (1999).
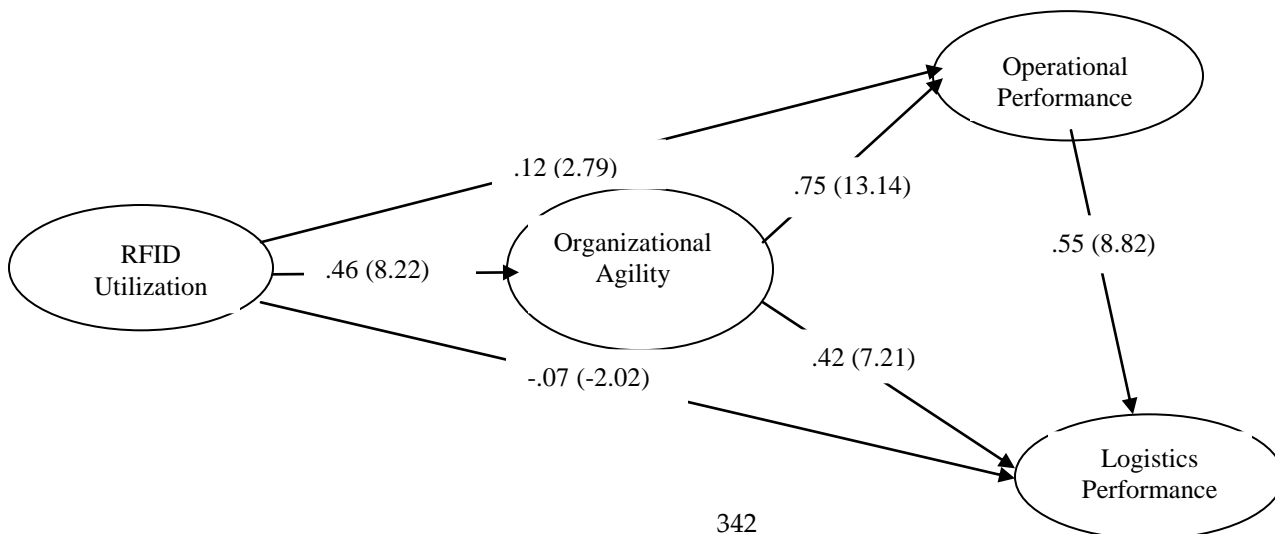
Figure 2
RFID Technology Utilization and Organizational Agility Performance
Model with standardized estimates and (t-values)

Relative Chi-Square =3.10; NFI = .97; RMSEA = 0.08;
CFI = 0.98; IFI = 0.98; NNFI = 0.98; SRMR = 0.04

Five of the six study hypotheses were supported by the standardized estimates and associated t-values. The relationship between RFID technology utilization and organizational agility (hypothesis 1) is positive and significant at the .01 level as hypothesized with an estimate of .46 and *t*-value of 8.22. The estimate of .12 for the relationship between RFID technology utilization and operational performance (hypothesis 2) is positive and significant at the .01 level as hypothesized with an associated *t*-value of 2.79. Although hypothesized as positive, the relationship between RFID technology utilization and logistics performance (hypothesis 3) is negative with an estimate of -.07 and *t*-value of -2.02 which is significant at the .05 level. The relationship between organizational agility and operational performance (hypothesis 4) is positive and significant at the .01 level as hypothesized with an estimate of .75 and an associated *t*-value of 13.14. The relationship between organizational agility and logistics performance (hypothesis 5) is positive as hypothesized with a standardized estimate of .42 and an associated t-value of 7.21. The relationship between operational performance and logistics performance (hypothesis 6) is positive as hypothesized with a standardized estimate of .55 and t-value of 8.82. The negative relationship between RFID technology utilization and logistics performance is surprising and requires additional discussion. The standardized estimate of -.07 is not absolutely large indicating that RFID technology utilization has relatively little direct impact on logistics performance. The claim of significance at the .05 level is more likely associated with the relatively large sample size.

4.4   Summary of results

The measurement scales are sufficiently valid and reliable and the measurement model fits the data relatively well. Results of the assessment of the structural model support five of the six study hypotheses. Generally, RFID technology utilization positively impacts organizational agility which, in turn, positively impacts both operational and logistics performance. In addition, operational performance positively impacts logistics performance. While the results indicate that RFID technology utilization positively impacts operational performance and negatively impacts logistics performance, the standardized estimates are relatively small (.12 and -.07) compared to the standardized estimate (.46) for the impact of RFID technology utilization on organizational agility. To summarize, the results indicate that RFID technology utilization leads to improved organizational agility drives improvements in both operational and logistics performance.

5   Conclusions and discussion

RFID technology utilization directly impacts an organization's agility and operational performance but does not directly impact logistics performance. RFID technology utilization does, however, indirectly impact logistics performance through both organizational agility and operational performance. The technology synchronously provides organizations with real-time information that facilitates efficient and effective response to changes in customer demands and markets. The findings provide support for the general proposition that RFID technology utilization enhances agility and improves performance.

While we believe that we have accomplished the objectives of the study, limitations should be noted. Data were collected during the growth stage of RFID technology adoption and were only collected from firms in the manufacturing sector. While some respondents hold managerial and supervisory positions, the majority hold operations-level positions within manufacturing organizations. Results should be interpreted with these limitations in mind. Future research should, therefore, follow the progression of technology implementation

from growth through to maturity stage. Additional research should investigate the impact of the technology on agility and performance within the services and governmental sectors. Because this is one of the first empirically-based studies investigating the impact of RFID technology implementation on organizational agility, replication of this study with other samples is important to generalization of the findings.

From a practitioner's perspective, the results support implementation of RFID technology to improve organizational agility, operational performance, and logistics performance. Practitioners considering adoption of RFID technology should weigh potential benefits from increased agility and performance against the costs of technology adoption.

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Appendix A

Measurement Scales
(* indicates items removed to achieve unidimensionality)

RFID utilization

Please indicate the extent to which agree or disagree with each statement (1= strongly disagree, 7 = strongly agree).
1. We currently use RFID technology to manage inventory flows through our manufacturing processes.
2. Our suppliers are required to provide products to us that facilitate RFID tracking.
3. Our customers require us to provide products to them that facilitate RFID tracking.
4. *We use RFID technology to manage raw material inventory levels.
5. *We use RFID technology to manage WIP inventory levels.
6. We use RFID technology to manage FG inventory levels.
7. Our current RFID technology facilitates tracking at the item level.
8. Our current RFID technology facilitates tracking at the bulk (i.e. pallet) level.

9. We plan to expand the use of RFID technology over the next several years to manage inventory flows through our manufacturing processes.

Organizational Agility

Please indicate the extent to which you agree or disagree with each statement. (1 = strongly disagree, 7 = strongly agree)
1. We have the capabilities necessary to sense, perceive and anticipate market changes.
2. Our production processes are flexible in terms of product models and configurations.
3. We react immediately to incorporate changes into our manufacturing processes and systems.
4. We have the appropriate technology and technological capabilities to quickly respond to changes in customer demand.
5. Our strategic vision emphasizes the need for flexibility and agility to respond to market changes.
6. We have formed co-operative relationships with customers and suppliers.
7. Our managers have the knowledge and skills necessary to manage change.
8. *We have the capabilities to meet and exceed the levels of product quality demanded by our customers.
9. We have the capabilities to deliver products to customers in a timely manner and to quickly respond to changes in delivery requirements.
10. We can quickly get new products to market.

Operational Performance

Please rate your organization's performance in each of the following areas as compared to the industry average. (1=well below industry average; 7=well above industry average)
1. Throughput
2. *Inventory expense
3. *Operating expense
4. *Lead time
5. Product cycle time (throughput time)
6. Due date performance
7. Inventory levels
8. Cash flow

Logistics Performance

Please rate your company's performance in each of the following areas as compared to the performance of your competitors. (1=much worse than competition, 7=much better than competition)
1. Customer satisfaction
2. *Delivery speed
3. Delivery dependability
4. Responsiveness
5. Delivery flexibility
6. Order fill capacity

**CONNECTING THE MISSING LINKS: CONCURRENT ENGINEERING PRACTICES &
COMPETITIVE CAPABILITIES**

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ABSTRACT

Evidence has shown that organizations seldom achieve the advantage offered by Concurrent Engineering (CE) practices. This may be attributed to the fact that current methodologies for analyzing CE practices are not sufficiently comprehensive, particularly when it comes to understanding the complexities of CE and competitive capabilities in a unified context. The study seeks to investigate this issue. A theoretical framework investigating the linkages between CE practices, Knowledge Management, and competitive capabilities such as product innovation and emotional capability beneficial to managers and practitioners is presented. Conclusion and future research directions are also presented.

INTRODUCTION

Concurrent engineering practices (CE) are the most popular techniques used to achieve new product development success (Jayaram & Malhotra, 2010; Swink & Song, 2007; Swink, Talluri and Pandejpong, 2006; Petersen, Handfield & Ragatz, 2005; Prašnikar,& Škerlj, 2006). It has also been pointed out that it is critical to study CE practices as they are utilized in 60% of the new product development initiatives (Naveh, 2005). Literature indicates that CE practices have been successfully practiced by various firms such as Toyota, Hewlett-Packard, Texas Instruments, General Motors and Motorola (Trygg, 1993; Swink, Sandwig & Mabert, 1996; Naveh, 2005). However there have been instances in the literature where the implementation of CE practices has not produced desired results (Desheng, Xie, Chen & Gui, 2010., Todd B., Kumar.V., & Kumar.U., 2006; Ford & Sterman, 2003; Maylor, 1997; Maylor & Gosling, 1999). Mixed results in the studies mentioned above may be because of the following reasons:

First, despite the presence of case studies and fact based research, plethora of studies have voiced concerns about lack of adequate attention to theory development, mechanisms involved in CE practices and understanding of consequences of CE practices (Koufteros,Vondersembse & Doll, 2001; Ford & Sterman, 2003; Todd et al., 2006; Valle & Vazquez-Bustelo, 2009). One of the mechanisms involved in CE practices is the role of goals (Valle & Vazquez-Bustelo, 2009; Schniederjans & Hong, 2006; Dowlatsahi, 2001; Ami, 2001). Despite the documented importance of goals in CE no study has offered insights in the role of goals and how it impacts consequences of CE.

Second, despite the fact that identifying, capturing, sharing and accumulating knowledge has been recognized as crucial to firms competitive advantage researchers have failed to include knowledge management as an crucial link between CE practices and firms competitive capabilities (Husted & Michailova, 2002; Michailova & Husted, 2003; Kannan, Jain & Balasubramaniam, 2007; Chin & Wong, 1999; Mcdermott & Handfield, 2000; Scott, 1987). While both concurrent engineering and knowledge management have been widely researched as separate topics the role of knowledge and knowledge networks in concurrent engineering context or an integrated product development environment has thus far eluded adequate attention of researchers (Lee & Choi, 2003; Mohamad, Stankosky & Murray, 2004; Kannan et al., 2007; Hoopes & Postrel,. 1999; Antoni, Lars, Jens & Dahlgaard, 2005; Madhoushi, & Sadati, 2010). To this end a framework clearly delineating linkages between goal setting, CE practices, knowledge management processes would further enhance theory building in the area of CE.

Third, despite the fact that CE is widely considered as a human and technology centered procedure (Vajna & Burchardt, 1998; Jones, 1995; Gasser, 1994) researchers have mainly focused on technical aspects of CE. More specifically while the researchers have time and again highlighted the need and importance to investigate the impact of CE practices on competitive capabilities and organization performance (Koufteros et al., 2002; Koufteros et al., 2001; Tan & Vonderembse, 2006) they have commonly omitted the emotional aspect of the firm capabilities (for instance, firm's emotional capability) on the consequences of implementation of CE. The importance of which is highlighted in management literature (Huy, 1999; Huy, 2005; Reus & Liu, 2001; Akgun, Keskin & Bryne, 2008).

Based on the above the study seeks to posit the following research questions:

RQ1. What is the relationship between goal setting and CE practices?

RQ2.What is the relationship between concurrent engineering practices and their linkages to knowledge management processes?

RQ3.What is the relationship between concurrent engineering practices and emotional capability of the firm?

RQ4. Do knowledge management processes impact the competitive capabilities of the firm?

CONTRIBUTION OF THE STUDY

The study offers four major contributions. First, it is known that resource allocation of the firm is strongly dependant on the firm's knowledge initiatives (Rosanne, Roger & Ralph, 2003). For example, in technology oriented firms the R and D division plays an important role in determining the final outcomes (Rosanne et al., 2003). However, the knowledge initiatives control the innovations in R and D divisions leading to enhanced capabilities and organizational performance (Rosanne et al., 2003). Thus knowledge management has been identified as the most important issue and a technical challenge in concurrent engineering (Wang, Chen, Chen

& Ho, 2005). In addition, as mentioned by Lang (2001) organizational level recognition of knowledge management is rudimentary and needs further clarification. This research will provide a clarification on the role of KM in CE context.

Second, OM researchers have attempted to incorporate knowledge in existing theoretical frameworks (Hult, Ketchen, Cavusgil and Calantone, 2006; Paive, Roth & Fensterseifer, 2007). However prior studies have only considered incomplete views of knowledge, often focusing on only tacit or explicit knowledge and rarely considered the knowledge management processes as a whole (Linderman, Schroeder, Zaheer, Liedtke, & Choo, 2004; Choo, Linderman Schroeder,2007; Molina, Lloréns-Montes & Ruiz-Moreno, 2007; Modi & Mabert, 2007). This research would seek to address this gap.

Third, as pointed out by Jones (1995) the human element becomes important in the study of CE. Employees of the firm have been identified as critical components for successfully implementing any mechanism. In addition, as pointed out by (Goleman, 1998; Huy, 1999; Huy, 2005) internal capabilities, for instance the value of emotional capability within the firm which is not observed directly are extremely critical for achieving sustained competitive advantage & advance organization practices. As mentioned previously studies in operations management literature have not generally considered internal capabilities and more specifically the role of emotions as a part of their conceptual discussions. The current study seeks to address this gap in OM literature.

Fourth, in the process, the current study also seeks to uncovers potential antecedents of emotional capability .This study can also be seen as an answer to a recent call from both strategic management and organizational behavior literature (Akgun, Akgün, Keskin, & Byrne, 2009; Akgun, Keskin, Byrne & Aren, 2007; Druskat & Wolffe, 2001; Kelly & Barsade, 2001; Huy, 2005; Huy, 1999) which clearly highlight the need to study the linkages between firm wide practices, emotional capabilities and firm capabilities.

The organization of the paper is as follows. The introduction section is followed by literature review section which consists of description on goal setting, concurrent practices in general, knowledge management processes and competitive capabilities such as product innovation and emotional capabilities. This is followed by the development of the theoretical framework that indicates interrelationships between the above mentioned constructs. This is followed by development of propositions. In addition a discussion section followed by the conclusions section will be presented. In culmination, limitations of the study and future research directions will also be presented.

LITERATURE REVIEW

Goal setting

Goal achievement is important in the success of organization, individual employees and departments (Linderman et al., 2004; Luthans, 2005; Anderson, Dekker & Sedatole, 2010). The process of setting goals is important for motivating employees to achieve desired goals (Luthans, 2005). The basic premise of the goal setting theory is based on the fact that the end state is usually associated with goals and an individual strives hard to reach the goals (Dossett & Greenberg, 1981; Erez & Kanfer, 1983; Erez, Earley & Hulin, 1985). The outcome of goals includes enhanced performance. This is because goals encourage persistence and strategy development, direct attention and mobilizing efforts (Locke & Latham, 1990). It has been mentioned that clear goals lead to improved performance rather than unclear or vague goals (Erez & Kanfer, 1983).

Goals can be assigned externally in terms of deadlines, quotas, work norms (Erez & Kanfer, 1983). There has been a lot of research stating the importance of setting goals on improved performance. Research has also focused on individual level as well as group level (Durham, Edwin, Poppy & June, 2001; Gladstein, 1984; Weingart & Weldon, 1991). Application of goal theory in the area of OM is also documented. For instance,

goal setting has been used as a theoretical lens to understand phenomenon such as six sigma (Linderman et al., 2003). In addition, goal setting has also offered important implications in study of quality management systems.

Concurrent engineering practices

Concurrent engineering practice (CE) have been identified in the literature as one of the more valuable techniques used to achieve product innovation and competitive advantage in terms of reduction of delivery time and reduced cost (Baer & Frese, 2003; Balasubramanian, 2001; Chen, 2001; Jarvis, 1999; Loch & Terwiesch, 1998; Prasad, 2000a, 2000b; Shina, 1991; Trygg, 1993; Turino, 1992). Since its early inception CE has been viewed as a technique to improve the product development (Cark & Fujimoto, 1991; Thomke & Bell, 2001; Yasser & Braha, 2003). Concurrent engineering is a simulateneous execution of various technical tasks such as process management, design, manufacturability and automated infrastructure support (Miller, 1993). The focus of concurrent engineering is on integration activities and has a big impact on product overall product life cycle (Miller, 1993). Concurrent engineering practices, which include process and product development, involve formation of cross functional teams, concurrent work flow and early involvement of constituents (Celtek & Kaynak, 1999; Harrell, Emanuel & Kroll, 1995; Swink, Sandvig & Mabert, 1996a, 1996b; Koufteros et al., 2001). Improvement in quality and reduction in cost are also some of the advantages of concurrent engineering.

Knowledge management processes

Managing and creating knowledge has been seen by many organizations as a source of competitive advantage (Desouza, Chattaraj & Kraft, 2003; Gupta, Iyer &; Jones, Herschel & Moesel, 2003; Wiig, 1997). Organizations today are actively seeking knowledge as important tool to sustain economic growth in market. The importance of knowledge management has been widely discussed in literature (Blumentritt & Johnston, 1999; Mohamed et al., 2004; Prasad, 2000a; Politis, 2003; Umemoto, Endo & Machado, 2004).

Knowledge management is defined as a process that aids organizational activities such as problem solving, dynamic learning and strategic management through organization, dissemination and transfer of important information (Gupta, Iyer & Aronson, 2000; Beckman, 1999). In addition, knowledge management can also be defined as follows, "Knowledge management processes are the processes through which knowledge is discovered, captured, shared or applied" (Sabherwal & Becara-Fernandez, 2003, p. 226).

Strategic management researchers have proposed that two critical components in the knowledge management domain involve: (1) the source from which knowledge is obtained, and (2) focus of knowledge management (Choi, Poon & Davis, 2008; Du Plessis, 2008; Liao, 2007; Du, Ai & Ren, 2007; Choi & Lee, 2003; Applen, 2002; N.Kakabadse, Kouzmin, & A. Kakabadse, 2001; Hansen, Nohria & Tiemey, 1999). The knowledge management source involves obtaining knowledge from a specific source, for instance, external and/or internal sources. The focus of knowledge management refers to the orientation of knowledge such as explicit or tacit knowledge. Table 1 presents a literature review on various KM processes.

Insert Table 1 about here

The source of knowledge management: external and internal sources

Knowledge management involves the usage of both internal and external sources for the enhancement of existing knowledge in the firm. An analysis of the external environment can include studying competitor's strategies, and obtaining valuable insights from customers along with the knowledge of their internal departments. This helps in the acquisition of new external knowledge which is critical for the enhancement of a knowledge management strategy. In addition, to the importance of external knowledge, the importance of internal knowledge is also considered critical. The internal knowledge involves the knowledge which is obtained from the firm's internal resources such as members working within the organization, and the knowledge stored from previous experiences.

The focus of knowledge management: explicit oriented and tacit oriented

degree

The focus of a knowledge management strategy must be either explicit or tacit. Explicit knowledge involves the simplicity with which knowledge is easily codified into organization documents and manuals. The emphasis in explicit knowledge is on codification of skills, knowledge obtained from experiences and the technical know-how of the firm, and which is easily accessible to employees of the organization. The tacit knowledge involves the ease with which knowledge is shared among employees but which is not codified and is obtained by a mechanism such as socialization or face to face advice from experts.

Product Innovation

The role of product innovation in new product development is well known. Product innovation in new product development is extremely essential as firms today want to introduce new product in market at a faster pace as compared to other companies. Innovation of products is an integral component of NPD projects. It has been recognized that NPD framework is an important distinguishing factor as far as market is concerned Product innovation deals with utilizing new ideas to maximum extent. Novelty and Newness form integration elements of product innovation (Gee, 1981). As pointed out by Brown and Eisenhardt (1995) product innovation is highly popular and innovation literature and is the most important in firm's overall success. Product innovation also occurs through an internal and external mix of knowledge (Sandberg & Werr, 2003). Market knowledge and customer centric knowledge as also been identified in literature as essential types of knowledge for product innovation (Sandberg & Werr, 2003). The benefits of the successful new product launch include sustained competitive advantage, increase in sales, growth in sales margin, and higher resale opportunities (Butner & Wilterding, 2006) Various factors such as levels of uncertainty, firms market potential in addition firms information sharing qualities and firms technical resource positively influence the product innovation success (Lin & Chen, 2006).

Emotional Capability

Research on emotional capability is at a nascent stage (Huy, 1999; Akgün, Keskin, Byrne, & Aren, 2007; Akgün, Keskin, & Byrne, 2008; Akgün, Keskin, & Byrne, 2009). At an organizational level, emotional capability of the firm has been defined as the ability of the firm to identify, capture, nurture, utilize the emotions of the members for the benefit of the organization's routine (Huy, 1999). Emotional capability is an important organizational capability and more specifically a distinctive capability. Organizational capabilities are drivers of firm's competitive advantage. A set of attributes which are distinct and which enhances the performance of one organization as compared to other are called attributes. These attributes are termed as capabilities. There are two types of capabilities distinctive and reproducible (Digman, 1997). The reproducible capabilities are the capabilities which can easily be imitated. To date OM researchers have focused extensively on reproducible capabilities such as technical capabilities. However as pointed out by (Huy, 1999) internal capabilities of the firm which are not observed directly provide sustained competitive advantage to the firm and are extremely essential. Such capabilities are termed distinctive capabilities (Digman, 1997). Research in strategic management and more specifically organizational change have recognized the importance of utilizing individual emotions as a source of sustained competitive advantage. As pointed out by Akgun et al.,(2009) given the importance of emotional capability there is a need to further explore this concept in organizational context.

THE RESEARCH MODEL AND THE HYPOTHESIS

For the purpose of developing the relationships, in addition to the operations management literature, strategic management literature and organizational behavior literature were also considered. This approach was used to provide a detailed analysis of the research questions to be proposed. The Figure 1 represents the research model and following subsection explores relationship between different constructs such as setting

challenging goals, concurrent engineering practices, knowledge management processes, emotional capabilities and their relation to product innovation. The next section presents the formation of testable propositions.

FIGURE 1
A Research Model showing systematic representation of the proposed relationships
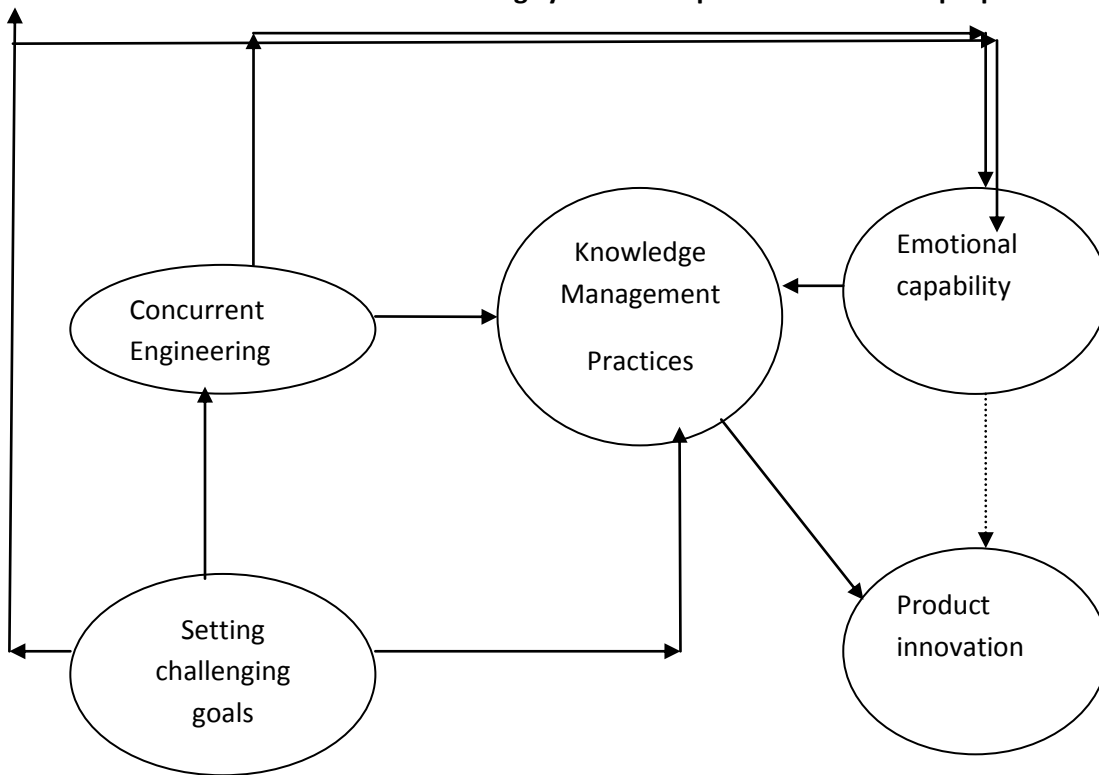
THEORETICAL FRAMEWORK

The impact of Goal Setting on Concurrent Engineering practices

Goal directed techniques have been shown to improve the performance of cross-functional teams in new product development stage (Lockwood, 1995). As mentioned earlier, setting challenging goals helps in improved performance rather than fuzzy or do-your best goals. In concurrent engineering context the managers need to clearly set challenging goals at the beginning of the practice. The goals of the individual and the goals of the cross functional teams should match. Explicit goals can also lead to improved performance (Linderman et al., 2003). Hence setting challenging explicit goals during the initial stage of concurrent engineering practice can lead to better performance. In order to meet the challenging goals set by the project manager, team members actively engage in data sharing and knowledge transfer. One of the dimensions of team knowledge skills and ability (KSA) is goal setting (Stevens & Campion, 1995). Researchers have suggested that goal setting enhances coalition and negotiation (Pfeffer & Salancik, 1974). Coalition further leads to effective sharing of knowledge.

Emotions play a critical role in a goal directed behavior (Carver & Scheirer, 1998; Stein,Trabasso & Liwag, 1993). Setting challenging goals which are believed to be appropriate by individuals will trigger positive emotions. Feeling of happiness, drive of success will positively impact the emotional capability of the firm. Realization of the fact that there are self benefits involved by meeting the attainable goals would facilitate development of emotional bonding of the employee with the organization. In pursuit of achievable goals, people of the firm would form and retain their personal feeling while respecting others thereby causing enhancement of emotional capability of the firm. On the contrary, if the individuals pursue that goals are not fuzzy or "do your best" types no attempts would be made by them to be emotionally involved in work, thereby creating barriers to emotional connectivity within the firm (Williams, Donovan & Dodge, 2000). Based on the above we propose:

Proposition 1a. Setting challenging and explicit goals have positive relationship with concurrent engineering practices.

Proposition1b: Setting challenging and explicit goals will have positive influence on knowledge management within CE context.

Proposition 2: Setting challenging and explicit goals will have positive relationship with emotional capability

Concurrent engineering practices and knowledge management processes:
Concurrent engineering practices involve interactions between external sources such as customers, suppliers and product managers during the early stages of a product development stage. This enables the member components working within the organizations to learn from the external sources and acquire new knowledge. The CE project team can obtain valuable information from the customer who can act as a bridge between external and internal information. The interaction between customers and members of CE teams would further the organizational learning. Projects can then be tailored based on requirements of customers thereby facilitating accumulation by project managers involved with project The greater the interaction with external knowledge sources, the larger the experiential learning accumulated by an organization in dealing with outside information. If the firm is involved in concurrent engineering practices it would engage in formation of cross functional teams at an early stage of product development. Working in a concurrent fashion, employees from diverse backgrounds could share there vast knowledge and add to the existing knowledge of the organization. Knowledge accumulation would be facilitated by employees working together (Prendergast, 2010; Hong,Doll, Nahm & Li, 2004). Diverse backgrounds would further help employees to comprehend information better thereby positively impacting the environmental scanning processes (Spender, 1996). Early involvement of constituent would encourage creative dialogues between team members and facilitate knowledge transmission. Early member involvement deals with utilizing specific member capabilities in operations of the firm. For

example involving suppliers early would integrate their capabilities in firm's internal network (Dowlatshahi, 1998). In addition as mentioned by Kamath and Liker (1994) inclusion of suppliers in design and development of products in Japanese firms at an early stages lead to formation of new design ideas. Based on the above we propose:

Proposition3. Concurrent engineering practices have a positive influence on knowledge management.

Concurrent Engineering practices and Emotional capability

Emotional capability deals with the firm's ability to monitor and regulate properly the employee activities for the maintenance of organization structures. Concurrent work flow involves early release of information aiding in product development stage. As pointed out by Koufteros et al. (2001) concurrent engineering involves sharing of information at an early stage thereby saving time at the later stages of the product development. This is because various units can meet and conduct the product and process design simultaneously. Thus it can be said that members of the group would be in a better position to express their emotions towards the events in the product and develop transparency. Emotions such as love, hatred can easily be displayed when individuals come together from different units to work concurrently. If some of the team members don't agree to activities or information in the project they can clearly express their emotions. Thus firms have a better chance of guarding against extreme negative emotions and thus maintain concurrency on views and prevent employees from going off target.

In addition, the early involvement of components in a concurrent engineering project would indicate that various members such as purchasing managers, process engineers, top management officials would be able to express their opinions at an early stage of the product development. For instance, involving purchasing managers early in the product development stages has been widely highlighted (Lawson, Petersen, Cousins & Handfield, 2009; Van der Valk & Wynstra, 2005; Wagner & Hoegl, 2006).The early involvement of suppliers is recommended as this would help them get an insight into the product development stage and plan the supply of materials accordingly. Furthermore, the suppliers can easily voice their concerns at an early stage. Early involvement of constituents for instance the top management into the projects would help provide feedback at an early stage to its constituents for instance the suppliers thereby helping to control the emotions in a positive manner. Hence we propose that

Proposition 4: Concurrent engineering practices will have a positive influence on   emotional capability of the firm.

Knowledge management processes and product innovation

Innovation deals with new ideas which are transformed, developed and implemented to generate processes or products (Popaduik & Choo, 2006). Interaction between members within the CE context helps in the generation of new ideas. In addition Cohen and Levinthal (1990) mentioned that a firm's innovation and knowledge management depends on a firm's capabilities to derive information from external sources. These capabilities are termed as absorptive capacity. These capabilities further help in the acquisition of new knowledge (Cohen & Levinthal, 1989; Zahra & George, 2002). As identified by Caloghirou, Kastelli and Tsakanikas (2004) a firm's capabilities in acquisition and exploitation of knowledge are extremely essential in achieving effective knowledge sharing and product innovativeness. Product development involves sharing of both tacit and explicit knowledge as mentioned earlier (Yap, Ngwenyama, & Osei-Bryson, 2003; Lin & Chen, 2006; Leonard-Barton & Sensiper, 1998). Explicit knowledge or codified knowledge is a critical source of innovation. Firms can benefit from codified knowledge and utilize it to generate new ideas helping it to achieve a competitive advantage. The new knowledge can be used to generate change in structures to achieve innovation. In addition it has been recognized that knowledge creation is the stepping stone toward achieving firm level innovation **(**Caloghirou et al., 2004**).** Thus we propose:

Proposition 5: Knowledge management practices have a positive impact on product innovation

Emotional capability, Knowledge management practices and product innovation

Emotional capability of the firm deals with controlling people's emotions and utilizing it to enhance the organization performance. It has been clearly identified in the literature that a when a firm is able to manage the emotions of individuals the capacity of the individual to generate new ideas will increase (Yueng,Ulrich, Nason & Von Glinow, 1999). It has been shown that if the employees are fearful, angry or disheartened at the workplace this might lead in causing disruptive behavior (Simon, 1967). In addition it has been mentioned by Ashforth and Humphrey (1995) that allowing individuals to freely express their emotions has a positive influence on knowledge management and allows for better interactive channel formation. Furthermore, allowing employee to display their emotions was found to enhance their energy levels at work (Huy, 2005). Researchers have time and again highlighted the fact that employees who are better able to control their emotions and express them freely are better able to cope with organizational threats (Chopra & Kanji, 2010; Hunton, Hall & Price, 1988). Emotional capability can be believed to have positive influence on firm's innovation capabilities as controlled emotions would have a positive impact on product development initiatives. It can be said that if the emotions of the employees are controlled they would actively involve in knowledge sharing, and knowledge accumulation activities. Firm's knowledge management capabilities involve activities such as assimilation, synthesizing and sharing various creative ideas, exploitation of the ideas. If the organization allows the employees to display their emotions freely employees can have a greater interest in utilizing the knowledge created using assimilation processes. The knowledge base which is updated as a result of knowledge accumulation can be better exploited because members of the firm are emotionally well bounded. This would further lead to product innovation. Hence, it can be said that knowledge management activities of the firm mediate the relationship between firm's emotional capability and product innovation. Based on the above we propose:

Proposition 6: Emotional capability is positively associated with product innovation via knowledge management.

DISCUSSION AND IMPLICATIONS OF THE STUDY

CE research is at crossroads. The motivation to carry out this study was the fact that even though organizations implement CE, there has been evidence of lack of achieving desired results. As recognized by Naveh (2005) practitioners have been guilty of implementing CE practices without the knowledge of consequences of the implementation of CE practices. Furthermore, as pointed out by Swink (1998) the implementation of concurrent engineering is always replete with issues. The problem in implementation of concurrent engineering is due to vagueness of the construct and lack of adequate theory development in the area of concurrent engineering (Swink, 1998). To this end, this study is specifically designed to provide managers with an overarching framework for underlying mechanism involved in CE implementation and consequences of CE implementation. This would enable managers to understand factors involved in CE implementation and derive benefits from use of CE. The purpose is achieved by formation of an integrated framework identifying potential linkages. The uniqueness of the study, as mentioned before, is in the fact that no study has so far explored the linkage between goal setting, CE practices, KM processes as well as distinctive competitive capabilities such as emotional capability as well as reproducible competitive capabilities such as product innovation. In addition, the importance of investigating potential linkages of the concurrent engineering practices is relevant because it has direct impact on firm's financial capabilities (Koufteros et al., 2001). The study sought to clear these issues.

From a goal setting perspective the impact of challenging goals deserves attention as mentioned by different researchers (Randall, 2010; Durham et al., 2000; Linderman et al., 2003; Weingart & Weldon, 1991). The study will further support the fact that setting challenging and explicit goals during the formulation and

implementation will enhance CE practices. Despite the importance of goals in CE context, research is scant in this area. Managers need to explicitly and clearly mention challenging goals to the team member to achieve the maximum benefits from the cross functional teams. Establishing the linkage between goal setting and knowledge management would further encourage organizations to develop an integrated network of mentoring and training specifically projecting challenging goals. In addition, managers need to provide employees with required tools to facilitate employee reaching the desired goals. The importance of goals in the relation to emotional capability of firm suggests that managers need to periodically interact with workers about the feasibility of goals, in an attempt to facilitate the regulation of positive emotions.

The role of CE practices in knowledge management context demands an immediate attention. There has been a paucity of research integrating knowledge management processes within concurrent engineering practice context and clarifying the relationship between knowledge management processes and concurrent engineering practices. The study sought to further investigate this issue. In the process this research also guides the firms moving from traditional sequential to concurrent engineering processes. Research in this direction is essential because managers might need theory to shift from traditional processes to concurrent processes. As recognized by Tucker and Hackney (2000) researchers have thus far been limited in this regard. As identified by Paaschius and Boer (1997) companies are just implementing CE practices without knowing their consequence and there is a gap in literature in terms of guidance on organizing methodologies and results of implementation. Thus the current research through evidence based on linkages provides guidance on consequences on implementation. Knowledge management processes have been identified key source of organizational success (Prasad, 2000b). Knowledge has been seen as a driver of company life and knowledge of people is seen as a wealth of the organization (Rowley, 1999; Sanchez & Mahoney, 1996). One of the important pillars on which knowledge management rests is learning (Mohamed et al., 2004). The support of the proposition that concurrent engineering practices have positive impact on knowledge management processes will consolidate the role of CE practices as an essential enabler of knowledge management processes. Managers need to understand the importance of management of information, data and sharing of knowledge. Specifically in a concurrent engineering context as identified by Stoll (1986) the four C's become very important: Concurrence which advocates the implementation of product and process design to run at the same time. Second the constraints which are considered as integral part of product design. Third, is co-ordination which monitors the requirements between cost, quality and delivery. Fourth, is high consensus which involves agreement between team members. The consequence of the above mentioned activities is knowledge.

The positive impact of concurrent engineering practices on knowledge management would emphasize the fact that if various components such as suppliers, product development professionals share views and work concurrently in the initial stages of the new product development project new ideas would be created leading to overall improvement of knowledge management processes. As recognized by Lee and Choi (2003) most of the studies emphasize on management of knowledge however the issue of facilitation or enabling KM processes has been neglected. The current study provides an insight into this question by investigating the linkages. The positive impact of concurrent engineering practices on knowledge management would further encourage managers to be proactive in formation and maintenance of cross functional team wherein individuals from different backgrounds have a common platform to share views and enhance knowledge management. Furthermore feedback received during early involvement and concurrent working conditions from all levels of employees should be valued and channels should be developed for storage of knowledge, wherein it can be retrieved as and when required and be used by other teams.

The positive linkage between concurrent practices, emotional capability and its linkage with product innovation would provide interesting implications. Managers would be advised to develop strategies to promote positive emotions of individuals, allow people to develop feeling of connectedness and remove the fear of reprisal and facilitate knowledge management which is associated with product innovativeness. Support to this

can be found in psychology literature. For instance, a view from the regulatory theory in psychology mentions that individuals condition their emotional responses depending on the situation. There are basically two types of forces: promotion regulatory forces and prevention regulatory forces (Brockner & Higgins, 2001). In promotion of regulatory forces the individual would try to promote positive emotions aligned with the goal of the organization (Brockner & Higgins, 2001). In addition, in the prevention regulatory forces, the individual would try to avoid any contradictory goals. Managers should specifically try to create an atmosphere which encourages both the promotion and prevention regulatory forces. This is critical as goals of individual and that of organization should match. One of the ways to create such an atmosphere is by providing positive feedback. It has been established that providing positive feedback about the self regulatory process to people would likely culminate into positive emotions (Brockner & Higgins, 2001). Furthermore managers should adopt a supportive management style as compared to an autocratic style. This would also involve effectively collaborating with employees and getting the best out of the employees. Adopting a supportive management style would promote positive emotions, encourage employees to share their ideas openly and contribute to the enhancement of innovation.

CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

Today, more and organizations are indulging in CE practices. The goal of achieving sustainable competitive advantage by building competencies and resources has been central to a firm's strategy. The role and popularity of CE in this context remains unquestioned. However the theory development within the context of CE still remains to be developed. We complement the technical view of CE by highlighting the role of challenging and clear roles to enhance implementation of CE. In addition, we support the view that it is critical to understand the behavioral view of OM practices in addition to the technical view (Boudreau, Hopp, McClain & Thomas, 2003). To this end, the use of emotional capability as a distinctive capability also highlights the importance of consideration of soft issues in CE. Prior research in the area of CE has recognized the importance of consequences of CE. However there exists a need to answer some unanswered questions. To this end, the current study offers a theoretical framework which identifies the linkages between CE practices, knowledge management processes, and firm competitive capabilities. The major limitation of the study was that it is conceptual in nature. Empirical testing of the testable propositions need to be carried out in order to add generalizability to the study. Data from different firms needs to be considered for external validity concerns. Future research can study the linkages between knowledge enabling mechanisms such as absorptive capacity, CE practices and knowledge management processes.

Future research should identify additional enablers of emotional capability and included them in the framework. Research thus far has been limited in the area of exploring enablers for emotional capability (Huy, 1999; Reus & Liu, 2001). Much of the psychology literature focuses on individual emotions. In addition, lately psychology researchers have progressed to the group level and studies have identified leadership commitment, organizational culture, and organizational identification as the enablers of group emotional capability. Future research needs to be extended and the level of analysis should be extended to the organizational level. The current study can be seen as a step in this direction. As pointed out Goleman (1998) organizations can no longer neglect the human abilities and emotions of the employees within the organizations. From an operations management point of view, emotional capability can be included in theoretical frameworks to further consider the emotional aspect in an organization. Future research can also look at the impact of organizational structure on linkages between CE practices and knowledge creation. In addition, an effect of industry size can also be measured on the relationships.

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TABLE 1

Identification of critical dimensions of Knowledge management processes used in different studies

Study	Knowledge management practices
Davenport & Prusak (2000)	Generate, codify and Transfer
Eunni, R.V.; Kasuganti, R.R.; & Kos, A.J, 2006	Knowledge Transfer, creation of new knowledge and application of knowledge
Staab', Studer & Sure' 2004	knowledge creation, knowledge import, knowledge capture, knowledge retrieval and access, and knowledge use
Alavi. M.. and Leidner. D.E, 2001	Knowledge creation, storage, use and knowledge sharing
Sabherwal &Bacera-Fernando, 2003	internalization, externalization, socialization, and combination
Soo, Devinney, Midgley, & Deering, 2002	formal and informal networking, absorptive

	capacity, quality of problem solving, and innovation.
Teece (1998)	Create, transfer, assemble, integrate, and exploitation of **knowledge**
Fosfuri, & Tribó(2008)	Absorptive capacity
Szulanski, 2006	Absorptive capacity , knowledge transfer
Zahra & George2002	Absorptive capacity (acquisition; assimilation; transformation; and exploitation
Claver-Cortés, Zaragoza-Sáez, & Pertusa-Ortega, 2007	Creation, transfer and acquisition of knowledge
Ward & Aurum (2004)	Identification, adaptation, organization, creation, acquire, , distribution and application of knowledge

Track: International/ Ogranizational Theory/ Social Issues

**Country as a Moderator in the Relationship Between
Work Stress, Job Satisfaction, and Intention to Turnover**

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Country as a Moderator in the Relationship Between
Work Stress, Job Satisfaction, and Intention to Turnover

Abstract

The impact of work stress on employee outcomes has been an important area of study within Western management research. With an increasingly global labor market, researchers and managers alike have begun to focus attention on the extent to which traditional Western management theories, measures, and practices translate well to developing economies. This study considers the attitudes of 395 full-time employees working in manufacturing and call center companies in China, India, and the Philippines. Our findings indicate that country moderates the relationship between work stress, job satisfaction, and intention to turnover. Implications for future research and management practices are discussed.

Country as a Moderator in the Relationship Between
Work Stress, Job Satisfaction, and Intention to Turnover

In a global economic setting, it is important to study management practices across national boundaries, particularly in the developing regions of the world (Budhwar & Debrah, 2009; Poon & Rowley, 2007; Adler, Doktor & Redding, 1986). Among those countries in "developing Asia" as designated by the United Nations are China, India and the Philippines. Budhwar and Debrah (2009) stress the particular importance of these Asian countries as fertile areas for research during their development. They identify sixteen potential major areas for research in Asian management settings and outline a research agenda specifically for the region. Among these directives is the study of cross-national management research with the goal of highlighting country differences, while also determining whether Western management techniques and measures translate well to Asian cultures. In addition, the changes in traditional management practices brought about by development have resulted in increased work stress and declining job security in developing economies. For example, the shift from state-owned companies to privatization has contributed to the perception of the violation of the existing psychological contract (Bedhwar & Debrah, 2009).

The documentation of these and other results of increased development will help developing countries proceed in a positive manner and minimize the negative results of development particularly on those most powerless. Thus, this study will concentrate on front-line manufacturing workers in China and front-line call center workers in India and the Philippines to determine whether stress and its often predicted outcomes of job satisfaction and intention to turnover are moderated by the country in which they are employed.

Front-line jobs are non-professional jobs which do not require high levels of education. The training required to gain employment in front-line jobs such as manufacturing and call centers, is generally specific to the job duties. These jobs are important in China as it is reported that among the Chinese Labor force of 718 million people only twenty seven percent are classified as skilled labor, thus, front-line employees represent a significant part of the Chinese labor force (Purdum, 2005). These front-line jobs often require shift work which has been shown to increase job stress (Jamal & Baba, 1992). In addition, these jobs are often heavily monitored, creating pressure as noted by Xie, Schaubroeck and Lam (2008). Therefore, they included monitoring as a variable in their study of a Chinese manufacturing environment as it "was considered to be a job stressor by the local employees at the research site" (p. 835). The call center environment is inherently stressful and is also a well-known environment where significant monitoring occurs (Sawyerr, Sriniva, & Wang, 2009; Siong, Mellor, Moore & Firth, 2006). Bahrami (2010), in a study spanning top level managers, mid-level professionals and front-line employees, reports that front-line employees perceive and process stress differently while also experiencing a number of unique stressors particularly found in emerging economies. Budhwar, Varma, Malhotra and Mukherjee (2009) conducted a study of Indian call centers in which some subjects noted that they considered call center work much like assembly line manufacturing work in nature. This insider view supports our inclusion in this study of both of these front-line jobs.

Work Stress

The Chinese term Guolaosi and the Japanese term Karoshi both refer to the phenomenon recently noted in both countries of death by overwork. In Japan the first reported case was in 1969 and in 1994 an estimated 1000 people died from Karoshi together with more than 30,000 suicides in 2008. Approximately a third of these suicides are also believed to be related to overwork (Maggio, 2010). Similarly, in China there have been reports of factory workers experiencing death from overwork. For example one factory worker, a chef, had worked more than 10 days straight before his collapse and death. "Most disturbing of all, in July 2006, the journal *Liaowang Eastern Weekly* revealed that according to statistics published by the China Association for the Promotion of Physical Health, at least one million people in China currently die from overwork each year" (Death, 2006, para 10). In addition, a global study of 11,000 companies in 13 countries "found that the most

significant increase in stress occurred in China, with about 86% of employees reporting a rise in stress" (Suryanarayan, 2009, para 3). A similar example of the serious effect of stress on employee health involves a Foxconn employee who committed suicide after an Apple prototype of a new Apple iPhone he was responsible for was reported missing (Employee, 2009).

Stress is also a concern in the Philippines. Filipinas are actually more prone to dealing with stressful situations through *tiis* (endurance) and *kimkim* (repression; Tan, 2006). In the Philippines there is a term, bangungot, which is sudden death, usually at night, associated with nightmares. Additionally, in India, reports of increased stress are also becoming increasingly common. According to the Times of India, of the 30 companies studied 50% had employees with some form of stress, 20% had employees who suffered depression and 30% had employees who reported problems such as alcoholism or family issues (John, 2003). In addition, a survey of 12,000 employees from 400 companies found that 57% of workers in India reported increased stress levels while similarly a study by the Indian Council for Research on International Economic Relations reported a surge in work-related stress and lifestyle diseases. Despite these alarming statistics, few companies are responding with changes in management practices that might counteract these trends (Suryanarayan, 2009).

In summary, the study of work stress is imperative in the Asian Pacific region as the developing countries in this region face the pressures that result from the many changes that accompany development. A more complete understanding of the nature of these issues will aid in the creation of appropriate management strategies for dealing with work stress. However, the appropriate policies and strategies may need to be specific to each country as the issues related to stress may depend on the cultural perceptions of stress in each country. "Differences in cultural values are seldom examined as determinants of how people react to stress" (Xie et al., 2008, p. 831).

National Culture

While the national cultures scores of the three countries represented in this study are relatively close together for four of Hofstede's cultural dimensions, on the fifth dimension, long-term orientation, the scores have a wide range (See Table 1; Hofstede, 1991). China's score for the long-term orientation dimension is 118 while India's score is 61 and the score for the Philippines is just 16.

The long-term orientation dimension has its roots in the Chinese Value Survey which was motivated by the Chinese Culture Connection's concern that Hofstede's four well-known national culture dimensions were culturally neutral (Fang, 2003). Traditionality, like long-term orientation has its roots in Confucianism and is an individual level national culture variable (Farh, Hackett & Liang, 2007, Hofstede, 2001; Xie et al., 2008). It has been shown empirically to be different from the Hofstede's national culture dimensions of power distance and collectivism (Farh et al., 2007). The role of traditional values in China has been studied by Xie et al. (2008) who suggest that "traditionality is defined as commitment to, respect for, and acceptance of the customs and norms of a traditional society" (p. 831). Yang, Yu and Yeh (1989) identified five factors relating to traditionality – submission to authority, filial piety and ancestor worship, conservatism and endurance, fatalism and defensiveness and male dominance. Thus, we feel that the culture dimension of long-term orientation has the greatest potential to help identify the differences among the countries given the wide variation in long-term orientation values, while also being related to the individual culture variable traditionality, which has been shown to be linked to stress (Xie et al., 2008).

Table 1

Hofstede's Cultural Dimensions by Country for China, India and the Philippines

	China	India	Philippines

Power Distance Index	80	77	94
Individualism	20	48	32
Masculinity	50	56	64
Uncertainty Avoidance Index	38	40	44
Long-Term Orientation	118	61	19

Work Stress and Job Outcomes

One of the few studies that looks at cross-national differences and stress determined that for stress which develops when work interferes with family, country clusters (Anglo, Asia, East Europe and Latin America) moderated job satisfaction and intention to turnover (Spector et al, 2007). Likewise, Liu, Spector and Shi (2007) found significant interactions between country and job stressors in predicting work-related stress and further suggest there are unique patterns of the stressors to stress relationships in China and the United States. They attribute the differences in these patterns to the differences in the national culture of each county. However, Jamal (2010) studied four different countries (Canada, China, Malaysia and Pakistan) and reports that the same four job stressors were related to stress across all four countries. Since work stress is important and may be related to the country where the work is performed and its culture, the outcomes of this stress are also important.

Stress and its outcomes are the subject of a study of physicians in which it was found that perceived stress was significantly related to both job satisfaction and also intention to quit through job satisfaction). The authors (Williams *et al.*, 2010) note that the relationship linking stress to both job satisfaction and intention to quit exists for physicians who, while heavily invested in their career path, still experienced these outcomes. They found additional withdrawal behaviors such as decreasing work hours, changing specialties, or leaving direct patient care were also significant. However, these types of coping mechanisms are often not available to front line workers who are unable to initiate significant job task change. Rather the outcome of significant work stress is likely a decrease of front-line workers job satisfaction leading to an intention to turnover. In Australia among front-line salespeople it was found that stress was negatively related to job satisfaction (Firth, Mellor, Moore & Loquet, 2004). This relationship was then tested in the Australian call center industry where stress was again found to be negatively related to job satisfaction (Siong, Mellor, Moore & Firth, 2006). Therefore we propose:

H1: The relationship between work stress and job satisfaction is moderated by the country in which the work is performed.

Supporting the finding for the relationship between stress and turnover in the study of physicians noted above is a study of the Indian call center industry in which a stressful work environment was found to contribute to increasing attrition rates (Budhwar, Varma, Malhotra & Mukherjee, 2009). Further, these authors identified the inherent nature of the work together with frequent shift work as contributors to stress levels and the corresponding physical symptoms which drove attrition. Similarly, Jamal (2010) reported a positive relationship between the four work stressors and turnover motivation. When considering the outcomes of stress across cultures Ramesh and Gelfund (2010) state that "although turnover is an issue of global concern, paradoxically there have been few studies of turnover across cultures" (p. 807). Therefore we propose:

H2: The relationship between work stress and intention to turn over is moderated by the country in which the work is performed.

While both of these outcomes appear to be related to stress in the literature, it is important to also determine if the relationship between them is consistent in all countries. In a meta-analysis which examined stress, job satisfaction and turnover it was found that stress was directly related to both job satisfaction and turnover intentions but also that job satisfaction was negatively related to turnover intentions (Podsakoff, LePine, & LePine, 2007). Similarly, in a meta-analysis of turnover in information technology professionals it was also found that job satisfaction is negatively related to turnover intention (Joseph, Ny, Koh, & Ang, 2007). Ghazzawi (2008) similarly reports that job satisfaction contributes to intention to turnover.

Tian-Foremen (2009) found that "regardless of the differences between Western and Chinese cultural and notwithstanding the contrary findings of [other researchers], job satisfaction in general negatively affects Chinese employees' work-related attitudes and behaviours in a similar way to western employees" (p. 371). It should be noted that in this study the front-line and non-managerial employees were "significantly less satisfied" and expressed higher levels of intention to turnover (p. 371). However, when studying two geographically varied Chinese employee groups, Wong, Hui, Wong and Law (2001) found that job satisfaction did not relate to turnover intention. Among Indian information systems specialists job satisfaction was found to be negatively related to turnover intentions. The authors go on to suggest that while this finding is similar to Western information systems professionals they found cultural influences impact this relationship. They suggest that social norms play an important role in this relationship and we believe these social norms are country specific (Lacity, Iyer, Rudramuniyaiah, 2008).

In a study conducted in the call center industry in Australia it was found that job satisfaction was directly negatively related to the intention to quit (Siong et al., 2006) and a study conducted in Bangladesh among mid- level employees found job satisfaction and intention to turnover were significantly and negatively correlated (Jahangir, Akbar, & Begum, 2006). Therefore the issue of the impact of job satisfaction on intention to turnover in various countries remains unresolved. Therefore, we propose:

H3: The relationship between job satisfaction and intention to turnover is moderated by the country in which the work is performed.

Methodology

Subjects

Respondents included 395 full-time employees working in manufacturing and call center companies in China, India, and the Philippines. Respondents were on average 26 years old (s.d. = 4.82) and primarily female (55%). See Table 2 for a breakdown of respondents by country. It should be noted that although migrant workers are common in developing countries discussions with management led us to believe that most of the respondents were native to the countries studied.

Procedures

Survey items were displayed in English for both the India and Philippines respondents who routinely completed their job tasks in English. Respondents were invited by their employers to participate and directed to an electronic version of the survey to complete during work hours. Responses were both voluntary and anonymous.

For the Chinese respondents, survey items were translated into simplified Chinese by the researchers and cross-checked by two independent research associates whose first language was also Chinese. Respondents were invited by their employers to participate and gathered in small groups during work hours to complete paper surveys and return them to the research associate present. Responses were both voluntary and anonymous.

Table 2

Respondent Demographics by Country

	Age	Gender	Sample size
	average (s.d.)	(percentage female)	
China	26.17 (5.41)	56%	146
India	26.47 (2.33)	41%	49
Philippines	26.08 (4.82)	58%	200
Overall	26.16 (4.82)	55%	395

Measures

Intention to turnover. Employee intentions to leave their positions was measured as the average of three items developed by Seashore, Lawler, Mirvis, and Cammann (1982). Items were measured on a 5 point scale, with higher numbers an indication of an increased intention to leave one's position within the next year. Sample item includes "I often think about quitting." Previous research reports a Cronbach's alpha of .83 (Cook, Hepworth, Wall, & Warr, 1981).

Job Satisfaction. Job satisfaction is the measure of the level of respondents' satisfaction with their current position. In this study, job satisfaction was calculated as the average of 8 items measured on a five point scale ranging from 1 'very dissatisfied' to 5 'very satisfied', so that higher scores are an indication of increased job satisfaction (Tate, Whatley, & Clugston, 1997). Sample items include measures of satisfaction for "pay you receive for your job" and "the type of work you do." Previous research reports a Cronbach's alpha of .78 (Firth, Mellor, Moore, Loquet, 2004).

Work Stress. Work stress was measured as the physical (4 items) and psychological (4 items) reactions employees experienced related to their work environment. Stress was calculated as the average of 8 items measured on a 6 point scale from 1 'never' to 6 'almost every day', so that higher scores are an indication of increased work stress symptoms (Tate, Whatley, & Clugston, 1997). Sample items include "I feel emotionally drained by my job" and "Job-related problems keep me awake at night." Previous research reports a Cronbach's alpha of .87 (Firth, Mellor, Moore, & Loquet, 2004).

RESULTS

Descriptive statistics and correlations for all study variables are displayed in Table 3. All regression analyses were controlled for age. Hypothesis 1 proposed that the relationship between work stress and job satisfaction would be moderated by country. The results of the multiple regression analysis indicates that the relationship between work stress and job satisfaction is moderated by country (Adj R^2 = .09; F = 7.61; p < 0.01; see Table 4). Figure 1 displays the results of the simple slope analysis (Aiken & West, 1991) that demonstrates the interaction effect of country on the relationship between work stress and job satisfaction. The results indicate that the relationship between work stress and job satisfaction is significantly stronger for the sample

from India than it is for either China or the Philippines. That is, increases in work stress have a greater impact on decreases in job satisfaction for Indian respondents.

Hypothesis 2 proposed that the relationship between work stress and intention to turnover would be moderated by country. The results of the multiple regression analysis indicates that the relationship between work stress and intention to turnover is moderated by country (Adj R^2 = .21; F = 18.66; p < 0.01; see Table 5). Figure 2 displays the results of the simple slope analysis (Aiken & West, 1991) that demonstrates the interaction effect of country on the relationship between work stress and intention to turnover. The results indicate that the relationship between work stress and intention to turnover is not significant for the sample from India although it is for both China and the Philippines. That is, increases in work stress do not significantly impact intention to turnover for Indian respondents however increases in work stress significantly increases intention to turnover for respondents from both China and the Philippines.

Hypothesis 3 proposed that the relationship between job satisfaction and intention to turnover would be moderated by country. The results of the multiple regression analysis indicates that the relationship between job satisfaction and intention to turnover is moderated by country (Adj R^2 = .19; F = 16.46; p < 0.01; see Table 6). Figure 3 displays the results of the simple slope analysis (Aiken & West, 1991) that demonstrates the interaction effect of country on the relationship between job satisfaction and intention to turnover. The results indicate that the relationship between job satisfaction and intention to turnover is not significant for the sample from India although it is for both China and the Philippines. That is, increases in job satisfaction do not impact intention to turnover for Indian respondents however increases in job satisfaction significantly decreases intention to turnover for respondents from both China and the Philippines.

DISCUSSION

Cross cultural research, particularly in developing countries, is important in today's global business environment when even small companies are no longer limited to conducting business locally. It is important that companies understand the managerial implications conducting business globally and that researchers provide empirical evidence which facilitates global decision-making. It is interesting to note that in both Figures 1 and 2 China has the highest level of work stress among the countries. Chen, Silverthorne, and Hung (2005) conducted a study in the United States and Taiwan in which they tested whether differences exist between countries in terms of the level of work stress and concluded there were no differences in reported levels. Thus the question remains as to whether China's level of reported work stress is equivalent to that of Western Cultures while the other countries we studied had lower work stress levels. Further research should continue to examine stress level differences among countries.

We found that the relationship between a respondent's work stress and his/her corresponding level of job satisfaction was moderated by the country in which he/she worked. Although the relationship was statistically significant for all three countries studied, respondents from India reported the strongest relationship between work stress and job satisfaction, nearly double that of the Philippines and more than three times that of China. Our findings indicate that the weakest relationship between work stress and job satisfaction was found for Chinese employees with work stress accounting for only 3% of the variance in job satisfaction. Further research should attempt to determine what other country specific factors beyond those studied here may contribute to these relationships. Specifically research concerning why in India a high level of work stress relates to large changes in job satisfaction while in China the difference between low work stress and high work stress has a significant but weaker impact on job satisfaction.

With respect to work stress and intention to turnover we found that high levels of work stress leads to higher levels of intention to turnover in China and the Philippines, while in India the relationship between work stress and intention to turnover is not statistically significant. It follows that while work stress will significantly

decrease job satisfaction in India, it will not cumulate in increased turnover intentions. This finding is especially interesting as work stress theory based upon Western research routinely accepts that increased levels of work stress will lead to significant increases in intention to turnover. Our finding that this theoretical expectation is supported for China and the Philippines however not for India warrants additional research. It may not merely be a function of culture, but rather one of economic conditions or perhaps a company specific artifact. Perhaps the labor market in India is such that replacement positions are difficult to obtain or the benefits of working for the companies included in this study are such that even very high levels of work stress do not lead to corresponding increases in intention to turnover. Both are possible explanations of these results that would benefit from additional study.

When studying the relationship between job satisfaction and intention to turnover, we also found that country moderated this relationship. In the Philippines the relationship between job satisfaction and intention to turnover is the strongest with higher job satisfaction leading to significant drops in intention to turnover. Thus, in the Philippines maintaining high levels of job satisfaction will have an impact on employee retention. A similar significant relationship exists in China but the results are not as dramatic. In India this relationship is not significant indicating that increasing job satisfaction will not significantly improve employee retention. This is another interesting finding as the theoretical link between job satisfaction and intention to turnover is quite strongly supported in the Western literature. Our finding that this theoretical expectation holds for China and the Philippines and not for India also warrants additional research. Like the finding above, it may not be a function of culture, but rather one of economic conditions or perhaps a company specific artifact. Additional research is necessary to be able to fully explain our findings.

Our results indicate that country is in fact a significant moderator in the relationship between these important management variables. As such, recommendations for management practices must consider country differences. Acknowledgement of country differences with respect to the relationships between employee constructs is important for multinational corporations and when considering business processes outsourcing. The policies and practices applied in one country may not translate into successful policies and practices with the desired outcomes in another country, particularly when applied in developing countries such as those studied here. An inability to successfully transfer policies and practices across country boundaries may result in increased business risks for all the organizations involved. Thus, it is recommended that companies be aware of, and monitor, the management practices of suppliers and joint venture firms even if they do not directly have responsibility for the workers (Labor, 2009).

The current study has some limitations. Since this is a cross sectional study all measures were collected at a single point in time using self-reported attitudes possibly resulting in common method bias. While the results presented here are based on sound statistical analysis, given the cross-cultural nature of this data we intend to pursue further analysis of the data, particularly to further examine the measures used across cultures. Sample sizes for China and the Philippines are adequate for hypothesis testing; however given the relatively smaller sample size for India we recommend replication of the study.

Thus, while the relationships between work stress, job satisfaction, and intention to turnover have been studied in Western countries for many years, it is only recently that these variables have begun to drawn the attention of cross-cultural researchers. Given that the results of these initial studies have been mixed, this study across three developing countries adds evidence to the debate concerning the impact of the country and its culture on traditional management policies and practices. Additionally, it accomplishes this through the cross-cultural study of the impact of work stress on the employee outcomes of job satisfaction and intention to turnover to suggest needed management policies and practices as well as identify areas for future research.

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Table 3

Descriptive Statistics and Correlations

	Mean	s.d.	1.	2.	3.
1. Age	26.16	4.82			
2. Intention to Turnover	2.40	0.97	-.17**		
3. Job Satisfaction	3.40	0.88	.05	-.35**	
4. Work Stress	2.86	1.19	-.15**	.35**	-.30**

n = 395; *p < .05, **p < .01

Table 4
Regression Results Work Stress and Country on Job Satisfaction

	B	Standard Error	t
Age	.00	.01	0.22
Stress	-.40	.09	-4.30**
[a]China	-.71	.33	-2.14*
[a]Philippines	-.34	.32	-1.05
Stress x China	.28	.11	2.46*
Stress x Philippines	.17	.11	1.59

d.f. = 388; *p < .05, **p < .01; [a]Dummy coded, India coded zero

Table 5
Regression Results Work Stress and Country on Intention to Turnover

	B	Standard Error	t
Age	-.02	.01	-2.57*
Stress	.14	.10	1.47
[a]China	-.41	.34	-1.20
[a]Philippines	-.66	.33	-1.98*
Stress x China	.28	.12	2.38*
Stress x Philippines	.15	.11	1.37

d.f. = 388; *p < .05, **p < .01; [a]Dummy coded, India coded zero

Table 6
Regression Results Job Satisfaction and Country on Intention to Turnover

	B	Standard Error	t
Age	-.03	.01	-3.48**
Job Satisfaction	-.15	.14	-1.05
[a]China	.82	.60	1.37
[a]Philippines	.94	.54	1.76
Job Satisfaction x China	-.15	.17	-0.86
Job Satisfaction x Philippines	-.32	.15	-2.08*

d.f. = 388; *p < .05, **p < .01; [a]Dummy coded, India coded zero

Figure 1

Simple Slope Analysis – Interaction Effect of Country on the Relationship Between Work Stress and Job Satisfaction
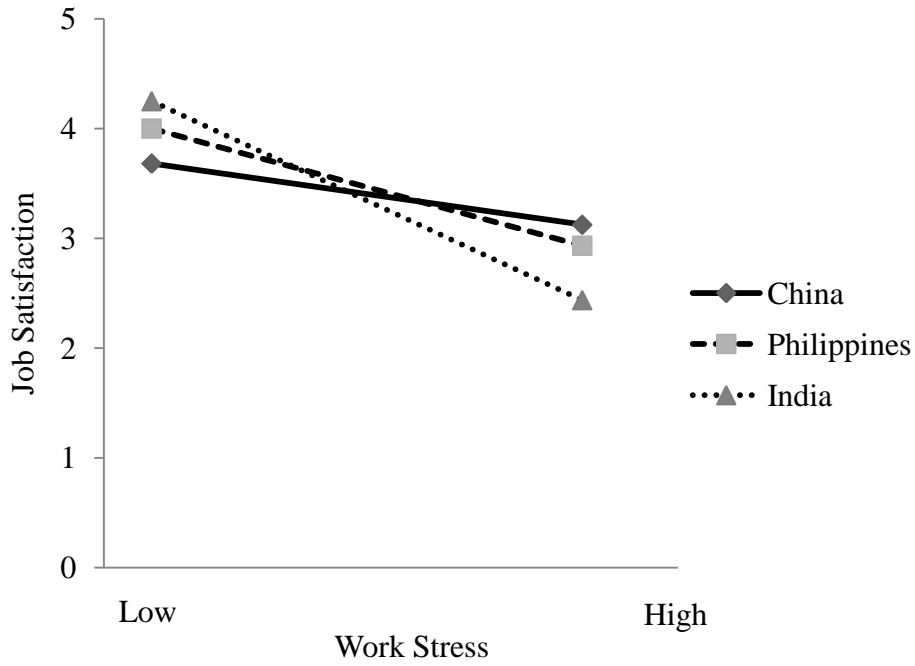
Figure 2
Simple Slope Analysis – Interaction Effect of Country on the Relationship Between Work Stress and Intention
to Turnover
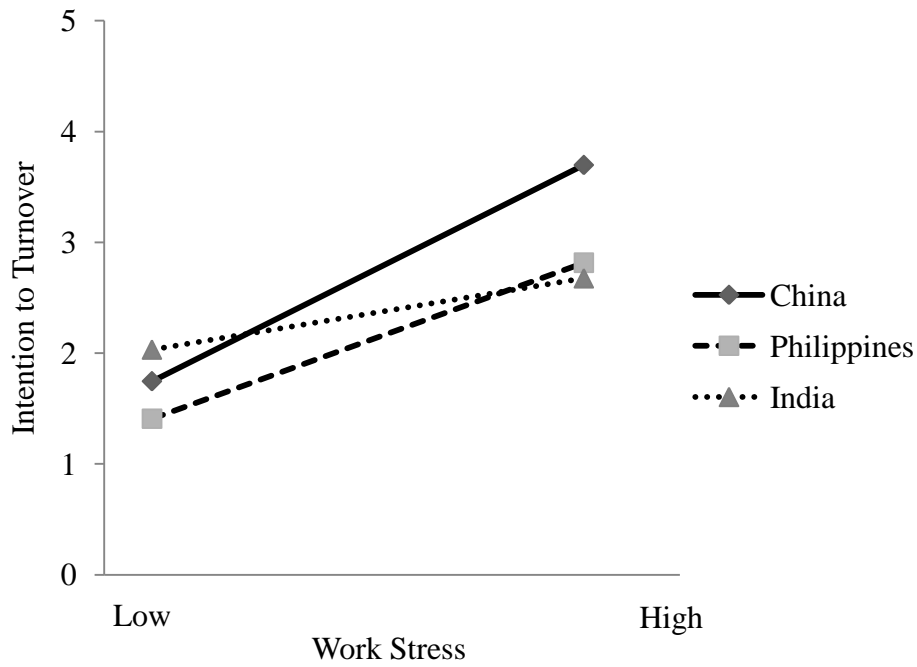
Figure 3
Simple Slope Analysis – Interaction Effect of Country on the Relationship Between Job Satisfaction and
Intention to Turnover
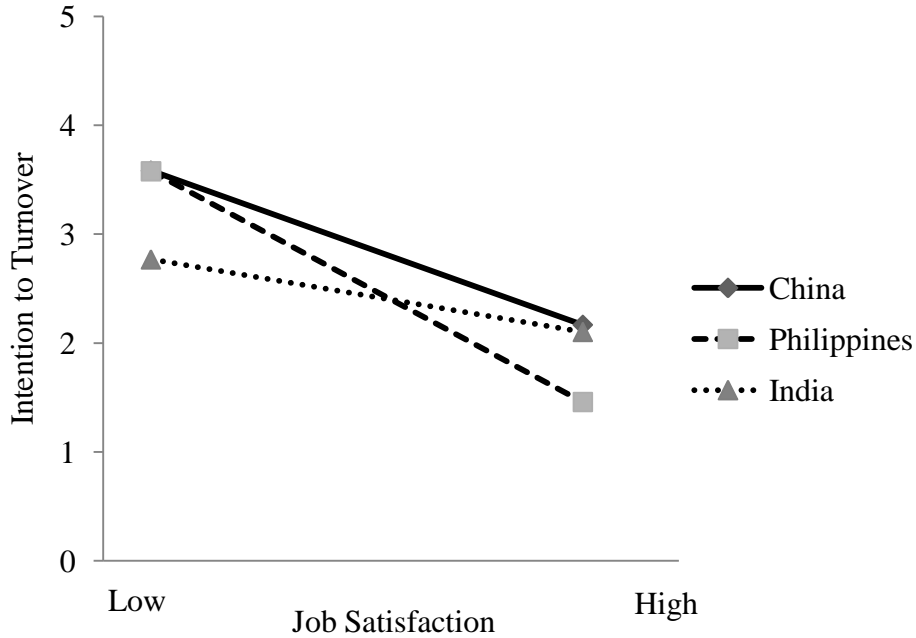
**A LONGITUDINAL STUDY OF CROSS-CULTURAL COPING DURING INTERNATIONAL
ASSIGNMENTS**

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Cultural coping by individuals while on international assignments influences the organization's capabilities and performance plus the individual's performance and development. However, in the management literature on coping with international assignments, inconsistent and interchangeable use of terms for concepts causes confusion. Additionally, an over reliance on cross-sectional studies obscures our understanding of the process. We use findings mostly overlooked in the management literature on expatriation to propose a new model to explain the process of cross-cultural coping while on international assignments through a longitudinal study using repeated measures of adjustment over time on the same individuals to support its assumptions.

For both the individual and the firm, international assignments offer significant opportunities to develop capabilities in addition to achieving performance outcomes (Berthoin Antal, 2000, 2001; Fink, Meierewert & Rohr, 2005). Thus, the individual can acquire critical assets such as tacit-knowledge, which are transferable to the firm. Indeed, "If their knowledge is fully employed, repatriates can play a rare, hard to imitate role in helping their firms sustain competitive advantage" (Fink, et al, 2005: 30). Much of the valuable knowledge is tacit and plays a vital role in the competitiveness of today's environment (Harvey, Novicevic, Kiessling (2001: 608). Furthermore, the strategic management of human resources can facilitate the translation of these individually acquired knowledge and competences into organizational performance (Stroh & Caligiuri, 1998).

This translation process is crucial since international experience among executives can lead to greater internationalization (Athanassiou & Nigh, 2000), more diversification (Roth, 1995), improved communications between subsidiary and parent locations (Downes & Thomas, 2000), enhanced innovation (Subramaniam & Venkatraman, 2001) as well as better corporate financial performance (Carpenter, Sanders & Gregersen, 2001; Daily, Certo, & Dalton, 2000). Therefore, successful international assignments can be quite valuable to the individual and the firm. In contrast, individuals who fail to complete assignments and those who do not cope well while completing them, are unlikely to acquire these valuable assets. "If an international assignment represents an opportunity to learn, it is clear that 'expatriate failure' must represent the waste of such an opportunity" (Kamoche, 1997: 217). Therefore, it is crucial for us to understand the process of cultural coping during international assignments and how it affects the individual's success.

A TARGETED REVIEW OF A BROADER RANGE OF LITERATAURE

The success of expatriates strongly relates to their ability to adjust to the various conditions, work and nonwork, existing in the host country (Farh, Bartol, Shapiro, &Shin, 2010: 434). Black (1988: 278), in his seminal study, notes the degree of adjustment to the new culture is both a subjective and an objective concept. The degree of comfort one feels in the new culture is subjective while the mastery of the new environment demonstrated by performance is objective. Additionally, he draws on Torbiorn's (1982) study of Swedish expatriates to show the stage of adjustment is an important aspect of the degree of adjustment, thus emphasizing adjustment as a process. In Black, Mendenhall and Oddou (1991: 292), he again reinforces that adjustment is a process.

Black (1988: 279) further says clearly that "adjustment to the new customs and culture of the host country" is a facet of the expatriate's adjustment, citing Hawes and Kealey's (1981) study for the Canadian International Development Agency (CIDA). It seems Black (1988) got the factors of adjustment correct with

general living conditions, interaction and work. They have held up in subsequent research (Shaffer, Harrison, & Gilley, 1999; Bhaskar-Shrinivas, Harrison, Shaffer and Luk, 2005). Thus, we are working to understand better how the process of cultural coping unfolds over time, having noted a new upswing of interest in viewing it as a process (Farh et al, 2010; Harrison, Shaffer and Bhaskar-Shrinivas, 2004; Lazarova, Westman, & Shaffer, 2010; Maertz, Hassan, & Magnusson, 2009). It is difficult, if not impossible to study processes with cross sectional studies. Therefore, we emphasize the need for empirical longitudinal studies of the process of cross-cultural coping using repeated measures of adjustment of the same individuals over time.

Black and Stephens (1989: 540) called for longitudinal studies of the cross-cultural adjustment of expatriates to provide more insights into the process, which have been slow in coming. Bhaskar-Shrinivas, et al.'s (2005) important and substantive meta-analytic study included data from 8,474 expatriates from 66 studies. However, they point out that, "Only three investigations in our meta-analytic accumulation studied adjustment in a panel or longitudinal design" (269). Consequently, they too called for more longitudinal studies of adjustment. Let us look more closely at each of the three studies they found.

One of the empirical studies classified as longitudinal in the meta-analytic study was Nicholson and Imaizumi (1993: 121) who collected data one time during 91 Japanese expatriates' assignments in London. They used Black's scale and asked the expatriates to recall their feelings starting with six months prior to departure, upon arrival and every six months thereafter up to the time they administered the questionnaire. They also asked the expatriates to project what their feeling would be six months after returning home. Thus, these were mostly retrospective measures and one forecast measure. Furthermore, they collected predictors and other data at the same time.

Bhaskar-Shrinivas and others identified another one of the three longitudinal studies as Shaffer, Ferzandi, Harrison, Gregersen, & Black's (2003) Academy of Management presentation, which they later published as Shaffer, Black, Harrison, Gregersen, & Ferzandi (2006). A carefully reading of the methods section of the published article reveals that they did not collect data on expatriates' adjustment longitudinally with repeated measures. They did collect self-report data on the expatriates' adjustment (general, work and interaction) once, four months after the expatriates arrived in country (116). At this time, they also collected withdrawal cognitions plus contextual and task performance data. Predeparture, they had collected data on individual competencies and demographic data by self-report. Thus, it seems that the study was longitudinal in that it collected data at two points in time as a way to lessen the common method bias (116). However, they did not use repeated measures of adjustment over time.

The third longitudinal study used in the meta-analytic study was Kealey (1989) and it did include longitudinal data on 89 subjects in addition to 188 for whom he had cross-sectional data. In Kealey (1988), he gave comprehensive information on the methods and procedures used in this study, which we carefully reviewed in detail. We found he collected predictor data predeparture for the longitudinal subjects and then collected adjustment and effectiveness data one time, three to nine months after their arrival. For the cross-sectional subjects, he collected all data at the second time. He collected adjustment longitudinally only in the sense that he asked about their level of life satisfaction, work and nonwork, during six periods. One measure was at the current time. Four measures were retrospective: 1-2 years prior to departure, 1-3 months after arrival, 3-6 after and 6-12 after arrival. The last one was to forecast their expected level of satisfaction 1-2 years after return. Therefore, it seems that out of 8,474 expatriates included in the meta-analytic study none included longitudinal adjustment collected using repeated measures over time.

One of the major foci of Bhaskar-Shrinivas et al. (2005: 258) was to study expatriates' adjustment (psychological comfort) over time. They tested the U-curve hypothesis (Lysgaard, 1955) and reported finding support for it. To understand how the process of cultural coping occurs over time it would seem one must study the same group of individuals as their cultural coping processes unfold over time. Even if one knows how many months the expatriates have been on an assignment when the adjustment measures were taken, a cross-sectional

study of the adjustment process does not truly reveal the way the individuals' processes of cultural coping unfolded over time.

One longitudinal study not included in the Bhaskar-Shrinivas and other's (2005) study was Tucker, Bonial and Lahti (2004) who studied 100 US expatriates and 57 of their spouses assigned to 31 countries. They collected data on predictors of adjustment predeparture. Then, an average of 10.8 months after arrival, they collected adjustment data one time, though not with Black's scale. Wang and Takeuchi's (2007) study is also longitudinal in the sense that they collected adjustment data one time and then six months later collected performance data. However, these two studies, while informative, did not include adjustment data collected longitudinally with repeated measurements over time on the same individuals. Therefore, the method used in this study (which we will discuss later in this article) is the only the quantitative study we know of using repeated measures of adjustment overtime to explore how the cultural coping process unfolds over time.

Black (1988: 278) identified that adjustment could be measured by subjective self-report, or objectively as demonstrated by performance. Yet, he chose self-report measures (283), apparently due to a lack of resources to collect objective data. Later, Black and Gregersen (1991: 498) said, "Generally, adjustment is defined, and is operationalized in this study, as the degree of a person's psychological comfort with various aspects of a new setting." Thus, in the management literature, expatriate adjustment came to equal psychological comfort.\\

In the management literature, confusion is caused because terms are used inconsistently and even interchangeably (Kelley & Meyers, 1995: 8), contributing to method problems. For, example, Wang and Takeuchi (2007: 1438) use the term "sociocultural adjustment" instead of "psychological comfort" or just "adjustment" to describe what they measured using the same scale as Black and Gregersen (1991) had. Takeuchi (2010: 1042) continues to mix somewhat the terms psychological adjustment and socio-cultural adaptation. Still, when he defines his terms, it is clear he means what we are calling psychological adjustment, i.e. comfort, and it is congruent with Black and Stephens (1989). Thus, Takeuchi plus Wang and Takeuchi measured what we believe is more accurately called "psychological adjustment" since sociocultural adaptation has been differentiated from psychological adjustment. Psychological adjustment and socio-cultural adaptation are related, but separate phenomena (Ward & Kennedy, 1999: 660-661) though usually they are empirically related (Berry, 1997: 14), but the question is how are they related? Thus, we should define the two terms separately and use those definitions consistently.

Unfortunately, it is common for those who study expatriation from the perspective of human resource management to be unaware of research done in other disciplines (Mendenhall, Kühlman, Stahl & Osland, 2002: 155). Therefore, drawing on a broader range of literature, we integrate studies not generally cited in the management literature to offer an enhanced perspective and insight in to the process of cultural coping.

In the management literature, we have not adequately addressed theoretically or empirically the process of acculturation with its phases, each with its own moderators, mediators and causal links (Aycan, 1997). As we have demonstrated, longitudinal studies are needed (Bhaskar-Shrinivas, et al's 2005: 273; Hechanova, Beehr & Christiansen, 2003: 226; Kraimer, Wayne & Jaworski, 2001: 93). As we have seen, even Black and Stephens (1989: 540) called for longitudinal studies.

Mendenhall and others (2002: 168) make a clear statement "The need is simple and concise: more scholars have to begin conducting longitudinal studies. The barriers to this course are obvious – money, time, access, and the pressure to publish now, not in the future. Nevertheless, the need remains." They go on to cite Kealey (1989: 168) as a notable longitudinal study and relate it to other studies in the Canadian International Development Agency (CIDA) series. For example, Kealey, while he did not use repeated measures, he did measure adjustment and effectiveness ratings from multiple sources. Since the study is from outside the management literature, they can make a valuable contribute to the management literature on expatriation by bringing an additional perspective. Additionally, one of their findings highlights the confusion between psychological adjustment and sociocultural adaptation. That empirical finding is *those expatriates who adjust*

readily and easily turn out to be less effective in dealing with nationals of the host country while those who become quite effective in dealing with them report the most initial adjustment stress (Hawes & Kealey, 1981: 253; Kealey, 1989: 407; Ruben & Kealey, 1979: 40-41). The Ruben and Kealey study was exploratory with 14 expatriates in Kenya. The Hawes and Kealey study had 250 subjects in six countries in Asia, Africa, the Caribbean and Latin America. The Kealey (1989: 387) study had a sample of s 277 expatriates in 15 developing countries and built on the two previous studies.

KEY TERMS

It is very difficult to predict who will do well on international assignments, and who will not, if we do not understand the process of how individuals fit into new cultures (Kealey, 1989: 390). Likewise, to understand better and manage more effectively the process of fitting into another culture and performing well there, we need to define and consistently use five terms: "psychological adjustment," "sociocultural adaptation," "intercultural interaction effectiveness," "job performance," and "anticipated adjustment" to avoid confusion.

Psychological Adjustment versus Sociocultural Adaptation

As we have seen, psychological adjustment and sociocultural adaptation are related, but separate phenomena (Ward & Kennedy (1999: 660-661). Ones and Viswesvaran (1997: 80) also argue that adjustment and adaptation are separate but related and they relate to job performance as determinants. We also need to distinguish between job performance and cross-cultural coping behaviors (Ones & Viswesvaran, 1997: 80). As we have seen, the management literature defines and measures "psychological adjustment" as comfort with three facets of the new culture. Harrison and others (2004: 210-211), thus argue that adjustment is a state and that adaptation is a process.

Earlier, Ruben and Kealey (1979: 21) had defined adjustment as "The general psychological well being, self-satisfaction, contentment, comfort with and accommodation to a new environment after the initial perturbations…" The phrase "accommodation to a new environment" emphasizes the crucial element of sociocultural adaptation. Adaptation is a longer-term process involving not just psychological well-being, but also cognitive changes such as paradigm shifts as well as changes in social behavior (Harrison et al., 2004: 210-211; Ward & Kennedy, 1999: 660-661). Thus, sociocultural adaptation is an internal state which is best measured by it external manifestation of how effectively the individuals deal with the new culture, or their intercultural interaction effectiveness. In the boarder literature, there are two different streams of literature each emphasizing one of the two different and related processes (Ward, Bochner, & Furnham, 2001).

To understand better the process of cross-cultural coping, we need to integrate better the literatures. Therefore, following the lead of Ward and colleagues (2001: 42), we define psychological adjustment as a feeling of comfort with in the new culture, which is congruent with Black and Gregersen (1991: 498). We emphasized that it can come rather easily and early, or it can come later after the stress of learning to function in the new culture as was found in the CIDA studies cited by Mendenhall and others (2004) above and discussed more fully below. It is reasonable to measure psychosocial adjustment by self-report. Sociocultural adaptation, however, also involves learning how the new cultural environment works and how to get things done in it (Ward et al., 2001: 42). Thus, it entails internal cognitive and social paradigm shifts leading to changes in external interpersonal behaviors; it involves stress and requires time, again as found in the CDIA studies. As we will see next, the report of others, especially HCNs, is a better measure of it.

Intercultural Interaction Effectiveness

In time, the changes in behaviors associated with sociocultural adaptation lead to effective interaction within the new culture. David (1972: 9), Hawes and Kealey (1981), Ruben and Kealey (1979) as well as Tucker

and others (1973) suggest that intercultural interaction effectiveness is then an external reflection of the internal sociocultural adaptation and is often equated with it. Thus, intercultural interaction effectiveness is an appropriate indicator of sociocultural adaptation. Others, especially HCNs (Sinangil & Ones, 1997), should report it.

Interaction effectiveness cuts across and is important in both of Black's (1988) other two dimensions - general living and work. Interaction effectiveness then should be important both at work and for general living. Therefore, we define intercultural interaction effectiveness as how well the expatriate interacts with those in the host culture ranging from working with them to buying in local shops and from socializing with them to appropriate etiquette on the local transportation system as well as all other various forms of interaction. Further, to understand better the respective roles of psychological adjustment and sociocultural adaptation in the development of intercultural interaction effectiveness during cultural coping requires longitudinal studies with both self-report data and the reports of others, especially HCNs as we have argued above. Harrison and others (2004: 211) also distinguish what they call "interpersonal effectiveness" from job performance.

Job Performance
Job Performance is, of course, how well one does one's job. The point here is that the CIDA initially began trying to measure "overseas effectiveness" and thus included both measures of how well individuals' did their jobs and how well they coped with the new environment. The fact that a major component of their job was to transfer skills to the HCNs further clouded the picture. Thus, we feel it is beneficial to differentiate between intercultural interaction effectiveness and job performance. Indeed Tucker and others (2004) have demonstrated they are different and that intercultural effectiveness accounted for 45% the variance on the job performance in his sample. Please note that they used the term "intercultural adjustment"; however, if one looks closely at their measures, it is clear they measured what we here are calling intercultural interaction effectiveness.

Anticipated Adjustment
We differentiate anticipated adjustment from psychological adjustment or sociocultural adjustment in that it occurs prior to departure based on the individual's expectations about the upcoming international assignment. Black, Mendenhall, and Oddou (1991) say anticipated adjustment occurs as the result of the person's expectation of the upcoming acculturation process. Thus, unlike sociocultural adjustment or psychological adjustment, anticipatory adjustment occurs before the individuals expatriate, whereas sociocultural adjustment and psychological adjustment occur after the individual arrives in the host country.

However, the effects of anticipated adjustments continue long after the individual expatriates. After the individuals initially become expatriates, their expectations about the number of changes they need to go through in order to fully adjust into the culture are confirmed or disconfirmed (Black, Mendenhall, and Oddou: 296). According to Black, Mendenhall, and Oddou (1991: 305-306) the more accurate peoples' expectations are, the higher their levels of anticipatory adjustment.

Black, Mendenhall, and Oddou (1991: 296) claim that anticipated adjustment is influenced by three factors: previous overseas experience, cross-cultural training, and selection mechanisms. They see previous overseas experience allowing the individual to create a more realistic picture of how hard it will be to adjust to a new culture (306). However, Kealey (1988) found that previous foreign experience was related to ease of psychological adjustment, but not to intercultural interaction effectiveness and there to job performance for his technical assistance personnel. Black et al. (1991: 296) see predeparture cross-cultural training as leading to more accurate expectations and therefore better anticipatory and international adjustment (306-307). Selection mechanisms and criteria is part of a screening process that many organizations go through in order to determine if an individual has the skills necessary to succeed in an overseas assignment (294). They say individuals are selected using a wide variety of relevant criteria will adjust better.

However, the selection mechanisms to adjustment suggested by Black et al'.s (1991) is something that Bhaskar-Shrinivas, Harrison, Shaffer, and Luk, (2005: 259) contested. Instead, they argued that anticipated adjustment relates to two factors: previous experience and the individual's ability with the language, and not selection mechanisms. This is because as while selection mechanisms may increase the chance of an overseas assignment succeeding, they do not change the odds of any individual's successfully adapting to their new assignment.

Caligiuri et al (2001) suggest a more complicated picture than Black et al's (1991) conceptual framework for how anticipated adjustment works. They claim successfully adjustment is not determined solely by how accurate a person's expectations of an assignment are. Instead, Caligiuri et al (2001:366) argued that the directionality of the individual's pre-departure expectations has a significant impact. When an individual assumes that their assignment is going to be easier than adjustment actually turns out to be, then cross-cultural adjustment suffered. When an individual thought cross-cultural adjustment would be more difficult than adjustment actually was, cross-cultural adjustment was positively affected.

DEVELOPMENT OF THE MODEL

Though not well known in the management literature, the CIDA studies are particularly interesting and valuable in understanding expatriate cross-cultural coping and the transfer of knowledge across cultural boundaries. Reported in the *International Journal of Intercultural Relations*, the CIDA studies were longitudinal, involved the transfer of skills that contained tacit knowledge elements, intercultural interaction effectiveness and job performance. Job performance was how well the technical assistance personnel transferred skills to the HCNs as reported by others including HCNs (Ruben & Kealey, 1979: 40-41; Hawes & Kealey 1981: 248; Kealey, 1989: 393). The transfer of knowledge, tacit and explicit, is important in the management literature since it is involved in many of the reasons companies use international assignments (Hocking, Brown, & Harzing, 2004: 567).

The CIDA studies cited above along with Tucker and others (2004) have demonstrated some people seem better suited to international assignments and some seem unlikely to adapt effectively to the new cultures. Kealey (1989: 401-405) divided his expatriates into two groups based on their success at transferring knowledge to the HCNs since this was the major focus of the CIDA in sending them abroad. He called the groups "winners" and "losers", those who were successful at the transfer of knowledge to the HCNs and those who were not.

See Figure 1 about page 401

In Figure 1, adapted from Kealey (1988: 6-8), portrays the two groups as undergoing two different patterns of the cultural coping processes. Those who ended up not being successful at transferring knowledge to the HCNs did not partake in much of what he called the acculturation experience, or what we have defined as sociocultural adaptation in this article. Kealey explains that they had few stressors and in turn experienced less acculturative stress or in our terms little psychological discomfort. They reported having quickly felt comfortable in the new environment. They interacted very little with the HCNs outside of work and as result were low on intercultural effectiveness or what we define as intercultural interaction effectiveness.

The "winners", those in the CIDA study who were effective, on the other hand interacted with the HCNs outside of work and engaged in their activities. As a result, the "winners" learned to interact effectively with the HCNs, and in the process, experienced many stressors and much adjustment stress. In our terms, they adapted socioculturally and learned to be effective in their intercultural interactions with the HCNs.

See Figure 2 about page 402

Therefore, we built our model of cross-cultural coping around these two groups and describe two patterns of the coping process involving psychological adjustment and sociocultural adaptation. The top pattern in Figure 2 describes a group undergoing quick psychological adjustment quickly feeling comfortable in the new culture. The lower pattern reflects a longer process with sociocultural adaptation taking place before psychological adjustment and a feeling of comfort occurs.

Hawes and Kealey (1981: 239) report empirical findings that the technical assistance personnel who were ineffective in transferring knowledge and skills to HCNs probably lacked the ability to engage in effective intercultural interactions. It may also be they lacked the motivation to interact with HCNs since they reported greater self-centeredness (Kealey, 1989: 401) as represented in the top pattern of Figure 2.

On the other hand, CIDA personnel on international assignments who were less self-centered and more knowledge- and relationship- oriented, emphatic, non-judgmental and tolerant of ambiguity were more effective at transferring knowledge to the locals, but also self-report experiencing the most initial adjustment stress (Kealey, 1989: 401-404; Ruben & Kealey, 1979: 40-41). In Kealey (1989: 401), HCNs and other Canadians described the expatriates as caring and they described themselves as being so. Thus, those who experienced the most adjustment stress initially in the longer run went on to be more effective at transferring skills. They were different from those who adjusted quickly with less stress and who were ultimately less effective as reported by other Canadians and HCNs (Kealey, 1989: 407). Kealey (413) related this to Torbiorn's (1982) similar finding with Swedish expatiates. Therefore, the findings of the three CIDA studies are consistent. "There was evidence of at least two categories of adaptation and two categories of effectiveness" Hawes & Kealey, 1981: 239). These results can be partially explained by Hawes and Kealey's (1981: 252-253) conclusion that were three predictors of effectiveness: "people orientation" (interpersonal skills), "sense of identity", and "positive, but realistic expectations." For those who were effective as technical advisors, the interpersonal orientation led them to interact with and gain an understanding of HCNs while displaying respect as well curiosity. The sense of identity allowed them to remain open to experiencing the local people and new culture without feeling threatened by the differences. Their expectations involved both an expectation of difficulty in adjusting and a belief that they would be successful.

The tone of the three studies is that more interpersonally and socially orientated individuals who interact more with the HCNs. When their interactions were not as effective as they wanted them to be, they were probably uncomfortable and experienced psychological adjustment stress until they figured out how to interact more effectively, in other words, while they were learning to adapt socioculturally. Indeed, stress in such situations is due to "…a high ratio of feedback to the individuals that they are exhibiting inappropriate behaviors…" Black and Mendenhall, (1991: 237). Therefore, in the CIDA study, it seems that out of the stress and their learning to cope with the new environment, those who were better at transferring knowledge learned to be more effective at interacting with the HCNs.

Psychological adjustment and sociocultural adaptation play different roles and are involved in two different major patterns of coping. Ward and Kennedy (1993) challenge the implicit assumption of a universal pattern in much of the literature on cultural contact and laud Berry's work, for example (1997), for avoiding it. To understand these varying patterns requires longitudinal studies because "Adaptations may be maladjustive in the short term whereas adjustments may be maladaptive in the long, but both terms refer to the achievement of a fit between the person and the environment, although the objective and the time frames differ" (Anderson, 1994: 300).

As we saw above, those who are more self-centered and had other related characteristics, enter the new culture, quickly adjust psychologically, and soon self-report comfort. However, they are less likely to interact

with HCNs and do so less effectively, limiting their job performance especially in jobs that have elements requiring effective interaction with HCNs including knowledge transfer. Having avoided sociocultural adaptation and having had limited and less effective interactions with the HCNs, they are not likely to acquire as much valuable knowledge, especially tacit, of the kind acquired by those on successful international assignments.

On the other hand, when those individuals who are knowledge and people oriented enter the new culture, they begin interacting with HCNs in a significant way and soon begin to realize they are not being as effective as they desire. The resulting accumulation of ineffective attempts coupled with their desire to interact effectively produces psychological adjustment stress. Out of this stress and their striving to learn, they then begin to be more effective in their interactions leading to positive feedback that in turn leads to more comfort, psychological adjustment. The greater comfort then can allow them to be even more effective as they better learn the behaviors of the new culture and become more skilled at accomplishing things within it. With intercultural interactions that are more effective, they can perform better on-the-job, especially in jobs that have required effective interaction with HCNs. Through this process of sociocultural adaptation and prolonged effective interactions with HCNs during successful international assignments, they gain much knowledge with the tacit being particularly valuable.

HYPOTHESIS

Thus, we come to the most basic assumption of our model.
Hypothesis 1: There are, at least, two groups each undergoing a different major pattern of the process of cultural coping.

METHODS

Sample and Procedures of the Study

We designed the current research to test the above new model of cultural coping with individuals experiencing a "quasi" expatriate assignment. The complete sample consisted of 80 participants in an international management program offered by a German university. Predominately, the participants were young officers, around 30-32 years of age, leaving the German Armed Forces and preparing for employment in civilian life. The program consisted of three phases. Phase I was six to seven weeks of preparation in Munich including business communication in English, cross-cultural management including predeparture preparation and international business seminars. Phase II consisted of two to four MBA courses conducted over a period of six to eleven weeks at a university in Australia, Singapore or the United States. A large majority of the participants in the study went to Australia. Phase III consisted of a self-arranged work project in a company lasting at least eight weeks and the vast majority were 12 weeks or longer usually in the country where the individual studied. Some of the projects ran somewhat longer. Thus, they were out of their home country and in another country for a period of four to seven months, occasionally longer. Thus, they provided a viable sample of "quasi" expatriates.

There is one program a year and the data are from the period of 2004-2009. The data was available to us after each year's program. We have anticipated psychological adjustment data and demographic data collected during the second week of Phase I, following cross-cultural management training which included preparation for their overseas stay. We have psychological adjustment data collected approximately two weeks after arrival in the host country where the individual studied and again toward the end of Phase II. During Phase III, we collected approximately two weeks after they started a work project in a company. Thus, we have adjustment

data collected with repeated measure on the same individuals at five different times over a period of approximately six months.

Measures

The program used self-report ratings of adjustment using the Black and Stephens (1989) scale, which was adapted to fit either work/academic settings so that it fit Phases I, II and III. Time 1 data (T1) was early in Phase I and was when the individuals' anticipatory adjustment or how well they expect to adjust, was measured. All the other times, T2-T5, the individual's actual adjustment was measured. Unfortunately, the responses from the program participants at T5 were also too few for us to use.

RESULTS

Longitudinal Comparison #1: Time 1 & Time 2 Adjustment for Higher vs. Lower Adjustment Expectation Participants

We conducted a 2 (Adjustment Time: T1 vs. T2) x 2 (High vs. Low Anticipatory Adjustment) ANOVA. We expected a significant Adjustment Time by Expectation interaction where the low expectation surrogate expatriates (low anticipatory adjustment scores) would present a different pattern of adjustment over time than the high expectation (high anticipatory adjustment scores) surrogate expatriates. For our first longitudinal analysis, we focused on the available data for adjustment in T1 and T2. We had both T1 and T2 adjustment data for 58 participants. The results are consistent with the hypothesis. Figure 3 presents the mean scores for the high and low expectations group over time. The results show a significant 2 (Adjustment Time) x 2 (High vs. Low Anticipatory Adjustment) contrasts ($F(1,56)=6.191$, $p=.016$). The results on the T1 versus T2 analysis also shows a main effect of high versus low expectations where individuals with high expectations tended to have a better adjustment at the beginning of their adjustment cycle (both T1 and T2) than individuals with low expectations ($F(1,56)=63.516$, $p=.000$). This trend varies as time progresses as we will see in the subsequent analyses we conducted.

Next, we conducted a 3 (Adjustment Times: T1 vs. T2 vs. T3) x 2 (High vs. Low Anticipatory Adjustment Mixed ANOVA). For 40 participants, we had all three adjustment-scores: T1, T2, and T3 adjustment data. The descriptive statistics present a pattern that is consistent with the hypothesis. Figure 4 presents the mean scores for the high and low expectations group over time. The results show 3 (Adjustment Time) x 2 (High vs. Low Anticipatory Adjustment) contrasts that are close to significance ($F(1,38)=3.097$, $p=.051$). The results on the T1 versus T2 versus T3 analysis also show a main effect of high versus low expectations where individuals with high expectations tended to have a better adjustment at the beginning and middle of their adjustment cycle (T1, T2, and T3) than individuals with low expectations ($F(1,56)=63.516$, $p=.000$). This trend varies as time progresses as we will see in the subsequent analyses we conducted. The differences between the high expectations group and the low expectation group are demonstrated through a significant main effect ($F(1,38)=26.53$, $p=.000$) of expectation (or high vs. low anticipatory adjustment).

FIGURE 3
Longitudinal Comparison #1: Time 1 & Time 2 Adjustment for Higher vs. Lower Adjustment Expectation Participants
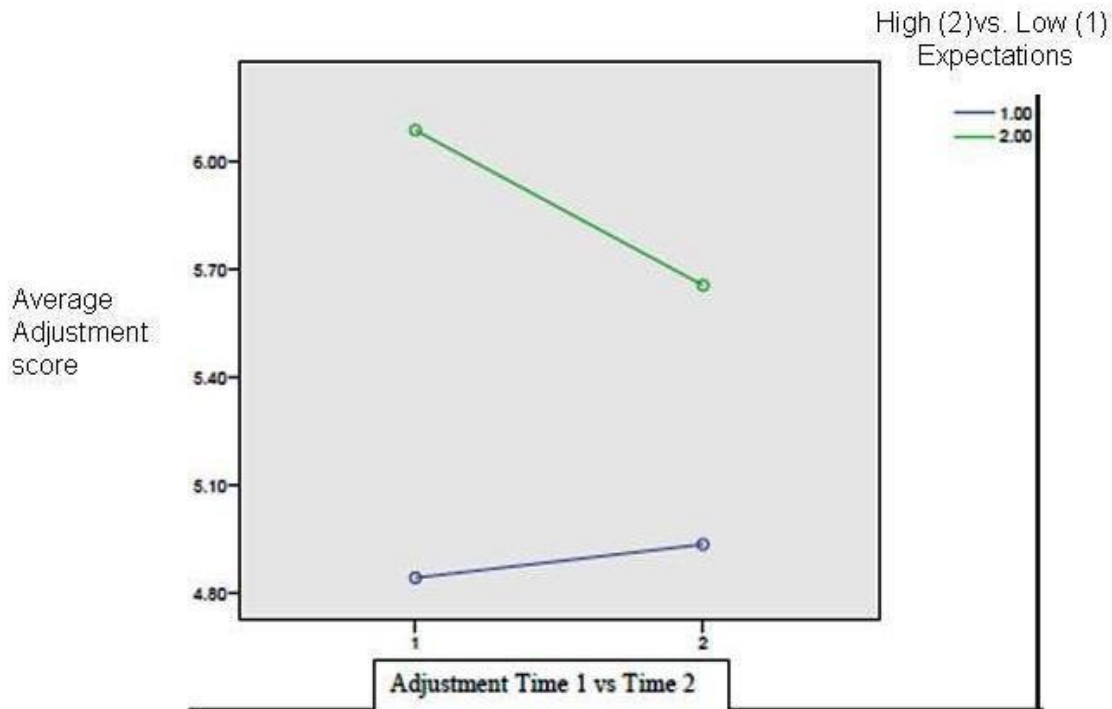
Longitudinal Comparison #2: Time 1 thru Time 3 Adjustment for Higher vs. Lower Adjustment Expectation Participants

This time, we conducted a 4 (Adjustment Times: T1 vs. T2 vs. T3) x 2 (High vs. Low Anticipatory Adjustment) Mixed ANOVA. For 21 participants, we had all four adjustment-scores: T1, T2, T3, and T4. The results again are consistent with the hypothesis. Figure 5 presents the mean scores for the high and low expectations group over time. The results show significant 4 (Adjustment Time) x 2 (High vs. Low Anticipatory Adjustment) contrasts ($F(1,18)=4.793$, $p=.042$). The results show how the pattern of adjustment differs for the low vs. high expectations groups and show how adjustment changes over time for both groups. As shown in Figure 5, participants in the low expectations group show improvement in adjustment scores over time whereas the high expectations group demonstrates the typical U-curve of adjustment described in the expatriate literature from T1-T3 and then a drop in adjustment scores from T3 to T4.

FIGURE 4
*Longitudinal Comparison #2: Time 1-Time 3 Adjustment for Higher vs. Lower Adjustment Expectation
Participants*
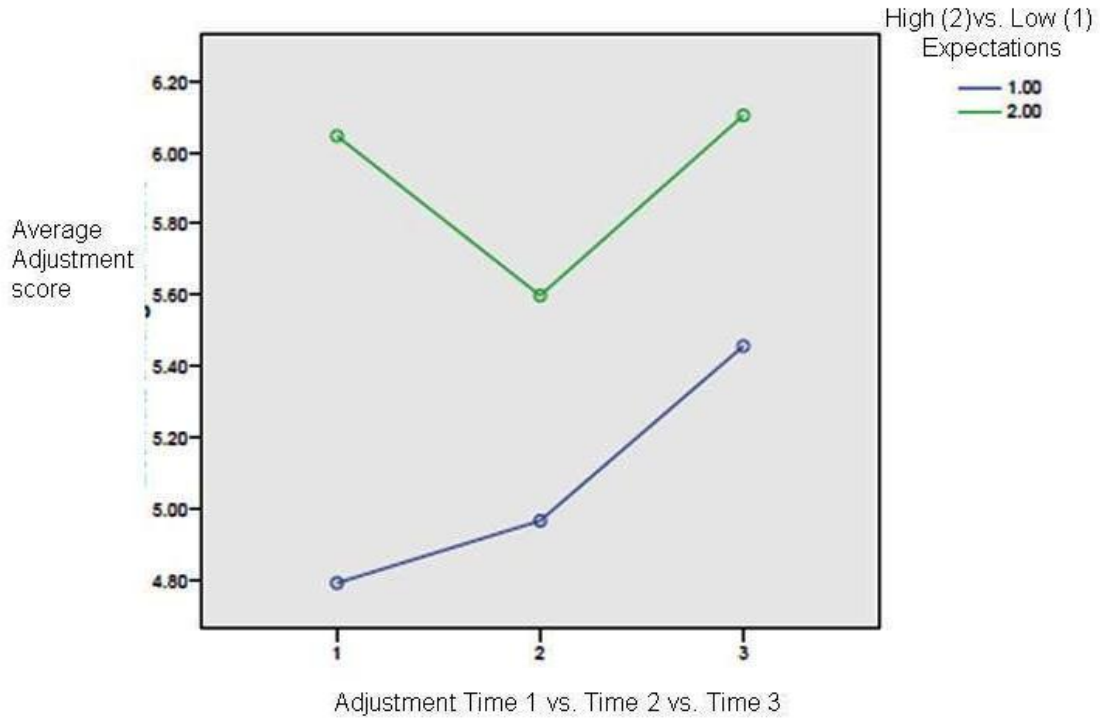
**Longitudinal Comparison #3: Time 1 thru Time 4 Adjustment for Higher vs. Lower Adjustment
Expectation Participants**

FIGURE 5
Longitudinal Comparison #3: Time 1-Time 4 Adjustment for Higher vs. Lower Adjustment Expectation Participants
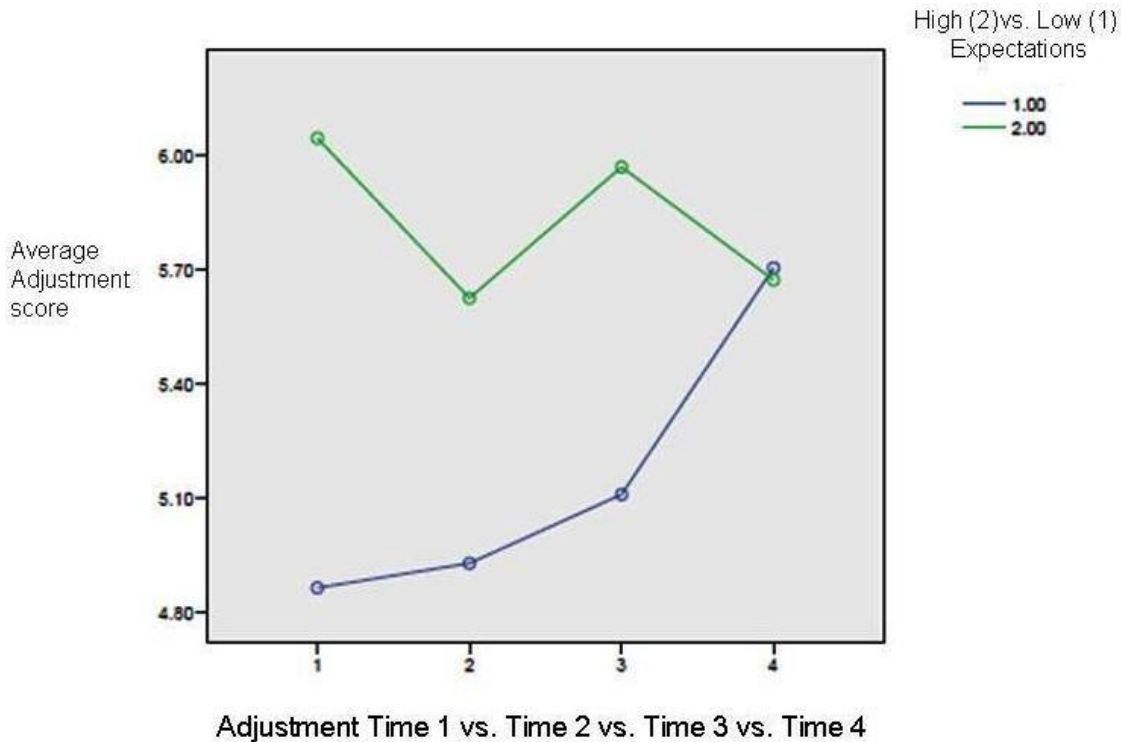
DISCUSSION

The results of the study demonstrate support for the central proposition of our Model of Cross-Cultural Coping on International Assignments, which was our hypothesis. Namely, the results show that there are at least two groups with two different patterns of adjustment. The results and conclusions from our study have theoretical implications as well as implications for future research including our program, which is to continuing.

Theoretical Implications

In the management literature on expatriation, the U-curve is a recurring theme in which expatriate adjustment is characterized by a honeymoon period upon entering a new culture. The honeymoon is then followed by a decline in adjustment that in turn is followed by a recovery period. Neither of our two groups fit the classic U-curve, unless you count the anticipatory adjustment as the honeymoon for the high anticipatory adjustment group. Upon entering the new culture, they reported an immediate decline in adjustment from the anticipatory level. Therefore, this really does not fit the classic U-curve pattern of cultural coping. On the other hand, the lower anticipatory group reported a modest increase in adjustment upon entry, a decline in adjustment

did not follow and instead we found a further modest increase followed and following that a stronger increase. It may be that the findings in the literature that sometimes there is U-curve and sometimes not could be a result of using cross-sectional data rather than using repeated measures over time with same individuals.

The results of our study are consistent with our model in that we found two separate different patterns of cross-cultural coping. In keeping with the findings of the CIDA studies, perhaps expatriate expectations, measured in our study as anticipatory adjustment, can explain the results. When looking at the means of the adjustment scores through the lens of our model, we observe that the lower anticipatory adjustment group (realistic expectations according to the CIDA studies) has a linear trend of adjustment with scores improving consistently over all times T1 through T4. This result is congruent with Caligiuri et al's finding of those expatriates whose expectations are met or exceeded report better adjustment. In addition, since both groups had the same predeparture training prior to completing the anticipatory adjustment scale, our results do not support the idea of predeparture training explaining differences in expectations.

We also observe the high expectations group's high-anticipated adjustment was followed by a drop in adjustment upon entering the culture (academic environment) and then a recovery in adjustment by the end of the study period. However, upon entering into work environment, the high expectations group experienced another drop in adjustment. On the other hand, the lower anticipatory adjustment group with more realistic expectations showed a steady improvement in adjustment over time with a large improvement from T3 to T4. They seem to have adapted socioculturally during the academic phase and transferred that success into the work environment. Thus, importance of realistic expectations is in keeping with findings of the CIDA studies and Caligiuri with others.

These distinct patterns seem to be manifested as early as T2 and were found to be significant for T3 and 4 as well regardless of the sample size which was small for comparisons among all 4 times (only 21 subjects in this group had complete data on T1, T2, T3, and T4). Additionally, the program gathered adjustment data from the participants in T5; however, for T5, we had only 12 surrogate expatriates from who we had complete adjustment data. Though too small of a sample to include in the results section of this paper, the trend of both groups continued and grew far more pronounced, with the low anticipatory adjustment group continuing to improve and the higher anticipatory adjustment group continuing to decline. Despite the low sample size for T5, the results were statistically significant at the .043 level.

Thus, it does seem as if the CIDA studies and Tucker et al. (1973) were correct in their assessment that were those who were suited for international assignments and those who were not. Furthermore, it seems that realistic expectation play a key role. In spite of both groups in our study receiving the same predeparture training, we found that they were still differences in their expectations. Thus, there is more involved in determining expectations, anticipatory adjustment, than the accuracy of the information provide during predeparture preparation.

Implications for Future Research

The results were an initial test of the larger model of cultural coping. We found support for its most fundamental assumption. We focused on the central aspect of the model proposing two different patterns of coping when entering a new culture, which provides a possible explanation for the mixed results in the literature regarding the typical U-curve of expatriate cultural coping. Additionally, the results clearly show that cultural-coping on international assignments is a process. If there are two groups who undergo different processes, it is hard for us to know what the results from cross-sectional studies mean. Thus, we emphasize the need for longitudinal studies using repeated measures of adjustment. Furthermore, we need independent measures of the expatriate cultural coping such as ratings by HCNs and performance measures also tracked longitudinally to measure sociocultural adaptation to come with self-report adjustment.

Other Support, Next Steps, and Propositions

A finding in each of two related cross-sectional studies looking at international students' psychological adjustment and sociocultural adaptation in Singapore and New Zealand raises an interesting question (Ward & Kennedy, 1993). In New Zealand with Singaporean and Malaysian students, they found a positive relationship between extroversion and sociocultural adaptation, but not with psychological adjustment. This would be consistent with the patterns of students high on extroversion having initial adjustment stress from interacting with host-country nationals (HCNs), but in the end learning to adapt better, while students low on extroversion adjusted quickly without going through a period of adaptation. In Singapore, Malaysian students showed a weak, but significant link between mood disturbance, psychological discomfort with adjustment, and high HCN contact. The authors related psychological stress to attempts by the students to integrate into the new society as the most likely explanation of the results. Taken together these two surprises would seem congruent with the key finding that those who adjust readily likely will be less effective in dealing with HCNs while those who turn out in the longer run to be quite effective report the most initial adjustment stress (Hawes & Kealey, 1981; Kealey, 1989: Kealey & Ruben, 1979). It is also congruent with the findings in this study.

Cognitive uncertainty and anxiety exert independent influences on cultural adaptation and their reductions are necessary and sufficient conditions for it to occur (Gao & Gudykunst, 1990: 301). If the individuals who interact more with HCNs experience more adjustment stress, they would seem to experience both more cognitive uncertainty and affective anxiety when their behaviors are not fully successful, thus establishing a basis for adaptation. Behaviors that ultimately result in effective sociocultural adaptation such as interacting with host-country nationals, exploring the new and unfamiliar environment, learning the local language and such also produce the most stress (Barna, 1983). However, these kinds of activities are the ones required to learn and socioculturally adapt to the new cultures, which can then lead to more comfort with it, or psychological adjustment. Thus, "there is simply no way to derive the benefits of growth without the concomitant experiences of stress" (Kim & Ruben, 1988: 308). Therefore, sociocultural adaptation appears to be a prerequisite for intercultural interactional effectiveness which then in turn leads to psychological adjustment, or comfort in the new culture and finally to a successful international assignment with the acquisition of valuable knowledge and competences.

Putting the Pieces Together

Underlying effectiveness, then, seems to be a three-stage process of learning, adapting, and adjusting as supported by the realistic expectations group in this study. This perspective is in keeping with the resource-based view of the firm's impact on international human resource management, advancing it from a mere concern with cultural differences during international assignments to concerns with knowledge creation and learning (Kamoche, 1966). Thus, we argue that to become effective, the individual first needs to learn something of the other culture, preferably before entering it; but if not, one will certainly have the opportunity to begin learning when immersed. With learning, the individual can begin to adapt to operating in the new culture. However, this period will initially involve a lot of adjustment stress, or feelings of discomfort. Of course, as one adapts, one keeps learning. Next, to become more highly effective, one must adjust to, or become more comfortable with, the new culture as one learns about and adapts to it.

PROPOSITIONS

Based on prior research and our model presented in Figure 2 plus the support we found for the most basic assumption of the model, we offer the following propositions:

Proposition 1: Psychological adjustment and sociocultural adaptation are separate, but related phenomenon and play different roles in the process of settling into a new culture.

Proposition 2a: One pattern of cross-cultural coping is quick psychological adjustment without sociocultural adaptation.

Proposition 2b: Another pattern of cross-cultural coping is adjustment stress followed by sociocultural adaptation and then by psychological adjustment.
Proposition 2c: The pattern of psychological adjustment without sociocultural adaptation is related to less effective interaction with HCNs.
Proposition 2d: The pattern of stress, sociocultural adaptation and psychological adjustment is related to better interaction effectiveness with HCNs.
Proposition 4a: Individuals who interact less effectively with HCNs will demonstrate less knowledge of the host country's culture and it ways.
Proposition 4b: Individuals who interact more effectively with HCNs will demonstrate more knowledge of the host country's culture and it ways.

 Psychological adjustment is a state of individual comfort while sociocultural adaptation concerns itself with acquiring the knowledge and competences to build and maintain effective relationships in the new culture. Thus, sociocultural adaptation allows individuals to interact effectively with HCNs, which in turn contributes to psychological adjustment and job performance, at least job requiring significant interactions with HCNs.

Proposition 5a: Individuals who demonstrate less knowledge of the host country will have lower job performance.
Proposition 5b: Individuals who demonstrate more knowledge of the host country will have better job performance.

During sociocultural adaptation and prolonged effective interactions with HCNs involved in a successful international assignment, individuals gain a lot of knowledge and the tacit portion is of greater value. These acquired knowledge and competencies are potentially quite valuable to the individual and the firm. However, failure to understand the differences between psychological adjustment, sociocultural adaptation and interaction effectiveness can lead to poor decision making in the areas of selection, training and development for international assignments as well as managing people entering, during and upon return, which increases the likelihood of unsuccessful assignments and a failure to acquire these assets.

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FIGURE 1

Kealey's Acculturation and Effectiveness Model

Accumulation of Experience	Stressors	Accumulative Stress	Intercultural Effectiveness
Little	Few	Low	Low
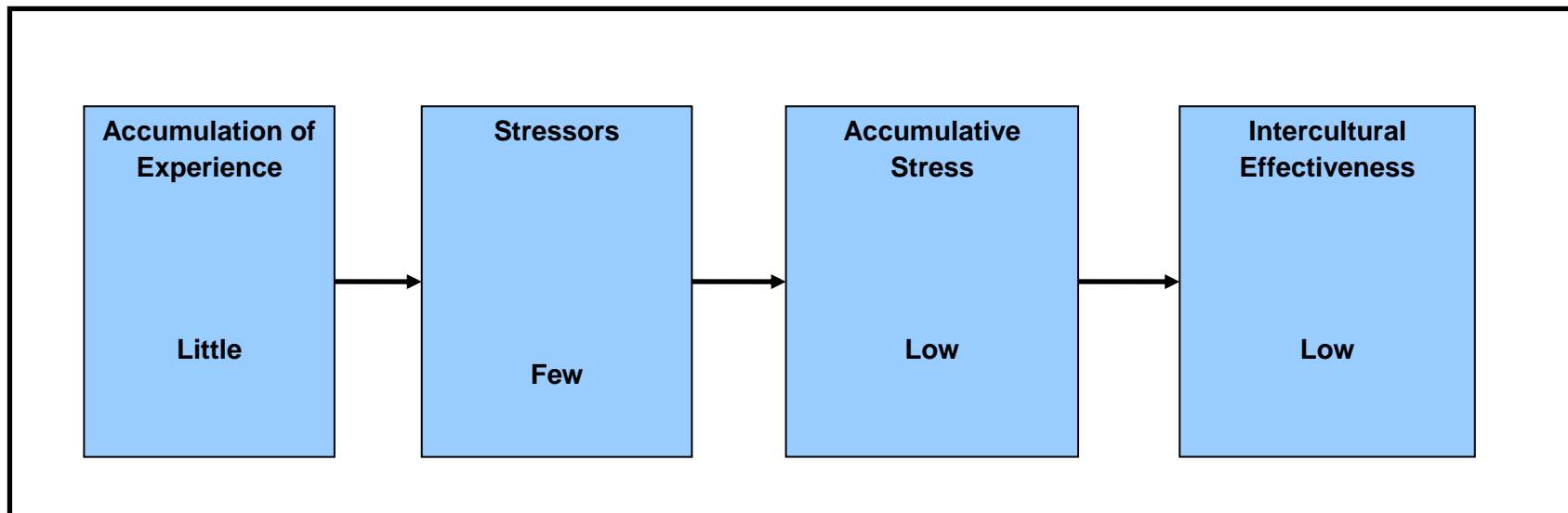
FIGURE 2

Model of Cross-Cultural Coping

Psychological Adjustment

| Self-Centered | → | Enter New | → | Psychological Comfort | → | Ineffective with HCNs / Poor Job Performance | → | Fails to Acquire Tacit |

Sociocultural Adaptation

| Knowledge & People | → | Enter New | → | Interaction With HCNs | → | Negative Feedback | → | Psychological Stress | → | Learning New Behaviors | → | A |

| A | → | Effective Interaction | → | Positive Feedback | → | Psychological Comfort | → | Effective with HCNs / Positive Job Performance | → | Acquires Tacit Knowledge |

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Track: Organizational Behavior

BRIDGING THE GAP: CLIENT BASED PROJECTS AND ACADEMIC APPLICATIONS IN THE ADVERTISING CURRICULUM

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ABSTRACT

Calls for improvements in the teaching of business administration are ubiquitous. In response, the history of advertising education is reviewed. An interdisciplinary approach combining marketing, advertising, and art, the National Student Advertising Competition is described and recommended to business educators as an improved teaching approach.

INTRODUCTION

Calls for improvements in the teaching of business administration are ubiquitous. For example, Ghoshal (2005) blamed bad theory for bad practice, urging that leaders of business schools must provide the support for change. Mintzberg and Gosling (2002) urged going beyond traditional borders in educating managers by making the manager's educational experience a place of thoughtful reflection. Perhaps nothing we do is ever perfect, and improvements are always possible, but business education seems to be in particular need of improvement, and faculty continue to seek better ways.

In addition, both scholars and practitioners continue to be concerned about the abilities of students and employees to work across disciplines. As early as 1975, Johnson and Werner identified the crucial issue of problem solving in business, recognizing that traditional disciplinary approaches to education tend to lead to solutions limited to the discipline being taught. They developed an interdisciplinary program intended to educate problem solvers in business to find interdisciplinary solutions to the problems that vex business. Hutt and Speh (2007), writing about the discipline of marketing, insisted that the perspective of the customer most be integrated across hierarchical levels and disciplines. And as recently as 2009, Boni, Weingart, and Evenson described an interdisciplinary approach to teaching entrepreneurship and innovation by combining the perspectives of entrepreneurial leadership, design thinking, and team building. Issues of interdisciplinary education have not been resolved, and faculty continue to innovate in seeking better ways.

Likewise, both scholars and practitioners recognize that there is much employees need to know and to be able to do that cannot be explicitly taught (Armstrong & Mahmud, 2008). This relates to the concept of tacit knowledge, defined by Sternberg & Horvath (1999) (and cited in Armstrong & Mahmud, 2008, p. 190) as "knowledge that is grounded in personal experience,

and is procedural rather than declarative in structure." Traditional classroom approaches cannot provide students this kind of knowledge, and faculty continue to seek approaches that will.

Furthermore, matters of student engagement in the educational process continue to be of concern. Foster and Rahinel (2008) discussed limitations on what can be done at the institutional level to increase engagement that will improve industry and academic performance. However, their research indicated (pp. 4-5) that

Including opportunities to participate and collaborate with peers, being accessible to discuss concepts and answer questions, and creating challenging rather than just simply longer assignments that require students to analyze information and make judgments, will enhance their academic performance and develop competencies that are valued in industry.

Egan (2008, p. 3) in his survey of a century of marketing recognized that "change is notoriously slow in marketing education." And ended (p. 16) his study with "Marketing judgment is directed by common-sense, moderated by education and experience and tinged with pragmatism."

With all these concerns in mind, thoughtful educators might ask themselves what can be done to improve business education with interdisciplinary approaches that develop tacit knowledge while engaging students in ways that have been demonstrated to improved academic and industry performances. The good news, for students of marketing, communication, and art, is that such an approach exists. It is the National Student Advertising Competition. This paper examines the origins of advertising education, the sources of mistrust between educators and practitioners and offers a possible scenario, which could work to the advantage of both.

ADVERTISING EDUCATION

Concerns about what students will take with them into the professional workplace aren't limited to topics covered in the traditional business school disciplines. The Association of American Colleges and Universities outlined their concerns about the quality of student learning in the nations higher education system in January of 2010 called "The Quality Imperative". The association also released a survey done in the fall of 2009 conducted by Peter Hart Research Associates, which suggests most employers would agree with their assessment that undergrad students need a more broad-based education. Just one in four of the 302 employers surveyed agreed that two and four-year schools were doing a good job of preparing students for the challenges ahead. The AACU also raised concerns about programs, which offer narrow training or short-term credentials, which could limit opportunity for better jobs. This concern was the source of numerous debates, reports, and initiatives during the twentieth century and shows now sign of abating. The evolution of advertising education serves as a case study about the difficulties inherent in matching the academic work of the classroom with the demands of the workplace. The art and science of advertising has always coexisted as both an industry and an educational endeavor with an uneasy relationship. Owing to the gap between what happens in the classroom and the realities of the marketplace, the friction between practitioners and educators has been a source of irritation for both.

Advertising education has its origins in three distinct disciplines; psychology, journalism, and business, all of which contributed to advertisings development and all of which are integral parts of a holistic approach to the teaching and practice of advertising. Psychology, which contributes an understanding of human behavior and the art of persuasion, was also the field from which the first advertising research was conducted. In 1895 Harlow Gale, a professor of psychology at the University of Minnesota conducted a survey in search of the purposes behind advertisements (Coolsen 1942, p. 40), which was followed by other research using students in his advanced psychology classes. That same year a trade magazine of the time, Printers Ink, made the prediction that:

Probably, when we are a little more enlightened, the advertising writer, like the teacher, will study psychology. For however diverse their occupations may at first sight appear, the advertising writer and the teacher have one great object in common --- to influence the human mind (Richards & Ross, 2008).

Journalism, which until the turn of the 19th century was taught almost exclusively in English Departments, was eventually reworked as a mostly technical form of study with encouragement from the growing newspaper industry. It was not until the University of Missouri School of Journalism in 1913 introduced the first advertising major program, that advertising became a formal course of study (Ross, 1965) While this early curriculum tended to be mostly vocational in nature for the purpose of teaching the mechanics of advertising for the newspaper industry, it was the beginning of the creative side of advertising.

Interestingly, the impetus for schools of business to develop advertising curriculum was coming from industry ranks in the form of the Associated Advertising Clubs of America, created to advance the advertising profession. The AACA, believing that standardized advertising education was necessary to advance the profession, was hopeful that more formalized instruction would find some scientific principles for advertising while also promote the profession to a more respectable social status and enhanced profitability. By the time Harvard installed a chair of advertising in the first decade of the twentieth century and Paul T. Cherington, a Harvard professor first offered a course, which included lectures on advertising, many other institutions had decided to follow the trend. By 1910 a professor at the University of Wisconsin, Daniel Starch, offered a course called "The Psychological Problems of Advertising" and it seemed that advertising had established a foothold in academia (Richards & Ross, 2008).

Throughout the history of advertising as an academic discipline there has been an uneasy relationship with industry practitioners resulting both from the indefinite origins of advertising study as well as from mistrust on the part of both educators and practitioners. This mistrust can be attributed to differences of opinion regarding the position of advertising in the curriculum, the content of advertising education, the changing nature of advertising in the marketplace, and the desired outcomes of advertising education.

Advertising in the Curriculum

Advertising has long wrestled with both industry practitioners and educators about what constitutes an effective advertising education curriculum. This debate stretches back to the very

beginnings of advertising as an academic discipline. While the first school to offer a course in marketing is believed to be the University of Michigan in the fall of 1902 (Maynard, 1941), New York University was the first school to offer a course listed in its catalog as "Advertising" (Richards & Ross, 2008). That is on the academic side since on December 20, 1901, Walter Dill Scott delivered his talk entitled "The Psychology of Involuntary Attention as Applied to Advertising," to the Agate Club, which was the original club for advertising industry practitioners, in Chicago at its annual banquet. Scott, who went on to teach what is considered the first university course on advertising at Northwestern University, is held to be the "Father of Advertising Education." With this beginning, advertising education started the new century with ambiguous purposes dating to the so-called "Yale Report" in 1828, which argued for adherence to the traditional liberal arts undergraduate curriculum of which professional studies should not be a part. (Lucas 1994, p. 133). With the growth of higher education, the popularity of scientific education, and the emergence of graduate programs in the 19th century there came increased demand for more practical training as opposed to the old school classical learning approach. Andrew Carnegie condemned what he perceived as the useless continuation of an approach, which did not work, saying:

While the college student has been learning a little about the barbarous and petty squabble of a far distant past, or trying to master languages which are dead, such knowledge as seems adapted for life on another planet than this as far as business affairs are concerned, the future captain of industry is hotly engaged in the school of experience, obtaining the very knowledge required for his future triumphs (Lucas, 1994, pp. 144-45).

Content of Advertising Education

During the first half of the twentieth century, when educational institutions and the advertising industry alike were experiencing growth and development, two separate reports on the state of business schools were released with dramatic results. Both the Ford Foundation study by Gordon and Howell (1959) and the Carnegie Foundation study by Pierson (1959) condemned business schools for taking too much of a hands-on application approach and renewed the liberal arts versus professional debate. At this point most of the advertising instruction had been located in schools of business but with these reports many of the leading business schools went with a more theoretical approach, leaving schools of journalism to expand their offerings by adding advertising courses. Under the influence of journalism, advertising education took a more vocational "how to" approach which was in direct contrast to the business school "why" focus. With the journalism schools advertising favored an inductive, practical, and specialized technique designed to train students for their "first" job, while advertising as taught in business schools preferred a more theoretical, deductive, general strategy to prepare students for their career or "last" job (Lancaster, 1990).

Changing Nature of Advertising

With the explosive growth of advertising as an industry from a $28 billion business in 1975 to a $75 billion enterprise in 1988, (Advertising Age, 1988) the emphasis shifted to sales promotion, direct marketing, and other less traditional methodology at the same time its audience was being fragmented by cable television, magazines, and telemarketing. (Marketing and Media

Decisions, 1987) Consequently the skill set for a successful advertising career became more complex and the educational experience to effect those skills became exponentially more complicated.

Outcomes of Advertising Education

Outcomes for effective advertising education must take into account the diverse needs of those preparing for a career in advertising; learning holistically about the creative, business, and psychological aspects of advertising as they function together. Moore and Leckenby (1973) proposed that advertising education objectives should be:

1. To prepare the student for a long-range career
2. To prepare the student for his first job in advertising
3. To teach the student the latest advertising approaches
4. To provide the student with training and judgment in problem solving
5. To give the student an appreciation of the field of advertising in general

The man widely regarded as the dean of advertising educators, Dr. Charles Sandage, stated in the Spring 1955 issue of *Journalism Quarterly* that:

My own philosophy of education in the field of advertising is to minimize strictly skills courses and to place more emphasis on the 'why' of advertising in its business and social environment. Advertising is a broad field. It is concerned with products and how to get them distributed…with the dissemination of ideas..with broad economic matters…with communications…If we place emphasis on teaching the student, we will attempt to sharpen his ability to think and to solve problems. We will look upon thinking as an instrument of action and a basic tool for solving problems.

Perhaps the standoff between educators and practitioners of advertising can be illustrated by the proposal of legendary adman David Ogilvy in 1955 to create a National College of Advertising since the advertising taught in ordinary universities was "sadly useless" (Hileman & Ross, 1969). Dunbaugh (1957) countered that the chief reason Ogilvy's suggested "University of Advertising" was rejected is that advertising students need a broad base of knowledge since "An advertising mans future depends on his ability to communicate, whether he be a copywriter, space buyer, or account executive." Dunbaugh also cites an advertisement in university publications by Proctor and Gamble seeking personnel for copy supervision, media, merchandising, and brand management which contained the sentence, "a knowledge of advertising is not necessary". Whether implicitly or explicitly, the practitioner was expressing a widespread sentiment in the advertising industry that advertising education was not preparing the next generation of ad men for the demands of the marketplace. On the other side of the coin, advertising educators were busily trying to research the problem as well as keep up with the increasing changes and complexities of modern advertising technique and technology.

Jim Marra, writing in *Advertising Age* in 1984 framed the debate from the educator's perspective, "There's a schism, a gap that exists between advertising education and the

profession of advertising. You folks in the "real world" sometimes think we folks in education live in an ivory tower detached from what goes on in the "real" business of advertising. And we folks in education sometimes think you folks in the "real world" live in a bustling grinder detached from the more contemplative insights regarding how advertising works."

Doerner (1983) was more specific with industry complaints;

Okay, so you want to hire a beginner. But you find he or she can't spell, doesn't know what a grp is, thinks customer benefits have something to do with insurance and direct marketing means going straight to the supermarket right after work…No wonder advertising's wondering what's wrong with advertising education.

THE NATIONAL STUDENT ADVERTISING COMPETITION

The business community has increasingly been calling upon advertising students to submit their work for real life projects with corporate entities seeking a fresh perspective and insight into that student demographic. The Yellow Pages Association, a trade group for the telephone industry, has sponsored the YPA Yellow Pages Advertising Challenge for the past five years in an effort to spur creative development for their market. Similarly, major product brands have launched initiatives to connect with the college student through consumer generated advertising competitions such as the Doritos Crash the Super Bowl contest which featured 4 non-agency ads in Super Bowl 44. School related organizations like the NCAA are also forming partnerships with college students to help them find more growth with the 18-24 year old market for the annual NCAA college basketball tournament. For the 2010 March Madness, the NCAA enlisted the Farmer School of Business at Miami University in Oxford, Ohio to give the students a chance to present campaign ideas to actual marketers, who can then choose to use their advertising concepts for advertising to real consumers. This is by no means a new approach to teaching the art and science of advertising as it has been tried and tested for at least the past fifty years on a national level. Marra (1988) mentions five of the most prominent; sponsored by Phillip Morris, Nissan, the AAA/INMA, Direct Marketing Collegiate, and the AAF. Benefits of these types of competitions according to Marra include:

1. An important link to the real world of advertising
2. Judging by professionals
3. Opportunity to raise the image of advertising educators
4. To showcase the future of advertising

A good example of the predicament advertising has faced can be found in the life of Edward Bernays, a graduate of Cornell in 1912 with a degree in agriculture. Choosing to pursue a career in journalism, he became interested in the use of psychology to influence human behavior. It was young Edward Bernays, who working with a meat packer and having Sigmund Freud for an uncle, employed psychoanalytic theory to persuade Americans that a "healthy breakfast" consisted of bacon and eggs. Bernays went on to a career in public relations during which he pioneered work in psychology and the social sciences in the service of advertising, public relations, and marketing. Bernays life was influenced by his experience in each of the three disciplines from advertising education developed and he is widely regarded as the father of modern public relations practice. Clearly Bernays benefitted from his learning in each of the

three fields associated with advertising and it is this synergy, which is missing from much of contemporary advertising education. Even if Edward Bernays had tried to obtain an education which might have prepared him for his future career, it is doubtful he could have done so any more now than then. While advertising education can trace its genealogy back to beginnings in psychology, journalism, and business and while it has grown into its own, it is still inextricably linked to each of these disciplines by virtue of its practice. Advertising is essentially about the psychology of persuasion, executed artistically with words and pictures, to make money. Donnelly (1992) discovered in a survey of agency professionals that about a third of them had degrees in business, 23 percent had degrees in journalism, and 27 percent had degrees in fine arts or humanities. The question then becomes how to most effectively combine these three disciplines in a way to teach advertising. With that, we offer this taxonomy of advertising education from least to most effective methodology:

1. Classroom lecture
2. Lab / production experience
3. Academic / Industry contests
4. Internships
5. Portfolio schools
6. Agency training programs
7. Juried Competitions

Each level of this taxonomy has its own weakness; with the portfolio schools leaning too much toward the creative side, the agency programs teaching advertising only as it is practiced at their own agency and with the rest simply not being comprehensive enough. Burton (1955) stated, " Since advertising requires so many facets of knowledge, no one can ever tell in advance just which subject will ultimately prove most valuable to him. For this reason, a wide liberal arts background is desirable in addition to the specialized background." If this was true in 1955, how much more so now with the advent of digital, online, and social media coming to dominate the advertising landscape to the degree it has turned traditional ad media upside down.

In the last quarter of the twentieth century The American Advertising Federation embarked upon a series of groundbreaking initiatives, which had the effect of helping to bridge the gap between the educational establishment and the industry practitioners in advertising. As early as 1906 the AAF had stated advertising education as one of the organizations purposes and they were one of the early proponents of standardized training for the advertising industry. (Richards & Ross, 2008). Among the milestones the AAF advanced were these:

In 1958 established the Advertising Educational Foundation to elevate the quality of ad education and to better explain the field to the public.
In 1973 created the National Student Advertising Competition and established an academic division of the national organization as well as a program to establish college chapters of the AAF
In 1987 created the Distinguished Advertising Educator Award
In 1997 instituted a Most Promising Minority Students program
In 2005 extended the Student Addy Awards to the national level

In terms of providing a satisfying answer for the discrepancy between the classroom and the workplace the NASC has had the most profound effect, but taken in conjunction with the other AAF educational opportunities, the overall benefits are truly impressive for students seeking a future in advertising.

In discussing the NSAC it is helpful to consider the organizational principles utilized, the connections provided, the advantages offered, and the principles behind client-based projects. Organizationally, advertising education has always suffered from the diversity of its origins in multiple disciplines.

Organizational Principles

Stewart (1986), in calling for the development of advertising as its own philosophy and department within academe, stated that, "Advertising, when controlled by faculty in cognate disciplines, has not been able to rise above a level of understanding (and explanation) of anybody whose main intellectual interests are in other fields." His argument is that the historic location of advertising as a subset of either business or journalism has weakened the process of advertising education. Stewart was echoing the sentiments of Charles Sandage, writing in *Advertising Age* in 1980 said, "We must come to recognize that advertising is becoming an intellectual discipline in its own right. And therefore, it should not be bound by the traditions of journalism or communication."

Connecting Education and Practice

Connectedness has long been understood and recognized as the model for modern ad agency operations and it has been a curiosity as to why that same approach has not been more fully implemented in the teaching and learning of advertising.

Smith (1956) recognized earlier that the team-problem approach of learning advertising had numerous benefits with its emphasis upon the role of the student in the educational process where the instructor acts as an advisor or a catalyst. "Under the team approach," says Smith, "the student assumes a different role. He brings to each meeting an awareness that his group will not make progress unless each member contributes his share."

The NSAC since its inception in 1973 has taken this team-problem approach with national clients ranging from Toyota to Yahoo, where students work together bringing the skills of differing academic disciplines to bear on the problem at hand.

Wright and Steilen (1976), in discussing advertising education, wrote that:

Traditionally advertising education has looked at its own discipline only in terms of its own functional units. It has treated the functional areas – media, creativity, production, and research – as being independent and somewhat mutually exclusive. It has failed, in most cases to provide an effective linkage between these units.

One of the strongest aspects of client-based projects such as the NSAC is the value it provides for students to make connections between the functional areas of advertising. Nottke (1983) speaking for advertising practitioners noted that "ideas are our business, whether they are related to advertising, product, packaging, promotion, or other areas…What we're looking for …is that the employee sees…the job in its broader perspective and is developing a take charge attitude."

Advantages of the NSAC Approach

The advantages offered by this more integrated approach to advertising has been found and validated by some of the research into advertising education. In 1989 the Association for Education in Journalism and Mass Communication Liberal Arts and Sciences Task Force administered a study to examine both the educators and the practitioners' perceptions of what makes a strong advertising program. On the seven issues examined relating to advertising curricula, accreditation, faculty diversity, need for specific education, students needs, and industry expectations the study revealed strong agreement on six of the seven points studied. The only point of disagreement concerned whether the educational establishment was alert to the implications of changes in the structure and function of the advertising industry. Educators agreed that they were indeed aware, while the practitioners expressed skepticism about whether that was actually the state of affairs.

Obviously both the practitioner and the educator can see the advantages of taking this approach and the research bears out that assumption when both sides have been surveyed about the issue. Moore & Leckenby (1973), found disagreement among educators, practitioners, and students regarding the proper content, the value, and the aims of advertising in advertising education. Their study cited Zellner (1973) who stated that, "Advertising agencies and advertisers are finding that many of the college graduates entering our business are, in many cases not adequately prepared for a career in advertising." Interestingly, one of the few points of agreement in the Moore & Leckenby study about possibilities for improvement was the interchange between educators and practitioners. This was the same year the AAF began the National Student Advertising Competition was has since grown to become "arguably the premier student advertising competition in the United States, and the centerpiece of the AAF educational mission." (Richards & Ross, 2008)

Client Based Projects

Finally, it is useful to specify some of the guiding principles behind client-based projects and implementation of the same. Lopez & Lee (2005) developed five principles for the practice of client-based projects:

1.   Select clients with care
2.   Design projects of varying scope
3.   Invest in advance planning
4.   Manage and set high expectations
5.   Provide periodic and productive feedback

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Each of these principles are inherent in the NSAC, which makes it a good fit to give students and educators a real-world experience, judged by business professionals, and providing a robust educational opportunity benefitting both communities.

A strong advantage of the NSAC is the fact of its rootedness in both academe and industry with shared oversight and governance by both parties. It is the best testing and proving ground to date where students may learn to practice the art and science of advertising with real clients on a national level and it is accessible for colleges and universities of any size who are able to facilitate a relationship with a local AAF chapter. Given the national scope of the AAF and their track record of 37 years of administering this and other advertising education initiatives, it is entirely within reach of a majority of US institutions of higher learning to participate.

In reviewing the history of advertising education it becomes clear that both educators and practitioners have misgivings about best practices for preparing the next generation of employees for the industry. While the process of educating students for a career in advertising has shifted and changed over the past century, the fact that advertising is a multi-faceted art and science has not changed. With the increasingly fragmented audiences of the post-mass media age has come the need for advertising practitioners to be well versed in the theory as well as the practice of new advertising forms. Client based projects such as the NSAC have proven to be an effective means of bridging the gap between the academy and the marketplace in connecting students with real-world experience prior to entering the job force.

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APPLYING TAYLOR'S PRINCIPLES TO TEAMS: RENEWING A CENTURY-OLD THEORY

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ABSTRACT

In an effort to renew a century-old theory of management, Frederick Winslow Taylor's *Principles of Scientific Management* were evaluated in the context of one of the newest forms of team structure, the integrated product team (IPT). A review of Taylor's 1911 seminal work was compared against qualitative data collected at an organization that has recently adopted an IPT structure for several of its major projects. Eleven in-depth interviews were conducted among the senior-level managers in the company to assess the current state of IPT implementation and functioning at the organization, with the ultimate purpose of our research team being to diagnose problem areas and render recommendations for increasing the success rate of the company's IPTs. The major conclusions and recommendations made by the research team reflect some consistencies with Taylor's main principles. While the literature review and qualitative interview data regarding integrated product teams does not coincide with Taylor's first principle, the remaining three principles hold some degree of applicability.

Keywords: Scientific management, Taylor, integrated product team (IPT)

INTRODUCTION

When Frederick Winslow Taylor's *The Principles of Scientific Management* was published in 1911, it was revolutionary and incited a great amount of public interest in the philosophy of scientific management (Davis & Blalack, 1975). In the last century, biographies (e.g., Copley, 1923), books (e.g., Wrege & Greenwood, 1991; Wren, 1998), and articles (e.g., Blake & Moseley, 2010; Butler, 1991; Cossette, 2002) addressing the significance of Taylor's work have been published. Oftentimes, the Father of Scientific Management is praised for his work, but critics of "Taylorism" and the Taylor system have voiced their skepticism. In the prologue of his book, Kanigel (1997) described how shortly after the publication of *The Principles of Scientific Management*, Taylor had to face intense scrutiny from his enemies, among them congressmen and influential labor leaders. In his 1912 Congressional testimony, Taylor was forced to defend his title as an efficiency expert and explain how his methods coincided with the best interests of the working man. More recently, Wrege and Hodgetts (2000) state that while "Frederick W. Taylor's impact on management cannot be denied, whether his work always represented the use of science to solve management problems is questionable" (p. 1283) and found the conclusions of his pig iron experiments to be erroneous. Yet whether you commend Taylor for his contributions to the advancement of the science of management or condemn the revolutionary thinker for his unorthodox methodology of getting men to work faster

and more efficiently, we must step back and decide whether the work he did 100 years ago, positive or negative, even holds any relevance in today's management world.

As the 100-year anniversary of the original publication of *The Principles of Scientific Management* approaches, the academic community has urged researchers to reexamine Taylor's seminal work. The *Journal of Business and Management* recently issued the call to reflect on the relevance of his principles. There are a variety of ways in which researchers can investigate whether the century-old theory is applicable to current management operations. For example, the quandary can be addressed and partially settled by examining some of the common practices and techniques utilized in present-day organizations. A current research and consulting endeavor has led our team of researchers to examine the implementation and functioning of one of the latest forms of team structure proliferating modern organizations, integrated product teams (IPTs). Our time spent reviewing the IPT literature and interviewing organizational members about IPTs, coupled with a recent read of *The Principles of Scientific Management*, led us to recognize that some of Taylor's principles and advice are relevant to this unique type of team structure.

Leonard and Freedman (2000) have offered their opinions on the relevance of scientific management to the functioning of organizational teams. With respect to production teams, the authors suggest that the team members themselves have the most knowledge concerning how their team should be organized, how the tasks should be accomplished, and which people should be included on the team, among other factors. Leonard and Freedman (2000) go on to explain that acknowledging that team members should be afforded the autonomy to make such decisions regarding the functioning of the team radically contradicts Taylor's philosophy that there is only one best way to perform a job, that time-and-motion study experts should identify and train employees to perform the job in this one best way, and that employee performance should be tightly monitored by management. Some of the literature that we have studied and the interviews that we have conducted regarding the implementation and functioning of integrated product teams in a real-world organization also stand in stark contradiction to some of the basic tenets of Taylor's management philosophy. As stated above however, we do believe that there are some elements of scientific management and a few words of wisdom from the Father of Scientific Management that can be used by modern day organizational leaders to assist in the more effective implementation and subsequent success of integrated product teams.

The Principles of Scientific Management

The culmination of decades of experimentation and research by Taylor and his colleagues led to four basic underlying principles: (1) the development of a science of the job with rigid rules and standardization for every motion of every man; (2) the careful and scientific selection and subsequent training of the workman to transform them into first-class men; (3) watchful management and paying each individual for working fast and doing exactly as they are told; (4) equal division of work and responsibility between the workman and management, with managers helping, encouraging, and smoothing the way for them (Taylor, 1911). Of the four principles, Taylor considered the first principle to be "the most interesting and spectacular" (p. 85). Ironically, we find this principle to be the one that is most contradictory to the implementation and functioning of integrated product teams. However, the interviews we conducted with senior management members revealed that the remaining three principles, if interpreted more broadly than perhaps Taylor intended, are applicable to the effective implementation and functioning of integrated product teams.

Integrated Product Teams
Definition and Purpose of Integrated Product Teams

The Department of Defense (DoD) defines integrated product teams (IPTs) as cross-functional teams that are assembled for the express purpose of delivering a product to a customer (US Department of Defense, 1996). The DoD guidelines also identify three success factors critical to IPT formation. To start, all functional disciplines that will be involved with any aspect of the product at any point during its development life cycle need to be represented on the team. Second, all members must have a clear understanding of the team's goals and responsibilities. How authority is distributed should also be clearly understood. Finally, resource requirements, including staffing, funding, and facilities, must be determined (US Department of Defense, 1996). One scholarly publication documents the Boeing Company's definition of IPT, which explains that it is a cross-disciplined team that is collocated and whose members share responsibility through the design, manufacture, and service phases of the product (Poltrock & Engelbeck, 1999). Other nomenclature has been used to identify the basic structure that constitutes an integrated product team. Fleming and Koppelman (1996) note that the IPT concept has also been labeled multi-functional project teams and concurrent, parallel, or simultaneous engineering.

An Overview of the Research on Integrated Product Teams

The integrated product team (IPT) is a rather nascent organizational team structure and a relatively new focus of research efforts with the main body of literature on the topic being published in just the past decade. The body of literature on IPTs is rather limited. Those who have explored the topic and have conducted research have identified some crucial characteristics of effective IPT implementation and product development team building, including selection and training, compensation and rewards, and team leadership, which are addressed in more detail in the sections that follow (e.g., Dwivedi & Kumbakonam, 2002; Moore & Antill, 2001). These variables are addressed in separate sections due to the correspondence we believe they have with some of Taylor's principles.

There are a variety of other variables that regularly surface in the IPT literature and have been deemed critical to the effective functioning of an IPT. For example, Dwivedi and Kumbakonam (2002) discuss the importance of team cooperation to IPT success. A lack of cooperation is usually disruptive to the functioning of any team. In any type of cross-functional team structure, cooperation is an essential factor for positive team outcomes (e.g., McDonough, 2000).

Support from senior management is also an important factor in determining the success of an IPT (Dwivedi & Kumbakonam, 2002). The interest and backing of senior leaders in an organization should send the message that the work that IPT members do is valued by the company. Other researchers also stress the importance of management support to successful IPT functioning (e.g., Fleming & Koppelman, 1996).

Empowerment is an essential element to cross-functional (e.g., McDonough, 2000) and integrated project/product team success (e.g., Fleming & Koppelman, 1996; Moore & Antill, 2001; Valdez & Kleiner, 1996). IPT leaders should be empowered to select team members and have control over the budget and teams as a collective unit should have decision making authority (e.g., Fleming & Koppelman, 1996).

High degrees of collocation typically lead to higher levels of IPT performance. Research suggests that collocation is important for effective IPT performance (e.g., Moore & Antill, 2001; Poltrock & Engelbeck, 1999). Ideally, IPT members should work in close proximity to each other so that communication can flow much more readily.

As alluded to above, communication is extremely important to effective IPT functioning. Researchers suggest the need for effective communication in order to achieve successful team performance (e.g., Clark & Wheelwright, 1992; Griffin & Hauser, 1992; McDonough, 2000).

Commitment to the organization and the team are variables that will help maximize the benefits of integrated product/program teams (Winn, 2006). As researchers have stressed, commitment to the team is a vital element to team performance and success (e.g., Clark & Wheelwright, 1992; McDonough, 2000).

Finally, other researchers have focused on the advanced technology necessary to facilitate virtual collaboration (Bochenek & Ragusa, 2004) and virtual collocation (Poltrock & Engelbeck, 1999) when team members cannot meet in person. It is not uncommon for IPT members to serve on their teams from locations hundreds, even thousands, of miles away. This distance perpetuates a need to utilize advanced technologies to facilitate communication. Moore and Antill (2001) also concluded that information technology is necessary for IPTs to achieve their full potential.

IPT Research Applicable to Taylor's Principles
Principle 2: Careful Selection and Training for IPT Leaders and Members

Taylor's second principle states that workers, team leaders and members in the case of IPTs, should be selected carefully and scientifically and that subsequent training should be provided in order to transform them into first-class workers (i.e., team leaders and members). The IPT literature concurs that team leaders and members should not be selected haphazardly and training should be provided.

Selecting an effective IPT leader is extremely important to the ultimate success of the IPT. Product development team leaders are typically selected because of their personal leadership styles (e.g., Dwivedi & Kumbakonam, 2002) and the transformational leadership style appears to be a more effective style with respect to IPTs, as explained in the leadership style section below. Selecting the right members to serve on a team is also important. In IPT situations, team and functional leaders often negotiate with each other in order to select members for the team, focusing on the skills, training, and experience that will help potential members perform effectively on the team (e.g., Dwivedi & Kumbakonam, 2002). Motivation is also a crucial variable to consider when selecting team leaders and members. It is important to select team members who have the enthusiasm and willingness to participate in a team environment (Dwivedi & Kumbakonam, 2002). Rahman and Kumaraswamy (2005) conclude that team member attitudes and motivation are critical to successful collaboration on an integrated project team.

While selecting the most suitable leaders and members is a necessary precursor to team effectiveness, it is likely that some degree of training will be required in order to develop leaders and members to function to their fullest capacity. A variety of researchers have identified training for team leaders and members as a critical factor in effective team building and functioning (e.g., Dwivedi & Kumbakonam, 2002; Winn, 2006). In fact, Dwivedi and Kumbakonam (2002) state that team training is the most vital stage in effective

team building and insufficient education and training of team members is a significant hurdle in the path to effective IPT performance (Valdez & Kleiner, 1996).

Principle 3: Paying for IPT Performance

The third of Taylor's principles calls for management to be watchful and for them to pay each individual for working fast and doing exactly as they are told. A narrow interpretation of this principle might suggest to the reader that employees should be micromanaged, that workers should be rewarded on an individual basis, that speed is the main criteria for reward, and that workers have no freedom to perform the job in a way that they see fit. A broader interpretation, and in the context of an IPT structure, the reader could view the principle differently.

Researchers suggest that senior managers should be involved with IPT implementation and provide necessary support (e.g., Fleming & Koppelman, 1996). This is not to suggest that these managers should micromanage the teams, but they should be watching carefully enough to recognize whether they are providing enough resources and support and to know when a team is performing at a level that deserves to be rewarded. With respect to rewards, the series of experiments that Taylor conducted observed jobs that were individual in nature (Taylor, 1911), so the rewards should have been strictly individually-based. In an IPT situation, team leaders and members are instructed to work as a cohesive team and told that they have the liberty to coordinate their efforts in the best way they see fit. Therefore, when the team carries out these orders and does exactly as they are told, the team should be rewarded accordingly. In order to develop any type of high-performance team, management must go beyond rewarding individual performance and utilize an evaluation and reward system that addresses team performance (e.g., Johnson, 1993; McClurg, 2001). The IPT literature concurs. The performance appraisal system and the pay raises that result from these appraisals need to be tied to components of team performance so that team members are encouraged to help each other rather than perform as individuals (e.g., Dwivedi & Kumbakonam, 2002). Offering only individual rewards, without recognizing team performance, is a significant barrier to the success of an IPT (Valdez & Kleiner, 1996). Finally with respect to rewarding for speed, one of the primary goals of an IPT is to increase efficiency and shorten product cycle time (e.g., Dwivedi & Kumbakonam, 2002; Fleming & Koppelman, 1996), so speed is an important element to IPT functioning.

Principle 4: Dividing Work and Responsibility--Effective IPT Leadership Style

The final scientific management principle suggests that management and the workman should equally share the workload and responsibility and that the managers should help, encourage, and smooth the way for the workers (Taylor, 1911). To interpret this principle in an IPT context, we can view the IPT leader as the "manager" who should share the work and pave the way for his or her respective team members.

Leadership is an extremely important factor to the successful implementation and functioning of nearly any type of team, including integrated product teams. Dwivedi and Kumbakonam (2002) suggest that the team leader is responsible for whether a project succeeds or fails. The authors further state that the leaders of such teams need to possess coaching, communication, and conflict resolution skills and be able to facilitate and

influence members to achieve desired objectives, which coincides with Taylor's advice for managers. Carman (2009) advises that IPT leaders should be skilled in interpersonal relations and possess the ability to listen, be patient, facilitate, coach, and communicate, which is also congruent with Taylor's fourth principle. These types of skills and behaviors are consistent with many of the skills and behaviors of transformational leadership (Bass, 1990).

Senior Management Interviews Regarding Integrated Product Teams

Methodology

An organization with operations located in northeast Texas recently adopted an integrated product team (IPT) structure and hired our research team to conduct a study to evaluate the effectiveness of their IPT implementation effort and the functioning of the IPTs currently operating at the facility. A series of qualitative interviews were conducted with eleven members of senior management. Senior management members consisted of the president, chief financial officer, and vice presidents of all major divisions in the organization. All interviews were conducted onsite, in the private offices of each senior-level manager, and lasted approximately one hour each. A structured set of questions were used to facilitate the interviews (see Appendix A). The four members of the research team were present at all interviews and the team conferred after each interview in order to draw conclusions and arrive at a consensus regarding the responses to the interview questions. The series of interviews took place during the summer of 2010. The interviews with senior managers revealed some interesting perspectives that pertain to three of the four main principles of management identified by Taylor (1911). The research team also proposed recommendations that coincide with Taylor's principles.

Major Conclusions

Based upon the literature review and interviews, the research team drew the following conclusions with respect to the issues and inconsistencies limiting the effective creation and implementation of integrated product teams at the company. Several other conclusions were drawn and recommendations offered, but only the inferences and counsel related to Taylor's principles of scientific management are included below.

Conclusion Relating to Principle 2

Most members of the senior management team acknowledged that effective IPT leaders were a vital factor to successful IPT performance. However, most admitted that these leaders are not carefully selected based on their leadership qualities. Instead, they are typically chosen based on their technical expertise and past performance in their functional areas of expertise. Additionally, there is an insufficient effort in identifying and developing those at lower levels of the firm who have the skill sets needed for successful cross-functional leadership. If the organization desires to further the commitment to integrated product teams, more effort must be developed, directed, and coordinated toward carefully selecting and training IPT leaders.

Conclusion Relating to Principle 3

There is inadequate support at the senior levels for integrated product teams. There is no champion for the change effort needed to successfully implement IPTs more broadly. Moreover, while management desires the efficiencies, quality, and cost controls that integrated product teams promise, and some customers demand, there are structural impediments that serve to

undermine IPT leaders, primarily the fact that the organization is structured and operates in a very functional manner.

First, when IPT leaders are saddled with non-participating (or even unproductive) members that senior managers are unwilling to remove or discipline, IPT becomes nothing more than terminology. This is why most successful team leaders have at least some performance evaluation and financial authority.

Additionally, there are perceptions of the violation of distributive justice in this organization. Team members see uncooperative members rewarded functionally even if their participation with the IPT was less than stellar. This certainly impacts team morale. What also harms morale is the perception that unsuccessful team players and leaders are either promoted or simply moved elsewhere to another project so long as they are favored by the functional organization. The interviews revealed that this practice is allowed and even perpetuated by the most senior-level managers in the organization.

Conclusion Relating to Principle 4

A lack of concern for organizational morale is inconsistent with a team-based approach and does not exemplify the helping and encouraging behavior that Taylor (1911) recommends. Generally, we think of morale as both an antecedent and an outcome of effective team processes. Yet, it appears that employee morale is an insignificant issue or, at best, the problem of the team leader who lacks the tools to address it. The organization has talent that wants to lead, but many feel like their hands are tied.

RECOMMENDATIONS

Recommendation Relating to Principle 1

The research team's first recommendation goes against Taylor's (1911) first principle. We encourage senior leaders to empower IPT leaders and grant them more control over the staffing, resources, evaluation, and budget of their respective IPTs. We spoke with a few IPT leaders that seemed to feel as if they did not have the power to lead their teams to the best of their abilities. One individual discussed the constraints put on his leadership due to the nature of a phased-funding budget. Another leader spoke of the lack of power to deal with problem team members that disrupt the team. The IPT leaders need to be more empowered in order to run their teams in the best way possible.

Recommendation Relating to Principle 2

The company should provide training for both IPT leaders and IPT members. The interviews that we conducted suggest that improvements could be made with respect to training both IPT leaders and members. Many of the individuals that lead and serve as members of these teams are very tactical in nature and highly effective in their functional area of expertise. However, there are a variety of interpersonal components involved in effective team functioning so we believe leaders and members could benefit from training with respect to this team component and could then become more effective team leaders and members.

Recommendation Relating to Principle 3

Include a team-based component on IPT leader and member performance appraisals and provide team-based rewards for stellar IPT performance. Currently, the performance appraisal system that the company uses does not specifically evaluate IPT performance and the IPT leaders do not appear to have a great deal of say in the evaluations of their IPT members (at least this

appears to be the perception among employees based on the interviews conducted). If team members do not believe that their team performance is important enough to be evaluated on their annual performance appraisal, they will be less likely to find it important to give their best effort in order to be an effective team member. When performance is rewarded on an individual basis, teamwork often suffers. Collectively rewarding teams is a way to foster collaborative teamwork, increase cooperation, and improve the functioning of teams.

Additional Thoughts on Taylor's Potential Contributions to Organizations Utilizing IPTs

Taylor (1911) notes that behind the four principles of scientific management, and directing these principles, "there must be the optimistic, determined, and hard-working leader who can wait patiently as well as work" (p. 85). We find these to be extremely relevant words of wisdom for all organizations, regardless of the type of business or the structure of the organization. As applied to the information we have gathered regarding integrated product teams, we find this advice to be of the utmost importance. The IPT literature and the aggregate of our interview data identify skilled leaders as a vital key to the success of IPT implementation and functioning. Dwivedi and Kumbakonam (2002) suggest that team leaders should possess patience, confidence in themselves, effective communication and coaching skills, and the ability to resolve conflict.

CONCLUSION

Overall, it is evident that business leaders and strategists cannot apply, at least in a strict and narrow manner, all of Taylor's principles when trying to decipher the most effective way to implement and run integrated product teams. In the company that we investigated, thousands of employees perform a variety of extremely complex jobs in order to meet such customer demands as major airplane modifications and installations of high-tech surveillance systems. The level of complexity and the high degree of technology that the average employee at this organization is forced to contend with on a daily basis is a far cry from what the employees at Bethlehem Steel Company faced when they had to work at a specific and ideal pace while handling pig iron or decide what size shovel to use for ore versus rice coal. Not only are the jobs in the company we studied extremely complicated, but the team-based structure necessary to help the employees push a high quality product out the door in a more efficient manner is complex. Even when the Father of Scientific Management himself reflects upon the 30,000 to 50,000 carefully recorded experiments conducted at the Midvale Steel Company he admits that "It may seem preposterous to many people that it should have required a period of 26 years to investigate the effect of these twelve variables upon the cutting speed of metals" (Taylor, 1911, p. 109). Assuredly, organizations do not have the luxury of experimenting with IPTs for over a quarter of a decade in order to find the best way to implement them and make them work. We anticipate that in just a few short years a new and even more complex team structure will emerge and the concept of IPTs may be abandoned before we figure out how best to implement and utilize them. In the meantime however, we can broadly interpret the work of Frederick Winslow Taylor and use some of his advice to determine the best way to implement and sustain a high level of performance from IPTs. In the 100 years that have transpired since the publication of Taylor's seminal work, the primary goal of management, to reduce costs, has remained unchanged (Wrege & Hodgetts, 2000) and cost reduction is indeed one of the primary objectives of integrated product teams (e.g., Fleming & Koppelman, 1996; Moore & Antill, 2001).

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APPENDIX A

Interviews with Senior Management

What would you say is the purpose or goal of implementing the IPT structure here at your company? Why did you make the switch to IPTs? The DOD promotes IPTs. Did this influence the decision?

When your company decided to implement IPTs, how much planning and research went into the initial decision? Into the implementation process? What did the planning entail?

Much of the literature that we have researched suggests that other companies have utilized IPTs in order to achieve the following benefits:

      1. Catching defects earlier in the production process.
      2. Saving time and money.
      3. Producing a higher quality product.

      A.K.A. Being able to do things "Faster, better, and cheaper" (Ministry of Defence, 1998, Chapter 8, Paragraph 161).

Since you changed to this structure, have you experienced these benefits here at your company? Have you been catching defects early and saving time and money? Have you experienced any other changes?

How have you been measuring these results/changes? Do you have baseline data from before the IPT implementation against which you can compare such outcomes as catching defects early, saving time and money, producing a higher quality product, etc.?

Where are all of the team members located, physically? Are they all on site? How close are their offices/cubicles in proximity to each other?

How big are the teams? How many do you have here at your company?

How long do the IPTs last, on average?

How often do the teams meet?

What happens during the regularly scheduled meetings?

Are any of the meetings conducted virtually (i.e., teleconference)?

How much person-to-person contact/communication is there between IPT members?

What types of communication channels are used by IPT members? Can you estimate the frequency of each?

    1. Face-to-face.
    2. E-mail.
    3. Phone.
    4. Videoconference.
    5. Desktop data sharing.
    6. Other.

Do you use any type of advanced technology to help team members interact and collaborate? For example, some organizations create 3-D virtual collaborative environments (VCEs) so that members in different physical locations can meet about a project issue and point to and manipulate objects on a computer screen (Boeing utilizes VCE tools/software—computer-aided three-dimensional interactive application or CATIA).

How would you say IPT members spend their time?

    1. How much time communicating and collaborating?
    2. How much time working alone at their desks?
    3. Do leaders and members have other work to do or is the entire work week devoted to the project?

Do you think that the IPT members' efforts are well coordinated?

How are IPT leaders selected? On what criteria? Do they have leadership, coaching, motivational, communication, etc. skills?

How are IPT members selected? Do IPT leaders have any say regarding who is selected to their teams?

Is there any type of training offered to:

> 1. IPT leaders?
> 2. IPT members?

How are IPT leaders evaluated? Against what metrics? Who performs the evaluations? How often do they receive feedback? How do they know if they are doing a good/poor job?

How are IPT members evaluated? Against what metrics? Who performs the evaluations (IPT leader or functional manager)? How often do they receive feedback? How do they know if they are doing a good/poor job?

How are IPT leaders and members rewarded? Monetarily? Flexible schedules? Verbal praise? How often do they receive rewards? For what actions/results do they receive rewards? Are they rewarded strictly as individuals or is there some sort of team compensation?

Are IPT leaders or members ever reprimanded?

Are the IPT leaders and members empowered? For example, can the IPT leader make a decision without running it past the functional manager?

How involved are you (management) in the IPT process?

How do you show your support to the teams (i.e., attend meetings, provide adequate resources)?

Do you utilize visual control boards (or something similar) to check the progress of the project/work? How do the IPTs track the progress of their work (feedback issues)?

Has there been any investment in new machinery, programs, etc. to accompany the switch to IPTs?

Do the IPTs involve customers and suppliers on a regular basis?

Do different IPTs coordinate/integrate with other IPTs at your company to achieve system goals? How does this work?

Do the different IPTs share best practices or do they compete with each other?
What types of cultures do the IPTs operate under? Does the culture help or hinder team performance?

Have you encountered any resistance to the IPT structure? What type of resistance? How have you dealt with it?

Who is ultimately accountable for the IPT?

Who bears the financial responsibility for the product development?

Have there been any funding issues? Underbidding? What effects do such issues have on the IPTs? How have you dealt with these issues?

EXPLORING GENERATIONAL IDENTITY: A MULTIPARADIGM APPROACH
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ABSTRACT

Social identity theory and self-categorization theories have shed light on how individuals define themselves vis a vis particular social group memberships. However, a social group that has received less research attention is one's generational group. This paper reviews the emerging literature on *generational identity*, an individual's awareness of his or her membership in a generational group and the significance of this group to the individual (Joshi, Dencker, Franz, & Martocchio, 2010). It explores potential research questions related to generational identity using a multiparadigm approach in order to illustrate the potential and relevancy of generational identity as a topic worthy of further research. Through the examples presented in this paper (especially those that illustrate the interpretivist and radical humanist paradigms), both the vast number of research questions that might be asked and the importance of understanding generational identity using multiple perspectives is highlighted.
Key Words: Identity, Generations, Multiparadigm

With the growing popularity of identity as a research topic in the field of organizational behavior (e.g., Ashforth, Harrison, & Corley, 2008), researchers are increasingly interested in how individuals define themselves through social groups. Self-categorization and social identity theories explain that people classify themselves to impose order on the social environment and to make sense of who they are (Tajfel & Turner, 1985). In doing so, they identify with particular social groups through perceiving a sense of oneness with them (Ashforth and Mael, 1989).

While self-categorization theory has typically explained positive in-group bias and negative out-group bias in terms of demographic characteristics such as race or gender (Brewer, 1979; Tsui, Xin & Egan, 1995), individuals' self categorizations clearly go beyond these demographics. An important yet neglected categorization is generation. In fact, given the increasing age diversity in contemporary organizations, it is likely that one's membership in a generational group will be even more salient as a basis for one's identity. *Generational identity* is defined as an individual's awareness of his or her membership in a generational group and the significance of this group to the individual (Joshi, Dencker, Franz, & Martocchio, 2010).

Because the study of generational identity is a new and developing field, it is important to study it in many different ways in order to gain a broader understanding of the phenomenon. The purpose of this paper, therefore, is to propose several ways in which generational identity can be studied. Since the study of generations is a relatively new area in organizational behavior, theories on generational identity need to be developed and the utilization of more than one paradigm will create more robust theories (Gioia & Pitre, 1990) that will help to increase our understanding of the factors that contribute to the development and salience of generational identities. This paper briefly suggests ways in which each of Burrell and Morgan's (1979) four paradigms might contribute uniquely to broadening an understanding of this topic. From there, it provides concrete examples of methods that might be utilized in two distinct paradigms (grounded theory for the interpretivist and discourse analysis for the radical humanist approaches) in order to broaden our understanding of generational identity. The paper first begins with a brief summary of existing—albeit limited—work on generational identity.

GENERATIONAL IDENTITY

Interest in generations has been growing in the workplace so much that the term "generational differences" has become a buzzword and many organizations feel the need to offer training in this area to their employees (SHRM, 2005). Furthermore, many practitioner-oriented publications have focused on the issues of generations in the workforce. One example of such an issue is that, as older employees continue to work longer instead of retiring and younger employees join the workforce, members of various generations are forced to communicate and function together despite having different expectations and motivations (Zemke, 2001) Additionally, the fact that a mainstream publication like <u>Business Week</u> ran four articles on the topic in their 2008 special issue is evidence that generational issues are an important recent concern of businesses. Such mainstream and practitioner-oriented publications often focus on differences between generations and on stereotypes associated with specific generations (for example that members of Generation Y are lazy or that members of the Baby Boomer generation like stability). Given the interest in the topic of generational differences within the business community, it is important that generational issues be studied by researchers more rigorously.

Drawing from studies in sociology and anthropology, recent research has advanced the study of generations as being part of individuals' identities. Specifically, Joshi, Dencker, Franz, & Martocchio (2010) have identified three facets or aspects of generational identity. The first is a cohort-based identity whereby individuals enter into an experience (such as starting work at an organization or beginning an education) at the same time. The second is an age-based generational identity whereby common experiences outside of work, roughly defined by birth year can create an identity for individuals. Third is an incumbency-based generational identity where individuals define their identity based on the skills, experiences, attitudes, and knowledge that result from occupying a particular role for a certain period of time (such as the fourth CEO of an organization being labeled the "fourth generation").

This framework expands the concept of generational identity from more practitioner-oriented publications which focus primarily on age and experiences. Other work has examined differences in values that might exist between generations. Using an age-based perspective, researchers identified that values tend to be similar among members within each generation, labeled as Generation Y (also known as the Millennial generation born between 1979 and 1994), Generation X (born between 1965 and 1978) and Baby Boomers (born between 1946 and 1964) (Smola & Sutton, 2002). For example, members of Generation X are most likely to value extrinsic rewards more than members of other generations; the importance of leisure has increased with each subsequent generation; and social and other intrinsic values are actually less important for Generation Y than for Baby Boomers (Twenge, Campbell, Hoffman, & Lance, 2010). Other studies suggest that differences in values between age-based generations are more a function of maturity or length in the workforce (Twenge & Campbell, 2008) and that differences between generations might exist but not necessarily in the stereotypical ways reported by popular media and management literature (Wong, Gardiner, Lang, & Coulon, 2008; Macky, Gardner, Forsyth, & 2008).

If, however, as many of the above studies suggests, there are differences in values between generations based on age, it is possible that differences in values also exist between generations when defined according to the cohort and incumbency-based approaches as well. Therefore, because values might are perceived to be similar by members within generations thus potentially increasing the possibility for those individuals to share a sense of identification or oneness with a social group, it is appropriate that identity theories be applied to the study of generations in the workforce. Two theories of identity that shed light on this and that are useful to the study of generations are self-categorization and social identity theories.

Often, individuals who are members of certain groups define themselves to an extent in terms of their group membership (Chrobot-Mason & Ruderman, 2004). This phenomenon has been explained by social identity theory. Social identity theory states that that people seek to classify themselves (Tajfel & Turner, 1985) and that social identification is defined as an individual's perception of oneness with a

group (Ashforth & Mael, 1989). It is therefore reasonable to believe that individuals may seek to classify themselves with a particular age group, cohort, or level of experience within a particular role. This occurs because they perceive oneness with one of these generational classifications on the basis of congruent values between member and generation.

Social identification stems from four things: (1) the categorization of individuals into being members of groups, (2) the distinctiveness and prestige of the group (known as the in-group), (3) the salience of out-groups (members not in the in-group), and (4) the factors associated with group formation (Ashforth & Mael, 1989). If individuals view that they are members of a generational group, then they may come to define themselves in part by the values and characteristics generally espoused by those groups. Social identity theory also argues that social identification leads to activities congruent with the group identity and can contribute to stereotypical views of both the in-group and out-group (Ashforth & Mael, 1989). This might help to explain barriers to communication between members of different generations (Smola & Sutton, 2002). Note that for generational identification to occur, members need to perceive in-groups and out-groups as being important, meaning that members perceive benefits of identifying with a generation while highlighting differences that exist between other generations.

According to Turner and Giles (1981), social identity theory presumes that an individual's self-concept exists because of her or his knowledge of being part of a larger group such as when an individual closely defines her or himself by being a member of a generation. Furthermore, the attachment of value and affect by members to groups (Ashforth, Harrison, & Corley, 2008) makes the group's salience stronger. It is plausible that individuals might attach emotion to a particular generation especially when they perceive that the values between members (and themselves) are similar.

Self-categorization theory is a related theory (Ashforth, Harrison, & Corley, 2008) and postulates that categorization fulfills two basic human needs: inclusion and differentiation (Brewer & Brown, 1998). It is related to social identity theory because both theories explain one's place in society and state that people compare themselves against other in- and out- group members. Self-categorization theory, therefore, implies cognition whereby people classify themselves and others into groups such as members of a particular age-based, cohort, or incumbency-based generation.

In- and out- group comparisons can be important in the workforce as both positive in-group bias and negative out-group bias can exist. Examples of positive in-group bias include perceptions that members of the in-group are more trustworthy, honest, and cooperative (Brewer, 1979; Tsui, Xin & Egan, 1995). Examples of negative out-group bias include lower trust, fewer interactions, decreased respect, and less support (Tsui, Xin, & Egan, 1995).

With respect to the functioning in organizations with members of various groups, the social categorization perspective (Williams & O'Reilly, 1998) further suggests that functioning can be impaired as a result of adverse social categorization processes stemming from differences between organizational members. Therefore, in- and out- group organizational members are classified on the basis of differences, which might include generational diversity. There are two types of diversity in which people use to classify such differences. In a review by Ilgen, Hollenbeck, Johnson, and Jundt (2005), the researchers distinguish between surface-level diversity (such as age) and deep-level diversity (such as differences in values, thoughts, and attitudes). Both of these types of diversity might include elements of generations (age and values specifically). The authors state that, while surface-level diversity is critical in predicting effectiveness at early stages of working together, its influence eventually is reduced as deep-level diversity becomes a more important factor. An example of this could occur within the context of a team consisting of members of Generation X, Generation Y, and Baby Boomers. In the early stages of team development, effectiveness might most be impacted because of differences in age. However, as the group continues to work together, the values of team members become more important. If one's generational identity is salient, then she or he might adopt those values considered to be typical of one's generation. To the extent that these values conflict with others' values, such deep-level diversity will eventually have a greater impact on the team's effectiveness.

But, individuals do not solely define themselves by one group in which they belong; for example, individuals might define themselves as members of a department within an organization as well as a larger social group such as a particular generation. As suggested by Kreiner, Hollensbe, and Sheep (2006), personal identity boundaries can overlap with those of group identities. Individuals can also pull from multiple groups in which they belong as well as multiple roles they fulfill in order to define themselves. Kreiner et al. further suggest that boundaries within individuals and between individuals and groups can be permeable and flexible so that one's identity can fluctuate. Therefore, a member of a particular generation might not define him or herself as such in all situations and this generational identity can overlap with other identities that are also salient to the individual.

From this discussion, it is apparent that much work needs to be done toward understanding generational identity and its implications for organizational behavior. While social identity theory and self-categorization theory can serve to inform research in this area, scholars believe that new understandings of generational identity can be developed by using a combination of such existing theories and the framework for understanding generational identity described above. For example, one recommendation from the literature on generations is to pull from multiple perspectives in order to better understand this phenomenon (Joshi et al., 2010). Looking at generational identity from multiple perspectives will help researchers to identify vastly different research questions. Examples might include: Do perceived generational stereotypes affect perceived organizational membership? How do individuals construct generational differences within organizations and with what effects? How does language construct or reinforce generational identity? Are there power differences that exist as a result of promotion structures based on years of experience or organizational cohort?

The questions that can be asked and the way that the researcher understands generational identity are influenced by the researcher's paradigm. Given the importance of identifying multiple research questions that are relevant to practitioners and the need to explain phenomena occurring within organizations, I propose the utilization of multiple paradigms in the study of generational identity. In order to understand the options that researchers have in investigating generational differences, a discussion of paradigms is important. Therefore, the following section highlights the concept of paradigms and focuses on Burrell and Morgan's (1979) paradigm typology.

BURRELL AND MORGAN'S FOUR PARADIGMS

The preceding discussion proposed the need for using multiple paradigms in order to gain a better understanding of the concept of generational identity. In order to further clarify this proposition, this section will discuss the nature of science in terms of using theories, explain how paradigms can be used to strengthen theories, and summarize and define typologies of paradigms.

According to Karl Popper's philosophical stance (1985), the aim of science is to find satisfactory explanations of phenomena through the use of fundamental laws. Such laws are approximations of "truth" used to explain the nature of the world. These laws can be viewed in terms of theories that can be developed or tested from the perspective of a researcher's particular paradigm. Although extensively written about by Kuhn (1970), his concept of a paradigm was somewhat vague and a major criticism of his work is that he had up to 21 definitions of what a paradigm is (Arndt, 1985). Some definitions of paradigm include one's world view, theoretical lens, or perspective but the most important aspect of a paradigm is that it influences what questions a researcher asks about the world (Kuhn, 1970). It is for this reason that scientists and philosophers have created various typologies of paradigms in order to classify different perspectives that researchers might utilize to understand the world.

One such classification scheme was introduced by Burrell and Morgan (1979) and consisted of four main paradigms. The first is the functionalist perspective which is most rooted in rational explanations and examines phenomena by looking for the existence and support of the status quo, social order, and consensus. This view can be seen at work in publications where hypotheses are advanced and

subsequently tested using methods such as experiments or surveys. The second, the interpretivist paradigm, examines phenomena as emerging social processes. Since the assumptions that underlie this view are vastly different, interpretivists will ask different types of questions regarding the phenomenon under study and will seek to answer them using different methodologies than functionalists such as grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998) whereby researchers interact intimately with individuals in the field not to test hypotheses but to develop a new theory based on localized knowledge. The third paradigm is the radical humanist paradigm. Studies in this area tend to focus on power struggles, emancipating those that are marginalized, and often rely on methods that are descriptive in nature such as ethnography (Alvesson & Wilmott, 1992) and discourse analysis (Jorgensen & Phillips, 2002). The fourth and final paradigm is the radical structuralist paradigm. This paradigm focuses on power differences that arise from the structures inherent in organizations.

While the above discussion focuses on Burrell and Morgan's four paradigm typology (1979), it should be noted that other paradigm typologies do exist. Furthermore, though the above typology has been accepted by many scholars, it is not without its critics (see Deetz, 1996 and Choudhury, 1987 for examples). The main point of this paper, however, is not to criticize Burrell and Morgan's (1979) paradigms nor to debate whether or not these truly capture all of the perspectives currently operating in organizational research. Rather, the purpose of this paper is to suggest that multiple viewpoints can aid in the understanding of generational identity in organizations. The next section discusses some of the benefits of using multiple paradigms to help in this regard and focuses on specific examples from the interpretivist and radical humanists paradigms.

MULTIPARADIGM APPROACH TO GENERATIONAL IDENTITY

Researchers in the field of organizational studies tend to rely on the assumptions of one particular paradigm in conducting their research. Similarly, many topics within the field of organizational studies are often studied from the perspective of only one paradigm. However, several scholars argue that most topics within the field would greatly benefit from researchers drawing from multiple perspectives in order to understand different aspects of the phenomena in question. Gioia and Pitre (1990), for example, argued that utilizing multiple paradigms can help build richer theories within topics. Such an approach is crucial to developing areas (such as generational identity) so that multiple perspectives can be drawn upon to strengthen the theoretical conversation in order to increase understanding and minimize new fields from becoming overly biased toward a select few researchers' perspectives. Strategies for how to manage topics with multiple paradigms have been advanced (Poole & Van de Ven, 1989 and Lewis & Keleman, 2000 for example) with the purpose of raising the conscientiousness of researchers by highlighting issues that might potentially be ignored by other paradigms. Multiparadigm research can be used to look at aspects of a phenomenon through multiple perspectives and methods that can only occur by being deeply immersed in the topic.

Regardless of what strategy is chosen to manage multiparadigm research, using multiple paradigms inherently allows researchers to gain a better understanding of a topic, especially those which are in early phases of development. Because the topic of generational identity is early in its development, it is crucial that researchers draw from multiple paradigms in order to understand its nuances. Table 1 summarizes examples of how generational identities might be examined by each of the above four paradigms.

TABLE 1
Multiparadigm Approach to Generational Identity

RADICAL HUMANIST PARADIGM	RADICAL STURCTURALIST PARADIGM
Example Research Question: How does language construct or reinforce generational identity?	**Example Research Question:** Are there power differences that exist as a result of promotion structures based on years of experience or organizational cohort?
Example Method: Discourse analysis to determine patterns of interaction that highlight power dominance	**Example Method:** Examine existing official and unofficial documents including employee testimonies
Goal of Theory Building: Understanding the relationship between language and generational identity	**Goal of Theory Building:** Challenging the power structures that marginalize certain generational identities
INTERPRETIVIST PARADIGM	FUNCTIONALIST PARADIGM
Example Research Question: How do individuals construct generational differences within organizations and with what effects?	**Example Research Question:** Do perceived generational stereotypes affect perceived organizational membership?
Example Method: Participant observation of/interviews with members from multiple generations to discover differences	**Example Method:** Surveys of individuals from multiple generations to test for significant differences in variables of interest
Goal of Theory Building: Exploring the nature of generational identity and the strategies individuals use to manage it	**Goal of Theory Building:** Measuring the extent to which generational identity is related to other organizational constructs

Theory building from a functionalist perspective begins with selecting a topic, identifying issues, and asking appropriate research questions that fit in with the paradigm's assumptions (Gioia and Pitre, 1990). Researchers in this paradigm typically review the literature to determine what is known about the topic and where there might be a gap in order to create a framework by pulling relevant theories and variables to formulate and test hypotheses.

An example of how this process can be used in the study of generational identity can be viewed when asking the research question of whether perceived generational stereotypes affect perceived organizational membership. When asking this question, the researcher will want to predict whether future perceived negative interactions between generations will discourage certain generations from perceiving strong membership within an organization. The functionalist will use hypothesis testing in order to determine if the theory is supported, falsified, or should be refined. As such, one potential hypothesis that could be tested is: "Members of younger generations (such as Generation Y) who perceive negative stereotypes about their generation from more senior generations will not have high perceived organizational membership."

To test this hypothesis, the researcher would most likely use a survey instrument given to a sample of organizational members in younger generations with items related to their perception of generational stereotypes as well as the three dimensions of perceived organizational membership: need fulfillment, mattering, and belonging (Masterson & Stamper, 2003). This is certainly not the only example of how theory building might occur using a functionalist viewpoint. This one was selected for illustrative purposes, however, because it is related to the different values that generations might place on work (Smola & Sutton, 2002; Twenge, Campbell, Hoffman, & Lance, 2010). For example, if those that

identify with Generation Y value voicing their opinion in an organizational context, it might be because they feel that they have a contribution that they can make. If, however, members of other generations do not value their opinion, Generation Y members might have less of a sense of mattering and, thus, lower perceived organizational membership. Obviously, other hypotheses can be advanced from theories of generational identity in order to understand the variables that cause individuals to identify within organization and the consequences that this identification has within an organizational setting.

Proposition 1: The functionalist role is to test hypotheses based on theories of generational identity. This, then, should occur following development of theories from other paradigms such as the interpretivist or radical humanist views. Studying generational identity from a functionalist perspective will provide a refinement of theories and an elaboration of variables that will show the antecedents and consequences of identification with generations.

The steps using the radical structuralist paradigm (Gioia & Pitre, 1990) begin with selecting a topic based on the paradigm's assumptions and articulating a theory based on how the topic might be an example of a grand theory. Data collection involves examining historical evidence based on the given grand theory and analysis is composed of arguing that the instance being examined can validate the theory. Radical structuralists also seek to identify the structural sources of power and conclude by determining how the structure should change. The main goal of theory building from this perspective is to identify sources of power and attempt to change the structure through revolutionary practices.

A potential research question from this paradigm might be: are there power differences that exist as a result of promotion structures based on years of experience or organizational cohort? This question seeks to determine whether or not power and control are evident in human resources practices that might systematically marginalize members of a certain generation. In order to determine this, researchers might examine existing HR documents, employee testimonies, and other official and unofficial documents regarding the promotion structure within an organization. As such, researchers and practitioners both would be interested in determining whether or not generational identities are highly salient within organizations. If they are, they might be able to analyze how members of a "controlling" generation imposes structural order on an organization's promotional policies as a result of negative stereotypes that they perceive in members of other generations. From this perspective, theory development should conclude with an understanding of where power exists and how it can be leveraged within organizations with the purpose of creating revolutionary structural change. Like the example given above regarding the functionalist paradigm, this is again one of hundreds of questions that a radical structuralist could ask about generational identity. However, it is presented here as an example due to its practicality and relevance to the organization. In terms of being practical, documentation surrounding promotion policies should be relatively easy to obtain from organizations. In terms of relevance, organizations that continuously examine their HR policies for fairness would most likely be those that have a strong and dedicated workforce.

Proposition 2: Studying generational identity from a radical structuralist viewpoint is crucial to understand the practicality of how organizational structures, policies, and processes marginalize members of certain generations. From this perspective, we gain tangible evidence of how structures inherent within organizations create power struggles between members of generations.

Both functionalist and radical structuralist researchers would approach generational identity by asking different questions as briefly illustrated above. The remainder of this paper will focus on the two paradigms not yet addressed: the interpretivist and radical humanist. These will be the focus for several reasons. First and foremost is that what little work has been done has been primarily under the guidance of the functionalist paradigm in that it is based on hypothesis testing using survey results (Smola & Sutton, 2002 and Twenge, Campbell, Hoffman, & Lance, 2010 for examples). Second is that the radical functionalist paradigm focuses on power as it relates to structure. While this paradigm will certainly be useful in the future, it will be difficult to examine structural issues as they relate to generational identity

until more is known about generations in organizations. While theories can be strengthened using each paradigm, research using this paradigm will greatly add more depth to how generational identity might affect power structures by building upon theories initially originating from interpretivist and radical humanist viewpoints. Third is that, because both the interpretivist and radical humanist paradigms focus on social processes and generational identity (as it is suggested here) is a social phenomenon, the assumptions from these paradigms would be useful early on in the study of the topic. Fourth (especially for the interpretivist researcher utilizing grounded theory) is that these paradigms draw on methods suitable for creating an initial model or theory (Suddaby, 2006) which can then be tested and expounded upon by researchers from other paradigms.

Proposition 3: Research on generational identity has been lacking the perspectives of the interpretivist and radical humanist paradigms. Because both of these paradigms focus on social phenomena and can be used to build initial theories, immediate research on generational identity must be done using these perspectives. This will guide and strengthen future research on generational identity from the other perspectives.

In data collection using the interpretivist paradigm, researchers identify specific cases of a phenomenon and question informants to determine what is important and relevant to them within a particular context. Analysis involves coding transcripts of conversations, formulating and evaluating relationships between concepts discussed by informants, developing tentative theories from these relationships, and finally reviewing literature to see whether it elaborates existing theory or creates an entirely new theory. The process ends when the researcher writes up a substantive theory to illustrate how the relationships uncovered fit together with what has already been known.

An example of how this process can be used in the study of generational identity is through the use of grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998) where theory is built during an emerging process using first-hand observation and often interviews. A potential research question (again, out of hundreds of potential questions) is: "how do individuals construct generational differences in organizations and with what effects?" In building a theory, the researcher will draw from personal observations of social processes in the field in order to develop a brand new theory or advance substantial extensions of currently accepted theories.

For the research question advanced above, researchers can pursue observations in at least two ways. The first would be for the researcher to gain entrance into an organization where managers have reported difficulties between generations working together and communicating with each other. Such phenomena would suggest both that the salience of generational identities within the organization is high and that such identities create barriers between members of different generations. By closely observing individuals in the field, researchers can study interactions among organizational members and witness firsthand how people identify with their generation and treat others of another generation. Observations would most likely be more useful if the sample being observed consists of members from various organizations. Because it might be difficult for researchers to gain access to and have time to observe multiple organizations, the second method could perhaps be more practical.

The second way that researchers can pursue observations would be by considering a population to study and then selecting a sample of individuals from various organizations and of various generations. From this sample, the researcher can interview each of the individuals. Questions that interviewers might ask coukd include (among others):

- What generation do you identify with?
- What are some ways in which members of other generations might describe your generation?
- Do you feel that such descriptions promote generational stereotypes within the organization?

- Does the prevalence of generational stereotypes effect in any way how you feel about your organization? What about your attitude towards members of other generations?

These are but a sample of questions that should be asked but, while not extensive, they do get to the heart of the research question and will help to get information that will create understanding about the generational identity phenomenon from an interpretivist perspective. After these interviews are transcribed, researchers will code the conversations and identify trends and themes that occur. It is quite possible that some of the participants will reply with like responses that will show similarities in how and why individuals construct generational differences and what impact such differences have on the individuals and the organization as a whole.

If some responses are similar, researchers will be able to build theories based on the interviews because experiences are not completely unique despite differences of perspectives and organizations. It is possible, then, that the theories can be refined and further developed through hypothesis testing from the functionalist perspective. Furthermore, since we are gaining a greater understanding of the phenomenon through the interpretivist paradigm, it is now possible to use the radical structuralist paradigm to examine how generational identities and differences create and reinforce structures within organizations.

Proposition 4: Using grounded theory from an interpretivist perspective will develop new theories of generational identity by examining social trends within organizations. These social trends will provide starting points for understanding the development and prevalence of generational identity and stereotypes.

The radical humanist perspective is focused on understanding power differences as they are created and maintained through language. An appropriate methodology for studying generational identity from this perspective would again require interviews or textual analysis of documents. Again, one of many example research questions that a radical humanist might ask is: how does language construct or reinforce generational identity? The point of asking this question is to determine how generations are given meaning as a result of how they are talked about. As such, discourse analysis (Potter & Wetherell, 1987; Jorgensen & Phillips, 2002) would be a helpful approach to understanding generational identity from this perspective.

While not yet used extensively in organizational studies, the application of discourse analysis is growing within the field and its relevance toward the discipline is becoming more widely recognized (Alvesson & Karreman, 2000). For example, researchers have analyzed how discourses within society and organizations create expectations for managers to possess "competency" in their roles in order to contribute to organizational well-being (du Gay, Salaman, & Rees, 1996) and the role that language has for leaders to be able to successfully organize and manage a group of people (Fairhurst, 2010).

These example studies of organizational phenomena using discourse analysis imply that language is used as an interpretive repertoire whereby people both describe events as well as account for and formulate meanings of those events (Wetherell, 1998). In much the same way that researchers used discourse to study the competency of managers and effectiveness of leaders, researchers can also use discourse to examine how generational identities are created and reinforced.

One way that this can be done is by examining the language used in corporate training events and practitioner-oriented publications such as *Business Week* (2008) and SHRM's *Generational Differences Survey* (2005) among others to examine the similarities of how characteristics of members of each generation are talked about. In order to examine how this language affects individuals within organizations, researchers can interview a sample of the workforce to discuss their views of their and others' generations. In doing so, the language that they use can be compared with the language of the publications in order to determine how much such publications influence and reinforce peoples' beliefs about their generational identities.

A second way that discourse analysis can be used does not begin with examining publications to identify discourses that are related to generational identity. Instead, researchers could examine multiple organizations similar to the way which was suggested in the interpretivist paradigm above. However, the difference here would be to focus on language. Researchers could determine the generation that holds the most power in organizations by identifying the language that's used to talk about members of that generation as well as other social cues. Once identified, researchers could determine the discourses or language used by this generation to describe other less powerful generations. Then, such discourses and language usage could be compared to the language used by members of other generations in how they describe themselves. The level of similarity between the discourses used by members of the generations would show how much the language used by the controlling generation would create or reinforce generational identities within the organization.

Proposition 5: Studying language regarding how generations are talked and written about using methods such as discourse analysis from a radical humanist perspective will show differences in how generations are discussed. By examining these differences of rhetoric, we will understand how generational identities and stereotypes are socially created, reinforced, and marginalized.

CONCLUSION

Due to the importance of generational issues in business as highlighted earlier in this paper and the lack of much research done so far in this area, there is a definite gap that needs to be filled in the literature. Furthermore, what little work that has been done so far has been done using a survey-based approach to hypothesis testing drawing from the functionalist paradigm. This has caused the empirical research that has been published thus far to be very limited in its understanding of generational identity.

This paper has illustrated several fruitful ways in which research in generational identity can be expanded using varied paradigmatic perspectives. It is important that one paradigmatic lens not dominate research on this topic so that robust theories drawing from multiple paradigms can be developed. Particularly, this paper has offered several concrete examples and suggestions for how generational identity can be studied from a variety of perspectives. The contribution of this paper, then, is to make valid practical suggestions for how the academic community can gain from the study of generational identity using different approaches, specifically the interpretivist (grounded theory) and radical humanist (discourse analysis) early on in this topic's development.

The purpose of this paper was not to advance specific research propositions. Indeed, to do so would be problematic before more interpretivist research can be conducted in order to develop theories. As a starting point, interpretivist research can provide researchers with propositions to test in studies to come. Future research, then, should be focused toward developing and testing propositions from each paradigmatic perspective as a result of theories that will (and are) beginning to emerge. As a starting point, the research questions posed here might be closely examined to begin to utilize each of the four paradigms. However, it is crucial that additional research questions be developed from each perspective. Because generational identity is a developing topic, researchers would be well served by nurturing its growth by applying as many paradigmatic lenses as possible in order to develop theories which should then be tested.

Practitioners would also greatly benefit from a better understanding of generational identity. For example, from the approaches suggested above, managers can understand how generational differences might manifest themselves as power struggles (radical structuralist perspective), a search for meaning (interpretivist perspective), through language (radical humanist perspective), or how such differences might affect other organizational outcomes (functionalist perspective). Popular publications have been talking about generations for years through the use of broad generalities and stereotypes. A more academic approach that might either support or show discrepancies in such practitioner-oriented literature

would greatly help managers implement more effective strategies and programs for managing the interactions of multiple generations.

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REBUILDING ORGANIZATIONAL SUSTAINABILITY:
RECOVERING TAIWAN'S PROFITABILITY AND COMPETITIVENESS

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ABSTRACT

In 2007, the sub-prime mortgage issue created a financial crisis, which impacted the U.S. banking system. Then Taiwan's economy exhibited a downturn, and the number of Taiwan companies was reduced by more than 20,000. Rebuilding Taiwan's economy requires a return to increased profitability through improved organizational sustainability.

This paper proposes a model of organization sustainability (Employability, Employee Commitment, and Organization Identification) and utilizes organizational profitability and competitiveness as dependent variables to examine correlations. A survey was conducted in Taiwan in 2010, and a statistical analysis illustrates that Organization Identification, Employee Commitment, and Employability may increase Organization Sustainability.

INTRODUCTION

The sub-prime mortgage issue touched off a financial and economic crisis on 2007 which had a serious impact on the United States' banking system. A domino-like effect impacted American International Group (AIG) with bailout, and the bankruptcy of Lehman Brothers caused the near-collapse of the American stock market, which further impacted the economic activities all over the world. Companies now need to survive in this turbulent financial environment by seeking long-term organization sustainability.

Therefore, economies around the world are continually shifting, as are the businesses that make them. Businesses generally have two choices in harsh economic times: broaden themselves within the market with the development of different business opportunities or minimize their scope to focus on one primary function. While many organizations within larger, countries are continually making cuts and reducing their market, such is not always the case in many developing economies (Tan & Meyer, 2010).

In Taiwan specifically, the economic indicators have exhibited a severe downturn since the fourth quarter of 2007. Sustaining an organization's financial viability remains critical to organizational members and to the economy of Taiwan as well. Rebuilding Taiwan's economy will require increased profitability through improved organizational sustainability as well.

The purpose of this study is to address the financial situation and organization sustainability issues in Taiwan. Earlier, Taiwan's rapid economic growth in the decades after World War II transformed Taiwan into an advanced economy as one of the Four Asian Tigers alongside Hong Kong, Singapore and South Korea. Today's general demographics indicate that the population of Taiwan is estimated at 23,063,027 (2009) spread across a total land area of 35,980 km², making it the fifteenth most densely populated country in the world.

This study also provides an Organization Sustainability Model for Taiwanese organizations that continue to experience financial concerns of profitability and competitiveness with a forward perspective for future generations desiring to recover, renew and rebuild the country economically. Quinn (2000) described sustainability as a development which meets the organization's present needs without compromising the

ability of future generations. Established arguments of organization sustainability primarily focus on ecological sustainability, corporate social responsibility (CSR) and competitive product/service (Robins, 2006; Thompson, et al., 2010). However, the ecological and CSR issues are too broad for organizations to tackle, especially in today's challenging financial environment. Also, the advantages which an organization sketches are quickly copied by competitors (Galbraith, et al., 2002; Pascale, et al., 1997; Shaw & Schneier, 1993).

The main purpose of this research is to examine the relationship between this new model of Organization Sustainability and organizational profitability and competitiveness by conducting a quantitative survey in Taiwan. This paper is divided into following sections: Taiwan's financial situation; organization sustainability, a new model of organization sustainability, and a quantitative method by which to investigate the Organization Sustainability Model. We then provide the results of our study with some interesting conclusions for renewing and rebuilding in the Taiwan culture.

TAIWAN'S FINANCIAL SITUATION

Taiwan's economy depends primarily on exports, and Taiwan's manufacturing and information industries contribute more efforts on export orders (Wang, 2010). In Taiwan, the banking system bore the brunt of the financial crisis in 2007, so the influence of Taiwan's total economic situation was not significant. However, in November 2008, the exports rate fell 23.3%, while industrial production declined 28.4%, and export orders are now down year after year. In 2009, the exports rate remained reduced by 27.4% (see Table 1). Throughout these financially turbulent times, the unemployment rate continues to rise in Taiwan.

Table 1. Taiwan's Economic Situation Summary

% change on previous year	Year			
	2006	2007	2008	2009
GDP	4.80	5.70	0.06	-1.91
CPI	0.60	1.80	3.53	-0.87
Unemployment Rate	3.91	3.91	4.14	5.85
Export	12.9	10.1	3.6	-24.1
Import	11.0	8.2	9.7	-31.7
Export Orders	16.7	15.5	1.7	-8.33
Industrial Production	4.7	7.8	-1.8	-8.7
Monetary Aggregate (M2)	6.2	4.3	2.7	7.2
Stock Market *	6,842	8,510	7,24	6,460

Note: * Stock index (monthly average)

Source: Council for Economic Planning and Development, Executive Yuan (2010)

According to economic indicator reports published by Taiwan's Ministry of Economic Affairs (2009), Taiwan's economic growth rate experienced a dramatic slump from 5.98% to 0.73% from 2007 to 2008;

and it continued to have negative growth in 2009. During the financial crisis, the numbers of registered companies in Taiwan was reduced by more than 20,000 per year (see Table 2).

Table 2.

Taiwan's Economic Growth Rate & Company Registration

Year	2006	2007	2008	2009
Economic Growth Rate (%)*	5.44	5.98	0.73	-1.91
Numbers of Registered Companies**	619,930	599,521	577,484	579,089

Source: * Directorate General of Budget, Accounting and Statistic, Executive Yuan (MOEA, 2010)

Source: ** Department of Reconstruction, (MOEA, 2010)

ORGANIZATION SUSTAINABILITY

The concept of sustainability has become progressively important for organizations in the 21st century (Presley, et al., 2007; Orlitzky et al., 2003; McMullen, 2001). Even though the term *sustainable development* has been discussed in the management arena for decades, it still experiences difficulty in a definitional consistency (Presley, et al., 2007). According to the American Heritage Dictionary (2009), the definition for *sustain* means to "keep in existence, maintain, support, and to keep up competently." Zairi and Liburd (2001) defined sustainability as "the ability of an organization to adapt to change in the business environment to capture contemporary best practice methods and to achieve and maintain superior competitive performance".

Sustainability can be categorized into three primary components as the "triple bottom line" of economic, social, and environmental components (Robins, 2006). This suggests that a company should have a responsibility to make a profit and grow the business; furthermore, to demonstrate socially responsible behavior. Some scholars argue that a company is supposed to have sustainable competitive strategies. Their concern however, mostly emphasizes product, service, and low-cost policy. Thompson (2010) suggests the core concept for a company is to achieve sustainable competitive advantage when an attractive number of buyers prefer its products or services over the offering of competitors and when the basis for this preference is durable.

NEW MODEL OF ORGANIZATION SUSTAINABILITY

In organizations, sustainability is not minimally regarded to the time of an organization's life, but more importantly, it is the ability of supporting organizational competitiveness (Porter, 1996; Zairi, 2002; Edwards & Sohal, 2003). The eco-issue and CSR are too broad for organizations, especially in this current tough financial environment. Success formulas like new product and services for organizations do not persist for long because the speed of change keeps accelerating and the advantages which an organization creates are quickly copied by competitors (Galbraith, et al., 2002; Pascale, et al., 1997; Shaw & Schneier, 1993). Nevertheless, present theories of sustainability are only theories, and have not been tested directly, particularly in Taiwan.

Despite these challenges occurring in organizations, employees remain the fundamental trigger to drive changes to organization. Notwithstanding the above-mentioned scholars' work, here we provide a

practitioner's view for organization sustainability, which includes the elements of employability, organizational identification and employee commitment.

Employability

It was apparent from the Confederation of British Industry (CBI) that employability is the possession by an individual of the qualities and competencies required to meet the changing needs of employers and customers and thereby helping to realize his or her aspiration and potential in work (CBI, 1999). In a current study, Employability is defined as "the continuous fulfilling, acquiring or creating of work through the optimal use of competencies." (Van der Heijde & Van der Heijden, 2006). Thus, employability is a competency in the workforce for one to perform his/her work promptly and accurately. Highly employable workers are indispensable which means they are absolutely essential for organizations in order to maintain a sustainable competitive advantage, which cannot be easily replicated.

Organizational Identification

Organization Identification is a specific form of social identification (Gautam, et al., 2004). It is an attitude of people (employees) to express their concern to society (organizations). Organization Identification is composed by membership, loyalty, and similarity within employees and organizations (Patchen, 1970; Cheney, 1982; 1983). Employees who identify with an organization will have images (or reconstitute organization's images) that both they and the organization share the same value and fate, and they will make decisions by the best interest of the organization (Cheney, 1983; Simon, 1976).

Employee Commitment

Employee Commitment is the psychological bonding between employees and organizations. Banai & Reisel (1993) suggest commitment as a belief of an employee to follow the organization's values and then in turn to achieve organization's goal. It is a mindset which relates to employees belonging and contributing to organizations (Meyer, et al., 2002; McCann, et al., 2006).

We propose that Employability, Organization Identification, and Employee Commitment are indispensible elements of Organization Sustainability. In this model, all the competitive strategies, products and services are designed and decided by capable employees. The capable employees who have identity and commitment with an organization also generate formidable strength to support the organization to survive in this turbulent context.

METHOD

Data Collection

A survey was conducted on full-time employees in Taiwan in 2010. Participants were employed in private organizations, and voluntarily agreed to participate in this study. An electronic-survey was utilized to collect data.

Measures

The survey questions of Organization Identification, Employee Commitment and Employability were utilized from previous research by Cheney's (1982) Organizational Identification Questionnaire (OIQ), Organizational Commitment Questionnaire (OCQ) from Porter & Smith (1970), and Van der Heijden's (2000) measurement instrument of professional expertise accordingly. To better address the responses of the Taiwan culture, a six-scale Likert scheme was utilized. For example, one typical Chinese character is "Zong-Yung", which means that the spontaneous behaviors of Chinese traditionally have the tendency to capture the middle number or value when having a choice. This Likert six-scale will force respondents to choose either lower or higher points in the scale, but not a middle choice (Lu, 2005). Two self-evaluated questions of organization profitability and competitiveness were selected as dependent variables in this questionnaire to examine the relationship among Organization Identification, Employee Commitment,

Employability, along with profitability and competitiveness. Presented below is the research framework of this investigation (see Figure 1).

Figure 1. Research Framework Overview
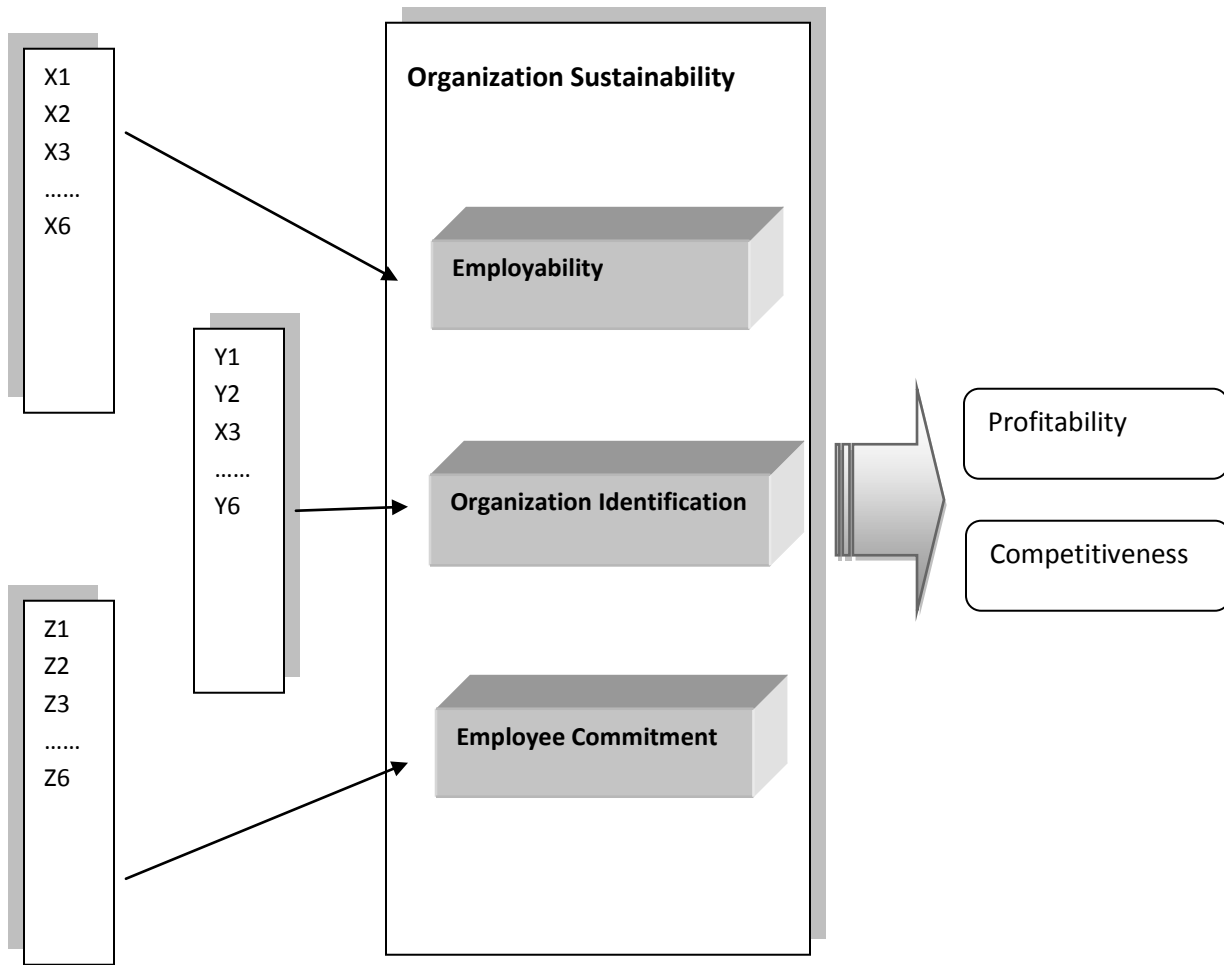
RESULTS

A total of 204 responses were received electronically and anonymously. The percentage of management level (executives, managers, and supervisor) and non-supervisory is relatively equal (see Table 3). More than 80% of respondents were from technology, manufacturing, and service industry. These three industries contribute to the largest portion of Taiwan's economy. In terms of length of service at their current organization, 43.2% of respondents had less than 3 years of service, 37.3% had 4-10 years of service, and 19.6% had more than 10 years of service.

Table 3. Profile of Sample

Profile	Frequency (N=204)	
	n	%
Position:	204	-
Executive/Senior manager	26	12.7
Manager (2nd level or above)	34	16.7
Supervisor (1st level)	41	20.1
Non-supervisory	104	50.5
Length of time in current job:		
< 1year	32	15.7
1-3 year	56	27.5
4-6 years	56	27.5
7-9 years	20	9.8
10 years and above	40	19.6
Number of employees:		
< 30 employees	43	21.1
30-50 employees	22	10.8
51-200 employees	35	17.2
>200 employees	104	51.0
Industry:		
Technology industry	64	31.4
Manufacturing industry	44	21.6
Service industry	61	29.9
Financial industry	18	8.8
Import/Export commerce	11	5.4
Others	6	3.0

The mean and standard deviation scores for each measurement of Organization Identification, Employee Commitment, and Employability are presented in Table 4. The numeric measure of each construct is computed by calculating the arithmetic average for items purporting to indicate that construct. The mean scores for Organization Identification, Employee Commitment, and Employability were 4.03, 3.69, and 4.75 respectively, based on the six-point Likert-type scale. In the part of Organization Identification, "I am proud of my company" (4.29) and "I really care about the fate of my company" (4.53) were rated with higher scores. Respondents reported that staying with current company is a matter of necessity as much as

desire (4.13) in the employee commitment session. Survey results indicate that respondents feel a high agreement in all statements of employability.

Table 4. - MEASUREMENT ITEMS

Measurement Item		*Mean*	*SD*
Organization Identification		4.03	-
OI1	I am proud to be an employee of my current company.	4.29	1.29
OI2	I talk up my company to my friends as a great company to work for.	4.04	1.39
OI3	I have warm feelings toward my company as a place to work.	3.97	1.46
OI4	I feel that my company cares about me.	3.72	1.46
OI5	I find that my values and the values of my company are very similar.	3.62	1.45
OI6	I really care about the fate of my company.	4.53	1.28
Employee Commitment		3.69	-
EC1	I would be very happy to spend the rest of my career with this company.	3.81	1.52
EC2	I do feel a strong sense of "belonging" to my company.	3.86	1.37
EC3	Right now, staying with my company is a matter of necessity as much as desire.	4.13	1.33
EC4	One of the few negative consequences of leaving this company would be the scarcity of available alternatives.	3.18	1.47
EC5	I do feel an obligation to remain with my current employer.	3.68	1.35
EC6	Even if it were to my advantage, I do not feel it would be right to leave my company now.	3.49	1.49
Employability		4.75	-
EMP1	During the past year, I was, in general, competent to perform my work accurately and with few mistakes.	4.64	0.98
EMP2	During the past year, I was, in general, competent to take prompt decisions with respect to my approach to work.	4.69	0.99
EMP3	I consider myself competent to provide information on my work in a way that is comprehensible.	4.78	0.93
EMP4	During the past year, I was, in general,	4.82	0.98

	competent to carry out my work independently.		
EMP5	I consider myself competent to be of practical assistance to colleagues with questions about the approach to work.	4.84	0.94
EMP6	I consider myself competent to weight up and reason out the "pros" and "cons" of particular decisions on working methods, materials, and techniques in my job domain.	4.71	1.02

Measurement Item		Yes (%)	No (%)
Profitability (N=186)	As you know, does the company you work for keep making profit in the past three years?	73.7%	26.3%
Competitiveness (N=182)	Do you think the company you work for has sustained competitive advantage in the industry?	77.5%	22.5%

Note: A six-point Likert-type scale from 1 (strongly disagree) to 6 (strongly agree); Missing value when answer "don't know" in profitability and competitiveness

A correlation among the main constructs (Employability, Employee Commitment, and Organization Identification), alongside organizational profitability and competitiveness is listed as Table 5. Missing values were excluded during statistical correlation. Results exhibit that three elements of this organization sustainability model has a weak positive correlation with organizational profitability and competitiveness.

Table 5. Correlations Among Constructs

Construct	OI	EC	EMP	Profitability	Competitiveness
OI	1.000				
EC	0.744	1.000			
EMP	0.308	0.283	1.000		
Profitability	0.262	0.234	0.203	1.000	
Competitiveness	0.492	0.308	0.163	0.424	1.000

Note: OI = Organization Identification; EC= Employee Commitment; EMP = Employability; $p < 0.01$; Missing value when answer "don't know" in profitability and competitiveness.

Three limitations of this study are evident to the authors and are worthy of mention. First, the study is specific to full-time workers in Taiwan, but these respondents may be employed in non-Taiwanese organizations (i.e., some respondents may have been employed by organizations merely operating a site in Taiwan). Secondly, as this study focused on Taiwan employees only, these findings may not be

generalizable for global implications. Thirdly, this research is limited by the use of a single survey, with no supportive or qualitative data to support the survey findings. To support this third limitation, further research will be undertaken with a qualitative focus to test the meaningfulness of these empirical findings. Finally, further research is necessary to test the Organization Sustainability Model by testing the combined effectiveness of Organization Identity, Employee Commitment and Employability simultaneously for profitability and competitiveness.

CONCLUSION

The global financial crisis has unquestionably affected the global financial system since 2007, and ripples of this crisis continue. Taiwan's economic indicators exhibited a severe downturn in 2007 with the number of registered companies in Taiwan down by more than 20,000 per year after the eruption of the global financial crisis. How to survive and have sustainable competitive advantage in this financial environment is even more essential now.

The concept of sustainability has become progressively important for organizations in the 21st century (Presley, et al., 2007; Orlitzky et al., 2003; McMullen, 2001). A new model for organization sustainability has been introduced here with the employment of a statistical means through a quantitative survey tested in Taiwan. We utilized organizational profitability and future competitiveness as dependent variables. This survey provided an empirical result for organization sustainability. The statistical analysis illustrates that Organization Identification, Employee Commitment, and Employability may increase Organization Sustainability.

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Track: Strategy/ Public & NonProfit/ Health Care Management

STRATEGIC ORIENTATION AS A CULTURAL ATTRIBUTE: OPERATIONALIZATION AND RELIABILITY

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ABSTRACT

For decades, the strategic management literature has deemed strategic orientation as the most common cultural attribute used to investigate the link between organizational culture and firm performance. Unfortunately, there is no agreement among researchers regarding content validity and measurement. These inconsistencies have proved to be problematic, as studies investigating the impact of strategic orientation on firm performance have been inconclusive. Our research draws on the strategic management literature to develop a measure of strategic orientation to establish construct and criterion-related validity. Using a sample of 857 respondents from 21 companies, we empirically triangulate the characteristics of strategic orientation and its relationship to firm performance.

Organizational researchers over the past several decades have yielded a common description of organizational culture consistent across both macro- and micro-level domains (c.f., Denison & Mishra, 1995; Schein, 1985; Siehl & Martin, 1988; 1990; & Wallach, 1983). Defined by numerous studies (Barney, 1986; Sorensen, 2002; Goll & Sambharya, 1995; Denison, 1984) as a complex set of values, beliefs, philosophies, and symbols that define the way in which a firm conducts its business, culture forms a firm's identity and guides the actions of the organization. Organizational culture is shared across all employees within an organization through the transmission of individual behaviors and actions (Wilkins & Ouchi, 1983) thus leading to different organizational outcomes (Lee & Yu, 2004). Despite the potential effects and significance of culture in an organizational context, the link between corporate culture and firm-level performance is underdeveloped both theoretically and empirically (Reichers & Schneider, 1990).

Researchers have studied multiple variables to measure the culture-performance relationship. Strategic orientation is one of the more prevalent culture concepts among studies attempting to examine the link between culture and firm-level performance. *Strategic orientation* has been defined as the inclination of a firm to focus on strategic direction and proper strategic fit to ensure superior firm performance (Barney, 1986; Gatignon & Xuereb, 1997). Strategic orientation as a cultural dimension has also been defined as a continuous and iterative process that must focus on the different effects of rational, economic, political and subjective aspects of strategic change on competitive performance (Whipp, Rosenfeld, & Pettigrew, 1989).

A firm's strategic orientation is important in the examination of culture's impact on performance, as this cultural attribute indicates where employees focus time, energy, and resources in decision-making. In essence, how do employees attend to maintaining a coherent strategic approach given broad environmental factors and how does this strategic approach influence aspects of organizational performance? Specifically, we would expect that strategic orientation influences longer-term performance indicators and is best measured by assessing perceptions of multiple employees as to their impressions of where time and energy are devoted.

STRATEGIC ORIENTATION RESEARCH

A review of the research attempting to operationalize strategic orientation can be seen in Table 1. These studies have identified nearly 20 approaches to measuring strategic orientation. While the Miles and Snow (1978) typology is the most common approach, is still only makes up a small percentage of studies. In general, approaches are to either classify firms into typologies (Miles & Snow, 1978) or identify discrete cultural attributes (Venkatraman, 1989). Consequently, confusion exists regarding the conceptualization and operationalization of strategic orientation.

Strategic Aggressiveness versus Strategic Orientation

The strategic management literature denotes numerous strategic postures that can be undertaken by a firm in order to maximize firm performance relative to the environment. Researchers have confounded strategic orientation and strategic aggressiveness (c.f., Venkatram, 1989). Therefore, in order to validate our measure of strategic orientation, we feel it is necessary to differentiate between strategic orientation and strategic aggressiveness. *Strategic aggressiveness* examines a firm's strategic posture relative to the deployment of resources to functional areas over time (Fombrun & Ginsberg, 1990; Romanelli, 1989). Accordingly, when compared with strategic orientation, two primary discontinuities exist within the extant literature. First, confusion between the cultural attribute of strategic orientation and strategic aggressiveness results in limited generalizability.   It has been argued that strategic aggressiveness is one dimension of strategic orientation, given that deploying resources to fit with the current environmental factors is essential in formulating organizational strategy (Venkatraman, 1989).   In this conceptualization, both strategic orientation and strategic aggressiveness are a means to the same end: superior firm performance.

However, while strategic orientation focuses on future orientation, strategic aggressiveness focuses on competitive positioning. In this vein, the Miles and Snow (1978) strategic archetypes typology identified four strategic orientations that could be undertaken by enterprises: defending, prospecting, analyzing, and reacting. Each of these orientations focuses on the congruence of mission/values, strategies, and functional behavior, and congruence is one important aspect of strategic orientation. However, Pleshko and Nickerson (2008) utilize the Miles and Snow (1978) typology to measure strategic aggressiveness versus strategic passiveness, concluding that both analyzers and prospectors are aggressively driven to search out and take advantage of new opportunities to foster firm growth. Thus, in some studies, strategic aggressiveness is nested within strategic orientation. In others, it is seen as a way to elucidate difference between different strategic orientations.

Table 1. Empirical Operationalization of Strategic Orientation

	Agressiveness	Analysis	Defensiveness	Futurity	Proactiveness	Riskiness	Customer Orientation	Competitor Orientation	Interfunctional Coordination (Creating Value)	Product Orientation	Technological Orientation	Progressive Decision Making	Social Responsibility	Organicity	Miles and Snow (1978) Typology	Entreprenurial Orientation	Intelligence Generation	Intelligence Dissemination	Responsiveness to Intelligence
Venkatraman, 1989	X	X	X	X	X	X													
Gatignon and Xuereb, 1997							X	X	X	X	X								
Voss and Voss, 2000							X	X		X									
Goll and Sambharya, 1995												X	X	X					
Morgan and Strong, 2003	X	X	X	X	X	X													
Aragon-Sanchez and Sanchez Marin, 2005															X				
Veliyath and Shortell, 1993															X				
Zhou, Yim, and Tse, 2005a							X	X	X		X					X			
Zhou, Gao, Yang, Zhou, 2005b																	X	X	X
Laforet, 2008																			
Conant, Mokwa, and Varadarajan, 1990															X				
O'Reagan and Ghobadian, 2005															X				

A second discontinuity exists within the conceptualization of strategic aggressiveness itself. The consistency of resource deployments creates distinctive competencies and defines synergies created by a firm, thereby influencing its competitive posture (Porter, 1980). Thus, strategy can be viewed as the cumulative effects of year-to-year resource allocations made by a firm to functional areas such as manufacturing, R&D and marketing. Researchers have shown that organizational strategies are important determinants of organizational success (Feeser & Willard, 1990; Grinyer, McKiernan, & Yasai-Ardekani, 1988; Palepu, 1985). Competitive-level strategies address how a firm competes within a particular industry (Bourgeois, 1980). Several researchers have shown that strategic aggressiveness to pursue Porter's (1980) competitive strategies is positively associated with organizational performance (Covin & Covin, 1990; Feeser & Willard; 1990; Grinyer *et al.*, 1988; Romanelli, 1989).

Given the confusion regarding strategic orientation, Laforet (2008) called for a better understanding of the measurement of strategic orientation. We agree with Laforet and submit that sources of ratings and consistency in measurement are areas in need of research attention. The present study attempts to establish a consistent conceptual approach for strategic orientation, to operationalize the construct precisely, and to make the case for using multiple levels within each firm as the source of ratings on understanding the relationship between strategic orientation and firm-level performance.

FIRM-LEVEL PERFORMANCE

A thorough review of the strategy literature over the last decade on culture reveals more than a dozen articles attempting to link cultural attributes, such as strategic orientation, to firm-level performance. Each study utilizes different measures of culture, performance, and levels of respondents in organizations. Unsurprisingly, findings have not been equivocal. Strategic orientation has been shown to have an expected negative relationship with such short-term outcomes as profitability and return on sales (Venkatraman, 1989; Goll & Sambharya, 1995; Veliyath & Shortell, 1993). Other findings are confounded by combining measures with different time horizons (Morgan & Strong, 2003), or findings are non-significant (c.f., Voss & Voss, 2000). None of the research examined showed an equivocal positive relationship between strategic orientation and firm performance, though conceptually, we would expect one to exist.

Therefore, the purpose of this study is consider methodological issues that may be at least partially responsible for these inconsistencies in the strategic orientation/performance literature. Specifically, in this study we address three methods issues relating to the measurement of strategic orientation. First, we establish content validity of strategic orientation by drawing on previous studies from the strategic management literature. Second, we establish the criterion-related validity by investigating the relationship between strategic orientation and firm performance. Finally, we conclude by delineating practical implications for researchers interested in examining relationships between firm performance and strategic orientation.

METHODS

Data Collection

The strategy literature suffers from inconsistencies relating strategic orientation to firm performance. Many previous studies have attempted to measure these orientations by surveying many individuals in very few companies (Calori & Sarnin, 1991). Conversely, other researchers have attempted to collect data from large cross-sectional samples, but only collect data from one person per company (Denison & Mishra, 1995).

We performed three separate studies to overcome these deficiencies. Study 1 and study 2 were designed to ensure that we created unique content-valid measures of strategic orientation. Finally, the third study attempted to show the link between strategic orientation with several different levels of financial performance.

To overcome inconsistencies with previous research, study 3 attempted to survey all employees (as opposed to one employee) in multiple organizations (as opposed to a single organization) in order to assess how strategic orientation impacted firm-level performance. Specifically, in the third study, we surveyed 857 respondents from 21 companies.

Item Development

Based on a review of the extant research, we developed a list of potential survey items to measure strategic orientation as a unique construct of cultural dimensions. We were able to draw on existing literature from the strategy literature to identify construct items that had been empirically tested in previous research. We then performed an inter-rater reliability assessment to address the consistency of the potential items (c.f. Carmines & Zeller, 1991). Specifically, we had a panel of seven experts (defined as academics researchers actively involved in studying antecedents of financial performance) to match potential individual survey items with our constructs of strategic orientation. Values greater than 0.70 are typically acceptable for consistency estimates of inter-rater reliability (Crocker & Algina, 1986). Therefore, when an individual item received an inter-rater reliability score of less than 0.70, that item was dropped as a potential survey item.

Once we established the content and agreement of the constructs of items, we developed an initial survey. Specifically, we measured strategic orientation as a unique cultural dimension using a 5-item survey instrument. Respondents were asked to rate the degree to which each statement accurately described the cultural orientation of their organization (using a five-point Likert scale where 1= strongly disagree, and 5=strongly agree).

Dependent Variables

Strategic management researchers suffer from a lack of consistency defining firm-level performance. However in terms the culture-performance literature, much of the research focuses on financial performance (e.g., profit growth), while the remainder examines market performance (c.f., Christensen & Gordon, 1999) or process outcomes, such as successful value innovation (Gatignon & Xuereb, 1997; Ogbonna & Harris, 2002; Wiklund & Shephard, 2003). Given that the financial performance measures are accepted in the culture-performance literature, we measure firm performance in terms of profit growth over a five-year period, revenue growth over a five-year period and return on equity, to recognize financial performance as a multidimensional phenomenon. We felt it was necessary to measure performance longitudinally, as cultural dimensions such as strategic orientation evolve over time and therefore would have a dynamic effect on firm performance. Furthermore, we obtained objective measures of performance as multiple scholars (Harris, 2001; Dess & Robinson, 1984) have indicated that objective performance measures are preferable to subjective ones.

MEASUREMENT OF STRATEGIC ORIENTATION

Content Validity. Two separate studies were completed to develop comprehensive scales for strategic orientation. In study 1, respondents of a large service organization completed the survey instrument to measure unique constructs for strategic orientation. Specifically,

respondents were asked to agree/disagree using the five-point Likert scale in terms of how a particular statement related to the cultural constructs. We achieved a 67% response rate yielding 447 usable responses.

We found encouraging internal reliability and dimensionality results from this initial survey. We measured internal reliability using the Cronbach's alpha score. Specifically we found that the reliability of our measure of strategic orientation (.90) exceeded Nunnally's (1967) stringent threshold of 0.70.

Criterion-Related Validity. In order to assess replicate the content validity of our measures from study 1 and to assess the criterion-related validity of our strategic orientation measure, we conducted a second study. In study 2, we collected data from employees in a technology-based organization using the same measures from study 1. We surveyed these participants across the organization instead of relying upon the perception of the top management team. We also collected performance data across 43 profit centers and included demographic information based on the extant culture-performance literature, to provide some possible linkages to control variables. Demographic items collected information on the respondents' tenure at the company, length of time on current job, age, and level in the organizational hierarchy.

We collected survey data for culture and performance using mail surveys. Our response rate was 45 percent, yielding 117 responses. Consistent with Study 1, we assessed the internal reliability of our strategy-orientation measure of culture using Cronbach's Alpha with a reliability measure of .90 and respectively.

In order to assess criterion-related validity, we examined the relationships between strategic orientation and performance. Specifically, we used hierarchical OLS regression modeling to test this relationship. Additionally, we controlled for demographics of respondents, as previous research has argued that employees' perceptions of culture are impacted by their level in an organization (Kristof-Brown, Zimmerman, & Johnson 2005). Before any regression results were interpreted, a complete set of diagnostic procedures was completed to ensure that this modeling technique was appropriate for these data. Specifically, data were checked for normality, patterns in residuals such as heteroscedasticity, and outliers (cf. Weinzimmer, Mone & Alwan, 1994).

RESULTS

In study 3, we tested the extent to which strategic orientation impacts performance. We surveyed all employees from multiple companies to overcome methods problems from previous research (e.g., surveying all employees from one company or one employee from multiple companies). To assess strategic orientation and firm performance, this study yielded 857 respondents from 21 companies.

Data Aggregation

Before conducting further analyses, it is necessary to aggregate data from individual employee ratings into firm-level variables, namely, the strategic orientation of the firm. Using the mean of employee responses is justified if there is a basic level of agreement among the raters. In other words, for us to consider the mean of several employees' perceptions to be a characteristic of the firm itself, we first need to assess whether these perceptions are shared by the employees surveyed. Two well-accepted measures of agreement --- ICC(k) (McGraw & Wong, 1996) and r_{WG} (J) (James, Demaree, & Wolf, 1984; 1993) were used to justify the aggregation of individual level data in this study.

ICC(k) assesses both consistency and consensus and are used to determine if the mean ratings for each organization are adequate to distinguish the organizations in the study. ICCs for each of the 6 strategic orientation statements ranged from 0.88-0.90, well above the recommended 0.70 threshold for adequate levels level of reliability (Nunnally, 1978).

r_{WG} assesses consensus and is used to determine if there is adequate consensus among ratings for any given organization. By comparing the actual distribution of ratings to appropriate null distributions, we can estimate the amount of consensus among groups of employees rating the same organization. In this case, we utilized both a uniform null distribution, and a slightly skewed null distribution, the latter being the closest to the distribution of the responses in this data set. Results appear in Table 2. For the scale and distribution, responses from 20 of the 21 companies exceed or approach the 0.7 threshold for agreement (LeBreton, James, & Lindell, 2005). While the overall pattern of results justifies aggregating data to perform the analyses required (LeBreton & Senter, 2008), subsequent analyses were run with and without the low-agreement organization, however results were not impacted by inclusion/removal of the low-agreement organization, so results reported use the total sample.

Table 2. Mean and Range of r_{WG} estimates for Strategic Orientation Scale

	Uniform Distribution Mean	Uniform Distribution Range	Slightly Skewed Distribution Mean	Slightly Skewed Distribution Range
Strategic Orientation	0.873	0.76-0.92	0.735	0.30-0.86

Descriptive Statistics, Correlations and Reliabilities

Initial analyses revealed significant differences among correlations between our cultural dimension and firm performance. Strategic orientation was positively related to both profit growth and revenue growth (p<.01), no significant relationship existed with ROE. All means, standard deviations and correlations of variables are presented in Table 3. Note that similar to study 2, strategic orientation had an internal reliability estimate of .90.

Table 3. Means, Standard Deviations, Correlations

Variable	Mean	SD	1	2	3	4	5	6	7
1. Profit Growth	-1.52	17.03	-						
2. Revenue Growth	3.42	7.84	.61**	-					
3. ROE	.02	.07	.53**	.51**	-				

4. Strategic Orientation	4.12	4.23	.20**	.07	.13**	(.90)		
5. Tenure	11.09	10.22	-.07	-.04	-.02	-.12**	-	
6. Age	40.51	11.25	-.13**	-.09*	.02	.03	.39**	-
7. Level	.31	.15	-.16**	-.10*	-.08	.01	.09*	.14**

Notes: N = 857

* p<.05, ** p<.01

Regression Analysis

In order to examine criterion-related validity of our strategic orientation measure, we also used regression analyses to show how strategic orientation behaves when modeled as an antecedent to firm-level performance. Table 4 presents regression results. Again, data were checked for normality, patterns in residuals such as heteroscedasticity, and outliers (cf. Weinzimmer, *et al.,* 1994).

Table 4. OLS regression results for firm performance

	Model 1	Model 2	Model 3
	Profit Growth	Revenue Growth	ROE Growth
Control Variable			
Tenure	.03	-.07	.00
Age	-.06	-.04	.01
Level	-.23**	.09	.30**
Strategic Orientation	.29**	.11*	.44**

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F	9.22**	4.11**	10.82**
Adj. R^2	.11	.07	.15

Notes: N = 857

* p<.05, ** p<.01

Results from Model 1 in Table 4 show a significant positive relationship between strategic orientation and profit growth (p<.01). This suggests that a strong strategic orientation is positively linked to profit growth. Results from Model 2 in Table 4 show a significant positive relationship between strategic orientation and revenue growth (p<.05). This suggests that a strong strategic orientation is positively linked to revenue growth. Results from Model 3 in Table 4 show a significant positive relationship between strategic orientation and ROE (p<.01). This suggests that a strong strategic orientation is positively linked to ROE growth.

DISCUSSION AND CONCLUSION

Researchers have demonstrated the commonality of cultural attributes by examining elements of strategic orientation in order to assess the impact of culture on firm performance. Strategic orientation, as previously noted, is considered in our study as a unique cultural attribute. We believe that possessing a strong strategic orientation within an organization will directly affect and positively impact firm performance. In reference to Calori and Sarnin (1991), there are certain similar characterizations between our current research and past research in regard to certain aspects of strategy and the influence of that relationship on culture and performance. Calori and Sarnin (1991) established the importance of strong strategic attributes as having a positive affect on economic performance. The intensity and homogeneity of a company's cultural attributes positively correlates with relative performance. Calori and Sarnin (1991) believed that culture is critical when developing organizational strategy and that the strategy should be altered to meet strategic changes that the organization may face (Calori & Sarnin, 1991; Sayles & Wright, 1985). Our study confirms and extends the work of Gatignon and Xuereb (1997) by identifying a direct relationship between the cultural construct of strategic orientation and the quantifiable performance measures of ROE and profit growth. Gatignon and Xuereb established an indirect relationship between strategic orientation and firm performance, using new product development as a moderator.

The present study also sought to establish the construct, criterion-related and discriminant validity of the measure of strategic orientation as a unique cultural dimension and show how this

measure impacts firm performance. In order to develop this construct, we first established the content validity of our measure through an exhaustive literature search of the strategy. We further strengthened this content validity through inter-rater agreement about the items included in our measure and by establishing the psychometric properties of our measure in terms of its internal reliability and factor dimensionality. In study 2, we again replicated the internal reliability estimates, and we established tentative criterion-related validity of our measure. Our measure of culture predicted significant variability of performance at the firm level.

Limitations

We note some limitations in the present research. We conducted cross-sectional research using a single method of data collection (e.g., surveys). Although our firm performance measures were "hard" measures of performance gleaned from company financial information, all other data were collected via self-report surveys. Thus, we cannot exclude the possibility that some of our results occurred in part from biases associated with survey data.

Managerial Implications

Since our study did not discriminate between high-performance and low-performance firms, managers can use the findings from our study to assist performance improvement. Results from this study indicate that strategic orientation uniquely influences multiple types of performance.

Directions for Future Research Directions

In conclusion, the present study sought to develop construct validity for a measure of organizational culture and the unique properties of strategic orientation. In doing so, we attempted to establish critical facets of validity that allow researchers to answer a basic question: Does our measure assess what we say it measures? Through a comprehensive literature review of the strategic management literature on organizational culture, we developed a new measure of strategic orientation, overcoming several methodological flaws from previous research. We established preliminary content validity of this measure in study 1. In study 2, we replicated study 1 and established criterion-related validity of our measure. Finally, in study 3, we were able to demonstrate empirically the relationship between strategic orientation and firm performance. Consequently, as future researchers attempt to assess the impact of cultural attributes, such as strategic orientation, need to consider appropriate methods to collect data in terms of whether an individual can accurately identify a company culture or whether perceptions of multiple employees need to be used.

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THE INFLUENCE OF BOARD COMPOSITION ON TOP MANAGEMENT TEAM INDUSTRY- AND FIRM-SPECIFIC HUMAN CAPITAL IN YOUNG IPO FIRMS

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ABSTRACT

Drawing on human capital and corporate governance theories, we examine the influence of board composition on top management team (TMT) human capital in young initial public offering (IPO) firms. We find that outside board membership has a positive impact on industry-specific human capital but a negative impact on firm-specific human capital. We also find that boards with a balanced number of inside and outside directors are most effective at maximizing the total value of both TMT industry- specific and firm-specific human capital.
Keywords: Board composition, human capital, top management team, young firms, corporate governance, initial public offering

Top management team (TMT) human capital is critical for young firms' survival and growth (Eisenhardt & Schoonhoven, 1990; Fischer & Pollock, 2004; Forbes, Borchert, Zellmer-Bruln, & Sapienza, 2006; Reed, Lubatkin, & Srinavasan, 2006). Scholars have examined human capital's impact on firm performance (Dimov & Shepherd, 2005; Pennings, Lee, Witteloostuijn, 1998) and other outcomes such as innovation (Subramaniam & Youndt, 2005) and acquisitions (Coff, 2002). Yet, investigations of how different types of human capital are acquired and developed is lacking, despite suggestion that firms be structured to foster development of firm-specific human capital (Becker, 1964; Birley & Norburn, 1987; Spender, 1996). Boards of directors influence managers' discretion, leadership (Finkelstein & D Aveni, 1994), and turnover (Weisbach, 1988), and thus the nature and form of TMT human capital. Boards affect strategies, processes, and performance (e.g., Baysinger, Kosnik, & Turk, 1991; Dalton, Daily, Ellstrand, & Johnson, 1998; Hermalin & Weisbach, 2003), but little is known about how board composition impacts different types of TMT human capital, and certainly not in the context of young firms.

This study investigates board composition's impact on the market value of TMT industry- and firm-specific human capital in young IPO firms. Human capital, a central determinant of firm performance, can be categorized into specific and general human capital (Becker, 1964; Nonaka, 1994). Managers' motivation to invest in their firm- and industry-specific human capital depends on their perceived return on such investment (e.g., Amit & Shoemaker, 1993; Buchholtz, Ribbens, & Houle, 2003; Nonaka, 1994; Ployhart, Weekley, & Baughman, 2006; Rajan & Zingales, 1998). Agency (Fama & Jensen, 1983), resource dependence (Pfeffer & Salancik, 1978), signaling (Certo et al., 2001; Higgins & Gulati, 2006), and other organization theories (Weber, 1947) are instrumental in identifying board composition's effects on TMT firm- and industry-specific human capital. Whereas previous studies use TMT demographics such as tenure or education as measures of TMT human capital, variables capturing the market value of those demographics are used to test hypotheses concerning relationships between board composition and the market value of TMT industry- and firm- specific human capital. An integration of human capital and corporate governance perspectives provides a fine-grained view of board composition's influence on these two types of TMT human capital. Insights from the

study enrich the literature regarding the formation and development of TMT human capital and the literature related to board composition. The findings shed light on how to structure boards to balance the need for control with the need to develop TMT human capital in young firms.

THEORY AND HYPOTHESES

Factors Affecting TMT Industry- and Firm-Specific Human Capital

The main tenet of human capital theory is that human capital differentials account for differences in individual and firm performance (Bartel & Lichtenberg, 1987; Becker, 1964). Individuals with more or higher quality human capital achieve higher performance in performing relevant tasks. Human capital is an important source of sustainable competitive advantage (Reed et al., 2006), but the performance impact of different types of human capital may vary. Human capital can be divided into general and specific knowledge (Becker, 1964; Dimov & Shepherd, 2005; Hatch & Dyer, 2004; Nonaka, 1994), the difference involving the scope of application. General knowledge can be deployed in various contexts, and specific knowledge may be deployed in a given firm or industry (Amit & Schoemaker, 1993).   Specific human capital includes industry-specific human capital (training and experience that can be applied in a particular context or industry) and firm-specific human capital (knowledge applicable to a particular firm) (e.g., Dimov & Shepherd, 2005; Pennings, Lee, &Wattleoostuijn, 1998).

As TMT firm- and industry-specific human capital are critical for survival and growth, understanding how it is formed is important (Hatch & Dyer, 2004; Spender, 1996). Creation of specific knowledge involves three key steps: (1) attracting individuals with relevant backgrounds and the ability to learn; (2) encouraging them to develop tacit, firm-specific knowledge; and (3) retaining them and creating a context within which they may deploy their human capital for the firm's benefit (Cohen & Levinthal, 1990; Nonaka, 1994; Rauch, Frese, & Utsch, 2005; Spender, 1996). Employee commitment is most important for promoting formation of new knowledge within an organization (Nonaka, 1994). Knowledge creation and accumulation take place in firms providing a supportive context (Spender, 1996). Employees with significant firm-specific knowledge may protect their positions because they are more valuable to their firm and can claim a greater compensation package than they can in other firms (Ployhart et al., 2006; Rajan & Zingales, 1998). Aware of the difference in the value of their human capital to their present firm versus the managerial labor market, managers may seek to secure their position in the firm. These insights help explain the importance of, and the factors affecting human capital formation as well as employees' risk aversion concerning their human capital.

Corporate Governance Theories and Board Composition's Effects on TMT Human Capital

Board composition involves the number, types, and characteristics of directors (Dalton et al., 1998). Fama and Jensen (1983) lay early agency-based foundations for board composition by outlining relative benefits of inside versus outside directors. Outsiders are thought to fulfill their fiduciary duties to shareholders as they are less influenced by TMTs and motivated to enhance their reputations and human capital in the market for corporate directorships. On the other hand, although insiders have firm knowledge and can help overcome information asymmetry in monitoring managers, they are less independent and may be less vigilant.

Beyond agency theory, resource dependence theory suggests outsiders provide access to external resources and reduce dependence on the environment (Hillman & Daziel, 2003; Pfeffer & Salancik, 1978). Outsides with knowledge and experience can recruit and assist managers and supplement their knowledge and experience (Filatochev, 2006).   Signaling theory suggests information asymmetry may lead investors to view board characteristics as signals of firm quality (Certo et al., 2001; Higgins & Gulati, 2006) and the value of TMT human capital. Bureaucratic theory (Weber, 1947), administrative theory (Fayol, 1949), and the leadership literature (e.g., Miller & Friesen, 1997) suggest a powerful board controlled by outsiders mitigates agency problems but hinders executive discretion, leadership, and motivation. Finkelstein and D'Aveni (1994) argue that outsider-dominated boards affect unity of command and TMT leadership, creating role conflict within the TMT and between the TMT and the board. Board monitoring and tension between the TMT and the board may weaken collaboration, reduce managerial motivation and commitment, and increase turnover (Burton, Fried, & Hisrich, 2000; Westpal, 1999). Burton and colleagues (2000) find 37 percent of CEO dismissals resulting from disagreements with boards. Close board monitoring may reduce TMT' discretion and flexibility; and stifle creativity, learning, and performance (Finkelstein & D Aveni, 1994; Jackson & King, 1983). In sum, board composition has different effects on the formation of TMT specific human capital. Following are hypotheses concerning the systematic effects of board composition on the market value of different types of TMT specific human capital.

Effects of Board Composition on TMT Industry-Specific Human Capital in Young Firms

Assembling an effective TMT is critical for young firms. Industry-specific human capital is an important determinant of TMT effectiveness (Beckman, Burton, & O'Reilly, 2007). Prior work experience is a key source of start-up ideas (Shane, 2000), and lack of industry experience is tied to new venture failure (Kor & Misangyi, 2008). Cohen and Levinthal (1990) note that ability to accumulate new knowledge depends on the existing stock of knowledge. A firm at the IPO stage generally seeks managers with significant industry-specific human capital (Welbourne & Cyr, 1999), a challenging task because of difficulty competing with large firms' pay, prestige, and job security (Bamford, Bruton, & Hinson, 2006; Mudambi & Treichel, 2005). Young firms thus rely on other methods (e.g., ownership, profit sharing, social networks) to attract candidates (Arthurs, Busenitz, Hoskisson, & Johnson, 2009; Beatty & Zajac, 1994; Birley, 1985).

Board composition may affect ability to identify and recruit candidates in a number of ways. Outsiders are often executives in other firms, business specialists, and community influentials with wide networks in the industry or related fields (Hillman, Cannella, & Paetzold, 2000). More outsiders endow a board with more external contacts to identify TMT candidates when needed, and may lead increase board independence (Dalton et al., 1998). Independent boards can bring in new TMT members as they can overcome resistance from incumbents who seek to preserve unity within the team, as well as their power and independence from the board (Westphal, 1998). But the TMT may be hesitant to recruit new members (Zajac & Westphal, 1996). Outside directors can also affect recruitment by way of signaling effects. Young firms are resource-constrained and confront problems of newness and smallness. Founding members often lack reputation and credibility (Bamford et al., 2006; Mudambi & Treichel, 2005), and potential TMT candidates may look at outside board members' reputations and records as signals of firm quality and potential. The higher the percentage of outsiders, the greater signaling effects

a board may have. Restated, the percentage of outside board members may have positive effects on firms' ability to acquire TMT members with industry experience. Thus:

Hypothesis 1. In young IPO firms, the percentage of outside directors on a firm's board is positively related to the market value of TMT industry-specific human capital.

Effects of Board Composition on TMT Firm-Specific Human Capital in Young Firms

Unlike TMT industry-specific human capital, acquired through work at other firms in the same field or industry, firm-specific human capital is acquired by working in the firm and with one another over time. In the process, TMT members develop unique beliefs and viewpoints (cognitive elements of tacit knowledge) and concrete skills, capabilities, and knowledge of routines that apply to the specific firm context (technical elements of tacit knowledge) (Nonaka, 1994). TMT firm-specific human capital is a function of a firm's ability to encourage managers to invest in their human capital and its ability to retain and create a context for them to deploy it (Rauch et al., 2005; Spender, 1996). TMT firm-specific human capital is likely more valuable and therefore results in higher returns (compensation and recognition) when deployed in the focal firm rather than in other firms (Ployhart et al., 2006). Human capital theorists suggest the more firm-specific managers' human capital, the more risk averse they are with regard to their employment with their firm (Rajan & Zingales, 1998). Thus, those with more firm-specific human capital may expend greater efforts to protect their job with their current firm.

Board composition can affect a TMT's firm-specific human capital in several ways. Board monitoring may lower possible agency problems but weaken TMT discretion and commitment (Finkelstein & D Aveni, 1994). TMTs with discretion and freedom are more effective and acquire more knowledge (Jackson & King, 1983). Board dominance may produce conflict between boards and managers, leading to turnover and the loss of firm-specific human capital (Burton, Fried, & Hisrich, 2000; Westpal, 1999). TMT members with little or no voice on the board may feel uncertain about the firm's direction and their job security (Kroll et al., 2007). They are likely less committed to the firm and invest less in developing firm-specific human capital. Thus, a greater percentage of outside board members may have a negative impact on TMT firm-specific human capital. Based on the foregoing:

Hypothesis 2. In young IPO firms, the percentage of outside board members is negatively related to the market value of TMT firm-specific human capital.

Effects of Board Composition on Both TMT Industry- and Firm-Specific Human Capital

As discussed, board composition may have different impacts on TMT industry- and firm-specific human capital. Increases in outsiders with industry experience and knowledge may coincide with decreases in TMT discretion, commitment, and motivation, negatively affecting firm-specific human capital. But both types of specific human capital are important for young firms. Forming a TMT with sufficient industry-specific human capital is crucial (Beckman et al., 2007; Shane, 2000), but as young firms grow, they often require additional managers with industry experience and knowledge (Welbourne & Cyr, 1999) to help in understanding industry trends and practices and to position and compete more effectively (Kor & Misangyi, 2008). Industry-specific human capital can help shorten the learning curve and develop firm-specific human capital quickly and effectively (Cohen & Levinthal, 1990).

On the other hand, firm-specific human capital is critical to young firms' success (Rauch et al., 2005; Reed et al., 2006; Spender, 1996). As firm-specific human capital is developed, it is

more likely to lead to sustainable competitive advantage (Hatch & Dyer, 2004; Spender, 1996). Because the percentage of outsiders tends to have a positive impact on industry-specific human capital but a negative impact on firm-specific human capital, we suggest boards with more balanced numbers of outsiders and insiders result in greater market values of TMT specific human capital. A balance of power between outsiders and insiders may enhance collaboration between the TMT and the board, resulting in greater synergy and more positive firm outcomes (e.g., Sapienza & Gupta, 1994; Westphal, 1999). Balanced numbers of outside and inside directors likely result in balanced power among those two types of directors.

Hypothesis 3. Young IPO firms with a more balanced number of outside and inside board members will have greater market values of TMT industry- and firm-specific human capital.

SAMPLE AND METHODS

Sample

The sample consists of firms within ten years of founding that successfully completed an IPO (i.e., young, entrepreneurial firms [Carpenter, Pollock, & Leary, 2003; Eisenhardt & Schoonhoven, 1990]). Prior to Sarbanes-Oxley (2002), stock exchanges had listing rules for board composition of firms traded on their exchanges. The New York Stock Exchange (NYSE, since 1978) and NASDAQ (since 1989) required at least two outside directors. Since Sarbanes-Oxley, public firms are required to have a majority of outsiders on the board. To avoid such exogenous imposition on IPO firms' board composition and to examine how boards of young firms take shape endogenously, sample firms completed an IPO in 1996 or 1997, excluding best effort offers, ADRs, closed-end mutual funds, REITs, banks, partnerships, and IPOs with offer prices below $5 per share, for which a reliable founding date could be found, resulting in 1,134 firms. Hoover's Online and the SEC's *Edgar* database were searched for prospectuses and proxy statements to collect data for independent and control variables. Prospectuses were not found for 77 firms, reducing the sample to 1,057. Founding dates were verified and firms incorporated no earlier than 1987 were retained, assuring less than 10 years had elapsed between incorporation and IPO, and thus firms were in the young, entrepreneurial phase of their life cycles (Carpenter et al., 2003; Eisenhardt & Schoonhoven, 1990; Taulaulicar, Grundei, & Werder, 2005). This requirement eliminated 406. Prospectuses were inspected, and 127 former subsidiaries or spin-offs of older firms were identified and eliminated, leaving 524. Finally, 65 were lost because of insufficient biographical data on directors, blockholders, and TMT members, leaving 459 firms.

Dependent Variables

To estimate the impact of board composition on the value of TMT industry-specific and firm-specific human capital, data were collected related to the following variables.

TMT industry-specific human capital is experience that can be applied to a particular industry or field. The number of TMT members with prior experience in the focal firm's industry is used to estimate TMT industry-specific human capital (e.g., Coff, 2002; Dimov & Shepard, 2005; Pennings et al., 1998; Shrader & Siegel, 2007). Prospectuses' work histories, subsequently issued proxies, 10-Ks, and Lexis-Nexis, are used to assess whether TMT members possess relevant industry-specific human capital. Industry-relevant work experience is gained at a firm sharing the same primary three-digit SIC code as the sample firm.

TMT firm-specific human capital concerns experience and skills relevant to a particular firm. Previously adopted measures include firm tenure (e.g., Hitt, Bierman, Uhlenbruck, & Shimizu, 2006; Pennings, et. al, 1998), number of founding members, and TMT turnover (Bamford et al., 2006; Beckman et al., 2007). Tenure is an important indicator of firm-specific human capital; such human capital is developed by working in a firm over time. In young, entrepreneurial firms, an executive who has been part of a team taking a firm from concept to public ownership accumulates tremendously valuable human capital in the process. Average TMT firm-specific human capital is measured as the total number of years of firm experience of the combined TMT members divided by TMT size. Data came from prospectuses.

Market value of TMT industry-specific and firm-specific human capital: Market-to-book ratios proxy for the quality or worth of managerial human capital. Share price relative to book value reflects the investment community's valuation of intangible resources relative to tangible resources (Lang, Stultz, & Walking, 1989; Morck, Shleifer, & Vishney, 1990; Wright, Ferris, Sarin, & Awasthi, 1996). The higher the market-to-book ratio, the greater the valuation of a firm's intangible resources relative to tangible assets (its book value) (Hax & Majluf, 1991). Human capital is central to young firms' success (Eisenhardt & Schoonhoven, 1990; Fisher & Pollock, 2004; Shrader & Siegel, 2007), and likely an important determinant of first-day-of-trading market-to-book ratios (Carpenter et al., 2003). We argue that market-to-book ratios serve as reasonable proxies for values of industry- and firm-specific TMT human capital. These ratios may also be influenced by other factors. To assess these influences and isolate the value of TMT human capital, first-day market-to-book ratios are first regressed on the following variables:

Firm Size: Larger firms with high revenues more likely survive and achieve profitability as they have established themselves in the marketplace and demonstrated their business model's viability. Log of sales for the fiscal year prior to IPO is included, as reported in the prospectus.

Prior Firm Performance: Log of sales growth prior to IPO proxies for prior performance. Investors likely value a firm highly if it was successful in growing sales prior to IPO. A young firm's growth rate in sales is often considered a more important performance indicator than other measures such as return on sales, as early growth is essential for long-term survival and profitability (Deeds, DeCarolis, & Coombs, 1998; Florin, Lubatkin, & Schulze, 2003).

Underwriter Prestige: Given the uncertainty surrounding young IPO firms' viability and long-term performance prospects, as well as information asymmetry between investors and the firm, investors look for proxies of IPO firm quality (Kroll et al., 2007). One such proxy is the prestige of the investment banking firm underwriting the IPO. Prestigious investment bankers are thought to underwrite more credible IPOs and eschew more speculative offerings (Carter & Manaster, 1990). We include in our analysis Carter, Dark, and Singh's (1998) scorings of the lead underwriters of our sample firms' IPOs. All else being equal, we anticipate IPOs offered by more prestigious investment bankers to trade at higher market-to-book ratios early on.

Proprietary Technology: Regardless of TMT human capital, shares of a firm possessing proprietary technology permitting at least a temporary competitive advantage likely trade at a higher market-to-book ratio. To address this possibility, we included in our regression model a dummy variable coded "1" if, in the prospectus's description of the business, the firm claimed it had proprietary technology or would be employing technology it had patented that it anticipated can yield competitive advantages. Firms making no such claim were scored as "0."

TMT Ownership: Higher levels of TMT ownership may result in a higher market-to-book ratio. Such ownership should assuage traditional agency concerns (Jensen & Meckling, 1976); and information asymmetry concerns may be reduced as investors are less concerned with firm prospects if TMT members choose to retain a large percentage of the post-IPO firm. We include in our model the post-IPO percentage ownership of the firm collectively retained by the TMT.

Venture Capitalist Participation: From a signaling and information asymmetry perspective, venture capitalists holding positions and participating post-IPO may be a positive indicator of firm prospects by investors, leading to higher initial market-to-book ratios. We included in our model post-IPO venture capitalists' holdings as a percentage of shares outstanding. Data were taken from prospectuses provided by the SEC's Edgar database.

Industry Effects: IPOs in various industries may vary in popularity at different points in time. IPOs in more favored industries may trade at higher market-to-book ratios than those in less favored ones. To capture industry's influence, we included 7 dummy variables representing the 8 different SIC code ranges in our sample (i.e., 2000-2999, 3000-3999, 4000-4999, 5000-5999, 6000-6999, 7000-7999, and 8000-8999) with 1000-1999 serving as the hold-out range.

Year of IPO: IPOs are more or less enthusiastically received by the investment community at different points in time. We include a dummy variable to assess the influence the year of IPO might have on the market-to-book ratio. Recall that the sample IPOs occurred in 1996 or 1997.

These variables are regressed against closing first-day market-to-book ratios. The model is significant, with a total R^2 of .44 (see Table 2a). The next step is to estimate market-to-book ratios based on the regression equation. Values are subtracted from actual end-of-first-day-trading market-to-book ratios. The difference between the two values is the proxy for total TMT human capital. These values are then segmented into the portion representing industry-specific versus firm-specific human capital. To do so, the two TMT human capital variables (defined earlier) are regressed against the market-to-book ratio differences. This model is significant at the .001 level, with an R^2 of .46 (Table 2.b). To assign individual firm TMT industry-specific and firm-specific values, the regression coefficients for industry-specific and firm-specific human capital are multiplied by the actual levels of industry-specific and firm-specific human capital for each firm. Resulting values are used as dependent variables in hypothesis tests.

Independent Variable

Consistent with previous studies (Dalton et al., 1998), board composition is measured as the percentage of the board made up of non-employee directors who had not previously worked for the firm, nor were related to members of the TMT. The data were taken from prospectuses.

Control Variables

Several variables may affect acquisition and development of TMT specific human capital. Large firms may attract more industry-experienced managers and provide more resources and support for them to develop firm-specific human capital. *Firm size* is the natural log of sales as reported in the prospectus for the year prior to IPO. *Prior firm performance* may be indicative of TMT industry-specific and firm-specific human capital. Good prior performance may help attract more industry-experienced and able executives, whereas poor prior performance may challenge recruiting efforts (Chen, Hambrick, & Pollock, 2008). The log of sales growth for the two years prior to IPO is a proxy for prior firm performance. Data came from prospectuses. As

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suggested, TMT members with significant industry-specific and firm-specific human capital likely appreciate the fact that their human capital is just that—industry- and firm-specific—and less valuable in other firms or other industries. *TMT ownership*, however, carries a measure of certainty as to managers' retention by the firm, and they achieve a degree of entrenchment. Thus, they may be more willing to invest their careers in their firms and develop industry-specific and especially firm-specific human capital. Regression models include percentage of shares outstanding controlled by the TMT following IPO. A larger TMT may afford more opportunities to recruit new managers specifically for their industry-specific human capital prior to IPO, but a firm with a relatively small TMT will not have the same opportunities. The number of TMT members reported in prospectuses is included, labeled *TMT Size*.

Other board characteristics may affect acquisition and development of TMT human capital. *Outside director industry experience* is measured using the method defining TMT industry experience. Biographical sources help ascertain which non-venture capitalist outside board members have focal industry experience. *Outside director ownership* is the percentage of shares outstanding held by outside directors of the IPO firm's shares after considering dilution of the IPO and exclusive of venture capitalists' ownership (Carpenter, Sanders, & Gregersen, 2001). *Venture capitalists' percentage of ownership* is a proxy for their involvement with, and influence over the firm and engagement with its management (Baker & Gompers, 2003).

Some industries may demand more industry- and firm-specific human capital due to a need for technical expertise and knowledge of firms' technology. Technologically sophisticated fields may uniformly demand higher levels of human capital than others to compete (Fama & Jensen, 1983). Dummy variables are included for the eight first-digit SIC codes included in the sample.

METHODS

The first series of models to test hypotheses determines board characteristics' influence on *market value of TMT industry-specific human capital*. Control variables are first entered. The second model includes the *outside director* variable to test hypothesis H1. In the second set of models, these steps are repeated with *market value of TMT firm-specific human capital* as the dependent variable to test hypothesis H2. To test hypothesis H3, the percentage of boards made up of outsiders is regressed against total market value of TMT human capital (combined industry- and firm-specific). Then the quadratic form of outside board membership is included along with independent and control variables. Evidence of an inverted "U" shaped relationship between outside board membership and TMT human capital would support hypothesis H3.

RESULTS

Table 1 includes means and standard deviations of variable measures and a correlation matrix. Some correlations are relatively high, but none of the variance inflation factor statistics calculated in conjunction with the estimation of the models exceeds 4.1, while a value of 10 is the point at which multicollinearity is thought problematic (Freund & Littell, 1991).

Table 1
Descriptive Statistics and Correlations [a]

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. TMT Industry-Specific Human Capital	4.603	2.645											
2. TMT Firm-Specific Human Capital	3.480	3.157	.263										
3. Firm Size	3.219	2.809	.041	-.025									
4. Prior Firm Performance	2.452	4.902	.145	.143	-.050								
5. Underwriter Prestige	5.803	2.709	.346	.262	.173	.102							
6. Firm Possesses Proprietary Technology	.331	.471	.087	.074	-.146	.001	.060						
7. TMT Ownership	.403	.216	.030	.145	.131	.083	.056	.026					
8. Venture Capitalist Participation	.141	.119	.117	.125	.018	.125	.101	.078	-.176				
9. Outside Directors as a Percentage of the Board	.592	.209	.084	-.131	-.017	.078	.105	-.002	-.477	.190			
10. Outside Directors With Industry Experience	2.601	2.099	.121	.121	-.070	.070	.177	.015	-.276	.128	.317		
11. Outside Director Ownership	.169	.101	.010	-.028	.063	.064	.061	.077	-.191	-.073	.213	.157	
12. TMT Size	5.803	2.475	.246	-.025	.131	.023	.161	-.050	.046	.053	.001	-.008	.090

N=459; correlations greater than .08 are significant at .05, r's greater than .11 are significant at .01.

[a]Means and standard deviations are presented in decimal form of percentages, except for Firm Size and Prior Firm Performance which are in log form of millions of dollars and year-over-year percentage change respectively. TMT Size, Outside Directors With Industry Experience, and TMT Industry-Specific Human Capital reflect the actual numbers of such persons. TMT Firm-Specific Human Capital represents the average number of years of TMT tenure with the firm.

Estimation of Market Values of Industry-Specific and Firm-Specific TMT Human Capital

To estimate the dependent variables (market values of TMT industry-specific and firm-specific human capital), we first regress a series of variables anticipated to influence end-of-first-day-trading market-to-book ratios. Results are presented in Table 2a. Virtually all the variables except log of sales were at least marginally significant. Also, we estimated the predicted values of sample firms' market-to-book ratios and then subtracted from them the actual market-to-book ratios. The resulting differences are regressed on measures of TMT industry-specific and firm-specific human capital. Results are reported in Table 2b. Regression coefficients from this model are then used to estimate market values of industry- and firm-specific human capital.

Table 2a

Results of Regression Analysis of the Determinants of
the Market Values of TMT Industry and Firm-
Specific Human Capital

Variables	
Firm Size (Log of Sales)	-1.532
Prior Firm Performance	.040*
Underwriter Prestige	2.825*
Firm Possesses Proprietary Technology	7.327†
TMT Ownership	27.629**
Venture Capitalist Participation	26.001
SIC Codes 2000-2999	13.833
SIC Codes 3000-3999	11.765†
SIC Codes 4000-4999	28.345**
SIC Codes 5000-5999	23.531*
SIC Codes 6000-6999	20.321†
SIC Codes 7000-7999	20.996*
SIC Codes 8000-8999	15.021
Year of IPO	16.542**
Model F Statistic	14.92***
Adjusted R^2	0.439

n=429, †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 2b

Results of Regression Analysis of TMT Industry-Specific and
Firm-Specific Human Capital Measures on Market-

to-Book Ratio Differences

Variables	
TMT Industry-Specific Human Capital	6.601***
TMT Firm-Specific Human Capital	8.820***
Model F Statistic	40.90***
Adjusted R^2	0.458

n=429, †p< .10; *p< .05; **p< .01; ***p< .001

Test of Hypotheses H1, H2, & H3

Several controls are significantly related to the value of TMT industry-specific human capital (Table 3, Model 1). Higher values of TMT industry-specific human capital are associated with such information technology-related fields as software and systems design found in the 7000 SIC range; such human capital is less associated with traditional manufacturing in the 5000 range. Model 2 of Table 3 suggests boards heavily populated with outsiders result in more valuable TMT industry-specific human capital available to firms, supporting hypothesis H1.

Table 3

Regression Analysis of the Relationship between Board Composition and TMT industry- and firm-specific Human Capital

Variables	Value of TMT Industry-Specific Capital		Value of TMT Firm-Specific Capital	
	Model 1	Model 2	Model 4	Model 5
Firm Size	.061	.074	1.352**	1.430**
Prior Firm Performance	.008**	.007**	.019**	.017**
TMT Ownership	-2.806	-1.844	2.995**	2.869*
TMT Size	2.189***	2.078***	-.486	-.498
SIC Codes 2000-2999	-4.316	-3.805	7.214	6.300
SIC Codes 3000-3999	1.090	.959	3.015	2.770
SIC Codes 4000-4999	5.684*	5.485*	-5.322	-5.207
SIC Codes 5000-5999	-9.318***	-8.897***	5.209*	5.154*
SIC Codes 6000-6999	-.856	-.719	3.740	3.021
SIC Codes 7000-7999	6.155**	5.998**	6.285*	6.021*
SIC Codes 8000-8999	3.450	3.402	-2.509	-2.996
Outside Directors with Industry Experience	.939*	.939*	1.511*	1.511*
Outside Director Ownership	-17.009*	-17.009*	-16.332	-16.332
Venture Capitalist Participation	12.891*	12.891*	27.748*	27.748*
Outside Directors as a Percentage of the Board		12.549*		-26.009*
Model F Statistic	17.08***	21.10***	15.45***	16.01***
Model Adjusted R^2	.238	.272[a]	.185	.216

N=459. *p<.05; **p<.01; ***p<.001

[a]an F test of the change in R^2 between models 1 and 2 , and 4 and 5 proved significant at the .05 level.

A significant negative relationship emerges between outside board participation and the value of TMT firm-specific human capital, supporting hypothesis H2. The optimal level of insider versus outsider board composition for maximizing TMT human capital—both industry and firm-specific—is determined by regressing the percentage of the board made up of outsiders as well as the squared values of that variable against the value of TMT human capital. The relationship between outside board membership and TMT human capital is represented by an inverted "U" shaped function (Table 4). Outside board participation is significantly and positively related to TMT human capital values, but the squared form of that variable is significantly and negatively related to TMT human capital values, supporting hypothesis H3. Outside membership may enhance TMT human capital but at some point become excessive. Solving for the point of inflection in the inverted "U," at approximately 45% or greater, outside director membership begins to hurt the firm's ability to accumulate TMT human capital.

TABLE 4
Regression Analysis of the Relationship Between Board Composition and the market
value of both industry and firm-specific TMT Human Capital

Variables	Value of TMT Human Capital	
	Model 1	Model 2
Firm Size	.672	.630
Prior Firm Performance	.040*	.038*
TMT Ownership	-2.761	-2.633
TMT Size	-.610	-.603
SIC Codes 2000-2999	-2.756	-2.779
SIC Codes 3000-3999	3.639	3.500
SIC Codes 4000-4999	6.830	6.806
SIC Codes 5000-5999	-4.440	-4.406
SIC Codes 6000-6999	.391	.396
SIC Codes 7000-7999	23.119*	22.006*
SIC Codes 8000-8999	-.256	-.252
Outside Director with Industry Experience	3.674*	3.669*
Outside Director Ownership	15.062	14.863
Venture Capitalist Participation	50.600*	50.929*
Outside Directors as a Percentage of the Board	114.733*	107.390*
Outside Directors Squared		-119.851*
Model F Statistic	5.210***	5.110***
Model Adjusted R^2	0.098	.141[a]

N=459. *p<.05; **p<.01; ***p<.001
[a]an F test of the change in R^2 between models 1 and 2 proved significant at the .05 level.

DISCUSSION

Our goal is to examine the link between board composition and two types of TMT human capital: industry- and firm-specific. The findings generally support the contention that TMT human capital is affected by board composition. Specifically, the percentage of outside directors is positively associated with TMT industry-specific human capital and negatively associated with TMT firm-specific human capital. Also, a balance of outside and inside directors is associated with the highest level of industry- and firm-specific TMT human capital. The level of board composition maximizing TMT human capital is approximately 45% outside board membership.

This study contributes to literature regarding the formation and development of TMT human capital and board composition. For the human capital literature, factors influencing the value of TMT human capital are explored. TMT human capital is receiving considerable research attention, especially involving young, entrepreneurial firms (e.g., Dimov & Shepherd, 2005; Hatch & Dyer, 2004; Marvel & Lumpkin, 2007; Ployhart et al., 2006; Reed, Lubatkin, & Srinavasan, 2006). TMT human capital is critical to the survival and growth of such firms (Eisenhardt & Schoonhoven, 1990; Reed et al., 2006), but most studies are concerned with its effects on various firm outcomes such as performance, IPOs, innovation, and capital acquisition (e.g., Coff, 2002; Dimov & Sheperd, 2005; Pennings et al., 1998; Subramaniam & Youndt, 2005). Few address how firms acquire and develop TMT human capital (Wright, Hmieleski, Siegel, & Ensley, 2007). This paper offers insight into how board structure and characteristics influence TMT human capital and identifies various effects of board composition on TMT industry- and firm- specific human capital. Outsiders have differing impacts on such human capital, and a balanced number of outside and inside board members is the most effective combination regarding the acquisition and development of TMT human capital in young firms. Another contribution to human capital literature is operationalizing market value of industry- and firm-specific human capital. This is challenging; human capital is intangible and cannot be measured directly. Studies often use tenure, experience, and education as proxies for human capital, yet these may not reflect the true value of human capital. The contribution of human capital to a firm's valuation may better capture the intangible market value of human capital.

For board composition research, these results indicate board composition has important implications for TMT human capital in young IPO firms. Numerous studies examine boards' impact on firm outcomes, but results are ambiguous (Dalton et al., 1998). Scholars call for more fine-grained research on board effectiveness. Boards of young firms undergoing IPO are under-researched (Baker & Gompers, 2003; Fiegener, 2005; Filatochev, 2006), and the present work demonstrates that board composition influences a firm's ability to attract and develop TMT human capital. Nonetheless, board composition's influence is complicated and may differ depending on the type of TMT human capital. Particularly, outside board members may help attract and recruit TMT members with industry-specific human capital while adversely affecting TMT member discretion and commitment to developing firm-specific human capital.

These findings have practical implications for stakeholders as they configure their boards. Recent mandates require a majority of outsiders, but young firms can configure their boards so as to be as balanced as possible in order to strengthen their ability to acquire and develop TMT industry- and firm-specific human capital, which appears critical for survival and growth (Pennings et al., 1998; Reed et al., 2006). Firms should structure their boards depending upon

their needs for different types of TMT members. Specifically, if a firm tries to acquire TMT industry-specific human capital, it should structure its board with more outside directors. On the other hand, a firm attempting to develop TMT-firm specific human capital should structure its board with fewer outside directors. Our results also suggest outside directors with industry experience and venture capitalist participation are beneficial for building up TMT human capital.

Several limitations may be rectified in future research. This project draws on corporate governance and organization theories in conjunction with human capital theory to identify effects of board composition on TMT human capital. Other theories may help further explain boards' effects, and not all possible implications of the theories employed have been explored. Future research can develop a more complete framework to integrate different theories to explain the impact of board composition on TMT human capital as well as the impact of boards on various firm outcomes. Another limitation of this study entails development of the market value of TMT industry- and firm-specific human capital. Attempts were made to capture the intangible market value of TMT human capital by calculating its contribution to firm valuation (market-to-book value). Several factors contributing to firm valuation were controlled to extract the contribution of TMT human capital. Future studies may identify other factors contributing to firm valuation as well as further develop the operationalization of human capital.

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CORPORATE GOVERNANCE IN DUAL-CLASS FIRMS: EXPLORING THE EFFECT OF THE SARBANES-OXLEY ACT ON OWNERSHIP STRUCTURE

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ABSTRACT

The security-voting structure and its effect on insiders' incentives and shareholder value is an understudied phenomenon in the corporate governance literature. This paper uses a comprehensive list of dual-class firms compiled by Gompers, Ishii, and Metrick (2009), and proposes a methodology to examine the effect of The Sarbanes-Oxley Act (SOX) on the ownership structure. Dual-class ownership structure, as it violates the one share – one vote principle of corporate governance, is an ideal setting to examine the effectiveness of SOX, which also caused a debate on the corporate governance literature. In line with the expectation that SOX reduces the value of superior voting rights for insiders, comparing the ownership structures of dual-class firms before and after SOX will provide insight as to whether the corporate governance provisions of SOX reduce the insiders' incentives to maintain the dual-class structure.

INTRODUCTION

The fundamental principle of corporate governance prescribes that shareholders elect directors, who in turn represent the shareholders and protect their interests, and establish basic policies to maximize the shareholder wealth consistent with the expectations of the firms' owners. As Monks and Minow (1995, p. 178), put it: "the survival and strength of any corporation depends on a balance of two distinct powers: the power of those who own the corporation and the power of those who run it."

Despite separation of ownership and control, the one share-one vote structure of most U.S. public firms ensures that shareholders who supply equity capital have the equal opportunity to influence corporate decisions (Burkart & Lee, 2008). However, about 6% of publicly traded firms in the United States violate the one share-one vote structure by adopting a dual-class ownership where corporate insiders control disproportionately higher voting rights than their cash flow rights, thus retaining superior control over corporate decisions while having a relatively smaller proportion of equity ownership (Gompers et al., 2009).

A typical dual-class company has two classes of stocks with different voting and cash flow rights attached to each class. Superior voting class typically represents10 votes per share while the inferior (common) stock carries one vote per share. Furthermore, superior voting shares are owned mostly by corporate insiders, thus resulting in a significant divergence between corporate insiders' voting and cash flow rights. In many dual-class firms, ownership of superior voting

stocks provide insiders with the majority of voting rights despite the minority of their equity ownership. Superior voting stocks held by insiders convert automatically into inferior voting stock and lose their voting rights upon the sale of this stock to a person or entity other than a permitted transferee such as members of the board, family members and relatives in order to prevent the loss of control to another individual or party.

In response to corporate scandals such as Enron, Tyco and WorldCom which included accounting malpractices, corporate misconduct and loans to corporate insiders, as well as increased public pressure and shareholder activism, the Sarbanes-Oxley act (SOX) became law on 30 July 2002. The purpose of SOX was to enhance corporate governance by imposing several provisions such as independence of audit committee members, disclosure of internal control audits by managers, prohibition on insider loans, increased penalties for corporate fraud, and more detailed reporting to Securities and Exchange Commission (SEC). SEC also collaborated with New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotation System (NASDAQ) in order to impose new governance requirements that parallel those mandated by SOX.

While SOX doesn't explicitly address the share structure of listed firms, the corporate governance provisions intend to align the incentives of corporate insiders with those of shareholders. Specifically, corporate governance provisions of SOX include audit committee of the board of directors, prohibition on insider loans, internal control audits, CEO and CFO certification of financial statements, higher penalties for forging documents and more timely disclosure of equity transactions by corporate insiders (Coates, 2007). As for the dual-class firms, corporate governance provisions of SOX are expected to reduce the dual-class insiders' incentives to extract private benefits, thus reducing the value of voting control retained by insiders through ownership of superior voting stocks (Arugaslan, Cook, & Kieschnick, 2009).

In this study, we propose to examine the impact of SOX on the ownership structure of dual-class firms in the post-SOX years. If the corporate governance provisions mandated by SOX do indeed decrease the value of superior stock ownership of corporate insiders, the enactment of SOX might also reduce the incentives of these very same insiders to keep dual-class structure in the post-SOX years (Arugaslan et al., 2009). Consequently, the corporate governance provisions of SOX may cause: (1) dual-class firms to recapitalize into one-vote one-share structure by eliminating the superior-voting stocks, (2) dual-class insiders to reduce ownership of superior voting stocks (3) dual-class firms to go private only if costs to the dual-class firm imposed by SOX governance provisions exceed the benefits to the shareholders as a result of these provisions.

Based on the comprehensive list of dual-class companies over the 1994-2002 period created by Gompers, Ishii and Metrick (2009), this paper proposes to calculate the number of dual-class to single-class recapitalizations, and dual-class to going private decision in the pre and post-SOX years by extending Gompers et al.'s sample to 2008. Specifically, the impact of SOX will be measured by comparing the predicted values of: (1) frequency of dual-class to single-class

recapitalizations; (2) dual-class insider ownership of superior voting stocks; (3) divergence between insider voting and cash flow rights; and (4) frequency of going private decisions, to the actual corresponding post-SOX. Predicted values will be obtained from time-series extrapolations of the pre-SOX values from 1994 to 2001. Deviations from the predicted values obtained from the historical pre-SOX data would highlight whether changes in the Post-SOX era were different from trends already in place before the passage of Sarbanes-Oxley act, and SOX had significant effect on the ownership structure of dual-class firms (Linck, Netter, & Yang, 2009)

The remainder of this paper is organized as follows: Next section reviews the existing related literature and discusses the conceptual foundations, Literature review is followed by the methodology section. The paper concludes with directions for future research.

Conceptual Foundations

From a corporate governance standpoint, allocation of voting rights among shareholders has significant implications as it affects the alignment of owners' and managers' interests by modifying the balance between voting power and economic incentives. In fact, separating ownership from control has been considered as the main source of agency problems between corporate managers and shareholders, and its impact on firm value and performance has been studied extensively (e.g. Linck et al., 2009; Morck, Shleifer, & Vishny, 1988).

From a theoretical perspective, leveraging insiders' voting power can, on one hand, increase the efficiency and effectiveness of decision making and strategy execution, as in the case of investment decisions costly or difficult to communicate to the outside shareholders (Arugaslan et al., 2009; Burkart & Lee, 2008). Inflating the voting power of a controlling block (e.g. dual-class ownership structure), however, can also intensify agency conflicts as it potentially allows for extraction of private benefits and/or entrenchment. On the other hand, centralizing power in the hands of insiders also constitutes defense against hostile takeovers, which is also considered a constraint on value maximization as it prevents control from being allocated to the "…most efficient party." (Burkart & Lee, 2008)

Several empirical studies link higher divergence between voting rights and equity to agency problem, managerial entrenchment, and firm performance. For instance, (Bebchuk, Kraakman, & Triantis, 2000) have found that separating control from cash flow rights created agency costs, such as distortions in investment decision, extraction of private benefits, and choice of inefficient projects geared towards increasing the private benefits of control by insiders. The divergence between corporate insiders' voting and cash flow rights has also been shown to increase agency costs due to aggravated agency conflicts and managerial entrenchment, thus reducing firm value and performance (e.g. Gompers et al., 2009; Masulis, Wang, & Xie, 2009). More specifically, analyzing the dual-class firms in the U.S. using the dual-class firm list collected by Gompers et al., Masulis, Wang, & Xie (2009) show that corporate cash-holdings are worth less to outside shareholders, CEOs receive higher levels of compensation, and managers are more likely to make shareholder-value destroying acquisitions and capital expenditures that contribute less to shareholders' wealth. In other words, the results of Masulis et al. suggest that the divergence

between insiders' voting and cash flow rights reduces shareholder value as a result of higher levels of private benefit extraction by corporate insiders in dual-class firms in the United States. Furthermore, Gompers at al. (2009) have found an inverse relationship between firm value and dual-class insiders' voting rights, and a direct relationship between firm value and insiders' cash flow rights.

As evidenced above, the dual-class structure and its effect on firm value and performance has been widely discussed in the corporate finance literature. However, the same is not necessarily the case for the management literature. Although several studies in corporate governance literature investigate the effect of board size, independence, and interlocking directorates on firm performance and shareholder value , the board composition, more specifically the divergence of voting power and equity, and its corporate governance implications in terms of firm performance and value are not investigated from a management perspective.

Indeed, the disproportion of voting and equity rights of insiders in dual-class firms poses unique issues and challenges for corporate governance. According to Monks and Minow (1995, p. 178), "the survival and strength of any corporation depends on a balance of two distinct powers: the power of those who own the corporation and the power of those who run it." The dual-class structure is unique in that it violates the one share – one vote principal in such a manner that it allocates power to a group of insiders who hold relatively smaller equity in relation to their voting (and therefore control) power. Inflating the control power of an individual or a group within the board creates opportunities for abuse while reducing accountability as it creates a structure in which the insiders can find it more convenient to collude with the agents at the expense of the general shareholders.

Given the board's primary responsibility to ensure a structure and conduct that best aligns the principal's and agent's interests (Monks & Minow, 1995), a corporate structure that allows the possibility of formation of a powerful individual or group that possesses control over the board decisions can severely undermine fair representation of shareholders and reduce firm performance (Monks & Minow, 1995). Alleviating the impact of the potential losses in equity while inflating the control power of an individual or a group creates opportunities for abuse as it disrupts the balance within shareholders.

The above is evident in the recent corporate scandals which included accounting malpractices, corporate misconduct and loans to corporate insiders. In partial response to the corporate scandals and the entailing corporate malfeasance, the congress enacted the Sarbanes-Oxley act (SOX) on July 30, 2002, and enhancing corporate governance was one of its five main objectives (Linck et al., 2009). Specifically, the corporate governance provisions of SOX entail independence of audit committee members, disclosure of internal control audits by managers, prohibition on insider loans, increased penalties for corporate fraud, and more detailed reporting to Securities and Exchange Commission (SEC).

SEC also collaborated with New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotation System (NASDAQ) in order to impose new governance requirements. These corporate governance provisions include majority of independent directors

on boards, independent compensation, nominating and audit committees, and independent board committees that elects new directors. The valuation impact of SOX cannot be identified separately from the provisions imposed by NYSE and NASDAQ as both SOX legislation and exchange regulations are approved in 2002.

However, according to Chhaochharia and Gristein (2007, p. 1789) whether the provisions of SOX will improve the effectiveness of monitoring and firm value is unclear. Indeed, both positive and negative effects are reported in the literature (cf. Li, Pincus, & Rego, 2008; Romano, 2005). This study contributes to the corporate governance literature as it explores the effect of SOX on the ownership structure of dual-class firms. Evidence to the existence of such an effect is the necessary prerequisite to an attempt to explain it.

METHODOLOGY

Sample

Pre-Sox and Post Sox Dual-Class Sample

The initial sample of dual-class firms for the pre-Sox period this paper is obtained from Gompers, Ishii and Metrick (2009) comprehensive dual-class companies list created over the 1994-2002 period. This dataset provides information on the ownership levels of corporate insiders' for each class of share, voting rights attached to each class, and outstanding shares. We merge this dual-class data with Compustat to get financial data for the listed dual-class firms. Financial institutions (SIC code 6000-6999) and utilities companies (SIC code 4910-4949) are excluded.

Descriptive Statistics

Following the merge of Gompers et al.'s comprehensive dual-class companies list with Compustat on GVKEY (Standard and Poor's Identifier) and Fiscal year, and eliminating financial institutions and utilities companies, we are left with 622 dual-class firms and 3078 firm-year observations.

Panel A of Table I provides information on the number of dual-class firms between 1994 and 2002, with the number of dual class firms ranging between 101 and 404. Panel B of Table I show some examples of U.S. dual class companies.

Table I: Descriptive Statistics

Panel A: Number of firms

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of Dual-Class Firms	101	339	367	399	404	399	396	360	313
Two Classes of Stock	94	317	343	379	388	385	377	342	297
More than two-classes of Stock	7	22	24	20	16	14	19	18	16

Panel B: Example Dual-Class Companies

AARON RENTS	HERSHEY FOODS	LITHIA MOTORS	READERS DIGEST ASSOCIATION
ABERCROMBIE & FITCH CO	Hertz Corp	New York Times	TIMBERLAND
AMERICA WEST AIRLINES INC	INGLES MARKETS	Nike	TIME WARNER
COMCAST	JM Smucker	PEPSI	TYSON FOODS
Coca Cola	K SWISS	PLANET HOLLYWOOD	UNITED AUTO GROUP
Dillard's	KRAFT FOODS	PLAYBOY	UNITED PARCEL SERVICE
FORD	LAMAR ADVERTISING	POLO RALPH LAUREN	VIACOM
HEICO	LAUDER ESTEE	RADIO ONE INC	Washington Post

Panel A provides information on the number of dual-class firms between 1994 and 2002. Two Classes of Stock represents dual-class companies with two classes of stock outstanding (superior and inferior voting stocks). Panel B shows examples of U.S. dual class companies.

Table II provides the distribution of Fama-French (Fama & French, 1997) industry classification of dual-class companies in 2002. Dual-Class firms are mostly clustered in telecommunications, business services and retail industries.

Table II. Distribution of Dual-Class Companies in 2002 by Fama-French (1997) Industry Classification

Industry	Number of Firms	Industry	Number of Firms
Agriculture	3	Electrical Equipment	4
Food products	10	Automobiles and Trucks	7
Candy & Soda	1	Aircraft	4
Beer & Liquor	6	Non-Metallic and Industrial Metal Mining	3
Toys& Recreation	1	Petroleum and Natural Gas	2
Entertainment	10	Telecommunications	45
Printing and Publishing	16	Personal Services	4
Consumer Goods	7	Business Services	28
Apparel	12	Computers	8
Healthcare	3	Electronic Equipment	14
Medical Equipment	3	Measuring and Control Equipment	3
Pharmaceutical Products	10	Business Supplies-Paper	5
Chemicals	0	Shipping Containers	1
Rubber and Plastic Products	4	Transportation	10
Textile	4	Wholesale	14
Construction Materials	9	Retail	23
Construction	5	Restaurants, hotels, etc	5
Steel Works	3	Other	4
Machinery	7	Total	298

Ownership Structure of Dual-Class Companies

Panel A of Table III shows the mean and median voting and cash flow rights of dual-class corporate insiders where corporate insiders shares are defined as the shares owned by officers, directors, shares identified as being under the control or influence of an officer or director regardless of beneficial ownership. On average, dual-class insiders own majority of the voting rights while having significantly lower equity capital ownership. Voting rights of dual-class insiders range from 59% to 62% between 1994 and 2002, whereas their cash flow rights range from 34% to 40%.

Panel B of Table III provides information on the percentage of each class of share owned by corporate insiders. On average, more than 80% of total outstanding superior voting stocks are held by insiders in dual-class companies. However, insider ownership of inferior voting stocks ranges from 19% to 25% of total inferior voting stocks outstanding between 1994 and 2002.

Panel A shows the mean and median voting and cash flow rights of dual-class corporate insiders where corporate insiders shares are defined as the shares owned by officers, directors, shares identified as being under the control or influence of an officer or director regardless of beneficial ownership. Panel B provides information on the percentage of outstanding superior and inferior voting stocks owned by corporate insiders. Panel C shows the mean and median percentage of insider voting and cash flow rights provided by superior and inferior voting stock ownership of dual-class insiders.

Panel C of Table III shows the mean and median percentage of insider voting and cash flow rights provided by superior and inferior voting stock ownership of dual-class insiders. Dual-Class Insiders' total voting rights come mostly from ownership of superior voting stocks. On average 54% of insiders voting rights is provided by ownership of superior voting stocks, whereas only around 7% of voting rights are coming from inferior stock ownership of these insiders. On the other hand, cash flow rights of insiders (equity capital ownership) are coming mostly from superior voting stock ownership compared to inferior voting stock ownership. Overall, these results show that corporate insiders are retaining control over the company through ownership of superior voting stocks while having a significantly lower level of ownership in the inferior voting stocks.

Table III: Voting and Ownership Structure of Dual-Class Firms between 1994 and 2002

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Panel A: Voting and Cash Flow Rights of Insiders in Dual-Class Companies									
Insider Voting Rights									
Mean	59.42%	61.43%	60.51%	60.42%	60.22%	60.74%	61.05%	61.98%	59.34%
Median	66.30%	64.78%	64.30%	64.58%	64.89%	64.56%	64.78%	65.87%	62.74%
Insider Cash Flow Rights									
Mean	34.89%	40.71%	40.33%	40.61%	40.06%	40.24%	40.20%	40.11%	37.09%
Median	32.53%	38.72%	38.05%	37.09%	37.33%	38.28%	37.12%	37.79%	33.41%
Panel B: Percentage of Outstanding Superior and Inferior Voting Stocks owned by Insiders									
Superior Voting Stocks									
Mean	78.03%	81.59%	81.26%	80.95%	83.35%	79.13%	79.56%	81.53%	80.77%
Median	87.12%	89.60%	89.51%	91.94%	94.10%	94.95%	96.16%	96.81%	96.61%
Inferior Voting Stocks									
Mean	19.47%	25.84%	25.84%	24.41%	25.58%	25.49%	25.28%	24.89%	23.08%
Median	15.24%	17.13%	16.94%	15.70%	15.37%	15.48%	16.29%	15.62%	15.89%
Panel C: Percentage of Dual-Class Insiders' Voting and Cash Flow Rights provided by Type of Share									
Insider Voting Rights From Superior Voting Stock Ownership									
Mean	53.41%	54.53%	53.39%	53.46%	53.55%	53.78%	54.24%	54.84%	53.01%
Median	58.87%	58.51%	57.60%	57.29%	57.13%	57.88%	58.76%	59.65%	57.50%
Insider Voting Rights From Inferior Voting Stock Ownership									
Mean	6.01%	6.90%	7.12%	6.96%	6.68%	6.96%	6.81%	7.14%	6.33%
Median	2.62%	2.26%	2.47%	1.90%	2.10%	2.24%	2.25%	2.90%	2.57%
Insider Cash Flow Rights From Superior Voting Stock Ownership									
Mean	20.83%	24.52%	23.77%	25.28%	25.12%	24.98%	25.03%	24.29%	22.47%
Median	17.40%	20.33%	19.80%	19.27%	18.85%	18.84%	18.68%	17.89%	16.66%
Insider Cash Flow Rights From Inferior Voting Stock Ownership									
Mean	14.07%	16.19%	16.56%	15.34%	14.95%	15.26%	15.16%	15.82%	14.61%
Median	10.28%	11.91%	11.74%	10.14%	9.57%	9.94%	9.39%	10.18%	9.03%

Statistical Procedures

This study will calculate the number of dual to single-class recapitalizations, and dual-class to going private decisions in the pre and post-SOX eras, and extend Gompers, Ishii and Metrick (GIM,2009) comprehensive dual-class companies list created over the 1994-2002 period *to 2008.* The impact of SOX on dual-class ownership structure will be measured by comparing the predicted values of: (1) frequency of dual-class to single-class recapitalizations; (2) dual-class insider ownership of superior voting stocks; (3) divergence between insider voting and cash flow rights; and (4) frequency of going private decisions, to the actual corresponding post-SOX values. Using the actual pre-SOX values in 1994-2001 period, we will obtain predicted values

from 2002 to 2008 (post-SOX years) from time-series extrapolations. We focus on 1994-2008 period as this would allow approximately equal time period for pre- and post-SOX years. .Deviations from the computed predicted value obtained from the historical pre-SOX data would highlight whether changes in the Post-SOX era were different from trends already in place before the passage of Sarbanes-Oxley act, and whether SOX had a significant effect on the ownership structure of dual-class firms. (Linck, 2009).

CONCLUSION

Allocation of voting rights among shareholders represents significant corporate governance implications as it affects the alignment of owners' and agents' interests. The fact that the dual-class ownership structure allows for a controlling block by creating a divergence between voting and cash flow rights of a group of shareholders not only undermines fair representation of the shareholders, it may also inhibit the ability of the board to ensure a structure and conduct that best aligns the principal's and agent's interests.

This study is a first attempt to describe the effect of the corporate governance provisions of SOX on the ownership structure of dual-class firms. Revealing how insiders with leveraged voting power responded to SOX will provide insight as to whether SOX was effective in its objective of enhancing corporate governance. This study represents the first step of the authors' aim to explain the relationship between ownership structure and firm performance, as well as shareholder value. Future research efforts in this domain need to be pointed towards explanatory studies that explain the relationship between disproportionate ownership structures and firm performance and shareholder value, a corporate governance stream which remains under-investigated.

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STORIES AND DECISIONS: THE ROLE OF NARRATIVE INFORMATION IN STRATEGIC DECISION MAKING

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ABSTRACT

Decision makers require information to make effective strategic decisions. However, information is not homogeneous in its form. This paper draws on narrative theory to examine the role of narrative forms of information in strategic decision making. The author proposes that a particular characteristic of the narrative form, its vividness, drives narratives' influence in strategic decisions. In addition, the author identifies a moderator of the relationship between narratives and strategic decision making: the stability of the decision making environment. Specifically, it is argued that the increased use of heuristics in unstable environments causes narratives' influence to be greater than in stable environments. Finally, a lab-based study is proposed to test the paper's hypotheses.

Decision makers require information to make effective strategic decisions (Lozada & Calantone, 1997; March, 1987). In fact, decision-specific information, which can be defined as knowledge communicated or received concerning a particular decision, is arguably the foundation of the strategic decision making process (Frishammar, 2003). Decision-specific information (hereafter referred to as simply "information") is critical to decision making because the information available to decision makers, when coupled with their cognitive and affective dispositions, determines what problems are identified, what solutions are considered, and, ultimately, what decisions are made (March, 1994).

However, information is not homogeneous (Engelberg, 2003). It most commonly differs in its content, that is, in the subject it pertains to (Wojciszke et al., 1993). But information can also differ in other dimensions, such as in its structure (Lurie, 2004), form (Winterbottom et al., 2008), and quality (Keller & Staelin, 1987). These differences cause information to also not be homogeneous in the effect it has on strategic decision-making (Frishammar, 2003). For instance, depending on the nature of the decision or the decision's particular context, not only will some information *content* be perceived by decision makers as more or less relevant, but some *forms* of information will be more or less influential in the decision making process. Yet few studies in strategic decision making have examined the influence of different dimensions of information and the ones that have done so have focused on information content (e.g. Walters et al., 2003) and source (e.g. Hendron & Fredrickson, 2009) but have not examined the influence of information form. This omission in the literature is critical because information form, and specifically the extent that information is of narrative or non-narrative form, has been shown to influence decision makers in numerous other contexts, such as medical and health decision making (Greenhalgh, 1999), law and criminal justice (Pennington & Hastie, 1986), and accounting (Smith & Taffler, 2000). And, it will be argued that differences in information form, and particularly differences in the narrativeness of information, also influence strategic decision makers.

Information in narrative form is influential in strategic decision making because, as will be argued, narrative information is more likely to be selected, retained, and recalled. In decision making, information gathering can be viewed as a type of variation-selection-retention (V-S-R) process (Campbell, 1969). Decision makers are often confronted with a great variety of

information (Dutton, 1993). However particular characteristics of information lead decision makers to notice and select specific pieces of information out of this "sea" of available information. Then, depending on these same characteristics or others, the information is either discarded or retained. The information that is retained can be used for both present and future decision making. As will be described, a key property of narratives, *vividness*, is the characteristic that makes narrative information more likely to be selected, retained, and recalled and, hence, more likely to influence the strategic decision making process than other forms of information.

However, the value of information is context specific (Feldman & March, 1981; Hackner, 1988), which means that the strength of narrative's influence will not be the same across decision making contexts. In particular, it will be argued that the stability of the environment moderates the influence of narrative information on strategic decision making. More specifically, in unstable environments, characterized by uncertainty, ambiguity, and change (Dess & Beard, 1984) narrative information will have a greater influence on the decision making process; whereas in stable environments, the influence of narratives on decision making will be lessened.

The paper's primary focus is thus the examination of two questions: (1) Do the characteristics of narrative information make it more influential than other forms of information in strategic decision making? And, (2) is narratives' influence strengthened in unstable environments and weakened in stable environments? In addressing these questions, the paper proceeds as follows. First, since the topics may be unfamiliar to the strategy literature, a review of the relevant literatures on narrative and non-narrative information and vividness are provided. Next, theory is developed detailing the hypothesized relationship between narratives, decision making, and environmental stability. Finally, the paper's theoretical contributions, as well as directions for future empirical research, are described.

LITERATURE REVIEW

Narrative and non-narrative information

A narrative can be defined as a collection of events, actions, or experiences ordered in a temporal sequence and imbued with a causal explanation (Onega & Landa, 1995). Based on this definition, narratives are characterized by the possession, or co-occurrence, of two components: temporality and causal explanation (Elliot, 2005)[10]. The first element, temporality, gives narratives the ability to order a collection of events by placing them in a temporal sequence (Shaw et al., 1998). Whereas the causal component, commonly referred to as a "plot", is the organizing theme that identifies the relationships between the individual events or experiences (Polkinghorne, 1988). A plot structures events so that they build on each other in a way that clarifies how each event contributes individually and as part of a whole. In this way, the plot provides the "intelligible whole that governs the succession of events" (Ricouer, 1981: 167).

Figure 1: Proposed Model

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[10] It should be noted that many would regard this as a "minimal" definition of a narrative. For instance, in addition to temporality and plot, Burke (1969) expands this definition and also requires: an actor, an action, a goal, a scene, and an instrument. While other definitions require that the discourse include specific types of characters (e.g. a protagonist), a disruption of the status quo, or other literary devices (cf. Altman, 2008). However, I would argue that the above definition is sufficient for the purposes of this analysis.
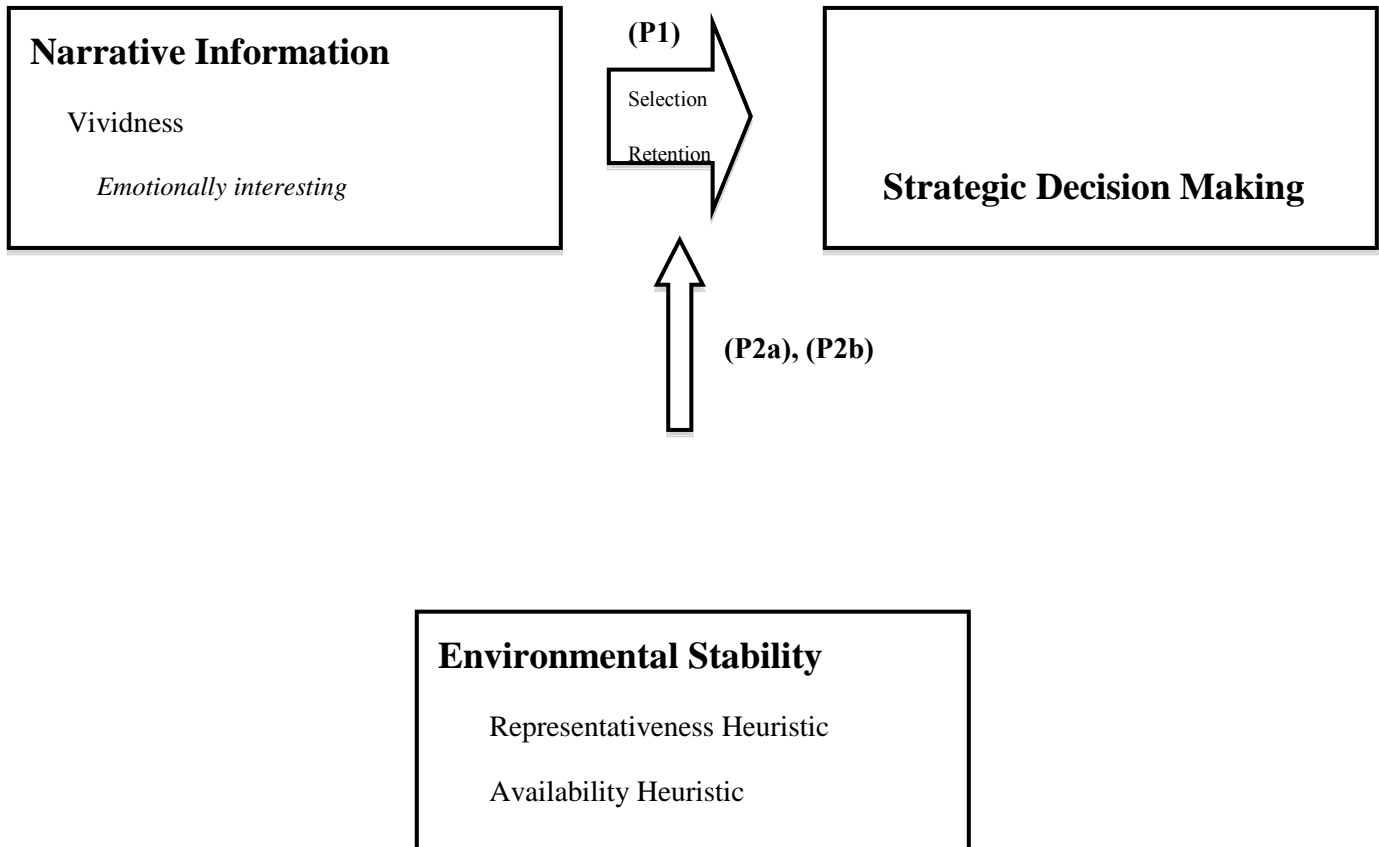
There are several types of   narrative information, including stories, personal testimonies, scenarios, and anecdotes[11]. Narrative information is contrasted with non-narrative information, such as numerical indices, objective facts, statistical estimations, technical arguments, and abstract data (Witt et al., 2008). The fundamental difference between these two forms of information is that non-narratives lack the co-occurrence of temporality and causal explanation (or plot) described above, which define narratives. To illustrate this difference, consider the information available to a strategic decision maker, say a CEO, faced with an acquisition decision. The CEO will likely have access to several non-narrative sources of information including the financial characteristics of the target firm, such as the firm's return on assets (i.e. numerical indices), the general attributes of the target firm, such as its number of

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[11] Of course this is not an exhaustive list. There are several other types of narratives, such as myths, parables, and folktales. However, these are arguably less germane to strategic decision making and so have been omitted from the analysis.

employees (i.e. objective facts), specific predictions about the outcome of the merger, such as the likelihood of experiencing combination synergies (i.e. statistical estimations), and measures of the relatedness of the firms' knowledge bases or product portfolios (i.e. abstract data). However, the CEO may also be confronted with narrative forms of information, such as stories about the ingenuity of the target firm's inventors, anecdotes about the trials and tribulations of a rival firm making a similar acquisition, or informal accounts of the competence (or incompetence) of the target firm's top management team.

On the surface it may seem that the primary difference between these two types of information is that the non-narrative set is "hard" data, consisting primarily of numbers and "objective" information, while the narrative set is comprised of "soft", "subjective" data. However, while this may be the case in the examples provided, the fundamental difference is not necessarily this clear cut. For instance, returning to the context of the acquisition example provided above, the prospects of making an acquisition may remind the CEO of the story of a similar acquisition, which despite several promising financial indicators had the unexpected result of causing the firm's stock price to fall by 5% in the three subsequent post-merger quarters. This illustrates that a narrative can contain "hard" data and that it is the information form, and not its particular content, that divides narrative from non-narrative information.

Specifically, this second example illustrates that the more fundamental difference between these two types of information is that non-narrative information lacks the temporality and plot of narrative information. For instance, a collection of numerical indices describing the financial characteristic of a firm will contain neither a time-based ordering nor a causal explanation that details how the indices relate to one another or, more importantly, what they imply as a whole. Even if the series of indices contain measures of the firms' profitability for each of the last five years (i.e. is temporally ordered), there is still no unifying theme that explains, say, why the indices are trending up or down, or what the general conclusion is that a decision maker should glean from these figures. This is not to say that a decision maker could not glean from a collection of financial indices what temporal order the indices should be placed in or what they mean as a whole for a given decision, but simply that this extension of the information is not "packaged" within the information itself. More generally, this highlights that information that is structured in the form of lists (of indices, facts, etc.), which contain neither temporality nor plot, and information that is structured in outline form, which may contain temporality but does not include causal explanation, are non-narrative rather than narrative forms of information.

The dissimilar influence of narrative and non-narrative information

Several streams of research have examined the fundamental difference between narrative and non-narrative forms of information, a difference that been referred to as the distinction between narratives and 'lists' (Browning, 1992), 'technical argumentation' (Weick and Browning, 1986), 'propositional generalizations' (Baumeister and Newman, 1994), and the 'paradigmatic mode' (Bruner, 1986). However, in addition to examining the difference between narratives and non-narratives, a number of literatures have also focused on the differential effect of these two types of information on decision makers. Disciplines as disparate as law and criminal justice (e.g. Maynard, 1988), accounting (e.g. Smith and Taffler, 1995; Smith and Taffler, 2000), organizational communication (e.g. Henry, 2006), medicine (e.g. Greenhalgh,

1999), and public health (e.g. Greene and Brinn, 2003) have found that narratives and non-narratives have a dissimilar influence on decision making. For instance, findings suggests that information in narrative form can have a stronger influence than non-narrative information on: jurors' verdicts (Pennington & Hastie, 1993), individuals' decisions regarding medical treatment and health related activities (Greene & Brinn, 2003), analysts' business forecasts (Sedor, 2002), investors' responses to shareholder reports (Jamison, 2000), and even individuals' decisions about the risk associated with toxic substances (Golding et al., 1992). The differential effect of narrative versus non-narrative information in these contexts is attributed to several specific qualities of narrative information that are not qualities of non-narrative information. These qualities include narrative's concreteness (Enkin & Jadad, 1998), intuitiveness (Kopfman et al., 1998), and emotionality (Baesler & Burgoon, 1994). However, it will be argued that there is one overarching quality of narrative information – vividness – that causes narratives to be particularly influential in the strategic decision making process. Vividness is critical because it influences three key processes: information selection, retention, and recall. These processes are important in most decision contexts; however, they are especially salient in strategic decision making, where individuals are often faced with information "overload" (Edmunds & Morris, 2000), where environments are complex, ambiguous, and volatile, and where there is often no precedent to serve as a guide (Schwenk, 1984).

In the next section, specific arguments are presented; the first relates the vividness of narrative information to the influence the information has on the strategic decision making process, while the second examines the relationship between vividness, information influence, and the stability of the environment.

THEORY AND HYPOTHESES

Vividness and narrative information

Information is described as vivid (or said to possess vividness) if it has four qualities; it must be (1) emotionally interesting, (2) concrete (rather than abstract), (3) imagery invoking, and (4) proximate (i.e. its content is "close" to the perceiver in some way) (Nisbett & Ross, 1980). Vividness is a property of information that is a product of the qualities of the information itself (Taylor & Thompson, 1982). Two qualities that can lead to vividness are temporality and causal explanation (or plot). This makes narrative information more likely than non-narratives information to be vivid (Kazoleas, 1993; Cortazzi, 1993). In fact, narratives have consistently been found to be more concrete, to invoke more imagery, and to be more emotionally interesting, than non-narrative information, such as statistics, which are often perceived as "abstract, dry, and pallid" (Baesler & Burgoon, 1994, p. 585).

The vividness of narrative information is consequential for strategic decision making because it will cause some information to be more influential in the decision making process than other information. Specifically, the vividness of narratives will influence three elements of information processing: selection, retention, and recall. Each of these processes will be examined in turn.

Information selection

Executives faced with a strategic decision are often confronted with an overwhelming amount of information (Kuvaas, 2002). At the same time, these decision makers are equipped with limited attentional capacity (Schwenk, 1984). This cognitive limitation, coupled with "information overload" (Edmunds and Morris, 2000), means that executives cannot give equal attention to, or attempt to process, all of the information available to them. This suggests that information must stand out in order to be selected from the pool of available information. The vividness of narrative information makes it more likely to be selected for at least two reasons. First, narrative information is more likely to attract and hold attention (Nisbett & Ross, 1980). Narratives elicit attention because of their emotional appeal and their ability to invoke imagery (Wit et al., 2008). This means that individuals faced with a decision will be more likely to select those pieces of information that resonate with their emotions and that contain imagery that grabs their attention. Second, narrative information is more likely to be selected because the concreteness and proximateness of vivid information makes it more accessible than abstract forms of information (Baesler & Burgoon, 1994). In other words, the easier it is for individuals to understand a piece of information, the more likely it is to be selected. In contrast, non-narrative information, which generally does not possess the qualities necessary to be considered vivid, will not be as likely to attract attention, to be accessible, or to maintain interest (Kazoleas, 1993). Therefore, when faced with a "sea" of available information, vividness will cause a decision maker to be more likely to notice, to grant attention to, and ultimately, to select narrative information for consideration.

 Information retention

Simply because a piece of information is noticed and then selected from a pool of available information does not mean that the information will not be subsequently discarded. Rather, for information to influence the decision making process it must not only be selected, but also retained. More specifically, to be influential information must be encoded into an individuals' schema, or mental model.

The vividness of narratives influences retention and, specifically, encoding, through two different, albeit related, processes: indexing and imaging (Peterson, 1999; Tannen, 1989). As information is incorporated into a decision maker's schema its contents are indexed. Indexing involves information being attached to, or bundled with, other elements of an individual's existing knowledge base. Vividness makes narrative information more effectively indexed than non-narrative information for two reasons. First, vivid information is more indexable because it often contains a greater number of ties or "links" to the existing elements of an individual's schema (Peterson, 1999). Moreover, these ties tend to be stronger than the ties associated with non-vivid information. In contrast, there are not as many ways to index non-narrative information, such as abstract data, to an individual's existing schema, in part, because it lacks the concreteness of vivid narratives (Tannen, 1989). Second, the emotional interest of vivid narratives is also associated with indexability. Specifically, the more emotionally interesting a given piece of information, the greater its indexability (Taylor & Thompson, 1982).

The second process through which the vividness of narratives influences information retention is imaging. Vividness influences imaging because, almost by definition, it is easier for individuals to form mental representations of image-laden vivid content (Nisbett & Ross, 1980).

Vividness also helps the perceiver to form a more *complete* mental image of the contents of the information (Taylor & Thompson, 1982). Further, vividness's influence on imagability also has implications for information's indexability. In particular, information that is particularly imageable, such as narratives, has been found to be better indexed during information processing because high-image information is more easily "linked" with existing information in an individual's schema (Tannen, 1989). The imageability of narrative information is contrasted with non-narrative information, which is not as likely to activate connections to networks of similar information and is less likely to be indexed (Baesler & Burgoon, 1994). Therefore this information is not as likely to be retained[12].

Narrative's effect on the dual processes of indexing and imaging will be particularly strong in strategic decisions. Since strategic decisions are rare and often lack a precedent, individuals faced with a strategic decision will lack the experiences necessary to create a fully developed schema to guide them in decision making (Schwenk, 1984). In fact, if a particular strategic decision occurs very rarely, decision makers may have only a rudimentary mental model to approach the decision. Having a poorly developed mental model means that decision makers will not be able to form detailed mental images regarding the decision nor will they have as many places to index new information. This should have two implications for the use of narrative information. First, in terms of indexing, narrative information may be more appealing to strategic decision makers because, since it is often easier to index than non-narrative information (Peterson, 1999), it may be more readily understood and more readily encoded. This may help decision makers to construct a mental model associated with the decision. Second, narrative information's imageability may provide decision makers with the mental images necessary to form a model of the decision. Narratives will do so by allowing decision makers to imagine, or simulate, experiences with similar strategic decisions that they do not possess firsthand. Both of these features of narrative information, as well as the general influence of narratives on imaging and indexing (described above), will cause strategic decision makers to be more likely to retain such information.

Information recall

Even if information is both selected and retained, this does not mean that it will be available to a decision maker when it is time to actually make an impending decision. For information to be available it must be readily recallable. Narrative information is disproportionately more recallable than non-narrative information because its vividness leaves "an elaborate memory trace" (Wit et al., 2008). In other words, it leaves a more detailed representation in memory. Specifically, as outlined, when vivid content is encoded it often has more ties, or more points of connection, to the elements of an individual's existing schema. These greater ties increase the ease, speed, and volume of recall (Schank & Abelson, 1995; Mandler, 1994). However, Mandler (1994) has argued that information in non-narrative form does not have this property and indeed is more likely to be lost in memory and to be inaccessible for recall.

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[12] In fact, the imageability of narrative information may influence cognition at a more fundamental level: the creation of schema themselves (Haven, 2009). Imageability is critical in schema creation because as Haven (2009) explains, a schema is at its core just a "mental image, produced in response to a stimulus that becomes a framework" (p. 17).

Taken together, the influence of vividness on the likelihood that narrative information will be selected, retained, and recalled leads to the following proposition:

Proposition 1: *Information in narrative form is more likely to influence strategic decision making than non-narrative information.*

ENVIRONMENTAL STABILITY

Although it is argued that the vividness of narratives will make narrative information more influential in the decision making process than non-narrative information, since the value of information is context specific (Feldman & March, 1981) it cannot be assumed that the strength of this influence will be the same in all contexts and across all environments. One difference between environments, which is particularly influential in the context of strategic decision making, is that some environments are more unstable than others (Duncan, 1972). The stability of the environment may influence the strength of narrative information because in unstable environments, characterized by uncertainty, ambiguity, and change (Dess & Beard, 1984), not only can it be difficult to identify critical decision variables, but even if the variables can be identified, it can be difficult for decision makers to develop theories regarding the cause and effect relationships among them (Fredrickson, 1984). Because of these difficulties, decision makers are more likely to use heuristics, or cognitive shortcuts (Schwenk, 1984).

An increased reliance on heuristics will increase narrative information's use because there are three heuristics likely to be used in unstable environments that are naturally associated with narrative information: the availability heuristic, the simulation heuristic, and the representativeness heuristics. First, when individuals must make a decision under conditions of high uncertainty they often rely on the availability heuristic, and make decisions based on "the ease with which instances or associations come to mind" (Tversky & Kahneman, 1973, p. 208). They use this heuristic rather than engaging in a more comprehensive search for information. As argued in the previous section, the vividness of narratives makes them more likely to come to mind than non-narratives. Hence decision makers using the availability heuristic will be more influenced by narrative information because it will be more available in memory than non-narrative information. In addition, in unstable environments narrative information may have greater availability because non-narrative forms of information, such as quarterly financial indices, may not be able to "keep up" with the changing state of the environment. If this is the case, then forms of narrative information such as anecdotes and stories, which are not bound by the same temporal constraints as non-narratives, will be more available to feed into the availability heuristic.

The simulation heuristic involves relying on information based on the ease with which it can be imagined (Tversky & Kahneman, 1974). The heuristic gets its name from the idea that information that is imageable allows individuals to construct a scenario – or simulation – in their minds about how the information might relate to a given phenomenon (Wit et al., 2008). In an unstable environment, where the relationships between variables critical to a decision are unclear (Fredrickson, 1984), the simulation heuristic will be particularly prevalent because decision makers will strive to construct a scenario, or mental model, about how the variables relate. Two of the properties of narratives – high imageability and plot – are conducive to the simulation heuristic. First, a narrative's plot may be particularly appealing to decision makers because, as

described, a plot organizes the elements of a narrative into a temporally and causally coherent whole. It does so by creating an overarching framework for the collection of elements that makes it clear how the elements are connected. In other the words, a narrative will include at least a rough explanation of the cause and effect relationships between the variables it describes. Second, the high imageability of narratives will increase the ease with individuals can create mental models about how the elements of a decision are related. These two properties of narratives cause information in narrative form to be more subject to the simulation heuristic and more influential in situations where this heuristic is invoked.

Finally, decision makers using the *representativeness heuristic* assume that a small sample (often a sample of one) is representative of the entire population (Tversky & Kahneman, 1973). Individuals rely on this heuristic when they are unable to obtain large samples of evidence to aid in their judgments. It can be argued that almost by definition this will be the situation with strategic decisions because the rarity of these decisions makes it unlikely for an individual to be able to form a "large sample" of similar decisions. This problem is augmented in unstable environments, where ambiguity, uncertainty, and changing conditions further prevent decision makers from having large samples of similar events and experiences to base decisions on. If so, then decision makers will be more likely to generalize from a single, vivid narrative to the larger population in which their decision resides (Baesler, 1997).

That the three previously described heuristics are more likely to draw upon narrative information, and that these heuristics are more prevalent in situations of rapid change, high uncertainty, information overload, and complexity (i.e. in unstable environments) suggests the following proposition:

> Proposition 2a. *In unstable environments, the influence of narrative information on strategic decision making will be strengthened.*

Yet not all environments can be characterized as unstable, making it also necessary to consider the influence of narratives on decision making in stable environments. Stable environments, which lack the ambiguity and intense uncertainty of unstable environments, increase the "likelihood that critical decision variables can be identified and allow theories to be developed regarding the relationships among those variables and organizations" (Fredrickson, 1984, p. 447). In these environments decision makers tend to be more comprehensive in their information gathering because the information necessary to be comprehensive is more readily available (Fredrickson, 1984). Increased comprehensiveness, as well as the increased availability of information, means that decision makers will have greater access to, and will be more likely to gather, both narrative and non-narrative forms of information. This will cause decision makers to be less reliant on the heuristics that augment narrative's influence and, hence, to be less influenced by narrative information. If so, then this suggests the following proposition:

> Proposition 2b. *In stable environments, narratives' influence on strategic decision making will be attenuated.*

DISCUSSION

Directions for empirical research

On the surface, operationalizing the paper's constructs and testing its propositions may seem to be an extremely challenging endeavor. Admittedly, the emphasis placed on cognitive constructs and processes makes it difficult to empirically validate the propositions using strictly archival sources. However, a preferred method for examining the proposed relationship between narrative information, strategic decision making, and environmental stability may be a laboratory-based study. The study could be structured, roughly, as follows. Study participants would be assigned to small work group (4-5 members). Each group would receive a scenario describing a strategic decision the group is faced with (e.g. an acquisition decision). Each participant would be given a packet with a predetermined number of index cards. Half of the cards would contain one piece of narrative information concerning the decision (e.g. a story or anecdote), while half would contain a piece of non-narrative information (e.g. financial information). To simulate information selection participants would have to choose a small number of cards to use in the decision making process (the others would be discarded). To simulate retention and recall, participants would be given a predetermined amount of time to "process" the selected cards, after which the remaining cards would be discarded. Narrative's influence on the decision making process would be then be measured based on the number of pieces of narrative and non-narrative forms of information used in the strategic decision (assessed by video-taping and transcribing each group's decision process).[13] Finally, the moderating influence of environmental stability would be manipulated by altering either the decision making conditions each group faces or the content of their scenarios. Although rudimentary, a study similar to what is broadly outlined could serve as a first cut at understanding the relationships proposed.

Theoretical Contribution

In addition to the specific theoretical arguments presented, it is hoped that the paper has made four general contributions. First, despite the "narrative turn" said to be taking place in the social sciences (Atkinson & Delamont, 2006), there have yet to be any studies examining narratives' influence on strategic decision making. By examining how narrative information may be more influential than non-narrative information in the strategic decision making process, this paper is intended to fill this gap and, more importantly, to motivate future research on the role of narratives in strategic decision making. Second, this paper represents an attempt to bridge work that has been done in the *non*-strategic decision making literature, in disciplines such as psychology, law, and medicine, with work on strategic decision making and to integrate and extend the findings of both literatures. Third, in examining the influence of a specific dimension of information on strategic decision making, this paper has placed a unique emphasis on the form, rather than the content or source, of information. Finally, by developing a better

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[13] Instead of using a simple frequency count of information used, an alternative method of measuring narratives' influence would be to provide participants with conflicting narrative and non-narrative information. Specifically, participants would be assigned to three groups: a group receiving narrative information supporting the strategic decision and non-narrative information against it, a group receiving narrative information against the decision and non-narrative information supporting it, and a group where the information did not conflict. Each group's ultimate decision would then be a measure of which information form had more influence.

understanding of narratives' ability to influence the cognition of decision makers this paper has hopefully generated a deeper understanding of the micro-foundations of strategic decision-making.

Concluding Remarks

If the paper's propositions find support then it will suggest that both strategic decision makers and scholars of strategic decision making should be mindful of the vividness of narratives and the influence of narrative information.

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Track: Human Resouces/ Careers/ Gender & Diversity

SUSTAINABLE AND EFFICIENT ORGANIZATIONS: THE CASE OF HANDCRAFTS MICRO BUSINESS IN SOUTHERN SAN SEBASTIAN

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ABSTRACT

In this paper it is analyzed the organizations' sustainability which are committed to the exploitation' activities of tule Thypha spp at the Zapotlán's Lake and its socioeconomic and environmental impact in the municipalities of Gómez Farías and Zapotlán el Grande. The initial hypothesis delimits the consideration of the scarce social capital of the organizations which limits development's sustainability. The research method employed is the ethnographic complemented with field work supported by informal interviews, documental and bibliographic research. The main conclusion is that there is not equilibrium between organization's sustainability due to scarce social capital and environmental and economic development sustainability

KEYWORDS: *Organizational social capital, organizational sustainability, environmental culture, economic development, Zapotlán's Lagoon.*

JEL: D20, L200, L230, 0100, 0120, 0130, Q010, Q500, Q560, Q570, R300, Z100

INTRODUCTION

The new conditions of globalization underlie life conditions and the importance of a generational future as a component of competitiveness. What constitutes globalization is the interaction that changes the scenarios for the individuals, organizations and society, who are constantly hounded by contradictory forces and uncertainties. The appropriate use of natural resources can meet present and future interests, having a change in current practices. In comparison to the economic rationality´s logic that drives the functioning of organizations and has as a lead obtaining maximum present return, before that if natural resources yield greater benefit under their exploitation than taking care of them, they are sacrificed. Thus, the immediate economic profit is the current enemy of the environment.

The ecological proposal in organizations, widen its model of interactions which can integrate the environmental paradigm to the organizational system. An approaching to sustainability of organizations is affected by the combination of ambiguous environmental economic policies, the abrupt adoption of production technologies and market practices. Sustainability in business organizations as an implementation strategy of process reengineering and the adoption of production technologies are oriented toward avoiding waste materials, recycling trash and eliminating toxics.

Lacking acceptance of the role that business organizations play in sustainability, it influences the global debate questioning real causes of pollution which poses safeguards to organizations and justify poverty as the main cause generating environmental degradation. It also suggests as a consequence of deterioration the inadequate economic policies that allow for business actions less friendly with the environment.

This paper sets as aims, firstly to determine the level of organizational sustainability for the environmental and economic development of cutting treatment and exploitation activities of the grass called *tule thypa spp* from the Zapotlán Lake. Similarly, the paper pretends to analyze potentialities and economic benefits derived from a marketing orientation of international business in the making of art craft out of *tule* and *palmilla* (a kind of palm) that growth spontaneously in the Zapotlán Lake. To achieve these objectives, it is drawn a conceptual, theoretical, methodological and contextual reference framework, out of which departs to analyze the case of art craft micro enterprises processing the *tule* in the locality of Southern San Sebastian following the design of a traditional research beginning with the hypothesis formulation. Finally, the results are analyzed and recommendations are formulated.

ORGANIZATIONAL SUSTAINABILITY AND ORGANIZATIONAL SOCIAL CAPITAL

A sustainable organization integrates the ecological vision and the institutional theories in organizational systemic values. The acquisition of a common sense in the production of goods and services is utilized as a stronghold to promote the eco-efficiency as a friendly culture of organizations with their environments to achieve emission reductions and rational exploitation of natural resources.

The environmental variable in organizational culture is inserted as a rational interpretation of the functioning for the environmental protection, reducing insecurity and context's social pressure. Environmental protection is a technical variable composed by other environmental values such as the promotion of environmental caring, environmental risk control, adequate relationship between organizations, and integration of working groups, orientation and permanent staffing on sustainability.

In addition, it is necessary economic instruments to tie sustainable development to micro and small business enterprises. Instruments such as governmental policies, low market tariffs to diminish costs, promotion and incentive of employment opportunities, detection of opportunity areas, etc. are required. Also, it is convenient to have the diagnostic of adaptable enterprises to sustainability because not all of the micro and small business enterprises are capable to form an environmental internal culture.

From the point of view of general theory of organizations, according to Baker y Burt (cited by Portes, 1999:247) study social capital to gain a greater insight, comprehension and understanding of market competitiveness mechanisms, while Joyce (1998) focuses his analysis of social capital in the leadership phenomena. Either the organization or each one of its members can be incorporated as public and private issues to social capital. Thus, from social capital emerge two patterns, the emphasis on public goods and the emphasis on private goods.

Leana y Van Buren III (1999) define organizational social capital as a resource which reflects the character of social relations within the organization, achieved through the levels of members' orientation by collective objectives and shared trust. Social capital is a collective attribute more than aggregation of individual social connections. It is a byproduct of other organizational activities and thus, it constitutes and indispensable component for the collective action. Social organizational capital is an asset whose joint possession between members and the organization benefits both.

A new organization has the advantage to create its own organizational social capital in such a way that can maintain optimum equilibrium between stakeholders, individual and other organizational interests in spite of their contingent nature. This is to say, different situations and persons in their relation to organizational performance. A community accounts on social organizational capital when their organizations are characterized by relationships of trust that develop and make predictable their behavior. The capacity of a community is reflected in its level of endogenous development.

The organizations are concrete reality with resources' rules and ordinances for the pursuit of objectives. Members of an organization have as expectations to solve problems of collective action to get supply of some goods and services. Organizations that follow general strategies and the ones that follow strategies of niches occupy different environmental resources to produce innovative responses that form inter-dependent connections with other specialized organizations in other industries such as structures of community support. Processes of economic structural change in a local economy require profound changes in trust levels and inter-relationships of cooperation fomented by arrangements of institutions and organizations. Thus, local government must define action lines which function as a catalytic converter of the community efforts.

Finally, population ecologists suggest that the environment selects the organizations which structural features provide the highest values for adjustment, emphasizing the competitive process as a driver of institutional change. Besides, population ecology suggests that organizations founded in a specific organizational form, combined with differences on the surviving rates between organizations with different organizational forms, produce institutional change.

THE CASE OF MICRO AND SMALL BUSINESS ENTREPRISES INVOLVED IN THE EXPLOIATION OF TULE Typha spp FROM THE LAKE OF ZAPOTLAN

Background of the problem

Similarly to the great majority of aquatic bodies localized in closed basins of Mexican national territory, the Zapotlán Lake is the natural receptacle, dump and outlet where converge the sewage, trash and black waters from the human settlements of Cd. Guzmán and san Sebastián del Sur (Southern San Sebastián)

The presence of these natural elements form a nutrients mix that facilitates the growth and development of an abundant aquatic mix which has achieved to cover almost the totality of the mirror's surface of the lake and it extends further beyond the shores while penetrating humidity. The transformations of the environment´s lake of Zapotlán has a strong impact on the population's socio-economic issues, mainly in San Sebastián del Sur in the municipality of Gomez Farías, and to a lesser extent to the settlers of Cd. Guzmán in the municipality of Zapotlán el Grande, despite the higher levels of pollution in which in is actually found

Deterioration of this lake-body has achieved alarming levels as a consequence of the increasing population and its corresponding enlarging urbanization processes, industrial, farming and agricultural activities. Specifically, one of the natural resources offered by the lake of Zapotlán, the aquatic *tule typha spp* has been benefiting the settlers and inhabitants of San Sebastián del Sur mainly for its exploitation through the crafting of several products and handicrafts. Thus, the exploitation of the *tule* and the elaboration of handicrafts create direct employments and constitute the income base for around 300 families and their members, a roughly estimation of one thousand and five hundred individuals making a living out of these activities in the municipality of Gomez Farías.

However, more are the benefits obtained from the *tule* chubby and plump those other kinds, followed by the one known as *palmilla* (palm). In its natural habitat, the *palmilla tule* harms the *tule* chubby´s growing and development. This problem, among others, added to the problems derived from environmental degradation which transforms nature of the Zapotlán's lake, limit the economic activities derived from the extraction of *tule,* whose tendency, if it is going to continue in the future, and threatens the disappearance of an important employment´s source for living sustainability of the inhabitants in San Sebastian del Sur.

To aggravate this problem, The Pan-American Olympic Games has chosen the Zapotlán's Lake as the location where the aquatic games will take place the year 2011. For that reason, the lake is having a profound transformation which implies the clearance and cleaning of the lake´s mirror from any type of grass and bush, including the cutting off and taking out of the *tule*. Other factors contributing to limit the environmental and economic sustainability of development and the scope of benefits from economic activities and exploitation of *tule* are the following:

 a) Null orientation toward a sustainable exploitation of the *tule* as a natural resource.
b) Lack of organization between the cutters of *tule* and the handcrafters'
c) Weak infrastructure for the development of a more advanced handcrafted production.
d) Excessive interest of hoarders and middlemen in the processes of commercialization and distribution of elaborated products.
e) Lack of mechanisms of governmental institutions to foster and develop economic activities, such as credits, training and technical assistance.
f) Null knowledge of techniques and systems to export their products to the international markets where more acceptances have.

Until now, handcrafted products derived from the *tule* as the main raw material, are elaborated with a strong artistic content to attend local, regional, national and international markets, which traditionally consume because there is a strong historic presence in Mexican culture since the pre-colonial times.

In order to be organized to attend the regional market, a group of 42 craftsmen acting as partners integrating the Association of Craftsmen (Asociación de Artesanos) initiated the construction of the "House of Craftsmen" in the early nineties to operate as an outlet for selling their products. This business still operates until now having only six partners, although it can be inferred from simple observation that the partners are undergoing heavy conflicts, dividing the building and infrastructure in small areas to operate their own personal business.

Most of the craftsmen deliver their production to middlemen who always perform as hoarders being a link in the distribution channel and contributing to the commercialization of the handcrafted products in the local, regional and national markets an incipiently in the international markets. These middlemen are precisely who hold the greater percentage of profits. By the same talking, a production oriented to meet the fundamental needs and wishes of our own local, regional and national markets, the craftsmen do not perform product design and product development activities.

The crafted products implicitly have a higher craftsmanship content to meet a more sophisticated demand of international markets which value and appreciate the artistic sensibility and good taste of the skillful craftsmen. These craftsmen work the tule as a raw material for the creation of handcrafts.

The exploitation of *tule* from the Zapotlán's lake has followed irrational patterns which affect not only the environmental sustainability and equilibrium, but also generate problems of low family income and in the running time lesser employment for manpower. The rehabilitation of the Lake requires a more rational exploitation of the *tule*, in such a way that does not affect the environmental sustainability and the economic activity derived and the treatment of *tule*, while on the other hand, also it is required to improve the family income who work the *tule* and inclusive to generate new employments.

B. Delimitation of the problem

The Zapotlán´s Lake has been consciously subjugated to environmental degradation by the inhabitants of the municipalities of Zapotlán el Grande y Gómez Farías. This situation together with the over exploitation of the tule are the two are the two main factors contributing to limit sustainability of the economic activity and derived benefits of cultivation, treatment and elaboration of the tule handcrafts. There are other factors that limit the sustainable development. Thus, employment creation and increasing the income of around three hundred families highly depending of the economic activity are found seriously threatened given the current conditions of development. Despite that in the last years it has been favored the selling of goods crafted with tule, nowadays, face certain problems that have affected the industry, among which we can mention:

> ➢ Increments in the cost of raw materials (Wood and tule)
> ➢ Considerable increasing of craftsmen in the region
> ➢ Bad reduction of handcrafted products
> ➢ Low and slow commercialization of handcrafted products
> ➢ Little support for the promotion of their goods.

This paper is the result of a research that initiated with the following questions:

¿What is the sustainability of the economic efficiency and environmental development of the activities and expected benefits of the *tule*´s cultivation and exploitation in the Zapotlán's Lake for almost three hundred families, whose income is depending on these activities, given the dysfunctional environmental conditions in which they are actually found?

What are the potentials and economic benefits to introduce in the international markets the handcrafted products made based on the *tule* from the Zapotlán's Lake as the main raw material?

C. Objectives

● To determine the level of organizational sustainability taking into account the economic and environmental development out of the *tule*´s cutting, treatment and exploitation activities at the Zapotlan´s Lake.

- To analyze potentialities and economic benefits derived from a marketing orientation of international business in the making of handcrafted products made of *tule* and *palmilla* from the Zapotlán´s Lake.

D. Hypothesis

One orientation of organizational sustainability in the craft making of handcraft goods made of tule from the Zapotlan´s Lake as the main raw material contribute to increase the family income, the economic benefits of workers and the employment creation.

E. Handcrafts in San Sebastián Del Sur.

Since several decades ago, at San Sebastian del Sur located in the municipality of Gómez Farías, the main sources of income have been agriculture, livestock, fishery and handcrafts production. The handcrafts are made of different materials that are taken from natural resources abundant in the region Southern Jalisco. Inhabitants from San Sebastian del Sur take advantage of the benefits provided by what it is known as the Zapotlán's Lake that offers means of sustenance from several economic activities that are done there. Among these economic activities, stand out commercial fishery and *tule* extraction. From this last economic activity, it is generated a large quantity of handcrafts that for several years, families and inhabitants of San Sebastian del Sur have as their main source of income.

F. Main goods and handcrafts made out of tule

Among the handcrafts and goods handcrafted and made out of *tule* in the locality of San Sebastian del Sur, can be mentioned chairs, curtains, armchairs, easy chairs, different types of containers for different purposes, such as the tortillas' containers, tables, blowers, bedrolls and matting (petates), baskets, etc. *Tule* as a raw material is extracted from the Zapotlán's Lake where it growths spontaneously and wildly. This natural resource is recollected by the inhabitants of the municipality of Gómez Farías, who do not depend or being required to hold a municipality permit to cut the *tule*, to dry it and to sell it.

4. RESEARCH METHODS

It was conducted a study to the handcrafters who carry on economic activities using the tule as a raw material in the craft making of handcrafts in the locality of San Sebastian del Sur, in the municipality of Gomez Farías, Jalisco. The way in which data was obtained was trough a random survey based on the roster of handcrafters, which is a list of registered ones, with the purpose to know different economic and social aspects of producers. The following data was obtained: Number of surveyed: 33; number of workshops visited: 33.

Trades of handcrafters and producers were classified in 4 groups, out of which it was found that the 33 persons surveyed were dedicated to the following activities: Manufacturing of rustic furniture: 9. Hand-woven of furniture and handcrafts: 7. Manufacturing of matting and bedrolls: 15. Cutters of *tule*: 2.

5. ANALYSIS OF RESULTS

The percentages of families who are dependent of related activities with the tule according to the survey results in the locality of San Sebastián del Sur are the following:
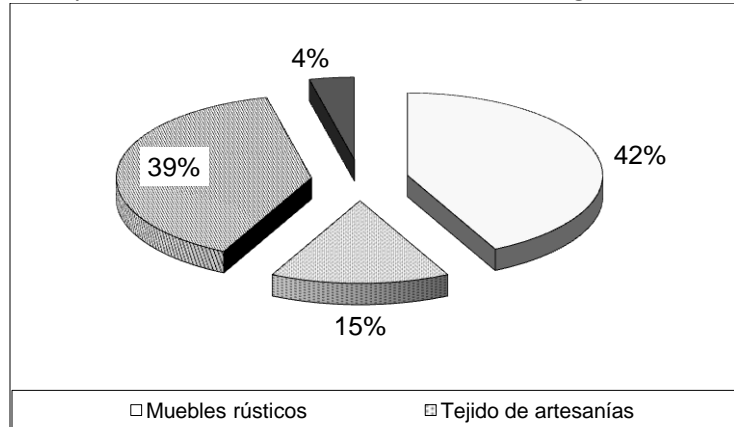
Fig. 1. Percentage of families depending of related activities with the tule

At the location of San Sebastián it was estimated the weekly average salary per worker in the different activities related to the processing of tule. This data was obtained according to the survey conducted to the craftsmen in the field, leading to the following results:
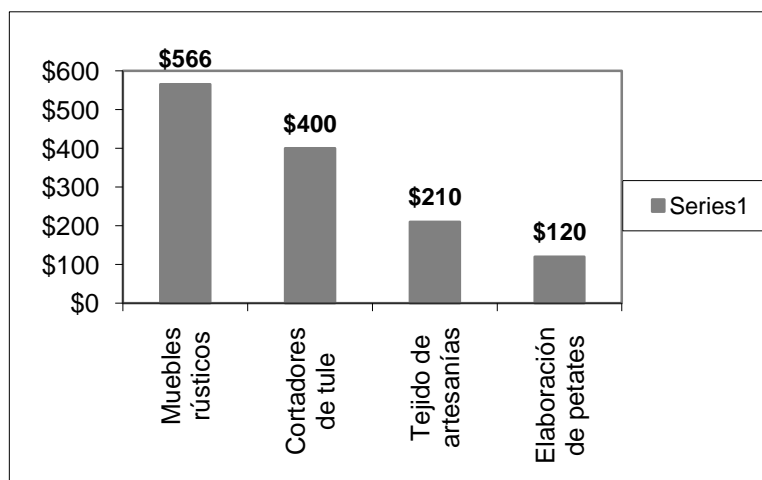
Fig. 2. Weekly average salary per worker.

According to the conducted study in the locality of San Sebastian, the percentage of craftsmen affiliated to associations and organizations was the following:
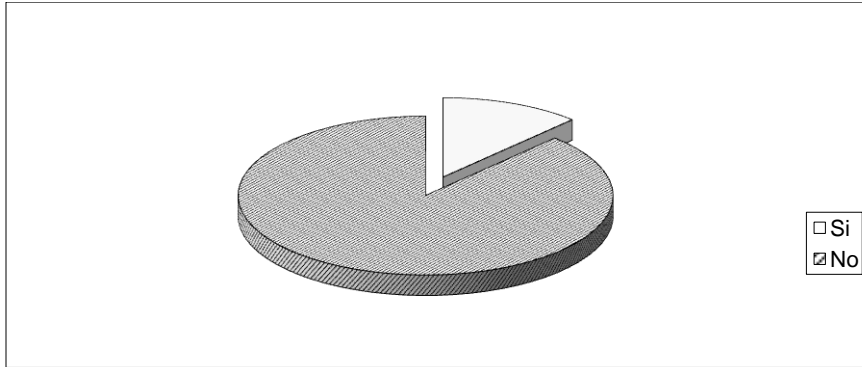
Fig. 3. Percentage of craftsmen affiliated to any organization or association

The majority of craftsmen in the location of San Sebastian do not receive any type of support from any institution or dependence, while a small number of workers sustained not receiving economic support and promotion for their products and goods mainly from state and municipal institutions.
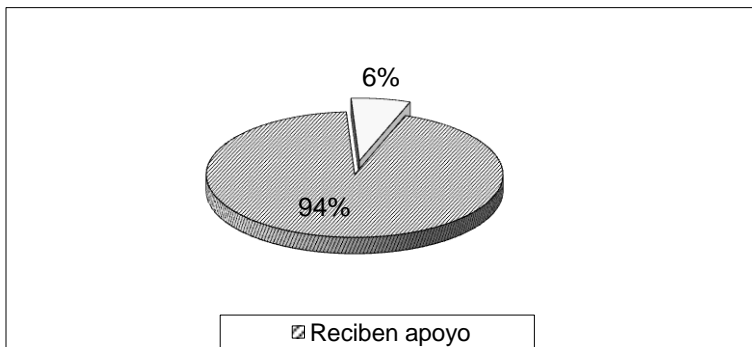
Fig. 4. Persons receiving support from any institution or organization.

81% of the surveyed persons have the opinion that the market has been benefited in the last years due to there are more demand of their products and goods. Only 19 % perceived that has been affected selling their products.
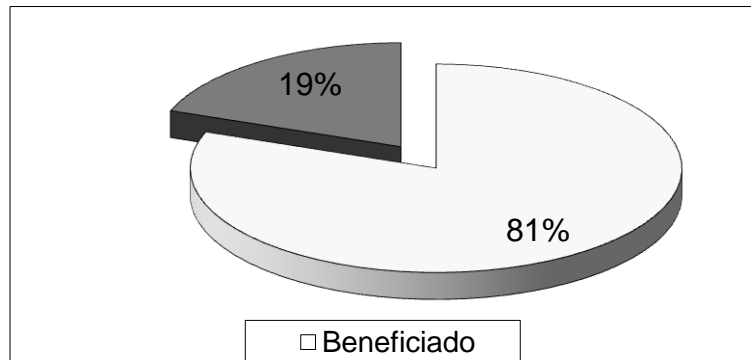
Fig. 5. Persons´ opinion that have been benefited or affected the market for their products

45% of persons are sure that exists more pollution, 42% say to be in equal conditions tan before and only 13% perceives less pollution in the Zapotlan´s Lake.
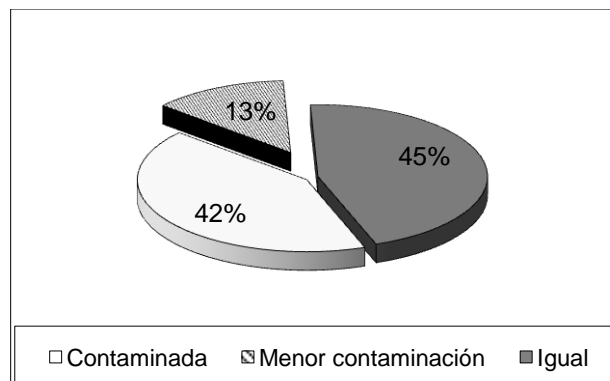
Fig. 6. Perceptions of surveyed persons on pollution at the Zapotlan's Lake

6. DISCUSSION AND COMMENTS ON ORGANIZATIONAL SUSTAINABILITY BASED ON THE RESEARCH RESULTS.

A. - Environmental sustainability

The presence of bundles of *tule* covering around one third of surface at the Zapotlán's Lake (Universidad de Guadalajara, 1995), it is important for the nesting, refuge and protection of several species of fishes, tilapia, and carps and also for several species of birds. The *tule´s* plant serves as the food for some species beginning from the organic material which become detached from the roots, regulates water's temperature thus the environmental temperature.

In the following months after November, the tule´s plant is affected by a bundles of birds know as zanates that nest, recognize to sleep and to protect against the bundles of *tule* that the same birds break down. The biggest problem that face the tule is that the proper bundles of *tule palmilla* (tule palm) used to weave chairs are flouting and invading the chubby *tule* used to manufacture matting and bedrolls and impede its normal growth and development. Thus, the bundles of *tule* need cleaning or to the contrary, the *tule palmilla* damage to the chubby *tule*. This problem has a solution. If there are extracted the bundles of *tule palmilla* that walk soils when the level of water goes up and cover the chubby *tule*.

The cutters of tule signal that, among other problems, they do not count on the support and back up of any governmental dependence or institution through the expedition of permits to cut and exploit the *tule*, none support in credits for the creation of infrastructure to facilitate to carry on their activities and increase their productivity , as for example, the acquisition of launch, cutters or motorboats to facilitate the cut of *tule* or the conditioning of plots of land (patios or country yards) adjacent to the Zapotlan's Lake to facilitate the dry of the cut tule. This situation always represents problems when the *tule* is green. When the tule is spread out and lay out in a country yard or patio for the processing of drying, it last from 3 to 4v days. There are some spells; mainly during the period of ebb tide in which the tule is dried without it has been cut, stating a little bit green. However, ecologically and environmentally this processes have some serious consequences which affect the economics and environment.

b) Economic benefit

Cultivation and exploitation of *tule* constitutes an important economic activity, mainly for the community of San Sebastian del Sur because it provides economic support to around three hundred families. About 80 families are economically benefited with the income received from the cutting, drying and transport of *tule*. Around 140 families are benefited from the handcrafted production of goods made of both varieties of *tule,* the *palmilla tule* and the chubby *tule* as the main raw material. Out of these 140 families, 120 are self-considered handcrafters of matting and bedrolls (petateros).

Around half of the 55 handcrafters registered in the Association trade have their own workshops, while the other half only work in assembling plant because they do not count on the instruments of a workshop properly equipped. Around 70 families receive income from intermediation, hoarding, stockpiling and commercialization activities of products derived from *tule*

The cutters of tule dry their raw material and make even up to two bunches per one day that sells at an average price of 75-80 pesos each one. The income from the selling contributes to the daily family income that averages 160 pesos per day. The *tule palmilla* used for the manufacturing of chairs is sold to intermediaries; most of them are owners of small stores who stockpile it. The *tule* chubby is sold to the craftsmen at a price a little bit less expensive to be used in the manufacturing of matting and bedrolls (petites).

Most part of manpower employed in the cutting of *tule* is permanent and their trade was inherited from antecedent generations. According to the conducted field research, and due to the ongoing changes taking place in the Zapotlán's Lake, every year there are less cutters, thus, in the years before, the cutting of *tule* was an activity which generated more employment that nowadays. In the years before, the cutters formed a group and became a formal association of tule's cutters. Some of the actual cutters are temporarily workers in this activity, more specifically when they do not find a better remunerated employment.

The craftsmen produce different goods using as the main raw material the *tule*, such as matting, bedrolls, hats, chiquihuites (containers in form of wide baskets), shadows, traditional chairs, high chairs, seamstresses, etc. From a roll to a bunch or bundle of *tule* handcraft up to seven matting which the craftsmen sell to a price of 30 pesos each one, an equivalent of two USA dollars and 40 cents, obtaining up to 210 pesos (almost 17 USA dollars) with an original investment averaging 80 pesos, the cost of one bunch of *tule*. A bunch of *tule* is formed with 5 or 6 big hands (manotadas) of *tule*.

The cost of one big hand is approximately 20 pesos and it is the base to manufacture one chair which is sold at a price of 50 pesos to the intermediary o middleman. The cost of materials of one chair also includes besides the big hand, a wood branch of pine whose costs is up to 15 pesos, a cost that has been increasing when used to be 1.50 pesos several years ago. In one workshop where regularly work five craftsmen achieve to produce up to 70 chairs per week which are sold to the intermediaries and middlemen at a price of 70 pesos as an average. This price can improve depending on negotiations and trading with intermediaries and middlemen.

Many cutters supply raw material to their own families who are in charge of the crafting of handcrafted products, widening with this situation the economic benefits and adding value. In other cases, there are conducted some practices of half by half ("medieros") between the cutters and the handcrafters. This is to say, after the selling of products; both cutter and handcrafter share the benefits in the same proportion, half and half.

Actually, the relationship among handcrafters of tule registered in one association at the location of San Sebastian del Sur is 55. 16 years ago, the association was formed by 42 partners and set as the main aim the founding and building of the craftsman's house (Casa Del Artesano) as the market place in which their handcrafted production can be exhibited and sold. The three levels of government, Federal, State and Municipal contributed with donations of materials for the construction, while the partners made manpower contributions.

However, most of the craftsmen members of the Association do not made any contributions of manpower and finally only six partners did it, and who nowadays exhibit and sell their handcrafted products in a separated way at the craftsman's house. This craftsman´s house is located at one side of the Federal Highway Guadalajara- Cd. Guzman, in an adjacent location to the Municipal Cemetery.

Leovigildo Bautista de la Cruz is the person who is at the front of the Association and he is also the ownership of land and building. Originally the land was signaled by the Municipal Government of Gomez Farías for the construction of the craftsman´s house. However, lately it was found that this land did not have any proprietorship according to the archives of the Public Register of Ownership.

Thus, nowadays, the ownership of the craftsman is the "apple of discord" and the cause of several conflicts due to the other craftsmen wants to participate of the benefits with the support of the municipal government. One of the former municipal President intended to benefit to a group of craftsmen who do neither exhibit nor sell their products at the craftsman´s house, had sent official letters to the Public Notary requesting change of ownership regime and claiming that it is municipal's ownership. Despite of this, there is not one organization of craftsmen to whom it may classify among these who count on their own workshops, approximately half of the 55 registered members, and those who sell or "maquilan" their own manpower for the former. Thus, those who sell their own manpower, they do not have their own equipment, tools and facilities to establish their own workshop.

According to our own research, the interviewed assure that sales are declining. Today, they argue, sell less than 10 years ago. The middlemen and intermediaries are who more profits obtain from the commercialization of the handcrafted products. In order than a handcrafted product reaches the final consumer, it is required at least a three level´s distribution channel, and this is to say that at least there are two intermediaries between producers and consumers. The intermediaries are the ones who attend national markets and to a lesser extent they export the handcrafted products to some parts of United States, Canada, Puerto Rico, England and Japan. The terrorist actions of September 11, 2001 had affected missing some orders of handcrafts.

Some of the problems that the craftsmen face are those related to the lack of training programs to develop and preserve handcrafter techniques, financial support, and obtaining credits to extend basic production infrastructure, and of course, staffing and consultancy for direct exports of their products to the international markets. All these actions will benefit the economic income of more than 300 families in San Sebastián del Sur, Jalisco.

7. CONCLUSIONS

The exploitation of tule represents an economic activity that provides income to approximately three hundred families living at the settlement of San Sebastian del Sur. Nevertheless, in the last few years the income has been decreasing due to the environmental changes and to the rehabilitation of the Zapotlan's Lake to host the Pan-American Games in 2011. Both, the environmental changes and rehabilitation of the lake represent a serious threat to the economic efficiency and environmental sustainability.

To achieve equilibrium between environmental sustainability and economic sustainability must be one of the main goals of the rehabilitation programs. Thus, it is required the best

indicators under a systematic study to determine the most adequate levels of environmental sustainability and economic efficiency.

The limited social organizational capital and the lack of adequate forms of organization for the productivity, contribute to limit the scope and economic benefits that must provide an adequate exploitation of *tule* from the Zapotlan's Lake. Disorganization of cutters and craftsmen of *tule* is the source of profound and increasing conflicts that not only block and limit the scope of better levels of productivity and family income, but also make difficult the pacific coexistence and living together and spoil the community´s quality of life.

Lacking a consultancy program to exports of handcrafted products has an impact on lower income to the families of cutters and craftsmen, because who actually obtain the greater part of profits are the intermediaries who take part on the commercialization processes and distribution channels.

Some characteristics of specificity and appropriateness of social and human capital involve economic, social and political relationships among individuals who are members of organizations, making complex their effects. Market is a social construction that makes operational social relations. Both capitals can be important resources of the competitive advantage, assuming that reside in the members or it is specific to the organizations as integral parts of resources that are unique and that are no observables. Organizations with higher levels of social and human capital generate more competitiveness than those with lower levels. A sustainable and competitive Economy requires programs aimed to improve social and human capital.

8. RECOMMENDATIONS

Some recommendations after this research are formulated below:

- Design a program to promote handcrafted activities derived from the exploitation of tule that in a parallel form to the rehabilitation program of Zapotlán's Lake, establish the right indicators to achieve equilibrium between economic efficiency and environmental sustainability.

- To set a program of export consultancy with the support and technical staffing from students of international business at University of Guadalajara that provide the knowledge, skills and contacts in such a way that the *tule*´s craftsmen directly commercialize and market their own handcrafted products in the international markets.

- To propose a program for development of organizational and social capital and new forms of organization aimed to increase productivity and competitiveness of the craftsmen, thus increasing their family income and promoting employment creation and improve the quality of life of the whole community of San Sebastian del Sur.

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THE IMPACT OF JUSTICE TYPE ON ORGANIZATIONAL CITIZENSHIP BEHAVIOR: DO OUTCOME FAVORABILITY AND LEADER BEHAVIOR MATTER?

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ABSTRACT

This paper uses a social exchange theory framework to examine whether leader behavior (task-oriented or relationship-oriented behavior) moderates the relationship between justice type (procedural, interpersonal, and informational) and organizational citizenship behavior (OCB). Results show that task oriented leader behavior did not moderate the justice/OCB relationship, but relationship oriented leader behavior positively moderated the justice/OCB relationship for procedural and informational justice. In addition, the paper examines whether this moderated relationship remains constant under conditions of favorable work decision outcomes and unfavorable work decision outcomes. When decision outcome favorability is considered, results show that relationship oriented behavior positively moderates the justice/OCB relationship for all types of justice (procedural, interpersonal, and informational) regardless of whether the outcome is favorable or unfavorable. In contrast, task oriented behavior negatively moderated the interpersonal justice/OCB relationship when the decision outcome was unfavorable, but had no effect on procedural or informational justice.

INTRODUCTION

Many employers understand the benefits of positive employee behavior that is not specifically required for the job, such as when employees attend functions that are not required to help the organization or take action to protect the organization from potential problems. Academic researchers refer to this behavior as organizational citizenship behavior (OCB), and studies have shown that organizations with high levels of organizational citizenship behavior have several positive outcomes. These outcomes include lower levels of turnover and higher levels of productivity, efficiency, profitability, and customer satisfaction (Podsakoff, Whiting, Podsakoff & Blume, 2009). Because the benefits of OCB can be great, researchers have attempted to identify variables acting as antecedents to OCB so that managers can provide an environment conducive to fostering OCB's in their employees. The purpose of this paper is to examine justice type as an antecedent to OCB directed toward the organization and to determine whether leader behavior acts as a moderator in the justice/OCB relationship. In addition, this paper will examine these relationships under conditions of high and low levels of distributive justice to determine whether outcome favorability alters the relationship.

LITERATURE REVIEW
ORGANIZATIONAL CITIZENSHIP BEHAVIOR

A number of OCB frameworks have been proposed over the past several years, but Organ's (1988a) work providing a taxonomy of the OCB construct has the longest history. The taxonomy includes five dimensions of OCB (altruism, courtesy, conscientiousness, sportsmanship, and civic virtue) that have served as the basis of many empirical studies (LePine, Erez & Johnson, 2002). Altruism and courtesy are somewhat related (Podsakoff, Ahearne & MacKenzie, 1997) and pertain to behaviors focused on helping or preventing the occurrence of problems at work. Conscientiousness refers to behaviors that go beyond general rule compliance. Sportsmanship is defined as the willingness of employees to tolerate minor inconveniences in the workplace without complaining, and civic virtue is behavior that shows employees taking an active interest and getting involved in organizational life.

Because OCB is highly correlated with a number of organizational variables (see Podsakoff, et al., 2009, for a review), and because some OCB frameworks have dimensions that tend to overlap (LePine, Erez & Johnson, 2002), some researchers have begun to rethink the method by which OCB has been classified. Rather than classify specific types of behaviors, these researchers now classify the behavior in terms of the entity or person to whom the behavior was directed. Thus, organizational citizenship behavior could be directed toward the organization or toward individuals in the organization (Williams & Anderson, 1991). Organizational citizenship behavior directed toward individuals in the organization (OCBI) consists of behaviors identified by Organ (1988a) as altruism and courtesy. Organizational citizenship behavior directed toward the organization (OCBO) consists of behaviors identified by Organ (1988a) as sportsmanship, civic virtue, and conscientiousness. The classification of OCBs has helped researchers pinpoint specific areas of interest, but a common focus among researchers is to determine why employees engage in OCBs.

Social exchange theory (e.g., Blau, 1964; Homans, 1961) is commonly used as the theoretical explanation of the relationship between antecedent variables and OCB (e.g., Karriker & Williams, 2009; Moorman & Byrne, 2005). Embedded in social exchange theory is the norm of reciprocity (Gouldner, 1960) such that when individuals receive a positive outcome or favor from a particular entity or person, the individual feels obligated to reciprocate by giving a positive outcome or favor in return. Thus, when employees perceive organizations to be caring and supportive, they will reciprocate by engaging in positive behaviors directed toward the organization.

Because employee perception is crucial in predicting behavior, anything that could alter employee perception could also alter employee behavior. For example, employee perception of the overall organization may be altered by the individual behavior of a single manager or coworker as evidenced by research demonstrating the impact of interpersonal justice on both supervisory and organizational outcomes (Burton, Sablynski & Sekiguchi, 2008; Masterson, Lewis, Goldman & Taylor, 2000; Rupp & Cropanzano, 2002). Essentially, an employee makes a judgment (perception) as to whether his supervisor treats him with respect and dignity and transfers that perception of interpersonal justice onto the overall organization. As a result, organizational policies providing high levels of employee support that should create an environment conducive to OCB instead may be viewed as unsupportive if a manager engages in

behavior that is offensive to the employee. This situation could then create psychological reactance (Brehm, 1966) on the employee's part such that the employee reciprocates by refusing to engage in OCB (Greenberg & Scott, 1996). Thus, leader behavior should be considered when studying the antecedents to OCB.

Leader Behavior

Leadership behavior tends to be classified into two basic styles or types: 1) behavior focused on work tasks and 2) behavior focused on people. Indeed, leadership researchers have consistently identified these two basic leadership styles although the labels and definitions differ slightly (Kahn & Katz, 1960; Lewin, Lippitt & White, 1939; Misumi & Peterson, 1985; Stodgill & Coons, 1957), and these two leadership styles are the basis of many recent leadership theories. Generally speaking, leader behavior that is focused on work tasks emphasizes fast work speed, good quality, high quantity, close supervision, and getting things done. Leader behavior that is focused on people emphasizes the development of nurturing relationships, less close supervision, stress reduction, and trust and respect in the workplace.

Studies have found that leadership and OCB are related in some situations. For example, transactional leadership (similar to task-oriented leadership) is necessary to engender positive follower outcomes (Whittington, Coker, Goodwin, Ickes & Murray, 2009) and supportive leadership is related to OCB (Meierhans, Rietmann & Jonas, 2008). Other research shows that high quality leader member exchanges are related to OCB (Randall, Cropanzano, Bormann & Birjulin, 1999; Wayne, Shore & Liden, 1997). To date, the research in this area suggests that perception of justice is the appropriate exogenous variable in relation to OCB; thus, leadership behavior typically acts as a mediator or moderator in the relationship between justice and OCB (Moorman & Byrne, 2005).

Although the leadership research has done an excellent job in defining leadership traits, behaviors, and situations in which certain leader behaviors are more effective than others, the literature has not addressed the question of what type of leadership is most effective when followers are happy or unhappy. Using a social exchange perspective, employees who receive an unfavorable work decision outcome, and are unhappy with the manager (leader) as a result, may be less likely to engage in OCBs. After all, the employee did not get what he wanted, so the employee may reciprocate by not giving the manager what he wants. In this situation, should leader behavior become more task-oriented to clearly direct the employee as to what is expected or should leader behavior become more relationship-oriented to encourage the employee to trust and respect others who make decisions?

The key in this scenario involves the work decision outcome, a dimension in the organizational justice literature. Thus, we turn to the research in organizational justice for insight into what type of leader behavior might impact OCB under conditions of favorable and unfavorable outcomes.

Organizational Justice

Types of justice. Organizational justice researchers have identified several types of justice (Colquitt, 2001). Distributive justice, concerned primarily about the fairness of decision outcomes, is based heavily on equity theory (Adams, 1963) and reward allocation norms

(Deutsch, 1975; Leventhal, 1976). Procedural justice, concerned primarily about the fairness of a decision process, was first researched in legal settings (Thibaut & Walker, 1975) and then researched in organizations to better explain employee reactions to what they perceived as fair or unfair decision processes. Interpersonal justice, the extent to which individuals are treated with respect and dignity during a decision process, was introduced as a means of explaining fairness outside the formal decision procedure (Bies & Moag, 1986). Informational justice, the extent to which individuals perceive adequate explanations for decisions are given in a timely manner, was initially a component of interpersonal justice. However, informational justice is now considered a separate construct by some researchers (Colquitt, 2001; Colquitt, Conlon, Wesson, Porter & Ng, 2001).

The relationship between justice and OC B. The relationship between organizational justice and organizational citizenship behavior has been well established in the literature. Many researchers use social exchange theory (e.g., Blau, 1964; Homans, 1961) to explain the relationship by suggesting that perceptions of fairness may cause employees to feel obligated to reciprocate by engaging in OCBs (see Moorman & Byrne, 2005, p. 360-362, for a review). Because several studies have used social exchange theory, and specifically, the norm of reciprocity as the theoretical basis for the relationship between perceptions of justice and OCB, this paper also relies on social exchange theory to predict a positive relationship between justice and OCB as shown in Figure 1.

H1: There is a positive relationship between justice (procedural, interpersonal, and informational) and OCB.

The impact of work decision outcome favorability and leader behavior on OCB. Social exchange theory suggests that employees receiving a favorable work decision outcome should feel obligated to reciprocate in a favorable way to the organization. Often this reciprocation results in OCBs (e.g., Rhoades, Eisenberger & Armeli, 2001). In contrast, however, employees receiving an unfavorable work decision outcome should feel obligated to reciprocate in an unfavorable way to the organization, whether it is withholding work effort or purposely sabotaging organizational efforts (Greenberg & Scott, 1996; Organ, 1988b). Although social exchange theory is based on numerous exchanges within a relationship, and one specific exchange does not fit neatly into the overall social exchange framework, this paper argues that one exchange may create a specific reaction.

Basically, individuals care about decision outcomes they receive now and in the future. Indeed, this is the basis of the instrumental and group value models of justice as proposed by Lind and Tyler (1988). If individuals trust the exchange partner, they are more likely to trust that future exchanges will result in positive outcomes, even if the current exchange is unfavorable. Thus, social exchange theory is based on the expectation that numerous exchanges will occur over time within a given relationship.

The preceding explanation of social exchange theory is based on the expectation of a continued relationship with a trusted exchange partner, and this type of relationship often creates intangible, relationship-oriented exchanges. It is not surprising that trust has been identified as a construct of interest in the social exchange perspective (Konovsky & Pugh, 1994; Pillai, Schriesheim & Williams, 1999), with some researchers suggesting that trust is "an important

precondition for the emergence of a social exchange relationship and is essential for its continuation," (Konovsky & Pugh, 1994, in Moorman & Byrne, 2005, p. 366).

But what happens if the exchange relationship occurs between two individuals who do not trust one another? Social exchange theory also discusses the concept of economic transactional exchanges in which tangible outcomes are more important than intangible outcomes. In a purely economic exchange, one bad outcome received in an exchange can result in a desire to reciprocate with a bad response (see Meeker's discussion of the social exchange rules of rationality and competition, 1971). One of the conditions under which a transactional exchange may be manifested is when both outcome and leader behavior are unfavorable to the individual.

Employees who receive an unfavorable work decision outcome and who perceive leader behavior to be inappropriate would most likely react primarily to the decision outcome (a distributive justice perspective) rather than to the fairness of the decision process or the fair interpersonal treatment (a procedural and interpersonal justice perspective). Thus, the present study attempts to examine this piece in an OCB context by comparing the reactions of individuals receiving an unfavorable decision outcome with those receiving a favorable decision outcome. The expectation is that the more favorable the work decision outcome, the more likely the employee will engage in OCB, but what leader behavior is most effective in encouraging OCB to continue after a favorable work outcome? In addition, what leader behavior is most appropriate to encourage OCB after an unfavorable outcome?

Because a number of studies indicate that trust is a mediating factor in the relationship between leadership and OCB (Aryee, Budhwar & Chen, 2002; Konovsky & Pugh, 1994; Pillai, Schriesheim & Williams, 1999), it seems logical that leader behavior focused on generating trust would be most beneficial in encouraging OCB. If this logic is correct, then relationship-oriented leader behavior should be most effective in encouraging OCB since this behavior works to build a trusting relationship between leader and follower. Task-oriented behavior does not focus on trust, but rather on production and efficiency. Since production and efficiency are not directly related to generating trust, task-oriented behavior should be less effective in encouraging OCB. Thus, relationship-oriented leadership should positively moderate the relationship between justice and OCB in all situations, regardless of whether the decision outcome is favorable or unfavorable, since the focus is on generating trust. In contrast, task-oriented behavior that is not focused on generating trust should negatively moderate the relationship between justice and OCB in all situations. These hypotheses are depicted in Figure 1.

H2: The relationship between justice and OCB will be positively moderated by relationship-oriented leadership.

H3: The relationship between justice and OCB will be negatively moderated by task-oriented leadership.

H4: When work decision outcome favorability is low (or high), the relationship between justice and OCB will be positively moderated by relationship-oriented leader behavior.

H5: When work decision outcome favorability is low (or high), the relationship between justice and OCB will be negatively moderated by task-oriented leader behavior.

METHODS

Procedure and sample

Data were collected from alumni of a university in the Southwestern United States, randomly selected from the alumni association database. Out of 20,000 letters sent to the alumni asking them to participate in a longitudinal study on work attitudes, 1,207 agreed, and data for this study came from the second survey in a series of four. Once agreeing to participate, respondents mailed back a response card on which they selected to complete the surveys either in paper or in electronic format for the duration of the study. For survey 2, approximately 60% completed the electronic format while 40% completed the paper format. Each survey was entitled, "Employee Attitudes about Work", and began with a paragraph explaining the purpose of the research. The surveys were administered six months apart beginning in August, 2003. The data for this study come from survey 2 which was mailed in February of 2004. Respondents were given six weeks to respond, with reminder letters (or emails) sent after four weeks.

There were 250 respondents for survey 2 with no missing data, representing a response rate of 20.7% out of the 1,207 who agreed to participate. Respondents had an average age of 42.47, and there were more men (53.8%) than women (46.2%). About 70% classified themselves as a manager, executive, or professional, while 30% classified themselves as an employee. Respondents represented 15 different industries and worked an average of 44.4 hours per week, with roughly 24% report being paid on an hourly basis and 76% being paid a salary.

<u>Measures</u>

OCB was measured with eight items from Lee and Allen's (2002) scale representing OCBO, and had a reliability of .90. Since the primary purpose of academic management research is to help managers better understand ways to improve performance, the present study focuses on OCBO rather than OCBI as the dependent variable of interest since OCBO has been found to be a stronger predictor of performance than OCBI in a meta-analysis of 168 independent samples (Podsakoff, et al., 2009).

All organizational justice constructs were measured with items from Colquitt's (2001) subscales for procedural, interpersonal, and informational justice. Procedural justice, defined as the extent to which individuals believe a decision-making process is fair and correct, was measured with three items on a seven-point Likert scale. Interpersonal justice, defined as the extent to which individuals believe an authority figure implemented a decision in a respectful manner, was measured with four items on a seven-point Likert scale. Informational justice, defined as the extent to which explanations for decisions are reasonable, timely, and specific, was measured with three items. Scale reliabilities for each construct are adequate as seen in Table 1.

Work decision outcome favorability is defined as the extent to which individuals believe a specific decision outcome at work at time 2 has had a positive or negative impact on them. This variable is similar to definitions of distributive justice, but the nature of the study did not lend itself to use published scales of distributive justice; therefore, we developed a new single-item measure to capture individual perceptions of positive or negative work outcomes.

A list of nine possible work changes was provided (promotion, transfer, salary increase, etc.) along with a tenth selection reading, "Other change not listed (please specify in the space provided)" and an 11th selection reading, "No changes have occurred in my work situation in the last six months." From this list of 11 choices, participants were then asked to identify the single

most important change that had occurred in the workplace in the last six months and then classified this single most important change in terms of its overall effect on them personally, from 1 (very bad) to 7 (very good), with 4 being "neither". This variable was dichotomized to allow a comparison of favorable versus unfavorable work outcomes described in hypotheses 4 and 5. Thus, a score of 1-4 was categorized as an unfavorable outcome, and a score of 5-7 was categorized as a favorable outcome. Although a score of four is technically neither good nor bad, we include it in the negative work change category because it suggests an indifference to the work situation. Although employee indifference may not always indicate a problem in the workplace, it could indicate employee apathy about work. Approximately 31 percent of respondents scored their work change as neither good nor bad.

Leadership behavior was measured with Misumi & Peterson's (1985) scales for Performance leadership and Maintenance leadership behaviors. Performance leadership (P-leadership) is similar to task-oriented leadership, while Maintenance leadership (M-leadership) is similar to relationship-oriented leadership.

Reliability and correlation data for all variables are shown in Table 1. Hypotheses one, two, and three were tested using all respondents who completed survey two (250 with no missing data). Hypotheses four and five were tested using all respondents, but the respondents were categorized into those who received a positive work decision outcome at time 2 (n = 120) and those who received a negative work decision outcome at time 2 (n = 130).

RESULTS

Confirmatory factor analysis was performed using AMOS 7.0 to test the factor structure of the measures, all of which were drawn from pre-existing scales. The measurement model was supported. The estimation of the CFA model generated good fit statistics using Bentler's (1990) comparative fit index, Bollen's incremental fit index (1989), and Browne and Cudek's (1993) root mean square error approximation (CFI = .93, IFI = .93, RMSEA = .06). Although the goodness of fit index was low (GFI = .81) and the chi square for the confirmatory factor analysis was significant ($\chi^{2 =}$ 999.73, df = 511, p < .001), several other fit measures are within the range of acceptance as shown above. In addition, a power analysis was conducted using MacCallum, Browne and Sugawara's (1996) formula, and the sample size (250) along with the df (511) indicates a power level of .99, well above the .80 power level commonly sought after in research studies. Reliability measures were acceptable and all measures were drawn from pre-existing, validated scales. Thus, the questionnaire items did load on the predetermined theoretically-derived factors.

The hypotheses were tested using linear regression and moderated regression analysis. The first hypothesis states there will be a positive relationship between perceptions of justice and OCBO. Results shown in Table 2 indicate this hypothesis is supported (procedural justice: F = 15.60, p < .001; interpersonal justice: F = 20.18, p < .001; informational justice: F = 17.25, p < .001).

The second hypothesis states the relationship between justice and OCBO will be positively moderated by relationship-oriented leadership. Results shown in Table 2 indicate this hypothesis was supported for procedural justice and informational justice (b = .84, p < .001 for

procedural justice; $b = .74$, p < .01 for informational justice). However, hypothesis 2 was not supported for interpersonal justice ($b = .44$, p < .12).

The third hypothesis states the relationship between justice and OCBO will be negatively moderated by task-oriented leadership. This hypothesis was not supported as seen in Table 2 since none of the interaction terms were significant ($b = -.03$, p < .91 for procedural justice; $b = -.35$, p < .21 for interpersonal justice; and $b = .08$, p < .78 for informational justice).

The fourth hypothesis states when work decision outcome favorability is low (or high), the relationship between all justice types and OCB will be positively moderated by relationship-oriented leader behavior. Results in Table 3 indicate this hypothesis was supported for conditions under which the decision outcome is favorable ($b = 1.36$, p < .001 for procedural justice; $b = 1.15$, p < .001 for interpersonal justice; and $b = 1.56$, p < .001 for informational justice) and when the decision outcome is unfavorable ($b = .98$, p < .001 for procedural justice; $b = .56$, p < .05 for interpersonal justice; and $b = .65$, p < .05 for informational justice, p < .05).

The fifth hypothesis states when work decision outcome favorability is low (or high), the relationship between all justice types and OCB will be negatively moderated by task-oriented leader behavior. This hypothesis was supported as seen in Table 4 for conditions under which the decision outcome is unfavorable for the interaction between interpersonal justice and task-oriented leadership ($b = -.76$, p < .05), but was not supported for any other justice variables. There was a significant interaction between informational justice and task-oriented leadership under conditions for which the decision outcome is favorable, but in the opposite direction of the prediction ($b = .85$, p < .05)

DISCUSSION

The strong support of hypothesis one is not unexpected, given prior findings in literature on the relationship between justice and OCB. Indeed, prior research singling out the effects of justice on OCB have even found similar measures of explained variance, with adjusted R^2 values ranging from .04 to .09 (Farh, Podsakoff & Organ, 1990; Konovsky & Organ, 1996). Given these relatively small R^2 values, however, it is clear that other variables should also be considered in explaining OCB, and that is why many authors include mediators and moderators in their models.

H2 states the relationship between justice and OCB will be positively moderated by relationship-oriented leadership while H3 states the relationship between justice and OCB will be negatively moderated by task-oriented leadership. These hypotheses were based on the idea that relationship-oriented leadership focuses on building trust while task-oriented leadership focuses on getting the job done. Hypothesis 3 was not supported, suggesting that task-oriented leadership is not as influential as relationship-oriented leadership in predicting OCB. The second hypothesis was supported for perceptions of procedural and informational justice, but not for interpersonal justice, a somewhat surprising finding. This finding is even more puzzling when looking at the results of hypothesis four which states the relationship between justice and OCB will be positively moderated by relationship-oriented leadership under conditions of both favorable and unfavorable work decision outcomes. H4 was supported under both conditions for all types of justice. Clearly, relationship-oriented leadership is important to respondents, but it is more influential when experiencing favorable work decision outcomes than when experiencing unfavorable work decision outcomes.

When respondents experienced a favorable work decision outcome, justice and relationship-oriented leader behavior explained about one-third of the variance in OCB (adjusted R^2 values = .32 to .37), but when respondents experienced an unfavorable work decision outcome, justice and relationship-oriented leader behavior explained only about 15% of the variance in OCB (adjusted R^2 values = .13 to .17). This finding suggests that work decision outcome favorability does matter when predicting OCB. The social exchange theory explanation suggests that when employees perceive fair treatment at work, they will reciprocate by engaging in positive work behaviors such as OCB's. Employees who report a favorable work decision outcome are likely to feel a stronger obligation to engage in OCB's or a stronger need to reciprocate than employees who report an unfavorable work decision outcome.

Leader behavior also matters when predicting OCB. The positive interaction between perceptions of justice and relationship-oriented leadership was consistently supported under all conditions and for all justice types in increasing levels of OCB. The findings were not as clean when studying the interaction between perceptions of justice and task-oriented leadership. Task-oriented leadership appears to have very little influence on OCB, except under conditions in which the respondent reports an unfavorable work decision outcome, and only in conjunction with interpersonal justice. In this situation, task leadership interacted with interpersonal justice to decrease OCBs.

Limitations and future research

There are several limitations to the present study that should be addressed. The sample of this study, although representing a wide range of industries, jobs, and ages of the working population, is a self-selected sample located primarily in the southwest. The survey was administered in 2004, four years before the current recession began, and thus, it is possible that the same survey administered today would yield different results. The data used in this study was collected at one period in time, making it a cross-sectional design. Another limitation concerns the leader behavior measure, and the use of the measure as a moderator rather than a mediator in the justice/OCB relationship.

Leader behavior is often used in conjunction with justice in studies of OCB, with many researchers focusing on leader-member exchange (LMX) or similar measures of leader behavior as a mediator between perceptions of justice and OCB (Aryee & Chay, 2001; Masterson, Lewis, Goldman & Taylor, 2000; Wayne, et al., 2002). Since justice perceptions are related to the quality of leader-member exchanges, using LMX as a mediator makes sense. However, LMX is based on exchange relationships developed over time between leaders and subordinates, and items in the LMX scale tend to reflect only relationship-oriented behaviors. The leadership literature has consistently identified two basic leader behaviors (see leader behavior section earlier in this paper): task-oriented behavior and relationship-oriented behavior, and studies using an LMX scale do not truly capture the task-oriented leader behavior. Although it could be argued that high quality LMX is similar to relationship-oriented leader behavior while low quality LMX is similar to task-oriented leader behavior, this may not be the case at all. Therefore, the present study specifically measures the two leader behaviors as two separate constructs and uses them as moderators rather than mediators.

Future research should focus on specific conditions under which outcome favorability and leader behavior influence OCB and performance. The point of management research is to

identify practices or behaviors that can be manipulated to achieve a desired outcome. Improved employee performance is almost always a desired outcome, and OCB is important because it is one measure of extra-role behavior that is tied to performance.

CONCLUSION

So what does this mean for managers? Should they adapt leader behavior based on the favorability of work decision outcomes? The answer to these questions (and almost all management questions) is, of course, it depends. The findings in this study indicate that relationship-oriented leader behavior strongly interacts with justice perceptions in almost every situation to positively influence OCB, but that does not necessarily mean relationship-oriented behavior is the best leader behavior in all situations. In fact, there were some strong main effects in which task-oriented leadership also had a positive influence on OCB as seen in the results of H3 for procedural and interpersonal justice and in H5 for all types of justice when the decision outcome is unfavorable.

It is overly simplistic to state that employees prefer relationship-oriented leader behavior at work because individual preferences often contradict this premise. McClelland's (1985) work on needs, for example, suggests that individuals with strong achievement needs might prefer a task-oriented leader. Blake and Mouton (1985) discuss the country club manager who is so focused on relationships with employees and coworkers that production suffers. From a common sense perspective, however, it is highly likely that employees want a manager who is balanced, one who is focused on getting the job done, but in a way that encourages mutual respect and trust in the workplace. When employees experience unfavorable work decision outcomes, managers should be aware that OCB may be reduced, and take the appropriate action to counteract the reduction.

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Table 1. Correlation Matrix with reliability measures on diagonal

	1	2	3	4	5	6	7
1. Procedural justice	.82						
2. Interpersonal justice	.58**	.98					
3. Informational justice	.65**	.81**	.91				
4. Outcome favorability	.36**	.27**	.31**	na^1			
5. OCBO	.24**	.27**	.26**	.22**	.90		
6. Task-oriented leadership	.10	.14*	.19**	.17**	.32**	.83	
7. Relationship-oriented leadership	.38**	.40**	.45**	.43**	.49**	.40**	.94

* p < .05; ** p< .01

[1] Outcome favorability is a single item measure; therefore, reliability is not calculated.

Table 2. Results for Hypotheses 1, 2, and 3

Independent Variable	Dependent Variable	n	F-value	Standard Beta	Adj R2
Hypothesis 1					
Procedural justice	OCBO	250	15.60***	.24***	.05
Interpersonal justice	OCBO	250	20.18***	.27***	.07
Informational justice	OCBO	250	17.25***	.25***	.06
Hypothesis 2					
Procedural justice - PJ	OCBO	250	31.45***	.57**	.27
Relationship leadership - MLead				.14	
PJ x MLead				.84***	
Interpersonal justice - IJ	OCBO	250	28.07***	-.19	.25
Relationship leadership - MLead				.22	
IJ x MLead				.44	
Informational justice – INFJ	OCBO	250	29.24***	-.48*	.25
Relationship leadership - MLead				.15	
INFJ x MLead				.74**	
Hypothesis 3					
Procedural justice - PJ	OCBO	250	13.98***	.24	.14
Task leadership - PLead				.30*	
PJ x PLead				-.03	
Interpersonal justice - IJ	OCBO	250	15.58***	.48*	.15
Task leadership - PLead				.49**	
IJ x PLead				-.35	
Informational justice – INFJ	OCBO	250	13.28***	.14	.13
Task leadership - PLead				.24	
INFJ x PLead				.08	

Table 3. Results for Hypothesis 4

Independent Variable	Dep Variable	n	F-value	Standard Beta	Adj R2
Hypothesis 4					
When decision outcome is favorable:					
Procedural justice - PJ	OCBO	120	19.53***	-1.02***	.32
Relationship leadership - MLead				-.12	
PJ x MLead				1.36***	
Interpersonal justice - IJ	OCBO	120	19.22***	-.74***	.32
Relationship leadership - MLead				-.16	
IJ x MLead				1.15***	
Informational justice – INFJ	OCBO	120	24.73***	-1.17***	.37
Relationship leadership - MLead				-.17	
INFJ x MLead				1.56***	
When decision outcome is unfavorable:					
Procedural justice - PJ	OCBO	130	9.47***	-.65**	.17
Relationship leadership - MLead				.02	
PJ x MLead				.98***	
Interpersonal justice - IJ	OCBO	130	7.71***	-.25	.14
Relationship leadership - MLead				.02	
IJ x MLead				.56*	
Informational justice – INFJ	OCBO	130	7.38***	-.39	.13
Relationship leadership - MLead				.04	
INFJ x MLead				.65*	

Results for Hypothesis 5.

Independent Variable	Dep Variable	n	F-value	Standard Beta	Adj R2
Hypothesis 5					
When decision outcome is favorable:					
Procedural justice - PJ	OCBO	120	4.83**	-.42	.09
Task leadership - PLead				-.15	
PJ x PLead				.72	
Interpersonal justice - IJ	OCBO	120	3.92**	-.16	.07
Task leadership - PLead				-.11	
IJ x PLead				.49	
Informational justice – INFJ	OCBO	120	4.82**	-.46	.09
Task leadership - PLead				-.24	
INFJ x PLead				.85*	
When decision outcome is unfavorable:					
Procedural justice - PJ	OCBO	130	6.78***	.34	.12
Task leadership - PLead				.43*	
PJ x PLead				-.25	
Interpersonal justice - IJ	OCBO	130	9.78***	.76**	.17
Task leadership - PLead				.76***	
IJ x PLead				-.76*	
Informational justice – INFJ	OCBO	130	7.29***	.40	.13
Task leadership - PLead				.46*	
INFJ x PLead				-.31	

Figure 1.

Relationship-
oriented Leadership

Organizational
Justice:
- Procedural
- Interpersonal
- Informational

+

+

-

Organizational
Citizenship
Behavior

Task-
oriented
Leadership
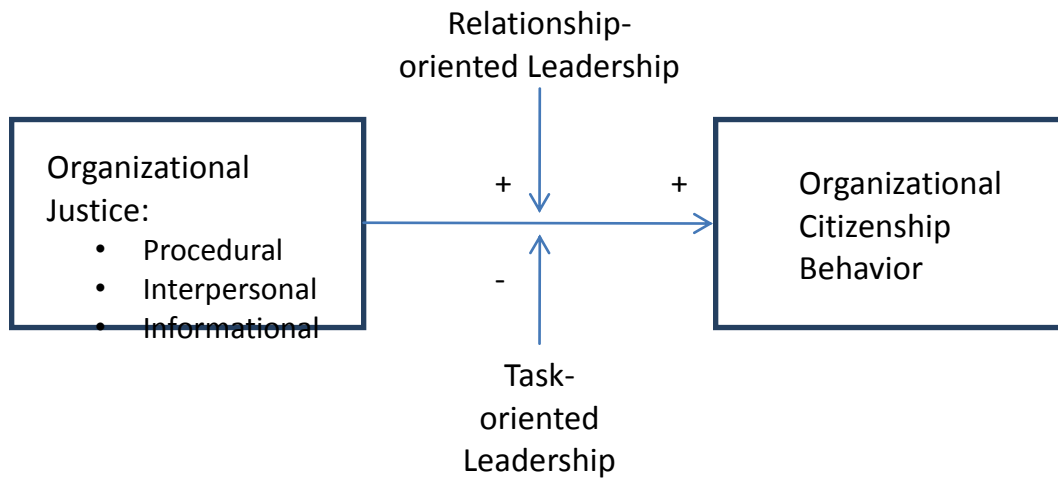
EVALUATING THE "FEW ALTERNATIVES" DIMENSION OF CONTINUANCE COMMITMENT: A COMMENT ON JOHNSON, CHANG, AND YANG

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ABSTRACT

Klein et al. (2009) have recently argued that the organizational commitment literature is characterized by construct proliferation of a kind which has resulted in "confusion and ambiguity" surrounding the terminology, nature, and function of commitment. As a result, progress in identifying the causes and consequences of commitment has been hampered. This short research note addresses one such case-that of the "few alternatives" dimension of continuance commitment as described recently by Johnson, Chang, and Yang (2010). It is argued that this construct is not a form of organizational commitment and should not be treated as such by scholars.

In their generally insightful article explaining how different motivational bases underlie commitment to organizational foci, Johnson, Chang, and Yang (2010) note that the dimensionality of the 'continuance' form of organizational commitment has been debated in the literature (cf. McGee & Ford, 1987; Meyer, Allen & Gellatly, 1990; Ko, Price, & Mueller, 1997; Powell & Meyer, 2004), and one of their stated purposes is to resolve this debate. Based on their evaluation of empirical research, and theoretical analysis of core motivations, regulatory focus and self-identity, they conclude that a two-dimensional formulation of continuance commitment (CC) is justified: "We subscribe to the view that CC is multidimensional, and the model we present supports this stance." (p.229). One dimension reflects continuance commitment that develops on the basis of investments that would have to be sacrificed, the other on a perceived lack of alternatives to maintaining the commitment to the organization (or supervisor, workgroup, or other target). Johnson et al. call this latter construct the "few alternatives" dimension of continuance commitment. This assertion stands in contrast to researchers such as Jaros (2009), who argues that the few-alternatives construct does not actually reflect any commitment content, and thus should not be considered a form or dimension of commitment, continuance or otherwise.

This research note proposes that Johnson et al.'s (2010) perspective is incorrect, that what they call the few-alternatives form of CC is not actually a manifestation of commitment to the organization. Instead, it likely reflects an antecedent of commitment, an employee's perceptions of the external labor market. Thus, it is recommended that the "few alternatives" construct be deleted from the Allen and Meyer (1990) three-component model[14] of organizational commitment in future research. The balance of the paper explains the rationale for this conclusion.

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[14] Allen and Meyer (1990) propose a three-dimensional model of organizational commitment comprised of affective commitment (commitment characterized by an emotional bond with the organization), normative commitment (commitment based on thoughts or feelings of obligation to the organization) and continuance commitment (commitment based on the costs that would have to be incurred in order to leave the organization). This model has evolved into the dominant paradigm in the organizational commitment literature (cf. Jaros, 2009).

First, Johnson et al.'s (2010) conclusion is likely to fan the flames of a debate that had apparently been settled. Controversy over the dimensionality of continuance commitment first emerged with McGee and Ford (1987), who factor-analyzed the continuance commitment scale (CCS) developed by Meyer and Allen (1984), and found that, contrary to Meyer and Allen's intentions, the CCS consisted of two factors, corresponding to sacrificed investments and lack of perceived employment alternatives. McGee and Ford suggested that while the sacrificed investments component was consistent with the "side-bet" theory of continuance commitment as formulated by Becker (1960), the perceived alternatives component was not and thus measured something other than continuance commitment. Meyer, Allen, and Gellatly (1990), using advanced confirmatory factor analytic methods, empirically confirmed the bi-dimensional structure of the CCS, but contra McGee and Ford argued that the perceived alternatives component was in fact consistent with Becker's (1960) theory, and thus continuance commitment should be regarded as a bi-dimensional construct. Meyer et al. argued that there is a difference between an employee's perceptions of available employment alternatives (which is not a form of organizational commitment), and commitment which develops as a result (which they argued is what the "low alternatives" dimension of continuance commitment actually is). During the 1990s, a genuine debate played out, as the Meyer et al. view was supported (e.g., Dunham, Grube, & Castaneda, 1994) and challenged by those who supported the McGee and Ford position (e.g., Brown, 1996; Ko et al., 1997).

However, in the past decade, this debate has largely ended, primarily because Meyer and colleagues, developers of the CCS and primary defenders of the notion that perceived alternatives is a dimension of continuance commitment, have come around to the view that only the sacrificed-investments dimension of the CCS properly reflects the theoretical nature of continuance commitment while the perceived alternatives dimension does not. First, Allen and Meyer (2000) suggested that perhaps the critics were correct in that the high-sacrifices dimension might better reflect the theoretical notion of continuance commitment than the perceived alternatives dimension. Then, Meyer et al. (2002) reported meta-analytic findings that the sacrificed-investments subscale was a significant and negative predictor of turnover-related variables (p= -.21) but the perceived-alternatives subscale was not (p= -.01). Since the concept of continuance commitment implies a significant tendency to remain a member of the organization, Meyer et al. concluded that "In light of these findings, it appears that the CC:HiSac subscale is a better operational definition of Becker's (1960) "side bet" view of commitment than is the CC:LoAlt subscale." (p.41), and called on researchers to revise the CCS so as to include more sacrifices-related items. This call was heeded by Powell and Meyer (2004), who developed a revised CCS reflecting only sacrifice-related items, jettisoning the perceived alternatives items from the scale. Reflecting on Meyer et al.'s (2002) findings, and their own findings, they concluded that:

> "In light of this evidence, and Meyer and Allen's reflections on the CCS subscales,
> we recommend that the six-item measure of high-sacrifice continuance commitment
> be used in subsequent research concerning the three-component model…" (Powell &
> Meyer, 2004: 171).

Thus, since the original developers of the modern concept of "continuance commitment" and the CCS scale, and the champions of the notion that the perceived alternatives subscale of the CCS reflects continuance commitment have conceded the argument that they waged during the 1990s, the debate has, in recent years, essentially ended (Jaros, 2009), and thus is not a live controversy requiring closure, one of the stated purposes of Johnson et al.'s paper.

Of course, it might be the case that Meyer and colleagues mistakenly conceded the argument, that the perceived-alternatives construct really does reflect Becker's (1960) "side bet" concept of commitment, and that Johnson et al. (2010) are correcting their mistake. But, Becker's theory offers much less conceptual space for perceived alternatives than Johnson et al. credit it with, at least not to the extent of allowing it to constitute one of two "sub-dimensions" of continuance commitment. Becker (1960) discusses four major categories of economic and social investments that may lead to the development of commitment: generalized cultural expectations (e.g., a norm against switching jobs too often), bureaucratic arrangements (e.g., pension fund accrual), face-to-face interaction (e.g., avoidance of inconsistent behavior so as to maintain a desired image among peers), and individual adjustment to social position (e.g., an employee develops firm-specific skills). Of these, only the last one could plausibly encompass perceived employment alternatives as a basis for commitment, and this is in fact the theoretical claim made by Meyer, Allen, and Gellatly (1990: 717) in justifying its inclusion within the side-bet view:

> 'As employees adjust to their roles in an organization, they may gradually change their perceptions of what is an acceptable alternative. In some cases, this redefinition could result in a much smaller set of alternatives. As the number of alternatives judged acceptable decreases, the potential for loss increases. This, then, justifies the inclusion of items assessing perceived alternatives in a measure of continuance (side-bet) commitment. "
> '

This reasoning is sound in the sense that it comports with Becker's explanation of the "individual adjustments" category of side-bets. The error is a proportional one: While Becker considered this category to be just one of four, and possibly more categories of side-bets (he noted that these four categories may not be exhaustive), and one that wasn't any more important than the others, in developing their concept of continuance commitment and the CCS, Meyer and Allen (1984) elevated, without justification, the "perceived alternatives" aspect to account for fully half of the conceptual "space" captured by the CCS. Meyer and Allen (1984: 375) describe their development of the CCS thusly:

> "This 8-item measure, also developed by the authors, assesses the extent to which employees feel committed to their organizations by virtue of the costs that they feel are associated with leaving (e.g., investments and/or lack of attractive alternatives) As such, the CCS is considered a measure of organizational commitment of the sort Becker describes."

Note that the proportionality problem occurs even within the "individual adjustment to social position" category, since a lack of perceived employment alternatives might be only one of many such types of adjustments that could lead to continuance commitment.

Thus, as empirically determined by Meyer, Allen, and Gellatly (1990), Meyer and Allen (1984) ended up writing 4 items to capture "lack of alternatives" and 4 items to capture all the other possible categories of investments, the three other major categories specifically identified by Becker (1960) plus any other as-yet unknown categories. This measurement strategy clearly places far too much emphasis on what Becker (1960) considered to be, at best, one of four possible categories of investments and side-bets and even within the one category where it fits, adjustment to social position, a lack of perceived employment alternatives is just one of many possible manifestations. It was this measurement-development error that was revealed by McGee and Ford's (1987) factor-analytic study. Had Meyer and Allen (1984) chosen to over-emphasize the "generalized cultural expectations" side-bet category, and wrote four of eight items to reflect it instead of "perceived alternatives", McGee and Ford (1987) would have found a "generalized cultural expectations" factor and a debate would have begun over whether continuance commitment was bi-dimensional, with one of the dimensions reflecting this factor and not "perceived alternatives". Thus, rather than being a true theoretically-derived "dimension" of continuance commitment, the perceived-alternatives subscale is a statistical artifact of faulty scale construction.

One possible objection to this critique is that it treats Becker's (1960) work as a kind of 'holy writ', not subject to later modification. Leaving aside the fact that Meyer and Allen (1984) explicitly stated that they constructed the CCS to reflect Becker's original theory, perhaps in the 24 years between Becker (1960) and Meyer and Allen (1984), researchers testing Becker's theory determined that the "perceived alternatives" category merited more emphasis than Becker originally believed as a basis for continuance commitment, and Meyer and Allen (1984)'s approach fairly reflected that theoretical evolution. But if so, it's not readily apparent in the published literature. Tracing the evolution of cost/investments based commitment from Becker forward to Meyer and Allen (1984), through research by Kanter (1968), Hrebiniak and Alutto (1972), and Farrell and Rusbult's work (Farrell & Rusbult, 1981; Rusbult & Farrell, 1983) one searches in vain for any such change of emphasis. Kanter and Hrebiniak/Alutto do not mention perceived alternatives, whereas Rusbult and Farrell's work treats perceived alternatives as one of four categories of binding factors, with costs, rewards, and investments. Importantly, they consider these factors to be *causes* of commitment, antecedents, not dimensions or aspects of it such that they should be included in the item-wording of a cost-based commitment scale. Thus, there is no apparent theoretical rationale, either in Becker or in later developments of his theory, for the emphasis Meyer and Allen (1984) placed on perceived alternatives in constructing the CCS, and as noted earlier, later on these same pioneering authors (Allen & Meyer, 2000) came around to this point of view and no longer regard perceived alternatives as a separate dimension of continuance commitment.

Finally, any attempt to argue for a perceived-alternatives based dimension of continuance commitment raises an issue of construct redundancy in organizational research. Recently, Klein, Molloy, and Cooper (2009) have argued that the organizational commitment literature is characterized by construct proliferation of a kind which has resulted in "confusion and ambiguity" surrounding the terminology, nature, and function of commitment. As a result, progress in identifying the causes and consequences of commitment has been hampered. Thus, they argue that one of the foci of commitment research should be to reduce or eliminate construct proliferation, by being careful about the introduction of new commitment constructs, and by

analyzing the validity of existing commitment constructs and eliminating those that do not pass empirical or conceptual scrutiny. In this case, there already is a well-established "perceived alternatives" construct, one that is not defined as a form or dimension of commitment, in the organizational behavior literature (cf. Bar-Haim, 2007; and see Griffeth, Hom & Gaettner, 2000 for meta-analytic findings of perceived alternatives in models of employee turnover). This construct has a long pedigree, stretching back to March and Simon (1958), and is defined as the employee's perceptions of available employment alternatives.

It's not clear how the alleged "perceived alternatives" continuance commitment subdimension construct tapped by the Meyer and Allen (1984) CCS differs from the construct tapped by other measures of "perceived alternatives" characterized as being a separate construct from commitment. As Brown (1996) compellingly argues, "First and foremost, this factor should be interpreted for what the questions ask: an assessment of the availability of alternative jobs. A perception of a lack of alternative work may bind someone to a job—a situation with which they may or may not be happy—but this is different from commitment and may be perceived to exist the very day a person joins an organization" (p.244). Please see the appendix for the CCS scale items, which to my 'eyeball' reckoning seems to confirm Brown's view that these items tap a perception of a lack of perceived employment alternatives with not much evidence of commitment-content. And since recent research has empirically determined that perceived employment alternatives is a *cause*, not a dimension of continuance commitment (cf. Powell & Meyer, 2004), it's difficult to see how this alleged distinction between perceived employment alternatives and perceived alternatives as a dimension of commitment can be sustained.

In justifying their advocacy of a multi-dimensional approach to continuance commitment, Johnson et al. (2010) cite empirical support for the model, noting that when subjected to empirical tests, the CCS usually reveals two subdimensions with item wording that reflects perceived sacrifices and perceived alternatives, and that these subdimensions have different relations with other constructs, such as affective commitment and withdrawal cognitions. For example, Vandenberghe, Panaccio, and Ben Ayed (2010) recently found that the "few alternatives" sub-dimension of continuance commitment has a positive impact on turnover behavior for employees who are high in negative affectivity, whereas the "high sacrifices" sub-dimension has a negative impact on turnover behavior for employees high in negative affectivity. They also argue that they have different motivational bases, at least with respect to regulatory foci. However, the empirical findings only indicate that the perceived sacrifices and perceived alternatives subscales measure somewhat different constructs, they do not necessarily mean that the perceived alternatives subscale measures a form or dimension of employee commitment, continuance or otherwise.

For example, if four job satisfaction items were included in a scale with four side-bet commitment items, no doubt a factor analysis would reveal two different subscales, and because side-bet commitment and job satisfaction are different constructs, they would relate differently to some antecedents and outcomes. And they would likely have different motivational bases as well. But that wouldn't mean that job satisfaction is a "dimension" of organizational commitment, which would be determined based on conceptual congruence between the scale items and the definition of "job satisfaction" as opposed to "organizational commitment". In this regard, Vandenberghe et al.'s (2010) recent findings are instructive, since all existing definitions

of "commitment" propose that committed employees will be less, not more, likely to leave their organization. Thus, the finding of a positive relationship between the "few alternatives" sub-dimension and turnover behavior is actually evidence that this few-alternatives construct is not tapping a form of work commitment.

By identifying the differing motivational bases of several forms of commitment, Johnson, Chang, and Yang (2010) provide a valuable contribution to researchers in this area. However, based on the forgoing discussion, it seems advisable that their work be revised in favor of a three-component model of commitment that treats perceived alternatives as one of many possible causes/bases of continuance commitment and not as a distinct dimension. Doing so will help address the problem of construct proliferation problem identified by Klein et al. (2009), thus paving the way for advances in understanding the nature, causes, and consequences of employee commitment to the organization.

APPENDIX: The "Few Alternatives" Subscale of the CCS*

CCS1: Right now, staying with my organization is a matter of necessity as much as desire.
CCS3: I feel I have too few options to consider leaving this organization.
CCS4: One of the few negative consequences of leaving this organization would be the scarcity of available alternatives.

CCS8: I am not afraid of what might happen if I quit my job without having another one lined up.

*As reported by Meyer, Allen, & Gellatly (1990)

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WHAT IS WISDOM? A VALIDATION AND DEVELOPMENT OF A MEASURE

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ABSTRACT

This study develops a multidimensional scale for measuring the concept of wisdom. Through synthesizing and augmenting multiple conceptualizations and operationalization of wisdom, we propose and validate a twenty-one item measure of wisdom. This measure integrates literature from both the implicit and explicit theories of wisdom in psychology and also incorporates recent management literature. Two studies are conducted and both demonstrate support for dimensionality, reliability, and validity of the proposed scale. This scale offers a more complete and theoretically grounded measure of wisdom in a workplace context, thus contributing to the extant literature.

The concept of wisdom has fascinated both scholars and laypersons for decades, yet a clear definition of wisdom still remains unknown. Considerable debate has emerged over the necessary elements of wisdom and two prominent literature streams have evolved. Specifically, Ardelt (2003) explains that empirical research on wisdom typically (1) evaluates implicit theories or the meaning of wisdom among laypeople or (2) measures people's degree of wisdom or their wisdom-related performance founded on implicit or explicit theories.

The first literature stream focuses on implicit theories that individuals hold about the nature of wisdom and the characteristics that comprise wise individuals (Baltes & Smith, 2008). This side concentrates on measuring the dimensions of wise individuals themselves, in which wisdom can be argued as a personality characteristic instead of a performance-based characteristic that might be context specific (Webster, 2003; Ardelt, 2003). Moreover, this line of research defines wisdom as including cognitive, affective, and reflective personality characteristics (Ardelt, 2003), and often demonstrates that wise individuals are knowledgeable, mature, tolerant, emphatic, experienced and intuitive (Baltes & Smith, 2008)

The second stream of research focuses on explicit theories, in which "explicit theories are constructions of (supposedly) expert theorists and researchers rather than laypeople" (Sternberg, 1998). The Berlin Paradigm defines wisdom as an "expert system dealing with the meaning and conduct of life" (Baltes & Staudinger 2000, p. 124). This paradigm indicates that the term "expertise" is intended to denote that it is not intelligence in the typical sense, but instead, a considerably more multifaceted system of knowledge, procedural strategies, and intuition. (Baltes & Smith, 2008). The expert knowledge system can be reflected in human behavior and decision making, such as how individuals answer: Which future life goals to pursue and how? How to deal best with critical problems? How best to make sense of our life history and past experiences? (Baltes & Smith, 2008). Unlike the preceding group, implicit measures of wisdom are intended to evaluate an individual's wisdom-related performance compared to personality

characteristics (Ardelt, 2003). Moreover, it has been argued that by conceptualizing wisdom as an "expert knowledge system," wisdom exists externally from individuals, whereas the other literature stream suggests that wisdom is within wise persons (Ardelt, 2004).

Despite the differences between the two prominent literature streams, there is a general agreement that wisdom is a multidimensional construct (Ardelt 2003; Webster 2003). Although the concept of wisdom is prevalent throughout psychology literature, it is only minutely integrated into management research (McKenna, Rooney, & Boal, 2009). Recently, a call for such research has been made. McKenna et al. (2009, p. 177) argue that "leadership requires wisdom to provide excellence in judgment, insight and character and that if the principle features of wisdom are understood, leaders can be evaluated according to a robust criteria based on these principles."

Thus, the purpose of the research is to develop an encompassing and organizationally relevant measure of wisdom that can be used in assessing this individual trait. By integrating management literature and both psychology streams, we present a multidimensional conceptualization of wisdom that is applicable in a generalized organizational and managerial context. It is our understanding that this is the first research to date that operationalizes wisdom in such manner. Accordingly, we offer a comprehensive definition of wisdom, such that wisdom can be operationalized as possessing the following seven dimensions: reflective, openness, interactional aptitude, practical, ethical sensibility, paradoxical tolerance and experience. This operationalization is tested through two studies, in which the second study utilizes full-time employees. These dimensions are expanded on subsequently.

DIMENSIONS OF WISDOM

Practical.

The practical dimension of wisdom refers to an individual's ability to reason carefully. More specifically, this relates to an individual's ability to screen incoming information and to be able to select or focus on the aspect that is most critical. Research has suggested that wise people must be able to create and comprehend logical arguments that are founded on thorough propositions (McKenna et al., 2009). Moreover, wise individuals are often skeptical and question other's assertions or question commonly accepted views (McKenna et al., 2009; Sternberg, 1990). Additionally, it has been argued that wise individuals direct their attention to the precise level or to the key pieces of information by selecting the most prominent facts in a particular situation (Eflin, 2003). Malan and Kriger (1998, p. 246) state that wise individuals "filter and interpret the noise from within their own organizations and determine the salient points on which to act."

The practical dimension of wisdom also refers to an individual's decision making style, such that they look at a problem from multiple perspectives. McKenna et al. (2009) argue that wise leaders understand that decision-making seldom requires applying absolute principles. Therefore, wise individuals not only know absolute principles, but also know how and why to apply them in a complex world (McKenna et al., 2009). This dimension also relates to "the fundamental pragmatics of life" in the Berlin paradigm (Baltes & Smith, 2008), such that individuals can wisely address which future life goals to pursue and how? Ardelt's (2003) arguments also provide support for this dimension. Specifically, she argues that wise people

look at phenomena from different perspectives and attempt to remove subjectivity from decision making (Ardelt, 2003).

Taken together, previous research indicates support for a dimension of wisdom that considers a person's carefulness, and we label this dimension *practical*. We take the position that the practical dimension of wisdom is reflective, such that wise people possess the ability to reason carefully.

Reflective.

The reflective dimension of wisdom refers to an individual's ability to reminisce on one's past and present life. Webster (2003, p.14) indicates that reflecting on one's past performs a mass amount of important psychological functions, "including identity formation and maintenance, self-understanding, problem-solving, and adaptive coping". Ultimately, reflecting upon one's life allows an individual to acknowledge both personal strengths and weaknesses. This further presents an opportunity to enhance personal strengths while attenuating weaknesses (Webster, 2003).

This dimension also relates to Baltes and Smith's (2008) life review, which addresses how to understand one's life history and past experiences. Similarly, Ardelt (2003) argues that wisdom contains a dimension of reflectivity. Particularly, she argues that reflectivity is a prerequisite to wisdom's cognitive and affective components, and that it is through this dimension that individuals learn to not react to unpleasant circumstances and to acknowledge the reality of the current situation. Therefore, we believe that being reflective is an important component to wisdom, such that we label this dimension *reflective*. Moreover, we believe that this dimension will act as a reflective indictor of wisdom.

Openness.

Openness to experience is one of the "big five" dimensions of personality (Digman, 1990). Specifically, openness refers to an individual's creativeness, imagination, and intellectual curiosity. Several researchers have suggested that being open to alternative views or open to views unlike one's own is a key component to wisdom (Webster, 2003; Baltes and Smith, 2008). Likewise, openness relates to listening to and being tolerant of alternative views and possible solutions to problems. Webster (2003, p. 15) argues that, "rigid and inflexible responses to life's demands make an individual unwise". Additionally, Baltes and Smith (2008, p. 58) present a dimension of wisdom they term relativism, such that "expressing tolerance and respect for beliefs or actions unfamiliar or contrary to one's own" is an outcome of wisdom. Taken together, previous research lends support for a dimension of wisdom we label *openness;* and consistent with previous research, we believe openness will be a reflective indicator of wisdom.

Interactional Aptitude.

Interactional aptitude refers to an individual's ability to regulate one's own emotions and expressions and to understand other's emotions and behaviors. In other words, this dimension includes emotional, social, and communication skills. Several researchers have argued that affect sensitivity and emotional regulation are critical components to wisdom (Webster, 2003). Wise individuals are able to attune their emotions and present appropriate expressions for the situation at hand. Webster (2003, p. 14) states that "Recognizing, embracing, and employing emotions in a constructive way is a benchmark of wisdom". Moreover, Webster (2003) suggests that wise individuals are able to recognize and distinguish among mixed emotions, and use this information to assist in problem resolution. Furthermore, during interactions with others, wise

individuals are able to comprehend other's expressions and use this information to further understand the individual, including the individual's beliefs, attitudes, values, abilities, and inabilities (Webster, 2003). Taken together, previous research indicates that wise people have high interpersonal skills, and we therefore label this dimension *interpersonal aptitude*; likewise, we believe interpersonal aptitude will be a reflective indicator of wisdom.

Paradoxical.

The paradoxical dimension of wisdom refers to an individual's ability to tolerate uncertainty and ambiguity. It has been argued that wise people have the ability to tolerate uncertainty, such that wise leaders envision and pursue long-term goals. Likewise, wise leaders can picture the effects of alternative courses of action in the long-term (McKenna & Rooney, 2005). Furthermore, wise individuals can "grasp and reconcile the paradoxes, changes, and contradictions of human nature" (McKenna et al., 2009, p.177). In short, previous research lends support for a dimension of wisdom we term *paradoxical*, and we believe that this dimension will be a formative indicator of wisdom.

Ethical Sensibility.

The ethical sensibility dimension of wisdom refers to an individual's ethics and ethical judgments. Aristotle strongly encouraged the role of ethics and virtue, which has been claimed to be a central component to practical wisdom (Baltes & Smith, 2008). Moreover, Sternberg's three-part Balance Theory of Wisdom largely centers on values, such that wisdom reveals itself by displaying concern for others (Sternberg, 1990). However, no empirical measure or published article relating ethics to wisdom could be found by the researchers. Therefore, we attempt to integrate ethics into a measure of wisdom, and we term this dimension *ethical sensibility*. Thus, we believe ethical sensibility will be reflective indicator of wisdom.

Experience.

The experience dimension of wisdom refers to an individual's experience with challenging life situations. Webster (2003, p. 14) states that, "Wisdom cannot develop in a vacuum. Rather, it emerges during the exigencies of life, the rough and tumble of everyday existence. " Nonetheless, it is argued that is it not just accumulated general experience, but instead, experiences that are difficult or morally challenging that allows wisdom to grow (Webster, 2003). Thus, we believe experience is an important component of wisdom, such that we term this dimension *experience*. Moreover, we believe that this dimension will act as a formative indicator of wisdom.

In summary, the preceding discussion demonstrates that the seven dimensions of wisdom proposed in this research are theoretically supported. These seven dimensions integrate literature from management and incorporate both implicit and explicit theories of wisdom provided in the psychology literature. More specifically, we believe that the experience and paradoxical dimensions will act as formative indicators of wisdom, whereas the practical, reflective, openness, interpersonal aptitude, and ethical sensibility dimensions will act as reflective indicators of wisdom. We develop and test this seven factor measure of wisdom in the following two studies.

METHOD

Development of the wisdom measure was completed in three phases. Phase I entailed a comprehensive compilation of measures representing each of the above domains, as well as the

use of three expert raters to clarify and refine the items prior to piloting the measure. Phase II entailed a pilot study of student respondents in an effort to further refine and clarify the measure. In this phase we specifically sought to assess the dimensionality and reliability of the items, and given this aspiration and the nature of the wisdom construct, a student sample was appropriate. Phase III sought to further establish the content domain of the measure and tested the proposed scale in a field setting.

Study 1

As alluded to above, once all of the items for each domain were compiled, a panel of three raters familiar with the extant wisdom literature were used to rate each item for clarity and domain specification. Each rater began by classifying each item to a hypothesized dimension of wisdom; only items that were correctly classified by all three raters were retained, thus there needed to be 100% inter-rater reliability in order for an item to be advanced to use in study 1. Once this was complete, the raters were then asked to look at the set of items within each domain to ensure it adequately captured the dimension of interest. Of the sixty-two items that were originally compiled to measure wisdom, the inter-rater agreement suggested that a forty-six item measure be used in study 1.

Sample and Procedure

Two hundred and six undergraduate students from four sections of introductory management and marketing courses at a large southeastern university were surveyed. Student participation was incentivized with extra credit. To ensure candor, participants were assured that individual responses would be kept confidential and that only aggregate data would be reported. The sample (N=221) consisted of 117 females (53%) and 103 males (47%). The average age of the participants was 22.68 years (range 19-57), 13% were employed full-time, 41% were employed part-time, and 46% were full-time students/unemployed. Participant ethnicity was primarily Caucasian (80%), with 11% indicating Black or African American, and 4% Hispanic or Latino.

Measures

The items used to measure each of the proposed dimensions of wisdom are as follows. Please note that all items were measured by a five-point Likert-type scale that was anchored by "strongly disagree" and "strongly agree". All items are provided in the Appendix.

Interactional Aptitude. The interactional aptitude dimension of wisdom was measured with ten items adopted from Goleman (1995) representing emotional intelligence and seven items adopted from Ferris et al. (2001) representing social skill. A representative item is ""In social situations, it is always clear to me exactly what to say and do."

Practical. The practical dimension of wisdom was measured with two items adopted from Davis (1980) representing perspective taking and six items adopted from Heppner and Peterson (1982) representing problem-solving confidence and approach/avoidance style. A representative item is "I believe there are two sides to every question and try to look at them both."

Paradoxical. The paradoxical dimension of wisdom was measured with six items adopted from Freeston, Rheaume, Letarte, Dugas, and Ladouceur (1994). A representative item is "The ambiguities in life stress me."

Ethical Sensibility. The ethical dimension of wisdom was measured with four items adopted from Brown, Trevino, and Harrison (2005) and two items adopted from Reichel and Neumann (1988). A representative item is "I define success not just by results but also by the way that they are obtained."

Experience. The experience dimension of wisdom was measured with two items adopted from Webster (2003) and three items adopted from Webster (2007). A representative item is "I have lived through many difficult life transitions."

Reflective. The reflective dimension of wisdom was measured with four items adopted from Webster (2003). A representative item is "I often think about my past."

Openness: The openness dimension of wisdom was measured with ten items adopted from Goldberg et al. (2006). A representative item is "I enjoy hearing new ideas."

Other measures

Four constructs were hypothesized to positively correlate with wisdom and were included in study 1 to help provide convergent and discriminant validity.

Self-monitoring. The thirteen item scale developed by Lennox and Wolfe (1984) was used to measure self-monitoring. Given that self-monitoring captures both ability to modify self-presentation and sensitivity to expressive behavior of others, it should positively correlate with wisdom; such that those high in wisdom should be able to scan their environment and modify their behavior accordingly. This scale utilized a five-point Likert-type scale anchored by "strongly disagree" and "strongly agree." A representative item is "I have the ability to control the way I come across to people, depending on the impression I wish to give them." The internal-consistency estimate of reliability for this scale was $\alpha = .75$.

Core Self-Evaluations (CSE). The twelve-item scale developed by Judge, Erez, Bono, and Thoresen (2003) was used to measure core self-evaluations (CSE). CSE is an especially relevant construct as it represents four core traits (each of which should be positively related to Wisdom): self-esteem, generalized self-efficacy, neuroticism, and locus of control. This scale utilized a five-point Likert-type scale anchored by "strongly disagree" and "strongly agree." A representative item is "I determine what will happen in my life." The internal-consistency estimate of reliability for this scale was $\alpha = .82$.

Self-reported GPA. Respondents were asked to report their GPA at the end of the previous semester. GPA was collected as a proxy for intelligence (e.g. Gutman et al., 2003; Farsides & Woodfield, 2003) and conscientiousness (Honeycutt, 2008), in which both constructs should be positively correlated with wisdom. Though this is a crude measure, there is no reason to suspect students would intentionally misrepresent this information. Additionally, fear of academic dishonesty repercussions should actually have a reverse effect to any social desirability bias, thus incentivizing honesty.

Age. Extant literature has shown age to be positively correlated with wisdom (e.g. Staudinger, Smith, & Baltes, 1992). As such, this demographic variable was collected for use as a correlate in addition to its demographic function.

Though multiple measures hypothetically could serve to help establish convergent and discriminant validity, the research team felt the above measures best represented the breadth of the literature and still fit within reasonable space and time constraints. As an example to this point, whereas conscientiousness hypothetically fit, it alone is ten items. The core self-evaluations scale is a twelve item measure that has been empirically established, is widely accepted, and represents four relevant yet distinct traits. Additionally, as noted above, GPA has been used as a proxy for conscientiousness and intelligence.

Controls. Except for age, the extant literature did not suggest the necessity of controlling for any specific demographics or variables when studying wisdom. Age has been commonly used, however given Ardelt (2003) the researchers found age more prudently used as a correlate than a control. Gender, Race, and years of job experience were gathered out of prudence, but no relationships were hypothesized nor were any subsequently detected.

RESULTS

The primary objective of study 1 was to act as pilot test to assist in item trimming and to act as an initial validity testing procedure. Exploratory factor analysis (EFA) and item analyses were used to refine the scale and to analyze a theoretical a priori initial factor structure. As encouraged by Netemeyer et al. (2003), common factor analysis (Principal Axis Factoring) and an oblique rotation method (Direct Oblimin) were used. These methods are suggested to be more relevant in scale development, since common factor analysis is typically more associated with recognizing the underlying dimensions of a set of items and because EFA--based common factor analyses often generalize to CFA more so than principle components factor analysis. Likewise, Direct Oblimin assesses the extent to which multiple dimensions correlate, yielding more meaningful theoretical factors.

Of the seven dimensions proposed, six were identified as having acceptable structure (Figure 1: Factor loading Pattern Matrix). As shown, both the scree plot (Figure 2: Scree Plot) and the total variance explained support the six dimension solution. Specifically, the scree plot's elbow breaks at the sixth dimension, and the total variance explained per dimension becomes less than four after the sixth dimension as well. Hair, Tathman, and Black (1998) suggest that at least 5% of the variance explained should be associated with a factor in order for that factor to be meaningful. Therefore, the author's agreed that since the sixth factor explained 4.66% of the total variance, it ought to be kept in the solution; whereas the seventh factor only explained 3.46% of the total variance. The majority of the items representing the ethical dimension of wisdom did not load onto any of the factors, or else indicated poor loadings (<.4). After considering that the researchers could not find any published empirical measure of ethics relating to wisdom and that the ethical items indicated poor loadings, they were removed from the subsequent analyses. Overall, in the subsequent analyses, items with poor loadings were removed from the analysis and factor analysis was repeated until all cross-loadings were

nonexistent in the factor structure. The final analysis supported six factors and twenty-six indicators.

Figure 1: EFA-Factor Loadings

Pattern Matrix

	Factor					
	1	2	3	4	5	6
Q19_5	.814					
Q19_4	.808					
Q19_3	.766					
Q19_6	.646					
Q19_2	.577					
Q19_1	.546					
Q12_3		.857				
Q12_1		.802				
Q12_5		.709				
Q12_2		.681				
Q12_4		.483				
Q18_7			-.831			
Q18_1			.762			
Q18_9			-.635			
Q18_2			.627			
Q18_6			-.557			
Q20_4				.630		
Q20_6				.602		
Q20_3				.498		
Q17_4					.753	
Q17_1					.741	
Q17_2					.707	
Q17_3					.679	
Q13_7						-.790
Q13_6						-.677
Q13_8						-.617

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Figure 2: EFA—Scree Plot

Scree Plot
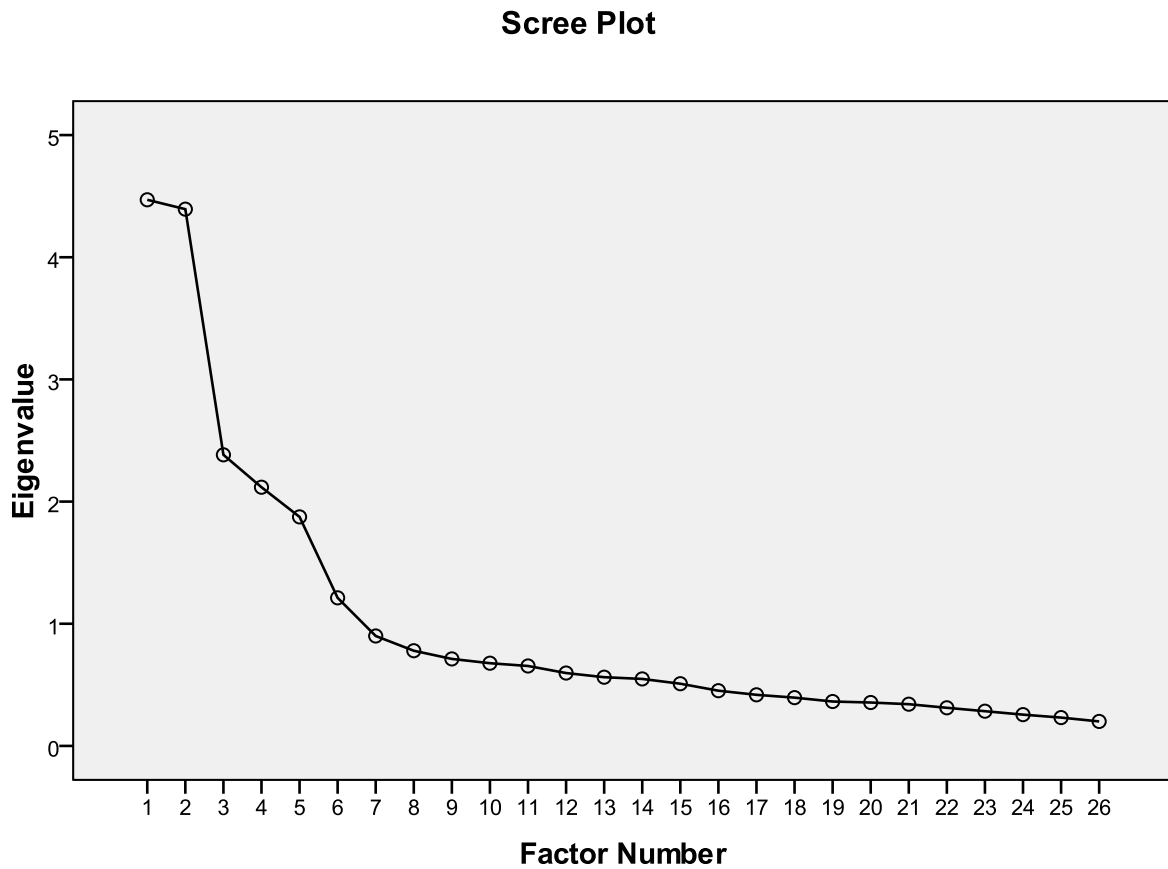
As noted by Netemeyer et al. (2003), it is important to assess internal consistency in the initial stages of scale development. This includes internal consistency estimates of reliability (coefficient alphas), average inter-item correlations, corrected item-to-total correlations, item variances, and item-wording redundancy. Therefore summated scales were created for each dimension of wisdom and internal consistency was assessed. The sub-dimensions each had acceptable reliability estimates: Paradoxical ($\alpha = .85$), Experience ($\alpha = .84$), Openness ($\alpha = .82$), Interactional ($\alpha = .65$), Reflective ($\alpha = .82$), and Practical ($\alpha = .77$). Admittedly, the Interactional sub-dimension scale was lower than the .7 target, but the researchers felt it was still sufficient given it was above .6 and was only a three item measure. The corrected inter-item correlations for all of the retained items were >.5, thus meeting the recommendation of Bearden and Netemeyer (1998).

Construct validity of the proposed measure was assessed in multiple ways. First, as noted above the use of three expert raters to assign each item to a latent construct and only retaining items that had 100% inter-rater agreement provides strong support for face validity. Convergent validity was supported by (a) the high standardized factor loadings of each item (>.5, most >.71) indicating that in most cases the latent factor explains the majority of the variance in each item), and (b) sufficient internal consistency estimates of reliability for each sub dimension (noted above). Nomological validity was evidenced by the correlations among the dimensions of wisdom, and through the correlations among the dimensions of wisdom to the proposed correlates (self-monitoring, core-self evaluations, and age). Table 1 shows that each sub-dimension was positively correlated to one, if not two or three of the correlates. GPA did not prove to be positively correlated with any of the six sub-dimensions, but admittedly it was a crude measure to begin with; and given the nomological net established by the other correlates, it is reasonable to conclude evidence of nomological validity for the proposed measure.

Table 1: Correlations

		Experience	Interactional	Reflective	Openness	ParadoxicalR	PracticalR	Self Monitor	Core Self	Age	GPA
Experience	Pearson Correlation	1	.215**	.301**	.078	-.064	.207**	.268**	-.108	.194**	-.119
	Sig. (2-tailed)		.001	.000	.250	.348	.002	.000	.112	.004	.080
	N	220	220	220	220	220	220	220	220	219	218
Interactional	Pearson Correlation	.215**	1	.124	-.030	-.026	.323**	.644**	.316**	-.057	.043
	Sig. (2-tailed)	.001		.067	.663	.703	.000	.000	.000	.404	.524
	N	220	220	220	220	220	220	220	220	219	218
Reflective	Pearson Correlation	.301**	.124	1	.030	-.218**	.124	.202**	-.008	.023	.015
	Sig. (2-tailed)	.000	.067		.654	.001	.067	.003	.904	.730	.824
	N	220	220	220	220	220	220	220	220	219	218
Openness	Pearson Correlation	.078	-.030	.030	1	.252**	.302**	.160*	.078	.061	.013
	Sig. (2-tailed)	.250	.663	.654		.000	.000	.018	.247	.372	.849
	N	220	220	220	220	220	220	220	220	219	218
ParadoxicalR	Pearson Correlation	-.064	-.026	-.218**	.252**	1	.081	.011	.388**	.121	.075
	Sig. (2-tailed)	.348	.703	.001	.000		.230	.874	.000	.075	.271
	N	220	220	220	220	220	220	220	220	219	218
PracticalR	Pearson Correlation	.207**	.323**	.124	.302**	.081	1	.459**	.391**	.164*	.120
	Sig. (2-tailed)	.002	.000	.067	.000	.230		.000	.000	.015	.078
	N	220	220	220	220	220	220	220	220	219	218
SelfMonSumScale	Pearson Correlation	.268**	.644**	.202**	.160*	.011	.459**	1	.342**	-.017	.060
	Sig. (2-tailed)	.000	.000	.003	.018	.874	.000		.000	.800	.382
	N	220	220	220	220	220	220	220	220	219	218
CoreSelfSumScale	Pearson Correlation	-.108	.316**	-.008	.078	.388**	.391**	.342**	1	.022	.161*
	Sig. (2-tailed)	.112	.000	.904	.247	.000	.000	.000		.745	.017
	N	220	220	220	220	220	220	220	220	219	218
Age	Pearson Correlation	.194**	-.057	.023	.061	.121	.164*	-.017	.022	1	.091
	Sig. (2-tailed)	.004	.404	.730	.372	.075	.015	.800	.745		.181
	N	219	219	219	219	219	219	219	219	219	217
GPA	Pearson Correlation	-.119	.043	.015	.013	.075	.120	.060	.161*	.091	1

Sig. (2-tailed)	.080	.524	.824	.849	.271	.078	.382	.017	.181	
N	218	218	218	218	218	218	218	218	217	218

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

DISCUSSION

The objective of study 1 was to act as pilot test to assist in item trimming and to analyze initial validity. The results indicated that a six factor solution existed, such that wisdom can be thought to contain six dimensions. These dimensions include openness, reflective, experience, interactional aptitude, practical and paradoxical. The ethical dimension was not supported in the analysis, and may relate to why the researchers could not find any existing empirical support regarding the relationship between wisdom and ethics. Therefore, this dimension was removed from the following analyses and the operationalization of wisdom. Of the forty-six items that were formulated prior to study one, twenty items were removed, leaving twenty-six items to be further evaluated in study 2. Dimensionality, reliability, internal consistency, and construct validity of the measure were found to be acceptable; and nomological validity of the measure was supported by the significant correlations among the dimensions of wisdom and other meaningful constructs.

Study 2

The purpose of study two was to further refine and validate the measure of wisdom. The remaining twenty-six item measure of wisdom was analyzed using confirmatory factor analysis (CFA). The analysis included two-stages. The first stage assessed the measurement theory that related the indicators to the dimensions of wisdom, whereas the second stage assessed the structural paths of the dimensions of wisdom and evaluated alternative models.

Sample and Procedure

Two hundred and eighty-nine full-time employees participated in study 2. Participants were recruited with the assistance of MBA students enrolled in two sections of an Organizational Behavior course at a large southeastern university. Students were asked to solicit responses from up to five individuals meeting the following criteria: current employment (>30 hours per week), minimum of three years full-time work experience, and willingness to voluntarily participate in a research study. The sample consisted of one-hundred forty-two females (49.1%) and one-hundred forty-seven males (50.9%). The average age of the participants was 34.04 years. Participants also indicated their current position within their place of employment; 34.3% held non-managerial positions, 14.5% held lower-level managerial positions, 18.3% held mid to upper level managerial positions, and 32.9% indicated that they held a position other than what was provided in the survey.

To ensure candor, participants were assured that individual responses would be kept confidential and that only aggregate data would be reported. To maintain data integrity, IP address verification was employed by the research team to ensure that the same individual did not complete the survey multiple times (no causes for concern were detected).

Results

Measurement Model-Stage One. The first analysis examined the measurement theory of wisdom. Confirmatory factor analysis was conducted on the twenty-six item measure of wisdom (items supported in study 1). The model specified a first-order model in which all of the dimensions were correlated and the items were reflective of each specified dimension. The goodness-of-fit measures indicated that this model contained inadequate fit ($\chi^2 = 648.5$, $df = 284$, $p<.000$., TFI & CFI $<.9$). Nonetheless, RMSEA was supportive of this model (.067), and the

ninety percent confidence interval was between .06 and .74; however, this is not surprising because RMSEA considers model complexity and sample size. The factor loadings, residual matrices, and modification indices indicated that five items should be removed (Paradoxical 1 & 2, Openness 2 &3, and Reflective 2). These items either had poor loadings (<.5), large modification indices (>4.0), or large standardized residuals (>4.0). Average variance extracted was partially acceptable, such that experience, paradoxical, interactional, and practical dimensions had more than fifty-percent variance extracted; however, openness and reflective had less than or equal to fifty-percent variance extracted. Composite reliabilities indicated that adequate reliability existed, such that each dimension was equated to have a reliability measure larger than .75. Likewise, tests of discriminant validity supported that each dimension surpassed this examination.

Table 2: Results for Measurement Model 1

Dimension	Composite Reliability
Openness	.767
Interactional	.783
Practical	.814
Reflective	.80
Paradoxical	.857
Experience	.84

Dimension	Variance Extracted
Openness	.42
Interactional	.56
Practical	.59
Reflective	.50
Paradoxical	.51
Experience	.514

Dimension	Discriminant Validity
	Squared-Interconstruct Correlations
Openness	.013, .013, .000049, .017, .059
Interactional	.210, .058, .00032, .013, .073
Practical	.210, .013, .094, .0001, .084
Reflective	.112, .050, .094, .058, .000049
Paradoxical	..017, .000324, .0001, .050, .047
Experience	.059, .073, .084, .112, .047

After deleting the five items mentioned above, confirmatory factory analysis was repeated with the same model structure. Although the chi-square value was still significant ($\chi^2 = 318.4$, $df = 174$, $p<.000$.), this is typical, because the measure is sensitive to sample size and model complexity (number of indicators). The results indicated acceptable fit (RMSEA = .054; CFI =.938; TLI = .925; and CMIN/DF = 1.830.) The factor loadings, residual matrices, and modification indices were also supportive of this model. Factor loadings were significant and the residual matrix and modification indices were <4.0. Also unidimensionality of each item and construct was established. The average variance extracted for each dimension was remarkably improved over the previous model, and composite reliabilities also indicated improvement. Likewise, tests of discriminant validity were surpassed as well.

Table 3: Results for Measurement Model 2

Dimension	Composite Reliability
Openness	.79
Interactional	.78
Practical	.81
Reflective	.78
Paradoxical	.86
Experience	.84

Dimension	Variance Extracted
Openness	.56
Interactional	.56
Practical	.59
Reflective	.54
Paradoxical	.62
Experience	.51

Dimension	Discriminant Validity
	Squared-Interconstruct Correlations
Openness	.01, .01, .006, .004, .06
Interactional	.01, .21, .001, .07, .03
Practical	.01, .21, .06, .005, .09
Reflective	.006, .06, .05, .10, .03
Paradoxical	.05, .004, .001, .005, .05,
Experience	.06, .07, .09, .10, .05

Structural Model-Stage Two. The second part in the analysis examined four alternative models. The first model assessed the hypothesized model, which specified the experience and paradoxical dimensions as formative, and the openness, reflective, interactional and practical dimensions as reflective. The second model considered all indicators as reflective, whereas the third considered all indicators as formative. Lastly, the fourth model was essentially equivalent to the hypothesized model, and considered the experience, paradoxical, and practical dimensions as formative, and the reflective, interactional, and openness dimensions as reflective. As shown in Table 4, the hypothesized model was supported ($\chi^2 = 359.1$, *df* = 183, *p*<.000., RMSEA = .058; CFI =.925; TLI = .914; and CMIN/DF = 1.962.). In addition, unidimensionality of the items and the dimensions was established. Reliability and validity, including construct validity, predictive validity, discriminant validity, and nomological validity were also supported in the hypothesized model.

Table 4: Structural Model Results

Model Description	χ^2	df	χ^2 Difference Test	RMSEA	RMSEA: C.I.	TFI	CFI	PNFI
Null Model	318.4	174		.054	.044-.063	.925	.938	.725
All dimensions reflective	355.2	183	4.089	.057	.048-.066	.916	.926	.750
Experience and Paradoxical are formative; Openness, Reflective, Interactional, and Practical are reflective	359.1	183	4.522	.058	.049-.067	.914	.925	.749
Experience, Paradoxical, and Practical are formative; Openness, Reflective, and Interactional are reflective	370.2	183	5.756	.06	.051-.068	.91	.92	.745
All dimensions are formative	2683.678	981	2.93	.078	.074-.081	.670	.078	.555

To attain identification in model three, the self-monitoring and core-self evaluations scales were incorporated into the model structure. As noted previously, there were very similar results in several of the models; however, the formative model indicated severely worse fit. Nonetheless, the formative model yielded support for predictive validity, such that wisdom related positively to the four dimensions of the core self evaluations scale and wisdom also related positively to self-monitoring.

Not only does theory support a second-order model, but also the empirical results displayed above indicate that a second-order factor structure yields equivalent results to that of a first-order structure, while being more parsimonious and possessing more degrees of freedom. It is asserted that a second-order model is supported when the model produces results that are as well as those attained from a first-order model (Hair et al., 2006). Although, the chi-square difference statistic is often useful in comparing alternative models of the same order, it has been noted that this statistic is not as useful when comparing models of different orders. Moreover, the first-order model should always attain better fit on absolute indices due to more paths describing equal degrees of covariance, whereas the second-order model is likely to perform better on fit indices that capture model parsimony (Hair et al., 2006). As stated previously, nomological validity was also established with the hypothesized second-order model, which is

described to strengthen support of a second-order model (Hair et al., 2006). Therefore, the hypothesized second-order model not only demonstrates support through attaining nearly equivalent goodness-of-fit indices, but also through attaining nomological and predictive validity.

As noted, there are several equivalent models in this analysis. For example, model four is equivalent to model one. Thus, both models should contain similar results and goodness-of-fit indices. Nonetheless, theory demonstrates greater support for the hypothesized model, such that experience and paradoxical tolerance develop wisdom; whereas wise people demonstrate being open to new experiences and the ability to reason, reflect upon one's past, and interact with others (Webster, 2003). Ultimately, this analysis provides both empirical and theoretical support for our hypothesized model.

Lastly, invariance across males and females was examined. First, the least restrictive model was assessed using the second model structure in study two-stage one. This test of invariance examines the extent to which an equivalent pattern of fixed and non-fixed parameters across both groups (males and females) exists. The results indicated reasonable fit (χ^2 = 474.56, df = 310, p<.000., CFI = .923, RMSEA = .043, R.I. = .035-.051) ; all indicator loadings to relevant factors were significant; and discriminant validity was maintained. Thus, configural invariance was supported. The researchers examined metric invariance next, which assesses the extent to which factor loadings are equivalent across samples. The results indicated that metric invariance was attained across gender (χ^2 difference test = 23.557/14, p >.05, and CFI change = .004). Moreover, the model was not statistically different from the baseline model, which was supported by a p-value = .052 and a change in CFI <.01. Researchers indicate that a change in CFI less than .01 also supports metric invariance (Byrne, 2010). Assessing the loadings for each group (males and females) demonstrated that each indictor has nearly equivalent magnitude, the same direction, and loads on the same factor. As such, the support for metric invariance allows further examination of invariance between the two groups. Nonetheless, subsequent analyses including invariant scalar and factor covariance revealed that no other forms of invariance could be supported. All of the chi-square difference tests indicated that the models were significantly different from the baseline model. In conclusion, the results indicate that configural and metric invariance was supported.

Discussion

Study two was conducted to further examine and validate the twenty-six items that remained after study one. Confirmatory factor analysis was executed in study two, and indicated that five items fit poorly to the measurement theory. Therefore, those items were removed and the following analyses were conducted using a twenty-one item measure of wisdom. Support was found for a second-order model, such that the paradoxical and experience dimensions were shown to act as formative indicators of wisdom, whereas the remaining dimensions were reflective indicators of wisdom. This measure of wisdom demonstrated acceptable dimensionality, reliability, and validity. Additionally, alternative and equivalent structural models were assessed. Even though equivalent models exist, the hypothesized model maintains a theoretical background that is supportive of its nature. Moreover, nomological, predictive, and concurrent validity was established through wisdom predicting or correlating with other theoretically supported constructs. Lastly, invariance assessments indicated support for configural and metric invariance.

GENERAL DISCUSSION

The current research attempted to develop and validate a measure of wisdom that integrated two domains of wisdom in psychology, while also incorporating recent research in the management literature. Moreover, it was the goal to develop a scale of wisdom such that it could be applied in an array of contexts, including managerial or organizational settings.

There were three distinct phases in the research. The first analysis indicated that forty-six items should be included to measure wisdom in study one. This initial scale was further refined in study one, in which exploratory factor analysis demonstrated support for six dimensions of wisdom. Moreover, the analysis resulted in a twenty-six item measure of wisdom and provided support for the relationships between the dimensions of wisdom and theoretically meaningful constructs. Study two attempted to further refine the scale by using confirmatory factor analysis. The results of study two further supported a six dimensional structure and a twenty-one item measure. Additionally, the results replicated those attained in study one, such that as predicted, wisdom was positively related to self-monitoring and the core-self evaluations scale. Moreover, study two utilized participants that were employed full-time and held managerial positions at various levels; however, generalizations should bear in mind that other dimensions of wisdom that were not included in this scale may deem support in other contexts.

Although the researchers believe that the current findings make a substantial contribution to the wisdom literature, limitations of this research should be considered. First of all, with formative models, all indicators that cause the construct should be included. Likewise, formative models need to be assessed by examining the context in which they are in. In other words, the meaning of formative constructs is often embedded within the other constructs or indicators that form the construct of interest. This study analyzed several different dimensions that may act as formative indicators of wisdom, yet it is possible that other constructs which were not included in the current research form wisdom. Thus, future research should attempt to further determine the constructs that allow wisdom to develop.

Another limitation of this study is that low parameter estimates were attained for both the openness and paradoxical dimensions. Openness has received a large amount of attention and support in the psychology literature; however, the paradoxical dimension has primarily been proposed but not empirically supported in management literature. Thus, even though both dimensions maintain theoretical or empirical support from previous research, further research should attempt further refine these measures to produce higher parameters.

In conclusion, the concept of wisdom has maintained the attention of both scholars and laypersons for decades; yet a clear conceptualization of wisdom has not been announced. Wisdom has recently received attention in the management literature; and it has been argued that wisdom relates to leadership, and if the fundamentals of wisdom are understood, managers can be evaluated through sound criteria. (McKenna et al., 2009). This research attempted to develop and validate a universal and multidimensional scale that could be generalized and applied in several settings. Through three phases and two samples, we provide support for the multidimensional scale of wisdom proposed in this research. This measure utilizes the dimensions of experience and paradoxical tolerance as formative indicators of wisdom, and the dimensions of openness, reflective, interactional aptitude, and practical as reflective indicators of

wisdom. The authors hope that this research will encourage researchers to further understand the concept of wisdom and how it relates to a management context.

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Appendix 1: Wisdom Scale Items

Reflective Dimension Items	Included in Study 1	Included in Study 2	Final Scale Item	Reverse Coded
I often think about my past.	X	X	X	
Recalling earlier days helps me gain insight into important life matters.	X	X		
I often recall earlier times in my life to see how I have changed since then.	X	X	X	
I reminisce quite frequently.	X	X	X	
Openness Dimension Items	Included in Study 1	Included in Study 2	Final Scale Item	Reverse Coded
I believe in the importance of art.	X	X	X	
I have a vivid imagination.	X	X		
I tend to vote for liberal political candidates.	X			
I carry the conversation to a higher level.	X			
I enjoy hearing new ideas.	X			
I am not interested in abstract ideas.	X	X		X
I do not like art.	X	X	X	X
I avoid philosophical discussions.	X			
I do not enjoy going to art museums.	X	X	X	X
I tend to vote for conservative political candidates.	X			
Interactional Dimension Items	Included in Study 1	Included in Study 2	Final Scale Item	Reverse Coded
I find it easy to put myself in the position of others.	X			
I am keenly aware of how I am perceived by others.	X			
In social situations, it is always clear to me exactly what to say and do.	X	X	X	

	Included in Study 1	Included in Study 2	Final Scale Item	Reverse Coded
I am particularly good at sensing the motivations and hidden agendas of others.	X	X	X	
I am good at making myself visible with influential people in my organization.	X			
I am good at reading others body language.	X	X	X	
I am able to adjust my behavior and become the type of person dictated by any situation.	X			
Practical Dimension Items	**Included in Study 1**	**Included in Study 2**	**Final Scale Item**	**Reverse Coded**
I try to look at everybody's side of a disagreement before I make a decision.	X			
I believe that there are two sides to every question and try to look at them both.	X			
I am usually able to think up creative and effective alternatives to solve a problem.	X			
When I make plans to solve a problem, I am almost certain that I can make them work.	X			
I trust my ability to solve new and difficult problems.	X			
When confronted with a problem, I stop and think about it before deciding on a next step.	X	X	X	
When making a decision, I weigh the consequences of each alternative and compare them against each other.	X	X	X	
When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.	X	X	X	
Ethical Dimension Items	**Included in Study 1**	**Included in Study 2**	**Final Scale Item**	**Reverse Coded**
I speak out when others violate ethical standards.	X			
I conduct my personal life in an ethical manor.	X			
I define success not just by results but also the way that they are obtained.	X			
When making decisions, I ask "what is the right thing to do?"	X			
I view sick days as vacation days I deserve.	X			

While shopping at the supermarket, it is appropriate to switch price tags on packages.	X			
Paradoxical Dimension Items	**Included in Study 1**	**Included in Study 2**	**Final Scale Item**	**Reverse Coded**
Unforeseen events upset me greatly.	X	X		X
Being uncertain means that a person is unorganized.	X	X		X
When I am uncertain it means that I cannot go forward.	X	X	X	X
Uncertainty keeps me from having a full life.	X	X	X	X
Uncertainty makes me sad, vulnerable, or unhappy.	X	X	X	X
The ambiguities in life stress me.	X	X	X	X
Experience Dimension Items	**Included in Study 1**	**Included in Study 2**	**Final Scale Item**	**Reverse Coded**
I have experienced many painful events in my life.	X	X	X	
I have experienced many moral dilemmas.	X	X	X	
I have lived through many difficult transitions.	X	X	X	
I have had to make many important life decisions.	X	X	X	
I have seen much of the negative side of life (e.g., dishonesty, hypocrisy, etc.)	X	X	X	

ANNOUNCING DOWNSIZING : IMPACT OF EXPLANATIONS ON PERCEIVED PSYCHOLOGICAL CONTRACT BREACH

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ABSTRACT

This research develops a framework around organization's explanations for its decision to engage in downsizing activity based on actor responsibility and negativity of the act with the notion that a psychological contract breach occurs at the point of the initial downsizing announcement. Explanations provided by the organization in the initial downsizing announcement are the basis by which employees interpret and evaluate the magnitude of the psychological contract breach. We propose that excuses and justifications attempt to provide explanations to mitigate the negativity of the event or mitigate organizational responsibility for the downsizing, thus decrease the perceptions of psychological contract breach. In contrast, denials and apologies are viewed more negatively by employees and will increase perceptions of psychological contract breach.

Keywords: Layoff; downsizing; psychological contract; announcements; explanations; justifications; excuses

Downsizing refers to an organization's deliberate attempt to reduce headcount (Cascio and Wynn, 2004; Freeman, 1999) and has become one of the most popular radical management strategies to cut costs and restructure within the organization (Gandolfi, 2009; Tsai and Yen, 2008). Downsizing is defined as a set of activities performed by organizations which are intentional, involve reduction in personnel, aim to improve efficiency of a firm, and affect the processes of how work is done (often in the form of layoffs, buyouts, restructuring or delayering) (Cameron, 1994). An organization actively decides to engage in downsizing activity, the timing of the event and the magnitude of desired headcounts reductions (Chhinzer, 2007). This active decision results in employment termination for a select number of employees, through no fault or intention of the employee. Thus, downsizing is a management action that affects images of the organization and its members by providing explanations, rationalizations, and legitimization for organizational activities (Elsbach, 1994; Pfeffer, 1981).

Extensive research suggests that downsizing is a breach of the psychological contract (Rousseau, 1996; Rust, McKinley and Edwards, 2005; Rust, McKinley, Moon and Edwards, 2005). The psychological contract is subjective, defined as "individual beliefs shaped by the organization, regarding terms of an exchange agreement between individuals and their organization" (Rousseau, 1996 p.9). A set of implied and informal obligations exist between an employee and employer, with mutual obligations of each party to maintain the relationship by fulfilling their own responsibilities within it. The psychological contract is highly subjective in that there is a high degree of variability of expectations and perceived obligations in the employer-employee relationship. However, a core component of the organization's responsibility

to the employees is to provide job security and continued employment as long as the employee fulfills their obligations to the employer (e.g. attendance, loyalty, productivity etc). An organization's decision to downsize introduces uncertainty and reduces job security through no fault of the employee, thus downsizing is largely viewed as a breach of the psychological contract.

The extent to which the layoff explanation is seen as a legitimate basis for the layoff decision, employees may be more likely to believe fairness was served and accept allocated resources. Organizations rationalize decisions to engage in downsizing activity for a wide variety of reasons. Historically, organizational decline or loss in profit were principle reasons for downsizing in the 1980's (Greenhalgh, Lawrence, and Sutton, 1988; Love and Nohria, 2005; McCune et al., 1988), but organizational decline is no longer necessary for a downsizing decision. Some claim that downsizing can be used to increase competitive advantages or develop new technologies (Dial and Murphy, 1994; Hirschman, 2001; Tsai and Yen, 2008), while others suggest that downsizing is now viewed as an institutional norm (Budros, 1999; McKinley, Zhao, Rust, 2000), thus no explanation for downsizing activity is required.

We propose that the rationale provided by an organization for their downsizing decision in the initial downsizing announcement directly affects employee's perceived psychological contract breach. Operationally, the execution of layoffs involves two separate decision processes. First, a decision is to be made regarding the desired number of headcount reductions. The organization makes this determination taking into account its current and anticipated workforce requirements, and usually communicates this decision through an official organizational announcement. In the second step, a selection decision has to be made regarding which specific employees will be laid off. The organization can use a variety of factors to determine which individuals will be displaced, and this is usually communicated with individual employees in the form of a face to face meeting with a representative of management, including a written notice for the individual affected. While many researchers examine the violation of the psychological contract after employees have been selected for job loss (actual employment termination), we argue that the psychological contract breach occurs when the organizations first announces its intent to downsize (intent to terminate employment). First, this paper briefly reviews psychological contract theory. Next, the notion that the psychological contract breach occurs at the point of initial announcement is defended. Following that, a framework evaluating an organization's explanation (including acceptance of responsibility and negativity of the event) for the downsizing decision is developed with subsequent propositions.

PSYCHOLOGICAL CONTRACT BREACH

The psychological contract refers to the terms and conditions of a reciprocated exchange relationship between an employer and employee (Rousseau, 1989). The theory posits that an informal set of mutual obligations, beliefs and perceptions between an employee and employer exist, in that each party is responsible for delivery of their perceived obligations in order to satisfy their responsibilities to the relationship. There are informal expectations of what each party can expect in return for fulfilling their obligations (Rousseau and Parks, 1993). Employees view themselves as part of a larger and more stable entity, when they are making and acting on

inherent obligations towards the organization in exchange for protection from subsequent harm or loss.

Conceptually, a breach and violation are different, where the psychological contract breach (PCB) refers to a cognitive evaluation that the organization has failed to fulfil its obligations and the psychological contract violation (PCV) refers to the affective and emotional state as a result of the breach cognition (Morrison and Robinson, 1997). The breach is the significant workplace event that triggers the violation (focal persons emotional responses to the event) (Morrison and Robinson, 1997; Zhao, Wayne, Glibkowski, and Bravo, 2007). Some researchers provide evidence that PCV mediates the relationship between PCB and work related attitudes or behaviours (such as job satisfaction, organizational commitment, organizational citizenship behaviour) (Suazo, 2009), while others suggest a direct relationship between PCB and PCV such that PCB magnitude increases feelings of violation and violation affects work related attitudes and behaviours (Raja, Johns, and Ntalianis, 2004; Zhao et al., 2007).

Over the last two decades, empirical research on psychological contract theory has grown at a phenomenal rate, partially driven by the shift in the nature of the perceived relationship. Initially, psychological contract theory was relational in nature. In return for an employee's work and loyalty, the employee 'expected' the employer to provide upward mobility, job security and fulfil other such obligations. With global competition, technological advancements and a shift towards more downsizing, the nature of the psychological contract is undergoing a transformation (Smith, 2010; Zhao et al., 2007). Organizations often initiate and implement major changes in a hostile manner, with little regard or vision for the outcomes (Applebaum, Henson, and Knee, 1999). Organizationally initiated activities, such as downsizing, threatens employee's perceptions of organizational credibility and authority. As a result, there is an increased uncertainty regarding employee expectations from employers, with a higher likelihood for failed expectations or disappointments (Applebaum et al., 1999; Rousseau, 1996).

Structural changes like downsizing have significantly altered employee's perceptions and reactions of the employment relationship (Zhao et al., 2007). Research on work related behaviour and attitudes associated with downsizing have focused on victims (employees whose employment with the organization is terminated due to downsizing activity) (Bennett, Martin, Beis, and Brockner, 1995; Leana and Feldman, 1992) and survivors (employees who remain employed with the organization post-downsizing activity) (Brockner and Wiesenfeld, 1993; Shaw and Berrett-Power, 1997). Effects of a PCB in victims and survivors of a downsized organization include decreased job satisfaction, organizational commitment, trust, job performance, organizational citizenship behaviours and increased turnover, cynicism and intentions to quit (Wood and Winston, 2007). Effects of PCV on employees post downsizing generally include in anger, mistrust and minimal perceived organizational integrity (Wood and Winston, 2007).

These studies focus almost exclusively on evaluating downsizing with the perception that the point at which individuals are selected and notified of job loss due to downsizing is the trigger event leading to the PCB. It is argued here that in the case of a downsizing event, a PCB also occurs when the organization announces its initial decision to engage in a downsizing activity and the violation refers to the affective and emotional state of employees once the organization has announced its intent to reduce headcount.

DOWNSIZING PROCESS AND POTENTIAL PCB

A normal function of any social system includes answerability for both favorable and unfavorable individual behaviours and related outcomes, including organizational accountability for workplace outcomes (Breaux, Munyon , Hochwarter and Ferris, 2009; Frink and Klimoski, 2004; Tetlock, 1992). Attribution theory suggests that individuals make sense of their world through causal explanations they interpret for their behaviour and behaviour of others (Kelley, 1973). When interpreting a negative or unexpected event, individuals are more likely to be influenced by the presence or absence of information to help them understand why the outcome occurred. Change recipients generally have access to limited information at the start of a change process, and uncertainty leads to a need for more information (Lires, 2004).

Similarly, impression management scholars identify a failure event as a specific behaviour or offense that results in an explanation being requested, offered, and evaluated (Schelnkier, 1980; Elsbach 1994). A failure event involves the perception that the decision maker has engaged in some kind of inappropriate behaviour or that they failed to engage in desired appropriate behaviour (Cody, Kersten, Braaten, and Dickson, 1992). An explanation for a failure event is not only unavoidable, but it is necessary to ensure positive outcomes for both the organization and their employees (Frink and Klimoski, 2004; Tetlock, 1992). Downsizing activities are largely viewed as organizational failures, requiring the organization to provide an explanation for the event to those affected by it.

Research on downsizing has been segmented into three phases - pre-downsizing, while-downsizing and post-downsizing (Cameron, 1994; Gandolfi, 2005). Existing research on downsizing is limited in that it either focuses on the pre-downsizing activity (factors affecting an organization's decision to downsize) or post-downsizing activity (coping with job loss, healing the organization, or organizational outcomes). There is substantial cross-sectional and longitudinal evidence to support the notion that the vast majority of downsized organizations were ill-prepared for the process and conducted downsizing without adequate Human Resource (HR) policies or programs in place (Appelbaum et al., 1999; Cascio, 2004; Gandolfi, 2006). However, very little is known of the actual implementation and communication of headcount reductions during the while-downsizing phase (which is triggered by the official announcement of intentions to reduce headcount) (Gandolfi, 2006; Garaudel, Noël and Schmidt, 2008).

Institutional theorists posit that explanations for undesirable events are aimed predominantly at external audiences. Organizations can strategically use links to organize structures and procedures to maintain perceptions of reputations and worth of organizations through the explanations provided after a failure event occurs (Elsbach, 1994).   A downsizing endeavour is commonly launched and initiated through an official announcement. (Applebaum et al., 1999). Announcements of a downsizing effort coincide with the commencement of the implementation of the downsizing process (Gandolfi, 2009). In other words, there does not appear to be a span of time between an organization's announcement and the implementation of downsizing activities.

In a majority of downsizing events, the same announcement is used for both internal and external audiences (Gandolfi, 2006) with most employees reading about layoffs in newspapers before hearing about it from management (Appelbaum et al, 1999). The predominant theme or

message in these announcements is that the downsizing will increase organizational efficiency (a concern of shareholders) Companies are also concerned with the impact of headcount reductions on public opinion and customer loyalty while employees concerns are often secondary (Nadler, 1994).

An organization's announcement of a decision to engage in downsizing acts as an account, thus can trigger the breakdown of the psychological contract. Accounts are explanations given by leaders for actions that result in unfavourable outcomes for their followers (Tetlock, 1992). An account or explanation for a failure event can help maintain a positive image of the organization and can reduce negative behaviours or attitudes that unfavourable outcomes produce. The absence of a legitimate explanation for a decision can decrease levels of cooperation (Colquitt, 2001), increase levels of withdrawal (Brockner and Wiesenfeld, 1993) and increase levels of retaliation (Wanburg et al., 1999).

Effectively announcing a decision to downsize is a management challenge that could have long term ramifications for the organization, its employees and other stakeholders. While most organizations do not have a systematic approach for announcing layoffs, they attempt to influence stakeholder perceptions and reactions to downsizing by offering an explanation of why the layoff occurred in the first place.

Most research and empirical studies on downsizing processes and perceived legitimacy tend to concentrate on layoffs in terms of assuming that the PCB occurred at the point of the actual layoff (Brockner and Wiesenfeld, 1993; Wanberg et al., 1999). Only one study was found that concentrated on the accountability of the organization to its employees at the point of the initial downsizing announcement.

Lamertz and Baum (1998) conducted a content analysis of middle management downsizing (delayering) activity in Canada, which included a discussion of downsizing legitimacy based on the content of the initial downsizing announcement. A review of newspaper reports of middle management layoffs in Canadian companies for a seven-year period (1988-1994) was used to create a typology of accounts, suggesting that over time managerial downsizing has been taken for granted as a legitimate business practice. The authors classified 110 media announcements of downsizing activity based on the assumption that form, content and proactivity were valid indicators for accountability and legitimacy. Although there was no validation of these assumptions, when applied, the study found that causality was more frequently included in earlier downsizing announcements and less frequent over time. In addition, middle management downsizing announcements focused on economic reasons for the decision in earlier years and social reasons in later years. Similarly, accounts were reactive in earlier years and proactive in later years. While there are some limitations with this research (e.g. assumptions of content interpretation not validated, limited to middle management downsizing, limited sample size, dated etc), the results of this study suggest that there are a wide variety of explanations provided by organizations to explain their initial decision to engage in downsizing activity. In addition, the study conducted a content analysis of downsizing announcements differentiating between justifications and excuses to determine legitimacy. The theory developed in our article examines the impact of wider range of explanations for downsizing activity and its impact on PCB.

EFFECTS OF ANNOUNCEMENT CONTENTS ON PCB

The concepts of justification and excuse come from criminal law and are used for assigning guilt or innocence in the judicial system (Milhizer, 2004). The offensiveness of the act and the responsibility of the actor are both used to determine the legitimacy of an event and possibility of finding an actor not guilty if they have engaged in any action that caused harm. Scott and Lyman (1968) first used these notions to evaluate failure events and Schonbach (1990) extended this work by including apologies (admission of guilt including statements of remorse) and denials/refusals (denying responsibility for a failure event or denying that the failure occurred). Fairness theory suggests that employees react negatively towards the organization and its agents if these two conditions are met; perceived negativity of event and accountability of the agent (e.g. org or supervisor) (Folger and Cropanzano, 1998; 2001).

Attribution theory (Weiner, 1986) focuses on responsibility for the event suggesting that individuals who blame somebody for a negative outcome are likely to react more negatively towards that person. Similarly to the concepts introduced in the judicial system, fairness theory and attribution theory, we propose that core concepts of perceived responsibility of the actor (organization and its agents) and perceived negativity of the act (downsizing decision) directly affect the perceived PCB when the downsizing announcement is made (as highlighted in Table 1). More specifically, we align with the seminal concepts of justification, excuse, denial/refusal and apology (Schonbach, 1990) to evaluate explanations organizations use to defend downsizing decisions at the time of a downsizing announcement.

Offering an explanation for an undesirable organizational decision and the type of explanation offered can positively affect employee reactions, especially in cases where workers may question if an organization's decision is legitimate (Lerner and Tetlock, 1999; Cascio, 2005). If workers do not accept the rationale for changing distribution of resources, the redistribution can appear arbitrary or in the self interest of the powerful, thus increasing the magnitude of the perceived PCB.

Table 1.
A framework for evaluating downsizing announcements: Denial, Justification, Excuse and Apology

Acknowledgement of Organizational Responsibility

		Low	High
		Denial/Refusal	**Justification**
Acknowledgement of Negativity of Downsizing Decision	Low	"This is not a downsizing event"	"It could have been worse"
	High	**Excuse**	**Apology**
		"I had to do this, but it is	"I'm sorry that I

not my fault"	caused you harm"

JUSTIFICATION

A justification advocates that the decision maker accepts responsibility for the act but minimizes the negativity of the act by pointing to fulfillment of some super-ordinate goals (Scott and Lyman, 1968). Claims of duress or personal necessity excuse the conduct of the actor, as those circumstances overwhelm the actor's freedom of choice. The actor responds to an imminent risk of harm and contends that their decision to engage in a particular action was the result of selecting the lesser of two evils, implying that the act inflicted less harm than the alternative option (Milhizer, 2004). As a result, the explanation attempts to reduce perceptions of negativity of the act, while accepting responsibility for the decision. This includes utilitarian ethics in which a greater benefit (or lesser loss) for many legitimizes loss for a few (Schwartz and Carroll, 2003).

By appeals to higher authority, ideology norms or loyalty, justifications draw on relevant social comparisons or higher order goals (Schlenkier, 1980). In such a situation, the point of reference can be positive (things will be better in the future) or negative (things could be worse). It renders the violation as acceptable by suggesting that the act is universal. Anyone aware of the circumstances would engage in the same actions as the actor did. While responsibility for the outcome is accepted, a justification attempts to reduce perceived severity of outcomes.

In a downsizing situation, justifications occur when an organization attempts to rationalize their decision to engage in downsizing activity by appealing to the concept that a higher order goal or cases of duress exist. Negative references focus attention on how the organization would be in a worse position for not taking action and positive references focus attention on the future suggesting that uncertainty or adversity now will help future security or that current changes will minimize future losses (Crant and Bateman, 1993). Downsizing announcements attempting to provide justifications can refer to the option of downsizing as the lesser of two evils (for example, to prevent future plant closures or bankruptcy or larger layoffs in the future). The organization, while responsible for the event, is still fulfilling its informal obligations to its employees. While the organization actively decided on downsizing as the course of action, the severity of the outcome is reduced through the downsizing decision. Therefore, we propose that a justification for actions in an organization's initial downsizing announcement is negatively correlated with employee perceptions of a PCB.

Proposition 1. Organizational announcements that explain downsizing decisions using justifications are significantly and negatively correlated with employee perceptions of the psychological contract breach at a time of organizational downsizing.

EXCUSE

Excuses occur when a actor admits their actions are inappropriate or unfavourable, however denies full responsibility for the action by citing mitigating circumstances (Scott and Lyman, 1968). In this situation, the person committing the act is excused from negative consequences due to an element of involuntariness in the actions (Tedeschi and Reiss, 1981). Unlike justifications, there is no real balance of interest (Schonbach, 1990). With excuses, the agent can inflict greater harm than they are threatened with to protect a personal or limited circle of endangered people.

Excuses are personal and limited to a set of unique circumstances (where as justification implies others in the same situation would engage in the same action), thus focus on the actor, not the act. The actor attempts to be excused from consequences of their activity by highlighting a lack of intention to inflict harm (Tedeshih and Reiss, 1981). As a result, the explanation attempts to reduce perceptions of responsibility of the actor, while accepting that the act is offensive.

In a downsizing situation, excuses occur when an organization attempts to rationalize their decision to engage in downsizing activity through denying responsibility for the event. The downsizing is framed as a negative event, but long term goals and mitigating circumstances are used in the announcement to shift blame for the decision. Such reframing does not minimize agent responsibility but places actions in a larger framework to legitimize it. Announcements refer to the option of downsizing in the context of other factors (e.g. poor economic conditions, increased competitiveness). In this sense, using an excuse may impact employee's perceptions of the organization's fulfillment of the psychological contract. While the employer accepts that they are responsible for the downsizing (thus they are not fulfilling their obligations), the discussion of mitigating circumstances may relieve the organization of some of their obligator duties towards the employee. By shifting blame for negative acts of the organization, announcements using excuses may transform the psychological contract altogether to adjust for a new market reality. In this sense, the explanation provided for the downsizing capitalizes on the fluidity and informality of the psychological contract and subsequently is predicted to not result in a breach at all. Instead, terms of the psychological contract are modified to adapt to unfavourable reactions due to market changes.

Proposition 2a. Organizational announcements that explain downsizing decisions using excuses are not correlated with employee perceptions of the psychological contract breach at a time of organizational downsizing.

Proposition 2b. Organizational announcements that explain downsizing decisions using excuses modify employee's perceptions of the perceived psychological contract.

APOLOGY

An apology is the acceptance of responsibility for the situation and the undesirability of the situation. Under these conditions, partial or full guilt is admitted, along with statements of regret or apology (Schonbach, 1990). The public expressions of guilt and public enactment of self-retribution with an apology are meant to ease negative perceptions of victims (Schonbach, 1990). An apologetic explanation for an event includes a willingness to share information or

report on an event as well as expression of regret for consequences. There is a recognition of others right to question or reproach the issues. Apologies are effective in reducing anger of victims, in that acknowledgement of the victim's position and agreement of the victim's assessment of responsibility helps victims feel supported (Guiniven, 1999).

In a downsizing situation, an organization can engage in apologies. An explanation that includes both responsibility for the event and an awareness that the event is negative can heighten the perceptions of the PCB. An acknowledgement of guilt can signal the acceptance for and failure of the organization in fulfilling its informal obligations. As a result, an apology can increase perceptions of a PCB.

Proposition 3. Organizational announcements that explain downsizing decisions using apologies are significantly and positively correlated with employee perceptions of the psychological contract breach at a time of organizational downsizing.

DENIAL/REFUSAL

A denial or refusal is the rejection that the situation is undesirable or that the agent is responsible for its occurrence, completely asserting innocence in regards to the event (Schonbach, 1990). With denial or refusal, the actor's denial that the undesirable event occurred can include suggestions that the accusers/victims are partially to blame. Denials often involve lies or labelling (using positive values or terms to discuss a negative event). An accused that denies or refuses a failure event can also refuse to grant the assessor the right to ask about a questionable behaviour, or consult or refer to other sources of information (Cody et al., 1992).

In a downsizing situation, organizations can shift responsibility for the downsizing by blaming employees or denying that downsizing is a negative event altogether (e.g. call it rightsizing, optimization, restructuring etc), thereby not only denying responsibility for the event, but also the negativity of the occurrence. In a study of long term performance implications of corporate downsizing strategies, the researcher attempted to contact organizations a few years after downsizing events occurred. Legal representatives from numerous organizations contacted the researcher to vehemently deny that layoffs or downsizing had occurred (Legatski, 1997). In addition, multiple organizations opted out of the study, thus the researcher was only able to secure a 3.2 % response rate (Legatski, 1997). Thus, denials may also occur in initial downsizing announcements. If a denial is offered in place of an explanation, employees may perceive that the organization is not fulfilling its obligation to provide a secure workplace and be honest with employees. By shifting blame to employees, explanations involving denials may be more likely to be perceived as breaches of the psychological contract.

Proposition 4. Organizational announcements that explain downsizing decisions using denials or refusals are significantly and positively correlated with employee perceptions of the psychological contract breach at a time of organizational downsizing.

CONCLUSION AND LIMITATIONS

This research area is unique in two ways. Research to date has focused on the point of an employees actual termination or layoff notice as the point in which a breach of psychological contract occurs (McKinley et al., 2000; Rust et al., 2005). This article developed the notion that a PCB occurs at a time of initial announcement of downsizing activity. When an organization actively decides to engage in headcount reductions, employees may perceive that the organization is failing to fulfil its obligations to the employee, through no fault of the employee.

Second, this research develops a framework to evaluate perceptions of PCB at the time of a downsizing announcement based on categorizing explanations provided by the organization. Segmented based on responsibility for the downsizing and perceived negativity of the event, the categories include justifications, excuses, apologies or denials.

There are both theoretical and practical applications of this research. Traditionally, justification and denials are perceived to aggravate the relationship between person seeking explanation and person providing it, where as excuses or apologies are considered effective in maintaining and restoring relationships between provider of the explanation and the target (John, Wild, and Colquit, 2003). By expanding these concepts into the downsizing realm, the relationship between the employer (as the provider of the information) and the employee (the target) at a time of downsizing can be further developed. This can expand on the existing work on PCB effects of survivors and victims (Bennett et al., 1995; Brockner and Wiesenfeld, 2005), by considering psychological issues of employees after the downsizing has been announced, but before individual employees are selected for headcount reductions. There is a scarcity of research for the time between announcing a downsizing event and implementing the downsizing (Gandolfi, 2006).

Beyond the downsizing realm, there are some inconsistencies in existing research that this research can help clarify. Some studies provide evidence that excuses can have beneficial results for the actor (Crant and Bateman, 1993; Tata, 2000), while other research provides evidence that justifications are more effective in reducing negative consequences for the actor (Bobocel and Farrell, 1996; Conlon and Murray, 1996). Through introducing the concept of the PCB, a framework for consequences to the actor can be developed.

Given the lack of research in this area, this article attempts to develop a seminal level understanding of explanations and their impact on PCB at the time of a downsizing announcement. While an infinite number of variables could be used to evaluate the impact of the explanations provided in announcements on employee's perceptions of the organization, we have focused on excuses, justifications, apologies and denials, given their appeal from the judicial system, use in accountability research and previous validation. Multiple additional factors could be used to evaluate employee perceptions of the organization when initial downsizing announcements are made including (but not limited to); whether the downsizing decision was proactive or reactive, the magnitude of the expected headcount reductions, the agent involved in the announcement, the expected depth or breadth of the layoffs, perceptions of information hiding from the actor, the impact of unions etc. Empirical research on the model developed in this paper can include development of additional variables and consequences accordingly.

In addition, the propositions above assume that the message provided in the announcement is the message that the employee actually receives. The initial shock of the

impending layoffs, cognitive limitations in information processing and the psychosocial position of the employee may all influence how information is perceived. These factors can influence an employee's ability or desire to evaluate the full details provided in the announcement. Instead, employees may selectively process information which can impact their perceptions of the organization at a time of downsizing.

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PROFESSIONAL COMMITMENT: THE KEY TO A BETTER MENTOR?

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ABSTRACT

There is a need to understand more about mentoring relationships from the mentors' perspective. Of particular importance are the antecedents that influence individuals' willingness to provide mentoring and the quality of mentoring provided. To date, professional commitment has been an overlooked in mentoring research as a potential antecedent. We propose that professional commitment is positively related to an individual's willingness to mentor and to the mentoring functions provided. Additionally, professional commitment will be negatively related to negative mentoring behaviors.

INTRODUCTION

Organizations have been investing in mentoring programs for the last thirty years. Mentoring programs have been utilized by organizations to serve as forums for knowledge sharing, a tool for professional development, and a form of organization indoctrination (Kram & Hall, 1996; Crocitto, Sullivan, & Carraher, 2005). Effective mentoring not only improves protégé's skills and self-efficacy (Lankau & Scandura, 2002; Ramaswami & Dreher; 2007), but also career outcomes like salary and promotion (Fagenson, 1989; Whitely, Dougherty, & Dreher, 1991; Whitely & Coetsier, 1993; Kirchmeyer, 1998). Effective mentoring also benefits organizations in the form of greater employee performance and financial gain (Scandura et al., 1996; Day & Allen, 2004).

However, not all mentoring relationships return positive results (Tepper, 1995). This negates the personal and organizational investments put into the relationship. Therefore, it is important to find those individuals who are going to be good mentors. Being a mentor is typically an extra role activity outside the normal scope of the formal job requirements that requires substantial time and commitment (Allen, 2003; Ayree et al., 1996). Since it is optional, willingness to mentor is an important factor in producing effective mentoring relationships in organizations.

Previous research on willingness to mentor has looked at prior mentoring experiences (Allen, 2003; Allen, Poteet, & Burroughs, 1997; Allen, Poteet, Russell, & Dobbins, 1997; Bozionelos, 2004; Ragins & Cotton, 1993; Ragins & Scandura, 1999), situational variables such as rewards and supervisor relations (Ayree et al., 1996; Allen et al., 1997), the perceived costs and expected benefits of serving as a mentor (Ragins & Scandura, 1999), attitudes (Van Emmerik, Baugh, and Euwama, 2005), and demographic variables (Noe, 1988; Ragins, 1989; Ragins & Cotton, 1993; Ragins & Scandura, 1994; Allen, Poteet, Russell, & Dobbins, 1997).

What has not been considered in mentor research is the role of professional commitment. We chose to consider professional commitment and its role in mentoring because of the relevance of professionals in today's work place. In particular, more and more occupations are becoming

"professionalized" (McAulay, Zeitz, & Blau, 2006) and increasing numbers of professionals are being hired as employees (Aryee, Wyatt, & Min, 1991; Hoff, 2000, 2001; Wallace, 1995); trends that are expected to continue (Hecker, 2005). In today's organizations, mentoring is primarily provided by and to professionals within the same field, and so it is important to consider the impact of professional commitment. While research on protégés has shown that having a mentor increases professional commitment (Colarelli & Bishop, 1990), research on the professional commitment of mentors and its effects on willingness to mentor and on the quality of the mentoring relationship have yet to be conducted. This paper attempts to explore how professional commitment may influence effective mentor behavior.

Professional Commitment

Professional commitment can be conceptualized as being similar to organizational commitment (McElroy et al., 1993; Saks, 1996; Wallace, 1995). Hence, we define it as the relative strength of one's identification with, and involvement in, a profession and is characterized by: (1) a strong belief in and acceptance of professional goals and values, (2) a willingness to exert considerable effort to practice the profession; and (3) a strong desire to remain a member of it. It is based upon investments (e.g., time, finances, opportunity costs) required to become a member of the profession, involvement with other members of the profession, and interest in the skills required to practice it (Becker & Carper, 1956). It has been found to predict skill development (Ayree & Tan, 1992), organizational citizenship behavior (Somech & Bogler, 2002; Tsoumbris & Xenikou, 2010), work performance (Van Steenbergeb & Ellemers, 2009), and turnover intentions (Blau, 1989; Ayree & Tan, 1992; Blau & Lunz, 1998; Chang, Chi, & Mao, 2007; Tsoumbris & Xenikou, 2010).

Bryant, Moshavi, and Nguyen (2007) looked at the influence of professional commitment on peer mentoring competence, evaluated by mentors skills and knowledge. They found that [FILL IN]. However, the results are questionable as several of the survey items do not clearly or exclusively capture mentoring behavior. For instance, "Improving my communication skills makes me more effective at my job" could be construed by those completing the survey to be asking about non mentoring related activities.

Professional commitment can be an influential motivator to employees for a variety of tasks. According to Meyer (2009):

"Commitment is an internal force that binds an individual to a target and/or a course of action of relevant to that target. Although it can be influenced by factors within or outside the person, the force itself is experienced as a conscious mindset that can be one of desire (affective), obligation (normative), perceived cost (continuance), or some combination of the three. The nature of the mindset has important implications for the quality of the relationship with a target and/or of the ensuing behavior." (pp.39)

Commitment to the profession may foster behaviors that help the advancement of other members of the profession as well as the profession itself. Commitment affects a number of work relationships, including mentoring relationships.

Mentoring

Mentors are defined as "influential individuals with advanced experience and knowledge who are committed to providing upward mobility and support to their protégés' careers" (Ragins & Scandura, 1999, p. 496). Mentors provide protégés two types of support, psychosocial and

career oriented support. Psychosocial support helps protégés' personal development by enhancing their sense of competence, clarity of identity, and job effectiveness through role modeling, counseling, and friendship. Career-related support provided by mentors focuses on career advancement and includes sponsorship, coaching, exposure, visibility, protection, and providing challenging assignments (Scandura & Pellegrini, 2007).

Allen (2003) proposed that serving as a mentor could be viewed as a specific form of prosocial behavior. Specifically, serving as a mentor could be considered a professional prosocial behavior as the protégés benefiting from the mentoring relationship typically share the same occupation but not necessarily the same organization (Baugh & Fagenson-Eland, 2005). Research has shown that organizational commitment is positively related to organizational citizenship behaviors (Bishop, Scott, & Burroughs, 2000; Meyer et al., 2002; O'Reilly & Chapman, 1986: Organ & Ryan, 1995; Schappe, 1998), and so it is possible that a similar relationship exists between professional commitment and mentoring. Professional commitment could predict professional prosocial behaviors, particularly willingness to mentor.

Willingness to Mentor

For mentoring to occur, individuals with knowledge and experience must be willing to serve as mentors. Effective mentoring, with its time, energy, and emotional investments, often requires significant effort by mentors. Individuals with greater commitment to the profession should have a greater willingness to make significant efforts on behalf of the profession, and that includes serving as an effective mentor. Further, these professional efforts result in the internalization of the profession's success or failure as personal success or failure (Giffords, 2003). By serving as a mentor, an individual can be viewed as helping to enhance the quality of those entering the profession as well as preserve the future of the profession by fostering professional commitment in protégés.

Proposition 1: Mentors' professional commitment is positively related to their willingness to mentor.

A body of research indicates that previous experience as a mentor or as a protégé positively relate to an individual's future willingness to mentor (Allen, 2003; Allen, Poteet, & Burroughs, 1997; Allen, Poteet, Russell, & Dobbins, 1997; Bozionelos, 2004; Ragins & Cotton, 1993; Ragins & Scandura, 1999). However, most of the research has simply focused if one has been in a mentoring relationship or the number of times, rather than the effects of the quality of the relationship on future willingness to mentor. Scandura (1998) and Feldman's (1999) articles were the first papers to evaluate the quality of the mentoring experience. Both found that after incurring a destructive or dysfunctional mentoring relationship, mentors have a decreased propensity to mentor (Scandura, 1998; Feldman, 1999). This mentor attrition can be detrimental to the profession and the organization, as attrition prevents the sharing of the knowledge mentors possess and reduces the avenues of employee support. According to Ramsey (1999:3) "Mentoring works today because it teaches lessons that aren't taught anymore or aren't available elsewhere."

However, a more recent study done by Eby et al. (2010) reported that negative mentoring experiences of mentors were less detrimental than those reported by protégés and positive or negative mentoring experiences were not found to significantly explain one's propensity to mentor in the future. According to previous research (Scandura, 1998), these bad experiences should have caused burnout and even the withdrawal of the mentor. These findings suggest that

another factor is influencing the mentor's willingness to mentor and that prior experiences moderate that relationship. Therefore:

> *Proposition 2*: The quality of previous mentoring experience moderates the relationship between professional commitment and willingness to mentor in the future such that as quality increases the relationship will be stronger.

Improved Relationships

Not all mentoring relationships satisfy the needs of both parties. Marginal relationships, which are neither satisfying nor dysfunctional, reduce the effectiveness of a mentoring experience because they provide limited mentoring functions (Scandura & Pellegrini, 2007). For instance, mentors may neglect their protégés or provide only limited support, while protégés may be perceived as unwilling to learn, overly submissive, or overly dependent, (Ragins & Scandura, 1997; Scandura & Pellegrini, 2007; Eby et al., 2010). Additionally, both mentors and protégés can engage in behaviors that are destructive or dysfunctional. In dysfunctional mentoring relationships, members become overly dependent. For instance, the mentor may smother the protégé or expect the protégé to be the mentor's clone. On the other hand, the protégé may expect the mentor to assume absolute responsibility for the protégé's career (Ragins & Scandura, 1997). Destructive relational patterns involve a breach of trust, relationship exploitation, sabotage, harassment, and jealousy and competitiveness towards the other party. All of these create a negative mentoring experience (Scandura, 1998; Eby et al., 2010). The negative emotions engendered from the experience may cause decreased performance, increased stress, and withdrawal in the form of absenteeism and turnover (Scandura & Hamilton, 2002).

However, if a mentor has a high level of professional commitment, then the mentor should be willing to expend great effort to develop the protégé. For instance, mentors with higher levels of professional commitment may make greater strides to understanding and attempting to meet the needs and desires of protégés. Additionally, higher commitment will foster more interaction as the mentor has a vested interest in the protégé's success, and those interactions will be highly productive from a developmental perspective. Further, a higher level of professional commitment should result in fewer dysfunctional behaviors as a mentor that is committed to developing the protégé is not going to sabotage or hinder the relationship. If the mentor is not engaging in behaviors that are deteriorating the mentoring relationship, then both parties should have an overall more positive mentoring experience. Therefore:

> *Proposition 3*: Professional commitment is negatively related to marginal, manipulative, and dysfunctional behaviors by mentors.

> *Proposition 4:* Professional commitment is positively related to the satisfaction both mentors and protégés experience from the relationship.

Mentoring Provided

A mentor is responsible for providing protégés with challenging assignments, coaching, exposure, sponsorship, role modeling, protection, and counseling in order to help protégés to develop skills, knowledge, and professional relationships, to gain greater organizational visibility, to gain a better understanding of the organization, and to improve performance in the job (Ramaswami & Dreher, 2007). However, not all mentors provide the same level of support and development to protégés. An effective mentor will provide the protégé with more mentoring activities and experiences than an ineffective mentor. While little research has been conducted on

what factors influence how much mentoring assistance mentors will provide to their protégés, Wanberg, Welsh, and Hezlett (2003) found that helpfulness, learning goal orientation, and previous mentoring experience can influence how many mentoring functions the mentor provides.

Professional commitment may influence the performance of mentoring functions. If one is committed to the profession, one is willing to exert effort on behalf of the profession. This includes sharing knowledge with protégés, striving to develop protégés' skills, and furthering the career advancement of protégés in order to preserve and promote the profession. Therefore:

Proposition 5: Professional commitment is positively related to the number and quality of mentoring functions provided by the mentor.

Mentors can provide protégés with both psychosocial and career-related support, but not all mentors provide both. Career related support functions depend upon the mentor's ability to create and provide opportunities for the protégé, while psychosocial support functions depend on the quality of the relationship between the mentor and protégé (Dougherty, Turban, & Haggard, 2007). If proposition four is correct, then mentors with higher levels of professional commitment will experience better quality relationships and thus will provide more psychosocial support than mentors with low levels of professional commitment. Further, a mentor with high professional commitment should be more invested in their protégé, and thus more willing to provide both types of support so that the protégé not only advances in his career but also has the skills, knowledge, and confidence necessary to perform successfully. Thus:

Proposition 6: Professional commitment will be positively related to career-related support and psychosocial support mentors provide.

DISCUSSION

Understanding the impact of professional commitment on mentor behaviors represents important progress for mentoring research. Previous research has focused primarily on protégés and has only recently begun exploring the mentor side of the relationship (Allen, 2007). This paper attempts to give a new direction that help fulfill the need for mentor focused research. Further, if found a significant predictor, professional commitment may be useful in indentifying employees who will be successful and effective mentors.

Limitations & Areas for Future Research

One potential limitation is that professional commitment is but a single work related attitude that most likely works in conjunction with other attitudes or personal traits. Further, individuals often have commitment to multiple foci, so these additional commitments may have value in future research. Therefore, researchers should also examine the role of other work attitudes and foci on mentor behavior.

This paper assumes that professional commitment is a driving force in both formally assigned and informal mentoring relationships and that the propositions should hold true in both types of mentoring relationships. However, several other avenues of mentoring research have suggested that there are significant differences between formal and informal mentoring (Ragins & Cotton, 1999). While professional commitment should influence all forms of mentoring relationships, the strength of the effect may differ according to the kind of relationship. So we suggest that

researchers may want to evaluate how professional commitment affects both formal and informal mentoring relationships and see if there are any significant differences.

Another area for potential research is on organizational outcomes, as very little research has focused on the effects of mentoring at the organizational level. As many firms invest in and promote mentoring programs, it is important to verify with the investment that is being made that the organizational returns are actualized.

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ETHICAL DECISION-MAKING: GROUP DIVERSITY HOLDS THE KEY

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Both researchers and practitioners have a growing interest in ethical decision making in the workplace. While ethics has been explored at the individual level (i.e., cognitive moral development, moral identity) and the organizational level (i.e., ethical culture, corporate social responsibility), few studies have examined ethical decision making at the group level. Drawing on the Rest (1986) ethical decision making model, we propose that heterogeneous (i.e., diverse) groups will make more ethical decisions than homogenous (i.e., not diverse) groups, and that this effect will be strongest over time. We test our hypotheses in a pilot study using teams in a laboratory and find a pattern consistent with our model. Practical implications and future research directions are discussed.

The first decade of the twenty-first century has brought a number of challenges and left lasting lessons regarding ethics and diversity for society to reflect upon and expand our breadth of knowledge. In an ever-evolving society, ethics has come to the forefront of a business world under siege by scandal and a lack of ethical behavior. The 21st Century has been fraught with CEO and corporate scandals (e.g., Enron, Tyco, Hewlett-Packard, World-Com). Unethical behaviors in the workplace range from ignoring company policies to breaking the law (Baehr, Jones, & Nerad, 1993), and employees are constantly faced with ethical choices resulting in ambiguous outcomes (Clegg, Kornberger, & Rhodes, 2007). Managers are forced to make difficult decisions daily that may be morally confusing; in other words, the "right thing to do" is not always evident (Lurie & Albin, 2007). For such reasons, the influence of ethics at work is a growing area of interest for management researchers and practitioners (Robin, Reidenbach, & Babin, 1997).

Along with the necessity for increased ethical decision-making, diversity has developed as a staple in the global business society. Diversity is no longer an imaginary notion, but a complex reality offering its own challenges to any modern business firm. As demographic trends change and the United States becomes more diverse, the importance of research in this area is rising. Although there is a growing interest in this area, a review of the diversity literature finds little consistency regarding the antecedents or consequences of diversity (Shore, Chung-Herrera, Dean, Ehrhart, Jung, Randel, & Singh, 2009). Both researchers and practitioners need to more fully understand the role of diversity in organizational outcomes.

This paper addresses these two major societal issues – (un)ethical behavior and increasing diversity– and proposes that group diversity may in fact be the key to ethical decision-making in the workplace. First, we will address the ethical decision-making literature demonstrating the need for multiple perspectives when faced with an ethical dilemma. Second, we will review the current diversity research, identifying both the positive and negative outcomes. Third, we propose a model suggesting that group diversity will lead to more ethical decision-making, and this relationship will be strongest over time. Finally, we present the results of a pilot study testing our hypotheses, and discuss implications for future research and practice.

Group Ethical Decision-Making

The role of ethical decision-making becomes increasingly important as individuals in contemporary organizations encounter a plethora of ethical challenges that require them to engage in decision-making processes. Employees faced with an ethical dilemma can often choose from a wide range of possible solutions (Lurie & Albin, 2007). According to Carlson, Kacmar, and Wadsworth (2002), "ethical decision-making is the process by which individuals use their moral base to determine whether an issue is right or wrong" (p. 16-17). Research on ethical decision making has argued that ethical/unethical behavior is actually an interaction of the person and the situation (Trevino, 1986), since ethical decision making is influenced by both the individual and their environment.

There has been a rise over the past 20 years in the number of organizations that divide their employees into work teams (Bhave, Kraimer, & Glomb, 2010). As the use of teams in organizations has risen, so has researcher interest in the performance of teams (Bell, 2007). Given the increase in team-based work, there is a shift from individual to group decision-making. Organizations are comprised of individuals with unique characteristics and decision making styles; therefore, the focus of ethical decision making can no longer be at the individual level (Beu & Buckly, 2004). In the modern workplace, social relationships affect ethical decision-making since cooperation and accountability among co-workers is essential (Beu & Buckley, 2004). Given these findings, it is increasingly important to study group ethical decision-making.

Although there has been some research on decision making at the group level (albeit mixed findings), there has been very little research on *ethical* decision making at the group level (Trevino, Weaver, & Reynolds, 2006). This is an important area of research given the view of ethics by some as an "ongoing process of debate and contestation over moral choices" (Clegg et al., 2007, p. 108). Therefore, it is essential that as researchers, we identify specific conditions that enhance group ethical decision-making. Rest (1979, 1986, 1994) argues that in order to integrate an ethical dimension into the decision-making process, an individual must proceed through four steps: ethical awareness, judgment, intention, and action. Ethical awareness (Step 1) is the recognition or identification of an ethical dilemma, and that it may affect others. Ethical judgment (Step 2) consists of developing and evaluating the alternatives and their consequences. Ethical intention (Step 3) is the intention to enact behavior based upon the assessment of what is the "right" choice. Ethical action (Step 4) is the execution of the behavior. We apply Rest's (1986) model to group decision-making processes and contend that heterogeneous (i.e., diverse) groups have the opportunity to influence ethical decision-making during the second step, ethical judgment. During the ethical judgment stage, individuals formulate and evaluate alternatives and their consequences. Key questions asked during this stage include: "is the probable decision fair or unfair?", "would the decision be acceptable to my family or friends?", and "was the decision morally right or morally wrong?" (Lincoln & Holmes, 2010, p. 63).

We propose that homogenous groups likely possess shared attributes and experiences resulting in similar perspectives on ethical dilemmas. Given the shared backgrounds of homogeneous groups, they are likely to come to consensus quickly. In some dilemmas, homogenous groups may arrive at the "correct" ethical action. However, we contend that more often than not, the similarity in perspectives on a given dilemma will result in homogenous groups not selecting the "right" ethical action. Conversely, heterogeneous groups that bring varied attributes and personal experiences to the table will likely be able to share more

information and develop new ideas that result in ethical action. For example, heterogeneous groups would likely answer the question "would the decision be acceptable to my family or friends?" differently than homogeneous groups. Diverse (i.e., heterogeneous) teams are comprised of individuals with different experiences that impact their view on the decision-making task (Clark et al., 2000). Because each individual in the group has a unique family and friend base, the conversation in the ethical judgment stage will stimulate conversation and result in more varied approaches to engaging in ethical action. Thus, the uniqueness of the ideas in the heterogeneous group results in increased ethical decision-making. In the next section, we review the diversity literature and propose our hypotheses regarding diversity and ethical decision making.

 Key Outcomes of Diversity

In an employment context, the term diversity refers to characteristics that a person possesses that lead to a perception that he or she is different from other individuals, and generally refers to members of underrepresented groups (Jackson, 1992). Over the past 40 years, research pertaining to diversity in the workplace has increased. Federal, state, local, and municipal laws mandate that organizations recruit, select, and promote members of underrepresented groups at rates similar to that of majority group members and as a result, laws are partially responsible for the increased attention to diversity management. Though there is an abundance of research on diversity, there is a lack of consistency regarding the impact of diversity on individual and organizational outcomes. We will next discuss research on workplace diversity and specifically focus on the outcomes associated with diversity.

Previous research reveals mixed results of workforce diversity (i.e., bio-demographic) on important organizational outcomes (e.g., individual, team, and organizational performance). In fact, there are limited research findings that consistently demonstrate positive outcomes of a diverse workforce (i.e., demographic composition) and workplace (i.e., culture towards diversity; see Horowitz & Horowitz, 2007). At the organizational level, research suggests that having an organization with employees who value diversity positively impacts recruitment and retention efforts (Delong, 2007). For instance, Avery (2003) found that presenting prospective employees with recruitment materials that portray a diversified workforce is attractive to both diverse and non-diverse individuals. Similarly, Pelled (1996) found evidence of decreased turnover in diverse organizations. Thus, valuing diversity positively impacts an organization's "bottom-line" by attracting a large (and potentially higher performing) applicant pool, and reduces the costs associated with turnover. Furthermore, diversity has been linked to organizational performance (Richard, 2000; Simons, Pelled, & Smith, 1999). For instance, Wright, Ferris, Hiller, and Kroll (1995) found that being recognized for exemplary diversity initiatives was related to not only more positive perceptions from potential employees, but also to increased stock prices. In sum, results indicate that valuing diversity (i.e., through organizational initiatives, recruitment efforts, and recognition for exemplary diversity initiatives) yields positive results for organizations. In addition to increasing positive perceptions of the organization, diversity also has the potential to positively impact an organization's bottom-line (i.e., stock prices).

Diversity also has been linked to a number of positive outcomes at the team level. For instance, previous research reveals that diverse work teams resulted in higher quality solutions, cooperative decision-making, and increased creativity and brainstorming compared to

homogenous work groups (Cox, Lobel, & McLeod, 1991; McLeod & Lobel, 1992; McLeod et al., 1996; Watson, Kumar, & Michaelsen, 1993). Much of the research on diversity at the team level that finds positive outcomes focuses mostly on task-relevant forms of diversity (e.g., education, background, experience, training, skills) rather than demographic diversity (e.g., race, age, sex, religion).   More research is needed to understand the contexts under which demographic diversity is positively related to team performance.

Though there are studies that demonstrate the positive impacts of diversity, there are also studies that reveal negative outcomes associated with diversity. For instance, at the team level, diversity has been linked to increased turnover, and decreased satisfaction (Jackson, 1992; Wagner, Pfeffer, & O'Reilly, 1984). More recently, Joshi and Roh (2009) found that relations-oriented diversity (e.g., race, age, gender) had a negative effect on team performance. Many authors posit that such results are related to social categorization, stereotyping, and the discomfort associated with affiliating with outgroup members. These findings are troubling given the organizational emphasis on diversity. However, recent research reveals contextual factors which attenuate the negative relation between diversity and team performance. For instance, Harrison, Price, Gavin, and Florey (2002) found that collaboration reduced the negative effects of diversity on subsequent performance. In addition, Kearney and Gebert (2009) found that diversity was negatively related to team performance but only in circumstances in which transformational leadership was low. Similarly, Kearney, Gebert, and Voelpel (2009) found that diversity yielded positive results when need for cognition was high. Likewise, Wegge, Roth, Neubach, Schmidt, and Kanfer (2008) revealed that diversity was important for team performance on complex decision making tasks. These findings provide important information regarding the contexts in which diversity is most beneficial to team performance and reveal important information for practitioners to consider when assembling diverse teams. In sum, research on diversity reveals a complex picture regarding the relation between diversity and organizationally relevant outcomes.

Despite these mixed findings, creativity has typically been found to be a positive outcome of diversity (Ancona & Caldwell, 1992; Bantel & Jackson, 1989; De Dreu & West, 2001; Delong, 2007). Elsass and Graves (1997) posit that diverse individuals have different experiences, values, attitudes, opinions and perspectives which are likely to contribute to the unique solutions that these individuals may bring to the task at hand. As a result, groups will need to process all of the viewpoints when developing solutions which may lead to more innovative solutions. Regarding ethics and diversity, there is a void in literature in understanding the demographic background of people who frequently make ethical decisions. The majority of the research demonstrates no difference between males and females (Sikula & Costa, 1994) or females are more ethically oriented than males (Valentine & Silver, 2001; Thorne, 1999). Researchers have similarly found no significant differences in moral reasoning based on age or ethnicity (Wilson, 1995). Some researchers have found evidence that individual differences such as personality do affect ethical reasoning (White, 1994). Furthermore, at the team level, we do not know anything about whether there is a "right" combination of individuals to make ethical decisions. Although we do not propose that a certain type of person makes a more ethical decision, we do propose that diverse groups who bring their unique perspective to the table will arrive at more ethical decisions than non-diverse groups (see Figure 1).

Hypothesis 1: There is a positive relation between group diversity and ethical decision making.

Proposed Effect over Time

Researchers have argued for the inclusion of *time* in management research (i.e., George & Jones, 2000), and group behavior is especially important to study longitudinally. As previous researchers have found, groups enter different "stages" of development over time, beginning with forming, then storming, followed by norming, and eventually performing and adjourning (see Tuckman & Jensen, 1977). Diversity researchers have similarly noted that time spent together as a group is an important variable that deserves further exploration (Shore et al., 2009). For example, recent research by Horowitz and Horowitz (2007) suggests that the negative effects of diversity may change over time. Specifically, diversity had a negative effect on performance early on in the relationship, that over time changes as group members become acquainted with one another. It appears that over time, diverse groups may overcome stereotypes and begin performing successfully. Thus, negative effects of diversity on outcomes such as performance may be a function of group development.

Hypothesis 2: Time moderates the group diversity/ethical decision-making relationship such that heterogeneous groups make more ethical decisions than homogeneous groups over time.

METHOD

Participants

Participants consisted of 212 undergraduate business students from an urban university in the Southern United States. The majority of students were female (61%), and the average age was 27 years old. Thirty-seven percent were Hispanic, 21% Caucasian, 21% African American, and 16% Asian. Fifty percent worked full-time and 23% worked part-time. The 212 participants were formed into 53 groups (24 homogeneous and 29 heterogeneous).

Procedure

Participants volunteered for this study in exchange for extra credit in their course. The study was conducted at the start of the semester in introductory management courses over a four week period. This study was conducted at the onset of the semester to ensure that students had limited opportunity to get to know and interact with their classmates. In week one of the study, those students who agreed to participate in the study completed an online survey with demographic information (e.g., gender, race, age, work experience). The researchers then created homogeneous and heterogeneous groups based upon the demographic information (i.e., race and ethnicity) provided by the participants in the online survey. In weeks two through four of the study, participants were divided into pre-assigned (homogeneous or heterogeneous) groups and given a handout that included an ethical business dilemma with four multiple-choice options (see Ashe, 2005 for scenarios). The groups were instructed to come to consensus as to what they determined to be the "correct" ethical decision. The groups were also instructed to take as long as they needed to arrive at their decision. However, groups typically took between 10 and 12 minutes to achieve consensus. The groups submitted their decision on paper with a brief explanation to the researcher. The groups completed one ethical business dilemma per week for three consecutive weeks (Time 1, Time 2, and Time 3) in their pre-assigned group.

Measures

Group Diversity. Group diversity was defined as homogeneous or heterogeneous. Homogeneous groups were defined as groups of four individuals all comprised of the same race or ethnicity (Caucasian, Hispanic, Asian or African American). Of the homogeneous groups, 12 were Hispanic, five were Caucasian, five were African American, and two were Asian. Heterogeneous groups were defined as groups of four individuals comprised of one person from each race or ethnicity (e.g., 1 Hispanic, 1 Caucasian, 1 African American, 1 Asian). In approximately five heterogeneous groups, there were two individuals from the same race or ethnicity, but for the purpose of this study, this was considered a heterogeneous group.

Ethical Decision-Making. Three ethical business dilemmas with four multiple choice decision selections were used in this study (Ashe, 2005). These dilemmas were selected because they are published dilemmas determined to be appropriate for undergraduate business students. Furthermore, each business dilemma provided a "correct" answer with accompanying justification. The three possible ethical business dilemma scenarios were randomly assigned over Time 1, 2 and 3 to ensure that scenario was not driving the effect. In order to review the full scenarios with multiple-choice decision options, please see Ashe (2005).

RESULTS

Although neither hypothesis was supported when tested using logistic regression, this is likely due to small sample size (N = 53 groups). Data collection is currently ongoing in order to increase our power. In order to understand the pattern of our current findings, however, we plotted the frequency in which homogeneous and heterogeneous groups made ethical decisions (correct vs. incorrect). The following discussion reflects the current pattern of our findings and, at this point, do not reflect statistical significance. *Hypothesis 1*, there is a positive relation between group diversity and ethical decision-making, such that heterogeneous groups make more ethical decisions than homogeneous groups, was partially supported. At Time 1, *Hypothesis 1* was not supported; there was no difference in homogeneous and heterogeneous groups when looking at number of groups that made the ethical decision (Figure 2). At Times 2 and 3, however, *Hypothesis 1* was supported. Heterogeneous groups selected the "correct" ethical decision more often than homogeneous groups (Figures 3 and 4). In summary, *Hypothesis 1*, heterogeneous groups make more ethical decisions than homogeneous groups, was supported at Times 2 and 3, but not Time 1.

Hypothesis 2, time moderates the group diversity/ethical decision making relationship such that heterogeneous groups make more ethical decisions than homogeneous groups over time, was supported. The pattern of results demonstrates that over time, heterogeneous groups more often selected the "correct" ethical decision than homogeneous groups (see Figures 2, 3, and 4). Interestingly, we see that at Time 1, heterogeneous groups made more "incorrect" ethical decisions than homogeneous groups (Figure 2), but that over time, the heterogeneous groups begin to outperform (i.e., select the "correct" ethical decision) the homogeneous groups.

DISCUSSION

We demonstrate that over time heterogeneous groups make more ethical decisions than homogenous groups. Thus, findings suggest that demographic diversity is an important consideration for group decision-making involving ethical issues. The current study extends research on diversity by revealing an additional contextual factor that attenuates the negative relation between demographic diversity and group performance. Specifically, individuals from various backgrounds bring unique perspectives, experiences, and information when considering ethical issues that may be otherwise overlooked in homogenous groups. In addition, results support Horowitz and Horowitz (2007) by revealing increases in the performance of diverse groups over time. These results have important implications for researchers and practitioners, as discussed below.

Practical Implications

Managers of today's workforce are understandably concerned with the (un)ethical behavior of their employees. Ethical or unethical behavior can affect an organization's bottom line, as companies that reflect moral principles and behaviors will have economic success (Beu & Buckley, 2004). Because culture shapes the behavior of organizational members, it is imperative that organizations form a culture that nurtures ethical decision making (Sims, 1991). In this paper, we have argued that one key to making more ethical decisions is having a diverse group with different ideas, values, and beliefs. When managed well, this should lead to a variety of alternatives and solutions to ethical dilemmas.

Most companies have adopted formal ethics policies, however, the implementation and support of these policies vary to a great degree (Weaver, Trevino, & Cochran, 1999). It is imperative that managers take an active role regarding the ethical behavior of their employees (Velthouse & Kandogan, 2007). As we have argued, one way to better manage ethical decisions is to form heterogeneous groups of individuals from different backgrounds and experiences. The result will likely be more ideas and viewpoints, which can lead to more ethical decision-making, and consequently more positive outcomes for organizations.

Limitations and Future Research

One of the major limitations of this study was the small sample size. Nonsignificant results may be attributable to our lack of statistical power. We are currently collecting additional data in an effort to obtain the power needed to reach statistical significance. Though our results were not statistically significant, our results reveal an interesting pattern that is consistent with study hypotheses.

A second limitation of this study is that it was conducted in a laboratory setting. In our study, participants belonged to teams that were created to illustrate important concepts in Organizational Behavior. Thus, it is unclear whether or not our findings would transfer to an actual work setting. Although our students were placed in a situation where they were likely not as motivated as individuals encountering a problem with serious organizational consequences, the results still reveal that over time, diverse (heterogeneous) groups made more ethical decisions

than homogenous groups. As such, our study is an important first step in understanding the role of diverse work groups in solving ethical problems.

Another limitation of this study is that we did not directly measure communication and information sharing within the groups. Research suggests that in order to reach group consensus on ethical dilemmas, group members must be willing to share their differing values, beliefs and viewpoints with the group (White, 1994). We believe this is especially important for heterogeneous groups, since their values are likely to vary more than homogeneous group members' values. Diversity itself is not enough; individuals within the group must be willing to actively participate and cooperate with other group members in order to gain the most value from heterogeneous groups. Future research should code for such information. In addition, researchers might also consider offering rewards as an incentive to those groups that do share more information (money, class credit, etc.).

Given the rise in team-based work, more multi-level studies are needed in order to fully understand the impact of diversity on ethical decision-making. Future researchers should look at other individual as well as group level variables. For example, it would be interesting to examine certain deep level diversity variables (e.g., education, experience, skill), as opposed to only surface level variables (e.g., race/ethnicity). Researchers could examine heterogeneous groups in terms of moral development (Kohlberg, 1969) or moral identity (Aquino & Reed, 2002) and compare them to homogenous groups at the same stage of moral development or a similar level of moral identity. Similar to the hypotheses we proposed for this study, we would expect there to be more discussion/unique ideas emerge from the heterogeneous groups than from the homogenous groups.

Future research should also examine the types of leaders and organizational culture that would best facilitate an environment where both ethical decision making and diversity are widely accepted and valued. For example, in an inclusive culture with an ethical leader, we would expect that heterogeneous groups would outperform homogenous groups.

Finally, this study was conducted at one of the most diverse universities in the country. As a result, the participants in the study are accustomed to working in diverse groups and are likely to be comfortable working with diverse individuals. As research shows, over time, individuals in diverse groups can overcome stereotypes and differences (Harrison et al., 1998; 2002). An interesting follow-up study would be to conduct this study in an environment (lab or field) that lacks such diversity of members and culture. We predict that the results would differ such that those who are in a diverse climate can look past surface level differences such as race and ethnicity and start sharing their ideas more readily than those who are not in a diverse climate.

CONCLUSION

The finding that heterogeneous (diverse) groups appear to make more ethical decisions than homogenous groups over time is an important one. This study addresses a major gap in the ethics literature, namely ethical decision making at the group level (Trevino et al., 2006). Additionally, it answers the call for researchers to examine diversity at the group level and to explore more positive outcomes of diversity (Shore et al., 2009).

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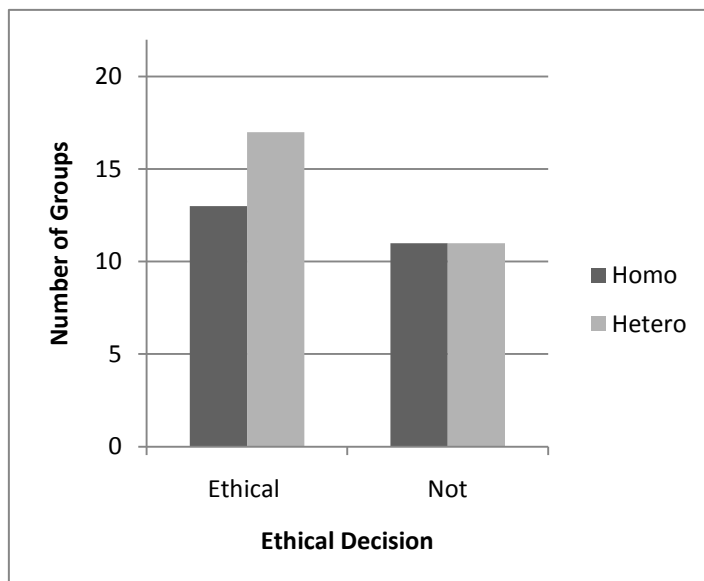
FIGURE 1
Theoretical Model
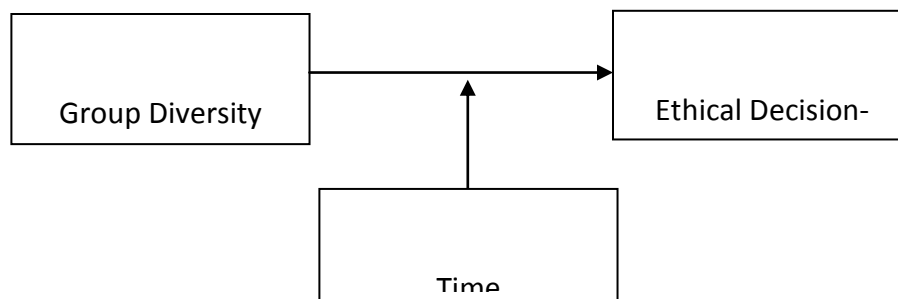
FIGURE 2

Frequency of ethical decision-making for homogeneous versus heterogeneous groups at Time 1.
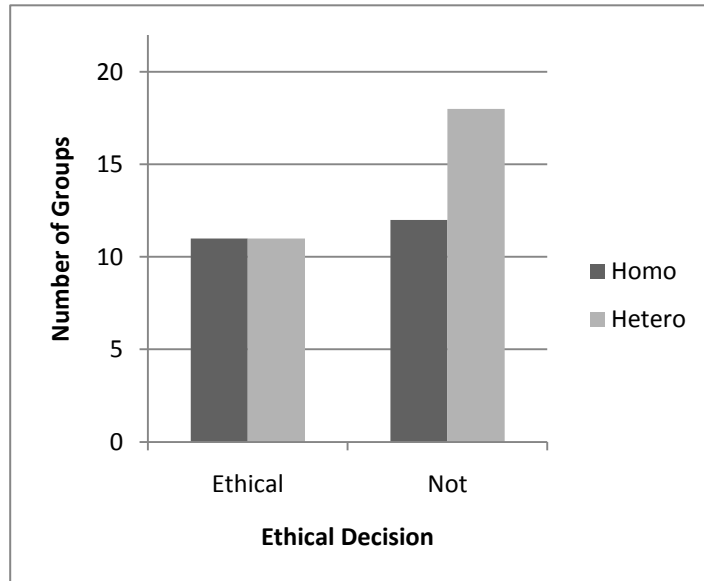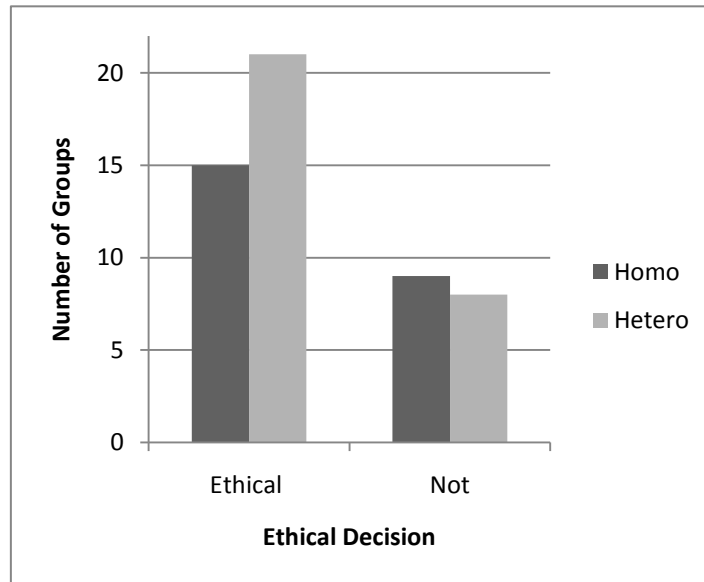

FIGURE 3

Frequency of ethical decision-making for homogeneous versus heterogeneous groups at Time 2.

FIGURE 4

Frequency of ethical decision-making for homogeneous versus heterogeneous groups at Time 3.

WHEN IN ROME?
UNDERSTANDING THE ROLES OF SEXUALITY AND STEREOTYPE THREAT ON WOMEN'S EXPRESSIONS OF SEXUALITY AND INCOME

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ABSTRACT

We draw from objectification and stereotype threat theories to explain how sexualized work environments operate to influence women's expression of sexuality (e.g., flirting with colleagues, wearing revealing or seductive clothing). Further, we investigate the potential impact that expressions of sexuality have on work outcomes (i.e. income). We predicted and found that women were more likely to express their sexuality in sexualized environments. Results also demonstrated an interaction effect such that women who had experienced stereotype threat were less likely to express sexuality in sexualized environments. Finally, we found a negative relationship between women's expressions of sexuality and their income.

Sexuality is very much a part of organizational life. As Hearn and Parkin (1995) noted, "…enter most organizations and you enter a world of sexuality…this can include a mass of sexual displays, feelings, fantasies, and innuendoes as part of everyday organizational life…" (p. 3). Empirical evidence demonstrating the presence of sexuality can be found in research investigating sexual harassment (for a review see O'Leary-Kelley, Bowes-Sperry, Bates, & Lean, 2009), romantic relationships (e.g., Powell, 2001) and other types of social sexual behaviors (e.g., Berdahl & Aquino, 2009; Loe, 1996). Much of the research on workplace sexuality focuses on the deleterious effects of sexuality on women as they are the usual targets of sexual harassing behavior (e.g., sexual harassment; O'Leary-Kelley et al., 2009). This research largely suggests that sexuality, usually in the form of sexual harassment, is harmful to women in terms of their attitudes (e.g., job satisfaction), well-being, and often leads to work-related withdrawal behaviors (O'Leary-Kelley et al., 2009). However, with notable exceptions (Berdahl & Aquino, 2009), little research has addressed the antecedents and consequences of relatively benign workplace sexual behaviors.

All sexualized behaviors are not necessarily negative or problematic for the workplace. Indeed, sexualized interactions may engender camaraderie between employees (Elsesser & Peplau, 2006), reduce the anxiety of stressful occupations (Williams, Giuffre, & Dellinger, 1999) or lead to romantic relationships between colleagues (Powell, 2009). Sexual interactions may provide a level at which colleagues can relate to one another or bring energy to an otherwise mundane workplace. In this paper we pose that sexuality may influence the experiences and outcomes of women. Although women are often found to be the targets of sexually harassing behaviors (O'Leary-Kelley et al., 2009) or observers of the sexual behaviors of others (e.g., Berdahl & Aquino, 2009), our focus is on the women who engage

in sexualized behaviors. To advance theory and practice in the area of workplace sexuality, we explore the contextual and individual factors that may influence women's expressions of sexuality at work and the consequences for doing so. Specifically, we examine the relationship between sexualized environments and women's expressions of sexuality and identify stereotype threat as an important moderator of the aforementioned relationship. We draw from objectification and stereotype threat theories to explain why and how sexualized work environments influence women's engagement in or avoidance of sexualized expressions. Further, we investigate the potential impact that women's expressions of sexuality have on their work outcomes (i.e. income).

By advancing theory and research, this study makes several important contributions to the gender, sexuality, and stereotype threat literatures. First, we add to a growing body of research that acknowledges women's sexual agency at work. Agency in sexual behaviors are typically associated with power such that more powerful members of society (i.e., men) are expected to be sexual agents (Berdahl & Aquino, 2009; Schippers, 2008), while less powerful members (i.e., women) are expected to be targets thereof. Our results support research indicating that women are not always the targets of sexuality as the environment may encourage women to express their sexuality at work (e.g., Loe, 1996). Second, we illustrate the negative consequences of engaging in sexualized behaviors in sexualized environments for women. We argue that despite being in sexualized environments, women who actively engage in sexual behaviors at work may have more negative outcomes (e.g., lower income) than those women who eschew sexualized behaviors. Third, we contribute to work on stereotype threat by showing that its impact extends beyond laboratory settings and can have real implications for female workers. Further, our results suggest that the experience of stereotype threat may inadvertently prevent women from engaging in behaviors that could undermine their success at work.

Sexuality at Work

Underlying many organizations are strong sexual undercurrents that guide how people behave, think, and get work done. Sexualized work environments are workplaces characterized by sexual joking, conversation or behavior (Gutek et al., 1990). Specifically, they describe workplaces in which "sexual jokes, comments, innuendos, and sexual or seductive dress are tolerated, condoned, or encouraged" (Gutek et al., 1990, p 565). Sexualized environments embody a culture that encourages employees to engage in sexual behaviors toward one another. It has been suggested that *exposure* to sexualized behaviors can result in increased negative work attitudes and reduced well-being (Berdahl & Aquino, 2009). Thus, the sexual behaviors that cultivate a sexualized environment may cause harm to employees' professional well-being and psychological health. What about women who are engaging in sexualized behaviors? Little is known about the factors that drive, and the consequences for engaging in, sexual behaviors. We first propose that women may be inclined to engage in expressions of sexuality in environments that are characterized by this behavior.

Sexualized environments may elicit sexual expressions and behaviors leading individuals to interact with and view each other sexually. Women's expressions of sexuality include flirting, wearing revealing or seductive clothing, and other expressions or behaviors of a sexual nature. In highly sexualized environments, women may express their sexuality

because sexuality may be perceived as part of the job such as with waitresses (e.g., Loe, 1996). Past research suggests that women are exposed to the sexual behaviors of others and may even enjoy them (Berdahl & Aquino, 2009). On the other hand, Gutek and Morasch (1982) found that women were likely to be offended by and uncomfortable with social-sexual behaviors in their respective workplaces. These women were less likely to view sexualized behaviors as acceptable and more likely to perceive them as harassing. In short, women's attitudes regarding and reasons for engaging in sexual behaviors vary. Below, we suggest that contextual factors influence women's decisions to express their sexuality at work.

The norms in sexualized environments likely convey messages about expressions of sexuality. Norms are guidelines that describe behavior that is acceptable (or unacceptable) that emerge through social interactions (Cialdini & Trost, 1998). The more people behave in a certain manner, the more people will view that behavior as appropriate. Norms can be described as being descriptive or injunctive (Cialdini, Kallgren, & Reno, 1991). Descriptive norms develop by observing how others behave in certain situations. When an individual sees that others are in engaging in certain behaviors he or she is likely to view that behavior as appropriate. For example, if a woman frequently observes sexual banter between colleagues she may come to believe that sexualized behaviors are an acceptable part of the culture. On the other hand, injunctive norms develop when individuals engage in behaviors in order to receive social approval. Instead of simply describing how people behave, injunctive norms prescribe how people should behave. For example, a woman may express her sexuality because she believes that such behavior would be well received by her colleagues and she would like to 'fit in'. Norms governing appropriate sexual behavior likely emerge from and support the existence of a sexualized workplace. As such, one may expect that expressions of sexuality are more likely to occur in those environments that encourage and condone these behaviors. Women may feel more comfortable with and less concerned about expressing their sexuality when such behavior is a part of the organizational context because everyone else is doing it. Conversely, women may feel uncomfortable expressing their sexuality if their colleagues are not engaging in similar sexual behaviors or if they believe that they will be penalized for such sexualized displays. Thus, the more sexualized the environment, the more women should express their sexuality. We propose the following hypothesis:

Hypothesis 1: There will be a positive relationship between sexualized environments and women's expressions of sexuality.

Expressions of Sexuality and Stereotype Threat

Steele and Aronson's (1995) "stereotype threat" concept stimulated a flurry of research activity devoted to understanding group differences in performance (e.g., Sekaquaptewa & Thompson, 2003). The construct is defined as "the fear of confirming a negative stereotype about one's group through one's own behaviors" (Roberson, Deitch, Brief, and Block, 2003, p. 177). Ironically, stereotype threat may lead to those very behaviors that, in fact, confirm the stereotype (e.g. Stone, 2002). As others have noted, only a few studies have examined stereotype threat in applied settings (e.g., Cullen et al., 2004, Roberson et al., 2004). The results from these studies have been inconclusive; both confirming (Roberson et al., 2004) and disconfirming (Cullen et al., 2004) the stereotype threat theory. Supportive evidence of

stereotype threat may not have been found in those studies in which minority group status was not made salient, since many of the effects of stereotype threat that have been found in laboratory studies have been suggested to be a result of the boundary condition of salience of minority status.   Sexuality and its related stereotypes are likely salient in sexualized environments given that people are viewing and interacting with each other through a sexual lens. Because anxiety arises when people "must deal with the possibility of being judged or treated stereotypically, or of doing something that would confirm the stereotype" (Steele & Aronson, 1998, p 401), we believe that to the extent that sexualized environments generate sexual stereotypes about women, women who experience stereotype threat should be less likely to express their sexuality.

Although many of the sexual stereotypes that are usually linked to women are far from complimentary, societal norms and ubiquitous messages conveyed through various media outlets solidify women's preoccupation with their sexual attractiveness. As such, it has been argued that women's sexuality is dependent on and used by men to the point that "women internalize (make their own) a male image of their sexuality as their identity as women…what defines women as such is what turns men on" (Mackinnon, 1982, p 531). Indeed, in many societies women are socialized to value and rely on their sexual attractiveness and may, consequently, believe that "sexuality [is] what really counts for females" (Lipman-Blumen, 1984). However, a woman who expresses her sexuality runs the risk of being perceived as 'flirt', 'bimbo' or 'sexpot' and less likely to be perceived as a serious career woman (e.g., Gutek & Dunwoody, 1987; Noseworothy & Lott, 1984).   In fact, women who express themselves sexually may be perceived as incompetent and unintelligent (e.g., Glick, Larsen, Johnson, & Branstiter, 2005) simply for appearing sexy.

As such, some women may wish to avoid being perceived sexually because of the fear that their sexuality and negative sexual stereotypes may overwhelm other important attributes. According to objectification theory, women in many cultures are the targets of the male gaze, and objectification of women occurs when women are evaluated by and valued for their physical characteristics rather than other personal characteristics. Specifically, a sexual object is recognized as a source for sexual gratification without consideration for and acknowledgement of other important individual characteristics. For example, Dyer described the similarities between a car and a woman (as a sex object) that were portrayed in a car advertisement: "...woman as a sign, shaped and molded like a car, displays herself to be looked at by men. She is made into a decorative, passive object available and controllable like the car. She is molded in the form that men desire..." (cf. Hearn & Parkin, 1995, p 142). In this portrayal, women who emphasize their sexuality are likely seen as something for, not equal to, men, demonstrating women's lack of power and purpose outside the context of men. In other words, women's sexuality often reduces them to that of an object and something that exists for the purpose of, and to be possessed by, men. Empirical evidence suggests that women are more likely to be viewed in sexual terms and objectified when men have been sexually primed by being exposed to sexual images. Presumably, women who fear being stereotyped would avoid stereotypical behaviors.

Notably, research on stereotype threat examines the negative impact it has on performance. We, however, argue that stereotype threat may influence the choices that women make in strategic attempts to avoid being stereotyped. It has been argued that performance losses associated with stereotype threat (e.g., Levy, 1996; Gonzales, Blanton & Williams, 2000;

Spencer, Steele, & Quinn, 1999) are a product of ineffectively coping with the anxiety that underlies stereotype threat. Less is known about what people do once they have experienced stereotype threat and the effect it may have on their subsequent behaviors. Might people who experience stereotype threat choose to act in atypical ways to avoid being stereotyped in the future? We suggest that people who experience stereotype threat may be motivated to engage in behaviors that would reduce the likelihood of being stereotyped before it has a chance to hurt their performance.

We posit that women who experience stereotype threat will be less likely to express their sexuality at work even when working in sexualized environments. That is, we predict an interaction between sexualized environments and stereotype threat on women's workplace expressions of sexuality. Stereotypes about a particular group must be made salient in order for stereotype threat to be activated (Steele & Aronson, 1995) and sexualized environments likely provide the breeding ground for sexual stereotypes to flourish. Further, people look to contextual cues to determine the possibility and likelihood that they will be stereotyped. For example, group membership may be salient when the group is underrepresented (Kanter, 1977) such that numerical representation of a particular group may lead to of stereotype threat (e.g., solo-status; Roberson et al., 2003). As such, we suspect that the contextual cues produced by a sexualized environment signal the possibility of not only being perceived sexually, but also being negatively stereotyped in sexual terms. Based on the oft negative sexual stereotypes that exist for women, they may believe that by working in a sexualized environment it is "…both possible and probable that they would be negatively stereotyped" (Wout, Shih, Jackson, & Sellers, 2009, p 359) if they engage in sexualized behaviors. This fear likely trumps the organizational norms that condone and even encourage sexualized behaviors. Thus, we advance the following hypothesis:

Hypothesis 2: Stereotype threat moderates the relationship between sexualized environments and expressions of sexuality such that women who experience stereotype threat will be less likely to express their sexuality.

Now we consider the influence that expressions of sexuality may have on women's work outcomes. We propose that expressions of sexuality may be detrimental to women's career success. As previously noted, sexual stereotypes make it difficult for women to be perceived in both sexual and professional terms. According to the lack-of-fit model (Heilman, 1983), women in professional positions may have little leeway in terms of how they express their sexuality. This theory suggests that negative expectations result when the stereotypical characteristics associated with a role occupied by a woman are perceived to be incongruent with the stereotypical attributes linked to women (e.g., caring). For example, Lyness and Heilman (2006) found that women who were in traditionally male-typed positions (line jobs) received lower performance ratings than women in traditionally female-typed positions (staff jobs). This highlights the potential negative bias against women that may come into play when their assumed characteristics are perceived to be a mismatch with the characteristics associated with a role in which they occupy. If women who express their sexuality are perceived to be incompetent and unintelligent are working in positions that require those attributes, their work outcomes (e.g., income) may be negatively impacted.

Hypothesis 3: There will be a negative relationship between women's expressions of sexuality and their income.

METHOD

Participants and Procedure

The sample consisted of a broad spectrum of female lawyers working full-time in a variety of law firms across the United States. Female law school alumni were recruited from a private southern university. Evidence suggests that graduates of law schools work in a variety of firms in which environments vary in terms of the degree to which they are sexualized (e.g., Ely, 1995). Using lawyers allowed me to test my hypotheses with a sample working in different environments while holding occupation constant. An email containing a web link to the cover letter and the online survey explaining the survey and ensuring confidentiality was sent to the female alumni. Two emails were sent two and four weeks after the initial email to remind the employees who had not responded to complete the survey. All independent and dependent variables along with demographic information were measured through the on-line survey. Only females currently working full-time as lawyers in law firms (versus corporate) comprised the sample. Respondents were told that they would be entered in a lottery to receive one of two American Express gift cards of $300 upon completion of the survey. A total of 2037 emails were sent to the female alumni, of which 496 were undeliverable. 174 participants partially completed the survey (11% response rate), and 451 finished the survey (29% response rate). Based on the selection criteria, the final sample size was reduced to 167. The average age of the participants was 37.10 years; the average years of practicing law was 10.37 and the majority of respondents were White (83.8%); 4.2% were Hispanic, 9% were Black, and 3% were Asian.

Measures

Expressions of Sexuality. Expressions of sexuality were measured using the sex as a tool scale (Bradley et al., 2005). This scale was originally developed to assess the extent to which women engage in sexual behaviors in order to get ahead at work. Items for this scale were generated with a focus group consisting of professional women and female Executive MBA students. Sample items from this scale are "I purposely let men sneak a look down my shirt when I lean over a table" and "I draw attention to my legs by crossing them provocatively when in meetings or sitting with a group of men at work." Participants indicated the extent to which they engage in this type of sexual behavior at work on a 7-point Likert-type scale (ranging from 1 = never to 7 = always).

Notably, several modifications to the original sex as a tool scale were made. Participants were instructed to indicate the frequency with which they engage in the following behaviors where they currently work. Responses to the items were averaged to yield a scale score, with higher scores indicative of higher levels of perceived competence. Two of the items were subsequently removed. The item "I massage a man's shoulders or back while at work" was deleted because it had a negative correlation with the other items. Also, the item "I allow men to linger at certain places of my body while hugging them" was removed because of its low correlation with the other items. Perhaps these items had a low correlation because they described behaviors that were more physical, overt, and likely to be construed as sexual harassment. The removal of both items increased the reliability of the scale. Given that this revised 9-item scale was developed and theorized as measuring a unidimensional construct, an exploratory factor analysis was conducted to test this assumption. The results of a

principle axis factor analysis revealed the emergence of three factors with eigenvalues greater than 1 (3.36, 1.32, 1.07). Because the item "I purposely let men sneak a look down my shirt when I lean over a table" loaded more strongly on the second factor, it was dropped from the scale.

The results of another factor analysis revealed two factors, in which three of the items had low factor loadings. I conducted a confirmatory factor analysis (CFA) to assess the overall fit of the 8-item scale compared with a 5-item scale without the three items with low factor loadings. To test the model fit, I assessed the comparative fit index (CFI), the normed fit Index (NFI), and the goodness of fit index (GFI) for values greater than .90. The results indicated that the 5-item scale had a better fit than the 8-item scale. The CFI was .92 compared to .90 for the 8-item scale. The GFI was .93 compared to .90 for the 8-item scale. Finally, the NFI was .90 compared to .86 for the 8-item scale. A final EFA was conducted on the 5-items. The results indicated that all items loaded on one factor and accounted for 43% of the variance. The internal consistency of the new five-item scale was $\alpha = .75$. The descriptives for the scale indicated a skew value of 2.48. Therefore the scale was transformed by taking the negative inverse which reduced the skew to .85. All subsequent analyses were performed with the transformed scale. The internal consistency of this scale was $\alpha = .75$.

Perceived Sexualized Environment. The extent to which the workplace is sexualized was assessed using a slightly modified version of the sexualized work environment scale developed by Gutek et al., (1990). The anchors in the original version of the scale asked participants to respond to some questions using, 'a lot', 'some', or 'none' and to other questions using, 'most', 'some', 'hardly any' or 'none'. The survey was modified for better clarity and consistency such that the participants indicated the extent to which they agreed or disagreed about statements regarding sexualized behaviors at their current place of employment. Sample items from this questionnaire include: "Joking or talking about sexual matters at my work place happens", "There is social pressure for women to flirt with men", and "There is social pressure for men to flirt with women". Scores from the items were averaged to yield a scale score, with higher scores indicative of a more sexualized workplace. One item regarding sexual harassment had a low correlation with the other items and was deleted. The internal consistency of this scale was $\alpha = .88$.

Stereotype Threat. We used an adapted version of Steele's (1997) stereotype scale to measure the extent to which women experienced stereotype threat. We changed 'race' to 'gender' and participants responded on a seven-point scale (strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, strongly agree) to statements about gender stereotypes and their work. Scores from the items were averaged to yield a scale sore with higher scores indicative of the experience of stereotype threat. The internal consistency of this scale was $\alpha = .82$.

Income. Participants were asked to indicate their salary from their current job before taxes by choosing the appropriate salary range. Salaries were grouped in $20,000 increments. Approximately 13.6% of participants reported making between $80,001-$100,000, 13% of participants reported making between $100,001-$120,000, 11.1% of participants reported making between $60,001-$80,000, and 9.9% of participants reported making between $120,001-$140,000.

Control Variables

Demographic and contextual variables. Given the degree of variation in both demographics and law firm characteristics, we controlled for a number of variables because of the effect they could have on the variables of interest. Age, years practicing law, and tenure were measured in years. Because number of hours billed is often a measure used to assess performance and may have an impact on perceptions of stereotype threat and income, participants were asked to indicate the number of hours they billed the previous year. Race was coded 1 = White and 0 = other; marital status was coded 1 = married or cohabiting and 0 = all other statuses; sector was coded 1 = law firm and 0 = other; position was coded as 1 = Associate and 0 = Partner. Finally, we controlled for the number of hours billed because of the impact it could have on income.

Mood. We used Watson, Clark, and Tellegen's (1988) scale to measure positive and negative mood given the potential effect they could have on the participants' responses. Respondents were asked to rate on a 5-point scale (very slightly or not at all, a little, moderately, quite a bit, extremely) to indicate to indicate the extent to which they felt the following feelings and emotions *over the past few weeks*. The internal consistency of the negative mood scale was α = .87 and the positive mood scale was .91.

Modern sexism. Finally, we controlled for modern sexism. Modern sexism is a subtle form of sexism that is characterized by the following: "beliefs that discrimination against women is a thing of the past, antagonism towards women who are making political and economic demands, and resentment about special favors for women" (Swim, Aikin, Hall, & Hunter, 1995, p 200). Participants endorsing modern sexist beliefs may be less likely to report experiencing stereotype threat given that they believe women are no longer unfairly treated. Responses to the items were averaged to yield a scale score with higher scores indicative of higher levels of benevolent sexism. This scale demonstrated adequate internal consistency; α = .82.

RESULTS

Means, standard deviations, and intercorrelations among study variables are presented in Table 1. Hypothesis 1 predicted a positive relationship between sexualized environments and women's expressions of sexuality. Hypothesis 2 predicted that stereotype threat moderates the relationship between sexualized environments and women's expressions of sexuality such that the relationship is weaker for women who experience stereotype threat. Hierarchical multiple regression analysis was conducted to test for moderation (Cohen, Cohen, West, & Aiken, 2003. In step one, expressions of sexuality were regressed on the control variables. In step two, expressions of sexualized were regressed on sexualized environment and stereotype threat. In support of Hypothesis 1, the results of this step were significant (R^2 = .24) demonstrating a positive relationship between sexualized environments and women's expressions of sexuality, β = .42, p<.01). In step three, expressions of sexuality were regressed on the interaction term (sexualized environment x stereotype threat). In support of Hypothesis 2, the results from this step were significant, indicating that stereotype threat moderates the relationship between sexualized environment and women's expressions of sexuality (see Table 2). A plot of the interaction conforms that women who experience stereotype threat are less likely to express their sexuality in sexualized environments (see Figure 1).

Tables 1 and 2 and Figure 1 not available at time of print

Hypothesis 3 predicted a negative relationship between women's of expressions of sexuality and their income. In step 1, income was regressed on the on the control variables. The results from this step were not significant ($R^2 = .39$). In step 2, income was regressed on expressions of sexuality. The results from this step were significant ($R^2 = .41$, p<.05) demonstrating a negative relationship between women's expressions of sexuality and income ($\beta = -.15$, *p<.05)* in support of Hypothesis 3 (see Table 3).

DISCUSSION

The objective of this paper was to contribute to the limited work on sexuality in the workplace by not only linking sexualized environments with women's expressions of sexuality, but also to explain how the experience of stereotype threat may influence women's decision to express their sexuality. The results support our predictions and demonstrate that sexuality environments may induce women to express their sexuality. Further, women who have experienced stereotype threat appear to be less likely to express their sexuality. We argued that these women are aware of the sexual stereotypes that may emerge in sexualized environments and they choose to avoid behaving in stereotypical ways. Finally, our results indicate a negative relationship between expressions of sexuality and income, even after controlling for relevant variables. Taken together, some women may be inclined to express their sexuality when they observe that others are engaging in sexualized behaviors. However, those women who experience stereotype threat by which they are worried about confirming negative stereotypes (i.e. sexually expressive women are incompetent) are less likely to express their sexuality, despite the norms guiding this behavior. As it turns out, women who express their sexuality may be hurt in terms of the income they receive. In this manner, stereotype threat may be the mechanism by which women can avoid engaging in the behaviors that may be detrimental to their work success.

The limitations of this study warrant mention. Due to the self-report, cross-sectional nature of the data direction of causality cannot be established. Thus, interpretations of the results should be made with caution. It should be noted that the significant and positive relationship between sexualized work environments and women's expressions of sexuality could be in both directions. That is, sexualized work environments could induce women to adapt to their environment and express their sexuality, or women's expressions of sexuality could define the context. Longitudinal research and other statistical analyses should be conducted to further assess this relationship. Another limitation of the study was only examining lawyers. Many organizations are moving to 'sanitize' workplaces, sanctioning any behaviors that are remotely sexually related (e.g., Shultz, 2003). Issues regarding sexual harassment are likely more salient in a legal environment such that female lawyers would be less likely to engage in, or admit to their own, sexualized behaviors. Also, the gender makeup of the most powerful positions could influence the extent to which women are likely to express their sexuality. For example, Ely (1995) found that women in law firms that had mostly male partners were more likely to resort to gender stereotypical behavior (e.g., flirtatious). Future research should examine the influence other organizational characteristics has on women's expressions of sexuality and their work outcomes.

STATUS ALIGNMENT IN MENTORING: THE EFFECTS OF ASCRIBED AND POSITION STATUS IN DIVERSIFIED MENTORING

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ABSTRACT

The current work examines the effect of status on individuals in diversified mentoring dyads. This intersection of positional and ascribed status effects is predicted to interfere with mentoring dynamics to prevent some dyads from functioning at their full potential. Further, the current work proposes that the demography of the workplace in which mentoring dyads are embedded may alter the effects of status differentials. Using a 3 (status alignment) x 2 (workplace demography) research design, the current work found that status and context did have effects on the outcomes of mentoring dyads. Implications of the results and limitations are discussed.

In the last twenty years, organizational research on mentoring has demonstrated both its ubiquity in organizations, and also its instrumentality for individual development (Scandura & Pellegrini, 2007). Mentorship is specifically defined as a developmental relationship between a more experienced mentor and a less experienced protégé. Embedded in the definition are the hierarchical status positions stemming sometimes from job rank differences, and always from differences in functional expertise and experience. Furthermore, at least in terms of the developmental function of mentorship, the relationship depends upon the hierarchy of knowledge and skill that positions mentor over protégé.

The literature reporting overwhelmingly positive career and social outcomes of mentoring has, until recently, focused on mentoring relationships where the only status distinction recognized was the mentor – protégé difference (e.g., Ragins, 1997). Such research myopia has occluded other potential sources of status, and instead treated all dyads as if demographic differences have no impact on the relationship. This has overlooked the likelihood that some groups, due to historical domination of the workplace, have held high status relative to underrepresented group members. If mentoring does indeed embed a status hierarchy in the interpersonal relationship, then other manifestations of status difference may further affect the relationship.

Diversified dyads are mentoring relationships where mentor and protégé differ in terms of race, gender, disability, sexual orientation, or other demographic group memberships associated with societal power and status (Ragins, 1997). While the research has been largely inconsistent about the dynamics and outcomes of diversified relationships, it has been acknowledged that cross-race and cross-gender relationships are qualitatively different (in terms of interpersonal dynamics) from undiversified (dominant group member mentor and protégé) relationships (Ragins, 1997; Scandura & Pellegrini, 2007; Thomas & Gabarro, 1999); and that diversified dyads sometimes result in substandard relationship outcomes.

The current work departs from previous work on diversified mentoring in that it is argued that interpersonal interactions in the dyad may be influenced by socially ascribed status, which can potentially detract from the dyad's developmental goals. In this dissertation, I take a status-based perspective on mentoring. This perspective, driven by the behavioral implications of status theories (cf., Ridgeway & Balkwell, 1997; Wagner & Berger, 1997), predicts that high and low status demographic group members will expect differences in behavior and performance from one another, and also that each person will engage in a different set of behaviors depending upon his or her status. In the context of diversified mentoring, status is predicted to influence mentorship such that mentors and protégés are beholden to the behavioral prescriptions that follow from the status of their respective demographic group memberships in addition to their mentor or protégé position.

Thus, we assert that status inequalities have as much, if not more, to do with behavior in and outcomes of diversified mentoring dyads than demographic difference alone. This paper unfold as follows: first, status is examined from a theoretical perspective to uncover how it is predicted to influence mentors' and protégés' expectations of and interactions with one another[15]. Then, a study is presented with the ultimate intention of (a) determining whether ascribed (demographic group) status interacts with position (mentor or protégé) status to affect mentoring outcomes, and (b) examining if the organization can mitigate the effects of status on mentoring outcomes. A discussion of the methods and analyses used for empirically testing these predictions is presented before finally closing with a review of the results and conclusions.

Status & Mentoring

Demographic or identity groups reflect powerful socially ascribed status hierarchies that have been historically reinforced by traditional socioeconomic processes (Konrad, 2003; Ragins, 1997; Ridgeway & Balkwell, 1997). Yet, while ascribed status is pervasive and resistant to change (Sidanius & Pratto, 1999), individuals have another type of group membership at the organizational level. Specifically, employment position or rank impart a status that is organizationally sanctioned (Alderfer & Smith, 1982).

Together, the intersection of positional and ascribed status characteristics may be particularly meaningful in the context of mentoring (see Figure 1). On one hand, positional status (e.g., a CEO, mentor) is imbued with legitimate authority, administrative control and sometimes expert power that are reinforced by organizational policy and hierarchy. The very terms, mentor and protégé, rather plainly imply an organizationally sanctioned status and power differential, such that the mentor is the more senior individual guiding the less experienced

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[15] It is important at this point to note some conditions that bound the current work. First, while the concept of mentoring is not bound by time or place, in the context of the current work mentoring is limited to the US/western, workplace environment. It is true that mentoring occurs around the globe and in a variety of interpersonal contexts; however, due to cultural differences in varying regions, the dynamics of diversified mentoring may change from one culture and interpersonal setting to another. Related, organizational mentoring comes in many forms from coaching and sponsorship to role modeling and social support. Therefore, the form of mentoring that this paper refers to is the most inclusive variety; that is mentoring as Kram (1985) defined it – **a dyadic, hierarchical, developmental relationship.** Finally, as noted above, although diversified mentoring may refer to any group difference that is associated with power differentials, only race and gender will be included in the theory-building and analyses of the current work. Indeed, diversity denotes the full spectrum that differentiates groups of people; however, such an inclusive definition is beyond the scope of the current work.

junior person (i.e., the protégé; Hunt & Michael, 1983; Kanter, 1977). In this way, mentors and protégés can be thought of as two distinct and hierarchical organizational groups (c.f. Alderfer & Smith, 1982; Alderfer & Tucker, 1996). On the other hand, identity group membership imparts its own socially ascribed status implications such that some identity groups are ascribed higher status than others (Alderfer & Smith, 1982; Ridgeway, 2001).

Diversified dyads always consist of two status differentials, one positional (mentor or protégé) and the other ascribed by society (identity group); while undiversified dyads only consist of the positional status differential (i.e., mentor vs. protégé distinction). In diversified dyads, ascribed status may interfere with the dynamics of a relationship already divided into a positional hierarchy (e.g. mentor vs. protégé positions; Ragins, 1997). In some diversified dyads, the positional and ascribed sources of status are *aligned* (where the mentor also has higher ascribed status relative to the protégé). Conversely, in other dyads the sources of status are *misaligned* (i.e., where mentor has lower ascribed status relative to protégé; see Figure 1).

THE CURRENT WORK

In the current work, the intersection of positional and ascribed status is referred to as *alignment* (the match between the mentor and protégé's ascribed statuses). By considering the ascribed status hierarchy of actors within a diversified dyad, this research departs from previous research on diversified dyads. Dyad alignment may explain why research has produced conflicting results in studies of diversified dyads.

Alignment

We suggest that the dynamics and outcomes of a diversified dyad depend, in part, upon the dyad status structure (i.e., how the members' positional and ascribed statuses are aligned). To bring clarity to this discussion, this paper categorizes dyads into three possible status structures, *aligned* (m>p, mentor has a higher ascribed status than protégé), *misaligned* (m<p, protégé has a higher ascribed status than mentor), and *undiversified* (m=p, mentor and protégé are of the same gender and racial identity groups) (see Figure 1).

Aligned. Relationships that are aligned comprise of a mentor and protégé from relatively high and low status identity groups, respectively. For example, a male mentor and a female protégé would be aligned (see Figure 1). In these dyads, the mentor's higher status is reinforced by his ascribed status and the protégé's lower positional status is consistent with her ascribed status.

Misaligned. Misaligned mentoring relationships are those relationships where the ascribed status of the members conflicts with organizational positions. In misaligned dyads, the mentor hast a lower ascribed status value than the protégé, in spite of the organizational hierarchy. For example, a female mentor supervising a male protégé would be characterized as a misaligned (see Figure 1).

Undiversified. In the undiversified category the dyad is comprised of a mentor and protégé from the same demographic groups. For example, two white men or two black women in a dyad would be undiversified. Importantly, these dyads are equivalent in terms of ascribed status, and consequently, are beholden only to the legitimate positional status prescriptions.

Diversified dyads should experience greater dysfunction than undiversified dyads because the status prescriptions that follow from their identity group memberships should

magnify (in the case of aligned dyads) or interfere with (in the case of misaligned dyads) the behavioral prescriptions of their mentor and protégé statuses. That is, both aligned and misaligned dyads have status structures that inflate or subvert the power differential between protégé and mentor, which means that diversified dyads should experience different relationship processes, and ultimately, different outcomes (i.e. functional vs. dysfunctional outcomes) than undiversified dyads with no such ascribed status differential.

>*Hypothesis 1: Diversified dyads report more negative mentoring processes and outcomes (dysfunction) than undiversified dyads.*

Ascribed and positional status characteristics should not only increase the potential for negative mentoring outcomes, but the dyad's alignment should also dictate just how dysfunction will manifest, if it does so at all. Mentoring dysfunction is classified into five categories of behavior from the protégé perspective and three categories of behavior from the mentor perspective (Eby et al., 2004; Eby, Durley, Evans & Ragins, 2008; see Table 1 for full descriptions). In the paragraphs to follow, predictions are made about how alignment is expected to predict different types of dysfunction.

First, research suggests that to the extent that demographic differences are visible, they are more salient and engender ingroup – outgroup distinctions that deteriorate relationship quality (Tajfel & Turner, 1986; Turban, Dougherty, & Lee, 2002). Both Mismatch with the Dyad and Interpersonal Problems are types of dysfunction that refer to relational problems stemming from ostensible differences in demographics. Because the protégé and mentor are visibly dissimilar in terms of gender and/or race, it is expected that mentors and protégés in diversified dyads will both experience these types of dysfunction to a greater extent than undiversified dyads:

>*Hypothesis 2a: Protégés in diversified dyads report Mismatch within the Dyad more than protégés in undiversified dyads.*
>
>*Hypothesis 2b: Mentors in diversified dyads report Interpersonal Problems more than mentors in undiversified dyads.*
>
>*Aligned.* Aligned dyads are expected to experience certain forms of mentoring dysfunction to a greater extent than other types of dysfunction. Specifically, a high status mentor may be disinterested in working with a protégé whose identity group status is ascribed lower status than the mentors' own identity group status. The mentor may fear backlash from other high status peers (Ragins, 1997). Further, according to status theories, a high status mentor may perceive a lower status protégé as unqualified, and therefore, distrust the protégé's abilities. Thus, the following hypothesis is made:

>*Hypothesis 2c: Protégés in aligned dyads report more Distancing Behavior than protégés in misaligned dyads.*

Moreover, self-fulfilling prophecy dictates that individuals rely on their expectations of others' competence to allocate performance opportunities. Given the low status of protégés in aligned dyads, high status mentors may have lower expectations for the protégé's performance. As a result, the mentor may restrict the performance opportunities of the protégé, and then subsequently evaluate that protégé's performance low. Thus, the high status mentor punishes the relatively lower status protégé for fulfilling the low performance expectations derived from his or her ascribed status.

Hypothesis 2d: Mentors in aligned dyads report more Protégé Performance Problems than mentors in misaligned dyads.

Misaligned. Due to the conflicting status values, misaligned relationships are expected to lead to specific kinds of mentoring dysfunction. Specifically, the ascribed status inequality may lead lower status mentors to overcompensate by becoming manipulative or overly assertive toward their higher status protégés. Thus, the following predictions is made:

Hypothesis 2e: Protégés in misaligned dyads report more Manipulative Behavior than misaligned dyads.

Further, research shows that demographic groups with low ascribed status (e.g., blacks and women) have been historically been excluded from the professional world (Ragins, 1997) and that they continue to be excluded from influential networks and social circles (Reskin, McBrier, & Kmec, 1999). Given that both instrumental and social career support is needed from mentors, protégés may expect that low status mentors, lacking both experience and network access, are less able to provide effective mentorship. Thus the following prediction is made.

Hypothesis 2f: Protégés in misaligned dyads report more Lack of Mentor Expertise than protégés in aligned dyads.

Considering Context

To this point, the predictions about the effectiveness of aligned and misaligned dyads have been made under the assumption that the organizational context in which the dyad is embedded is irrelevant. Yet, Ragins (1989; 1997) noted that *both* the societal and organizational contexts in which people live and work can shape the frequency and quality of diversified mentoring. Following the tenets of an embeddedness perspective (cf. Alderfer & Smith, 1996; Alderfer & Tucker, 1982), we assert that the workplace context in which mentorship is embedded may mitigate potentially negative outcomes of both status and demography, creating more positive diversified mentoring relationships. Below, we describe and make predictions about how two types of context affects these embedded diversified dyads.

Vertically Integrated Contexts. A vertically integrated organization integrates racial and gender diversity proportionately at all levels of the organization's legitimate authority structure. Vertically integrated organizations insulate individuals from societal status prescriptions because the organizational hierarchy acts as a buffer between individuals and societal norms. That is, in vertically integrated contexts, the status prescriptions of the organization are incongruent with those of society, and ascribed status has a less direct impact on individuals inside of these organizations (Alderfer & Smith, 1982; Alderfer & Tucker, 1996).

Applied to diversified dyads, the effect of a vertically integrated organization is to reduce the prescriptive function of ascribed status characteristics, and to increase the impact of position status characteristics. Research has demonstrated that organizations that have integrated diversity and integration initiatives in the form of racial equality task forces and learning-based seminars have seen the eventual reduction in subtle discrimination (e.g., racial exclusion from high status positions) and increased vertical integration (Alderfer, 1992; Alderfer & Tucker, 1996). Thus, it is predicted that the effect of alignment will be reduced in vertically integrated status evolved contexts because the behavioral scripts imposed by the organizational and societal levels are in conflict.

Hypothesis 3: Context moderates alignment such that, in vertically integrated status evolved contexts, the difference between misaligned and aligned dyads is no longer significant.

Taken together, the current work predicts that the alignment within the dyad as well as diversity in the workplace context drives behavior in mentorships to influence the effectiveness of a given mentorship. Such findings would clarify inconsistent research on diversified mentoring by pointing toward status structures, rather than demographic difference, within the group as the main driver of relationship outcomes.

METHODS

Participants & Procedures

This study targeted working adults identified via the alumni association of a mid-sized southern business school and their respective mentors or protégés. In addition, the author contacted working adults via interpersonal social networks such as Facebook and MySpace.

Although the current study is an individual-level study (i.e., the focus here is on individual evaluations of their own mentorship experiences, and does not require matched mentor and protégé samples), attempts were made to collect data from both members of the dyad in order to assess dysfunction from both mentor and protégé perspectives. However, only two completed surveys were returned from the second sample, therefore responses from both samples were combined and matched analyses were not conducted.

All correspondences were conducted through electronic mailing addresses. The correspondences were sent via the business alumni association directory, social networking site directories and personal contacts. First, potential participants were contacted before actually participating in the study, and then again one week later to provide links to online survey materials. At the beginning of the survey, participants read introductory letters and statements that restated the purpose and procedures of the study. Finally, participants received thank-you emails upon completion. The sample included both mentors and protégés (n = 143 and 199 who attempted, 68 and 135 who completed the survey, respectively)[16].

While a total of 203 individuals completed the survey, 179 individuals reported sufficient information about the demographics of themselves and their partners to be classified as having been in either an aligned (n=65), misaligned (n=33) or undiversified dyad (n=81). Furthermore, of the 179 participants, there were 53 protégés and 28 mentors in undiversified dyads, 56 protégés and 9 mentors in aligned dyads, and 11 protégés and 21 mentors in misaligned dyads (see Table 2 for demographics broken down by mentor or protégé status).

Measures

Participants were instructed to answer the questionnaires with their most recent mentoring relationship in mind and read operational definitions in order to help them distinguish

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[16] Nearly 50% of the respondents who attempted the survey did not complete it (165 of 344 returned incomplete surveys). The completion rate was somewhat expected as the survey instrument was very long and involved, taking respondents between 30 and 50 minutes. Nevertheless, comparisons of respondents and non-respondents demonstrated that the two groups had similar demographics (i.e., similar rates of mentor vs. protégé respondents, age, and tenure), similar representation of different types of dyads and contexts, and comparable means on the major dependent variables (i.e., dysfunction).

mentoring relationships from other developmental alliances (Eby et al., 2004; 2008; Ragins & Cotton, 1999). Specifically, participants identified themselves as mentors or protégés and reported on their most recent past mentorship when responding to the mentoring quality and outcome measures, which are described in the next section.

Positional Status. Participants identified themselves as mentors or protégés. This classification was assigned a value of high or low status by the researcher. Specifically, mentors were high status and protégés were low status.

Ascribed (Demographic) Status. Mentor and protégé race and gender was assessed to determine the ascribed statuses within the dyad. Each participant reported their own race and gender (and that of the mentor or protégé upon which they are responding). Participants were assigned high or low ascribed status value according to status hierarchy depicted in Figure 2: white men followed by white women and non-white men, then non-white women.

Alignment. Alignment within the dyad was assigned because participants were blind to the study's purposes and unable to report this variable. Alignment was derived by comparing mentor and protégé status values, which result in three structural types: undiversified (mentor=protégé), aligned (mentor>protégé), and misaligned (mentor<protégé). Table 3 demonstrates how the specific mentor-protégé matches are categorized into the three alignment structures[17]. Of 179 coded respondents, 81 were in undiversified dyads, 65 were in aligned dyads, and 33 were in misaligned dyads.

Context: Vertically Segregated versus Vertically Integrated. Participants were asked to report the demographic makeup of their organization *at the time of mentoring*. Specifically, participants responded to a battery of questions assessing the relative representation of men, women, blacks and whites at several levels of employment. For example, to assess the gender composition at their level of employment, respondents will be asked the following: "The employees at my level are (all men, mostly men, equally divided between men and women, mostly women, all women)". Respondents completed such demographic representation statements for their level and the levels above and below them. These measures provided an estimate of the degree of vertical segregation versus integration in the organization in which the dyad is embedded. That is, if that respondent reported that each level was "equally divided" between groups, then this organization would have been classified as vertically integrated. Of the 178 responses to this item, 119 were vertically segregated, 33 were vertically integrated, and 26 were not classifiable (and not included in the analyses).

Mentoring dynamics and outcomes. Researchers defined negative mentoring as any experience and/or behavior that diminished a mentor's ability to provide psychosocial and career guidance (Eby, McManus, Simon, & Russell, 2000). This research identified (Eby et al., 2000) and later validated (Eby, Butts, Lockwood, & Simon, 2004) five factors that define dysfunctional mentoring from the protégé perspective and three factors from the mentor perspective (Eby, Durley, Evans & Ragins, 2008). Using these dimensions, Eby et al. (2004) deductively produced a 42-item multidimensional scale of dysfunctional mentoring behavior. The factors of the scale correspond to the five theoretical dimensions. Mismatch within the Dyad includes items such as "My mentor and I have different personal dispositions" ($\alpha = 0.90$). Distancing Behavior includes

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[17] Note that dyads composed of a white woman and a minority man, regardless of which was the mentor or protégé, were not coded due to a lack of theoretical clarity on which identity group is ascribed higher status.

items such as "My mentor does not include me in important meetings" ($\alpha = 0.94$). Manipulative Behavior includes such items as "My mentor has intentionally lied to me" ($\alpha = 0.91$). Lack of Mentor Expertise includes items such as "I have my doubts about my mentor's job-related skills" ($\alpha = 0.93$). Finally, General Dysfunctionality includes such items as "My mentor is bitter toward the organization" ($\alpha = 0.91$). Using the same procedure that was used to derive the original dysfunction scale, these researchers developed a 36-item mentor perspective on dysfunction scale. The scale is subdivided into three factors. The first factor, Protégé Performance Problems, captures mentor recollections and evaluations of the protégé's performance at the time of mentoring. This factor includes nine items such as "My protégé does not do high quality work" ($\alpha = 0.86$). Second, the Interpersonal Problems factor measures interaction and personal problems in the dyad. This factor has twelve items such as "My protégé and I have difficulty interacting" ($\alpha = 0.92$). Finally, a third factor, Destructive Relational Problems, assesses mentor recollections of violent behaviors in the dyad and damaging personality traits in the protégé. This final factor includes fifteen items such as "My protégé lets his/her personal goals take priority over the interests of others" ($\alpha = 0.93$).

Correlates. Additional items measured information expected to covary with the variables of interest. First, two demographic variables were measured. These variables were protégé age and tenure at the organization where mentoring took place. It has been suggested that these variables may suppress relationships between the variables of interest (Ragins, 1997), thus they were measured and controlled (Cook & Campbell, 1979). The length of the mentoring relationship has also been shown to affect the outcomes of mentoring relationships (Feldman, 1999). Therefore, length was controlled as a covariate where necessary.

In addition, organizational rank and position were also measured for both mentor and protégé, although not used as correlates. Peer relationships are qualitatively different from vertical relationships (Ragins & Scandura, 2007), thus it is important to assess the level of hierarchy between mentor and protégé. Specifically, it is possible that the number of levels between mentor and protégé may affect the nature and outcomes of their relationships.

RESULTS

The dysfunction scales demonstrate right skew (with most responses being clustered at the low end of the scale), as mentorship is not commonly associated with dysfunction (Eby & McManus, 2004). Log and inverse log transformations were used

Hypothesis 1. The first hypothesis predicted that alignment would influence mentoring outcomes such that those in diversified dyads would experience more dysfunction than those in undiversified dyads. Results did not support Hypothesis 1.

Hypothesis 2. The second set of hypotheses predicted that alignment would directly relate to the specific type of dysfunction reported. Specifically, hypotheses 2a stated that protégés in diversified dyads would experience more mismatch within the dyad and hypothesis 2b predicted that mentors in diversified dyads would report more interpersonal problems (2b) than protégés and mentors in undiversified dyads. Results did not support these predictions.

Hypotheses 2c-2f predicted that the type of alignment in the diversified dyad (i.e. aligned vs. misaligned) would predict various specific types of dysfunction. Specifically, hypotheses 2c, 2d and 2f stated that protégés in aligned dyads would experience more distancing behavior (2c)

but less lack of mentor expertise (2f) than protégés in misaligned dyads. Hypothesis 2d stated that mentors in aligned dyads would report more protégé performance problems than mentors in misaligned dyads. Research did not support these predictions.

However, support was found for Hypothesis 2e using a slightly modified version of the original misaligned dummy code produced somewhat different results. Specifically, additional comparisons were made between misaligned dyads and all other dyads (including both aligned and undiversified dyads). The rationale justifying this modified coding scheme was that misaligned dyads, because of their reversal of the ascribed status hierarchy, would be more likely than both aligned and undiversified dyads to report dysfunctions. These analyses demonstrated that there was a significant difference between protégés in misaligned dyads and those in undiversified and aligned dyads in terms of the degree to which they reported manipulative behavior in the dyad ($\Delta F(1,118)= 4.130$, $p=0.044$).   In other words, protégés in misaligned dyads reported having experienced significantly more manipulative behavior ($M=2.2273$, $SD=0.68879$) than did those in aligned and undiversified dyads ($M=1.899$, $SD=1.092$).

Hypothesis 3. Finally, it was predicted in vertically integrated contexts, the difference between misaligned and aligned dyads would no longer be significant. These analyses revealed that reported dysfunction in misaligned and aligned dyads did not vary significantly between vertically integrated organizational contexts ($\Delta F(1,49)= 2.173$, $p=0.147$). Thus, hypothesis 3 was not supported.

DISCUSSION

The purpose of the current work is to investigate the effects of status alignment and workplace diversity context on organizational mentoring. The study presented in the preceding sections first examined the effect of position and ascribed status on mentoring dysfunction. Specifically, the first hypothesis tested the effect of alignment (the match between ascribed and positional statuses of members of a mentoring dyad) on mentoring processes and outcomes. It was predicted that diversified dyads would experience more mentoring dysfunction than undiversified dyads. The data did not support this hypothesis.

The second set of hypotheses took a finer grained approach to testing the effect of alignment on mentoring outcomes by predicting that the specific type of dysfunction reported would depend directly on the nature of the dyad's alignment. This study assessed four of the types of dysfunction experienced by protégés that have been identified by previous research: mismatch in the dyad, distancing behavior, manipulative behavior, and lack of mentor expertise (Eby et al., 2004), as well as the three types of dysfunction experienced by mentors, and these dysfunctions were used to test the hypotheses presented here: protégé performance problems, interpersonal problems and destructive relational problems (Eby et al., 2008). Specifically, Hypotheses 2a and 2b predicted that to a greater extent than undiversified dyads, diversified pairs would experience more mismatch within the dyad and interpersonal problems, respectively. However, like Hypothesis 1, the data did not support Hypotheses 2a or 2b. The fact that these first hypotheses were not supported is not altogether surprising given the conflicting results found in previous research on the association between diversified dyads and dysfunction.

The second set of hypotheses attempted to clarify this inconsistency by further developing the fine grained approach to testing the effect of alignment on mentoring outcomes, such that diversified dyads were bifurcated into aligned and misaligned dyads. Of these

hypotheses, the data supported Hypothesis 2e. Our data showed that being a protégé in a misaligned dyad significantly predicted experiencing manipulative behavior; and this effect held even controlling for the effects of age, tenure and length of the mentorship. In other words, protégés in misaligned dyads, more so than those in both aligned and undiversified dyads, reported that their mentors had tried to unfairly manipulate their power over the protégé to control the protégé or the relationship. The results here demonstrate that mentors in misaligned dyads (those whose mentor status is undercut by a relatively lower ascribed status) are more likely to be manipulative towards their protégés.

It could be reasoned that mentors who have lower status racial and gender memberships (e.g. black women) may be more likely to use manipulative behaviors to attempt to gain greater control over the protégé or relationship. This would suggest that alignment affects mentoring outcomes such that relatively lower status mentors manipulate their work status to gain greater control or power. Alternatively, protégés with higher ascribed status may falsely report that their relatively lower status mentors were manipulative. That is, respondents may recall that their mentors had relatively lower ascribed status, and their recollections could be colored by resentment (for having worked underneath a lower status mentor) or by stereotypes or expectations about identity groups with low ascribed status. Since the finding is based on protégé responses alone, there is no way to be certain that his or her recollection is unbiased. However, this result and any post-hoc rationales should be substantiated with further testing in another study.

While the results largely did not support the predictions of the first sets of hypotheses, the final set of hypotheses were intended to further explain differences in mentoring outcomes. As described in earlier sections of this work, the organizational context was expected to play a role in mentoring processes and outcomes. A workplace that integrates diversity at all levels of authority was considered vertically integrated (i.e., status evolved) while those workplaces with a higher representation of one group (e.g., white males) overly represented at upper levels, were considered vertically segregated. It was predicted and found that when embedded in a vertically integrated workplace, there was no significant difference between aligned and misaligned mentoring dyads. Thus, while status alignment had a direct effect on mentoring outcomes, it appears that the context also has an impact on the interactions and outcomes of, at least, undiversified mentoring dyads. That is, the organization in which mentoring takes place appears to be important in explaining the processes and outcomes that occur between mentors and protégés in undiversified and diversified dyads.

Limitations

There are several limitations to the current study. First, although a diverse sample of 342 individuals began the survey instrument, only 179 completed every item. Perhaps with larger sample sizes, future studies will be better able to test these and other hypotheses regarding alignment and context. An additional weakness of the current study is that the data is based solely on a single sample's self-reported recollection of a mentorship that occurred in the past. Paired mentor-protégé data would allow more robust tests of the hypotheses.

Conclusions

This study demonstrates that mentorship does not exist in a bubble, but rather, the processes and outcomes of these developmental relationships may depend quite heavily on status and the context in which they are embedded. In support of current thinking on mentorship

(Ragins & Kram, 2007), mentorship is a dynamic developmental relationship that is sensitive to the dynamics both within and outside of the dyad. This study demonstrated that ascribed status plays a role in how protégés perceive their mentors' behaviors such that protégés with a relatively higher racial and gender status were more likely to report that mentors attempted to unfairly manipulate their protégés. Additionally, this study found that mentorship outcomes are affected by the context in which the relationship is embedded. When undiversified dyads are working in vertically integrated organizations, they actually experience less dysfunction than when they operate in vertically segregated workplaces.

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THE AFFECT OF SPIRITUALITY ON THE PSYCHOLOGICAL CONTRACT: TOWARDS THE RELATIONAL

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ABSTRACT

An aging phenomenon entitled the Second Adulthood has confronted society's perception of workplace spirituality and its relation to the psychological contract. Firms are now pressured to satisfy the newest working generation's search for the meaning in life. Increased awareness of this search for highly relational organizations has become prevalent in business and psychological literature. Organizations are now faced with developing a conceptual framework based on increased relational elements, time frame, dynamic, intangible elements and a broader scope that will reconcile the void between the Endangered Generation's search for meaning and the aging of the existing employee base.

INTRODUCTION

Noted author Gail Sheehy is widely recognized for her contribution to the study of the human life-cycle. Her compelling research, conducted for her book *New Passages*, reveals an aging phenomenon which has paralleled the newest generations' entrance into the realm of adulthood. Sheehy notes that a person's age has typically served "as a uniform criterion for normalizing the roles and responsibilities that individuals assume over a life-time" (Sheehy, 1995, p.3). In the past, "the ages of 21 and 60 or 65 came to define the lower and upper boundaries of participation in the adult world" (Sheehy, 1995, p.3). Within the ages of 21 to 65, most individuals typically partake of adult-type activities such as graduating from college, having a full-time job, getting married, having children, starting retirement, etc. This newest generation of adult workers, however, is challenging those previously accepted criterion. More specifically, they are challenging society's preconception that middle age begins at the age of forty.

Entitled the Endangered Generation, those individual's born between 1966 and 1980 have inadvertently created what Sheehy refers to as the Second Adulthood (beginning between the ages of 45 to 65). This era of Second Adulthood is presenting unique challenges for companies and corporations who attempt to employ and retain this generation of workers. Fueled by progress in medical technology and pharmaceutical research, many people today are easily reaching the age of 80. Research has shown that "a woman who reaches age fifty today – and remains free of cancer and heart disease – can expect to see her ninety-second birthday" (Sheehy, 1995, p.5). This is a sharp contrast to the preponderance of human history whereby only one in ten people lived to the age of 65 (Sheehy, 1995). The fact remains that people today are not only living longer but are also choosing to remain employed longer.

Complicating the issue further, the newest generation has also managed to postpone, for approximately ten years, most of the previously accepted timeframes for partaking in critical adult-type activities. This voluntary postponement of critical adult-type activities (i.e. finding full-time employment, marriage, having children, and retirement) has had a drastic impact on today's working professionals. It is recognized that this voluntary postponement usually begins in a person's early twenties.

According to Sheehy, most young people today do not leave home (pull-up roots) until their mid-twenties. Instead, they remain in what Sheehy refers to as the stage of Provisional Adulthood until their early thirties. The simple delay of leaving home, or pulling-up roots, consequentially "[moves] all the other stages [of adulthood] off by up to ten years" (Sheehy, 1995, p.48). Middle age for the newest generation does not even begin until they are well into their fifties.

Another unique aging phenomenon of this Endangered Generation happens when they reach the ages of twenty-eight and thirty-two. There is a noticeable pattern during this time whereby a small crisis or breaking point happens in their life. This breaking point, as Sheehy refers to it, causes the individual to begin to search for life's purpose. This external search subsequently turns internal as they attempt to create meaning and value in their own existence. The apathetic attitude of their twenties transcends into the desire to '*stand for something more*'.

The workforce today is forced to reconcile the disparity between the Endangered Generation's search for meaning and well-being in their life contrasted against the graying of their existing employee base. This era of Second Adulthood is being flooded with workers who want to remain gainfully employed in meaningful jobs well into their sixties and beyond. Organizations, however, are seeing this phenomenon come to pass in the search for highly relational psychological contracts. The search for meaning in life and the desire to 'stand for something more' is often first sought out in an individual's career choice (i.e. workplace spirituality). The youngest of Sheehy's Endangered Generation is currently in their early thirties, and they are searching for careers that offer them more than just a monthly paycheck.

Our literature review attempted to find information on psychological contracts and spirituality, but none were found. Therefore, this research is exploratory and the purpose of the article is to use theoretical development to construct a conceptual framework detailing how workplace spirituality (i.e. meaning in life) affects the psychological contract.

LITERATURE REVIEW AND PROPOSITION DEVELOPMENT

Transactional and Relational Psychological Contracts

Psychological contracts are subjective individual beliefs concerning the specific provisions of the employment exchange relationship between the individual and employer (Grimmer & Oddy, 2007, p. 154). According to Rousseau and McLean Parks (1993) and Rousseau (1995), psychological contracts are composed of transactional and relational components that are diametrically opposed on a psychological contract continuum. According to Millward and

Herriot (2000), however, psychological contracts contain varying degrees of transactional and relational aspects while on this contract continuum. The relational contract is characterized by "beliefs about obligations based on exchanges of socio-emotional factors (e.g. loyalty and support) rather than purely monetary issues" (Gimmer & Oddy, 2007, p. 155). Transactional contracts differ from relational contracts in so much that transactional contracts "describe obligations that are economic and extrinsic" rather than obligations that are "emotional and intrinsic in nature" (Grimmer & Oddy, 2007, p. 155). The psychological contract continuum is comprised of seven main constructs, however, transactional and relational contracts differ on only five constructs: focus, time-frame, stability, scope, and tangibility (Rousseau & McLean Parks, 1993) (see figure 1). In this article we develop a theoretical link between three facets of workplace spirituality (self-work immersion, meaning from work, and interconnectedness) and the five constructs of the psychological contract and the positioning of those psychological contracts on the transactional and relational continuum.

Overview of Spirituality

Workplace spirituality is a stream of research that is increasingly being legitimized in management literature as evidenced by the numerous quality publishing outlets hosting this topic. Spirituality at work has been defined as an inner experience of an individual where the effects of that experience can be evidenced by their behavior McCormick (1994). Neck and Milliman (1994, p. 9) define spirituality as "expressing our desires to find meaning and purpose in our lives and is a process of living out one's set of deeply held personal values". Spirituality is defined as an individual's inner source of inspiration by Dehler and Welsh (1994). Workplace spirituality is also defined as an internal value, attitude, emotion, belief, or other internal substance that affects the individual's behavior (Moore & Casper, 2006). Ashmos and Duchon (2000, p. 137), define workplace spirituality as the "recognition that employees have an inner life which nourishes and is nourished by meaningful work taking place in the context of a community". Giacalone and Jurkiewicz (2003, p. 397) define workplace spirituality as "a framework of organizational values evidenced in the culture that promote employees' experience of transcendence through the work process, facilitating their sense of being connected to others in a way that provides feelings of completeness and joy". Thus, numerous definitions of workplace spirituality exist, however, there is still "no widely accepted definition of spirituality" (Karakas, 2009, p. 91). As a result, in this article spirituality is defined as an employee and organizational paradigm leading to an individual and his or her organization embracing and seeking to develop employee interconnectedness and sense of community, employee self-work immersion, and employee sense of purpose and meaning at work. Thus, this definition of 'spirituality' is used throughout and is used to reference each of the three aspects of workplace spirituality, unless otherwise indicated.

Importance of Spirituality

Workplace spirituality is a growing concern for many organizations. While the affect of high levels of organizational spirituality are still being researched, there is some preliminary evidence of its benefits. For example, there is evidence that organizations with higher degrees of

workplace spirituality can outperform organizations with little or no workplace spirituality (Lloyd, 1990). Moore and Casper (2006) found evidence that increased workplace spirituality reduces turnover intentions. Jurkiewicz and Giacalone (2004) suggest that organizations that embrace workplace spirituality can grow faster, more efficiently, with higher rates of return in comparison with organizations that do not foster workplace spirituality. Evidence of employees' increased health levels, personal growth, and augmented levels of self esteem were some outcomes of workplace spirituality suggested by Krahnke, Giacalone, and Jurkiewicz (2003).

One part of an organization that is of particular importance to the notion of a psychological contract is the organization's culture. Konz & Ryan (1999) assert that an organization's mission, vision, policies, and procedures flow directly from the internal spirituality of founders and top management teams. These, in turn, comprise the organizational culture. Thus, if an organization's culture is spiritual it is a result of the influence of the spirituality of top management (Konz & Ryan, 1999). Simply stated, top management spirituality is "enunciated" within the firm's culture (Konz & Ryan, 1999).

Interconnectedness

Interconnectedness is one of the more accepted dimensions of workplace spirituality, and is commonly defined as feeling part of a larger united whole. Mitroff and Denton (1999, p. 83) defined interconnectedness as "the basic feeling of being connected with one's complete self, others, and the entire universe". In fact, Mitroff and Denton (1999, p. 83) go so far as to say "if a single word best captures the meaning of spirituality and the vital role that it plays in people's lives, that word is interconnectedness". Moore and Casper (2006) used affective organizational commitment as a proxy measure of interconnectedness. This is because affective organizational commitment is characterized by an individual's submersion into an organization at such a level where they can be identified by their involvement or membership in the organization (Meyer, Allen, & Smith, 1993). Researchers Bell and Taylor (2001) purport that work organizations have become people's most significant context for relationships, surpassing institutions such as faith communities.

Interconnectedness is the feeling of belonging and relationship with others where the sum of the group is larger than the individual. Many researchers such as Mitroff and Denton (1999), King and Nicol (1999), and Burack (1999) assert that spirituality transcends peoples' differences. For example, Mitroff and Denton (1999a, p. 23-25) discuss spirituality as "universal and timeless", "the ultimate source and provider of meaning and purpose", "the sacredness of everything", and "the deep feeling of interconnectedness of everything". Jurkiewicz and Giacalone (2004), describe interconnectedness as a relationship to others that provides positive feelings, while trust is described as an integral part of interconnectedness by Burack (1999). Simply put, an individual's spirituality is a deep-level characteristic that unites rather than divides. Therefore, as employees in a highly spiritual firm spend time with one another at work and develop relationships their spirituality unites them together and increases their cohesion or sense of interconnectedness. Therefore, although the workforce may be comprised of diverse employees,

in a firm that embraces workplace spirituality the employees are united through the common bond of spirituality, which yields interconnectedness.

Self-Work Immersion

Self-work immersion, as it is labeled in this manuscript, is a fairly nebulous concept. Some researchers discuss this concept in terms of "holism" and "wholeness" of individuals (Bell & Taylor, 2001). Wagner-Marsh and Conley, (1999) describe this concept as the ability to express the inner substance called spirituality. Csikszentmihalyi (1990) researched what has been termed as "flow". This "flow" is purported to be work that is done with every fiber of an individual's being. At the heart of this research is an individual who can engage their spiritual self into their work. Often, organizations develop cultures that stifle an individual's ability to pull from deep within to accomplish their work. Thompson (2000) equates a spiritual workplace with one that supports the development of employees' spiritual attributes. Ashmos and Duchon (2000) assert that high levels of organizational support require the acknowledgement that employees have an inner life that is just as important as their work lives. "Employees have an inner life related to the soul and accessed through practices such as meditation, self-reflection and prayer" (Bell & Taylor, 2001, p. 2). Therefore, the definition of self-work immersion in this manuscript is the convergence of deeply held spiritual aspects of individualism including mind, body, soul, and an individual's work.

According to Rousseau and Schalk (2000, p. 252), individualism is "associated with attempts to actively master one's environment rather than passive acceptance". Self-work immersion is where an individual engages their deep-level characteristics into work efforts. Individualism is associated with the "freedom to follow one's personal preferences and beliefs" (Rousseau & Schalk, 2000, p. 253).

Although most discussion of individualism conjures ideas of Machiavellianism, narcissism, greed, and self-centeredness, to name a few, in its purest form it is about outcomes related to individual accomplishment. Therefore, while highly spiritual firms promote unity and interconnectedness, they must also support the development of the individual. Only through individual development and contributions does the organization benefit as a whole. Burack (1999, p. 281) proclaims, "it is people who now will make the difference" in organizations and their work outcomes.

Meaning From Work

Meaning from work is an important component of workplace spirituality. Many researchers borrow from Abraham Maslow's (1943) work on motivation and use the term "self-actualization" to describe meaning from work. Maslow (1943) conceptualized self-actualization as a point where an individual began to fulfill their purpose and derive meaning through work. Self-actualization is the highest level of motivation where all your lower level needs are met, and an individual is growing and developing into all they can be through the process of work. This is the point where individuals enjoy their careers because it is full of meaning and fulfillment. For

example, the artist that begins to paint his or her masterpiece for the love of artistic expression, rather than for ego gratification, financial rewards, or some lower level need. During this process the artist is said to be self-actualizing. Burack (1999) discussed this process as a point where the mind and spirit mesh together through work. Milliman, Czaplewski, and Ferguson (2003) use terms like achievement, personal reward, and growth to describe this process. Human growth and development at the highest level is how Butts (1999) describes this level of work. Thus, in this manuscript meaning from work is defined as the fulfillment of an individual's need to have meaning in and through their occupation (i.e. self-actualization).

WORKPLACE SPIRITUALITY AND THE CONSTRUCTS OF THE PSYCHOLOGICAL CONTRACT CONTINUUM

Focus

Focus is the extent to which a psychological contract contains transactional and relational elements. Transactional contracts are focused on "economic terms, have a specific duration, are static, narrow in scope, and are easily observable" (Uen, Chien, & Yen, 2009, p. 216). Thus, organizations that view employees as commodity like resources, as opposed to a spiritual organization that views employees as a source of competitive advantage (Moore, 2010), generally focus on the transactional or non-developmental aspects of the psychological contract.

Contrary to the transactional organization view, a spiritual organization focuses on the developmental aspects of employees through its formal human resource policies and or its culture (Moore, 2010). As a result, a highly spiritual organization's psychological contract focus would be on more relational or emotional and spiritual aspects of work, rather than economic exchange. There does remain, however, a need for organizations to include transactional aspects of the psychological contract even when they are a spiritual organization. For instance, an organization can be spiritual while preferring an outcome based compensation system. As a result, firms may need to broaden the focus of their psychological contract to encompass aspects of both the transactional and the relational. As a result, the following proposition is developed; Proposition 1: *Organizations with increasingly spiritual paradigms will have psychological contracts focusing on increasingly relational elements*

Time Frame

The time frame of a psychological contract refers to "the perceived duration of the employment relationship" (Sels et al., 2004, p. 267). The time frame can range from a transactional length that is specific and definite, to a relational length that is open-ended and indefinite. Thus, a transaction oriented organization would have a more definite time frame in employment relationships because the organization would not view an employee as a long-term investment to be developed over time.

For an organization to be a highly spiritual organization it would imply a psychological contract that is relational in nature because of the focus on long-term development of employees through

the nurturing of spiritual aspects of the workplace (Burack, 1999; Milliman et al., 2003; Karakas, 2009; Moore, 2010). This long-term focus is often operationalized through the promotion of meaning from work.

Self-actualization is the term generally used to describe the process of deriving meaning from work. In an organization that supports self-actualization or meaning from work; two important aspects of the time frame become evident.

First, the second level of Maslow's (1943) hierarchy of needs can be succinctly stated as motivation due to fear of being without basic needs that, in today's society, come from being employed (e.g. shelter, clothing, etc.). According to Laabs (1995), removing fear from an organization reduces employee boundaries allowing for employee growth, and ultimately meaning from work or self-actualization. One major way in which organizations can remove fear is to develop a more relational psychological contract that is open-ended or has an indefinite time frame. Although this may or may not equate to employment for life, it can reduce the fear of losing one's employment.

Second, deriving meaning from work is a process, not a final destination. According to Freud, every individual develops what he called an "ego-ideal". An individual's ego ideal is purported to be some paragon that is as unique and diverse as human beings. When individuals begin to self-actualize they are working towards becoming all that they can be (Maslow, 1943). As individuals become closer to being all they can be, (i.e. their ego-ideal), the model of perfection for that individual changes and causes them to continue to strive for their more advanced ego-ideal. Therefore, a psychological contract that leans towards being more relational, which is to say more indefinite or open-ended, allows for individuals to continually develop and reach for higher and higher goal attainment. Thus, proposition 2 is developed;
Proposition 2: *Organizations with increasingly spiritual paradigms will have psychological contracts with an increasingly relational time frame*

Stability

In the same vein as developing an open-ended time frame is a concern for the stability of a psychological contract. The stability of a psychological contract is "the degree to which the psychological contract is limited in terms of its ability to evolve and change without an implied renegotiation of the terms" (Sels et al., 2004, p. 467). Rousseau (1995) discusses the case of Inland Oil and their "era of no guarantees". In this case, management of Inland Oil drastically changed the psychological contract with employees without any renegotiation due to plummeting oil prices in the late 1980's. As a result of the downswing in the oil industry, management responded with a typical slash and burn strategy characterized by downsizing, reducing benefits, freezing promotion opportunities, etc. The psychological contract changed and employees felt as though their careers were halted, with no advancement opportunities, more work for less pay, and little or no career or employee development. Therefore, the changes in the psychological contract were perceived as very negative because they stunted the development of employees without the benefit of renegotiation.

Changes to the psychological contract, can however, be viewed as positive events if the purpose of the changes are to augment the development of employees. As discussed previously, as individuals derive meaning from their work and begin to self-actualize their goals become loftier. Consequently, the psychological contract must be stable enough to provide some security, but dynamic enough to keep up with the changing developmental needs of employees. Therefore, spiritual organizations continually provide development opportunities to employees (Thompson, 2000), which translates into a more dynamic psychological contract. Thus, the following proposition is developed:

Proposition 3: *Organizations with increasingly spiritual paradigms will have psychological contracts that are increasingly relational and dynamic*

Scope

Scope is generally described as the dimension of the psychological contract that refers to the division between an individual's work and personal life (Sels et al., 2004, p466). If the scope is broad, the division between work and personal life is not well delineated, and if the scope is narrow the division is distinctly delineated. Thus, a broad scope is more relational while a narrow scope is more transactional.

As a result of today's organizations demanding more commitment, efficiency, and greater production from employees at all levels, many employees are spending "a majority of their lives in the work setting" (Moore, 2010, p. 63). Likewise, employees are looking for their work arrangements to fulfill more than just economic needs because work organizations now have "meanings beyond the 'nine-to-five' working hours; it is even becoming the cradle of meaning in modern knowledge society" (Karakas, 2010, p. 93). As a result, organizations must begin to care for the "whole" person (Bell & Taylor, 2001). Several researchers have found evidence that employees' individual life outcomes, and not just increased performance at work, are augmented when employed by organizations with programs designed to increase employee spirituality in the workplace (Giacalone & Jurkiewicz, 2003; Fry, 2003; Reave, 2005). Thus, organizations that ascribe to nurturing spirituality in the workplace should have a broader scope in their psychological contracts than organizations that do not ascribe to nurturing spirituality in the workplace. This is because spiritual organizations attempt to care for the 'whole' person and not just the worker. Therefore, we posit the following proposition:

Proposition 4: *Organizations with increasingly spiritual paradigms will have psychological contracts with an increasingly relational and broadening scope*

Tangibility

Tangibility is generally defined as the extent to which the psychological contract terms are "unambiguously defined, explicitly specified and clearly observable for third parties" (Sels, Janssesns, & Van den Brande, 2004, p. 466). Tangibility is directly related to the degree to which an organization controls employees through formal policies, procedures, and specific formal agreements. A spiritual workplace would of course have some control mechanisms,

however, a spiritual workplace would also allow employees the latitude to develop and express their spirituality in a climate of trust (Burack, 1999). In fact, some researchers warn that a potential downfall of the spirituality at work movement is an attempt by some to use spirituality as a new management control mechanism (Brown, 2003; Milliman et al., 2003; Karakas, 2010).

Therefore, spiritual organizations will continue to have many highly tangible elements of the psychological contract; however, highly spiritual organizations will also have many intangible elements of the psychological contract such as "trust, honesty, integrity and other virtuous elements" (Moore, 2010, p. 62), or anything that will "make a larger contribution than the typical company to the welfare of employees, customers, and society" (Milliman et al., 2003, p. 430). The more tangible elements of the psychological contract in highly spiritual firms should not intrude upon the intangible elements that support the development and free and open expression of employee spirituality because "a culture based on mutual respect and worth of each employee" (Wagner-Marsh & Conley, 1999, p. 297) is the basis of the spiritual organization. Thus, the following proposition is develop:

Proposition 5: *Organizations with increasingly spiritual paradigms will have increasingly more elements of the psychological contract that are intangible.*

Synthesis

Robinson, Kraatz, and Rousseau (1994) found evidence indicating that as employees perceived their place of employment as becoming a less relational workplace; employees recognized a shift in their psychological contract towards a more transactional contract. The transactional psychological contract can be characterized by organizations with little or no investment in their employees' spiritual development where employees are considered to be a resource with a specific commodity level value and potential, rather than an invaluable rare resource with unlimited potential. Firms with outdated management processes that treat employees as expendable resources or at a minimum replaceable or interchangeable instead of as sources of competitive advantage (Moore, 2010) could be associated with increasingly transactional psychological contracts.

The relational psychological contract is characterized by organizations that embrace the spirituality movement by viewing employees as sources of competitive advantage (Moore, 2010) and promoting management processes with more employee centered approaches (Burack, 1999). Increasingly spiritual organizations make considerable investment into the development of employees' "search for simplicity, meaning, self-expression, and interconnectedness to something higher" (Karakas, 2009, p. 90). Thus, we posit the following proposition:

Proposition 6: *Organizations with increasingly spiritual paradigms will have psychological contracts that are increasingly relational while organizations with increasingly   anti-spiritual paradigms will have psychological contracts that are increasingly transactional.*

CONCLUSION

As previously suggested by Gail Sheehy, workplace spirituality is a growing concern for many organizations and employees alike. Many reasons for this rising concern has been purported by spirituality researchers, including: the "graying" of the workforce, postponing pulling-up roots in early adulthood, employee disenchantment with top management teams, increased hours spent at work, and backlash from downsizing and job elimination policies. As a result, spiritual work environments are becoming important and often sought after characteristics of job seekers. According to Mitroff and Denton (1999), spirituality has become a major firm characteristic that potential employees look for, especially with members of the Endangered Generation. Therefore, it stands to reason that job seekers are looking for organizations that offer a greater mix of relational components in the psychological contract.

The main difference between highly transactional and highly relational psychological contracts is how employees are viewed by the organization. As discussed previously, organizations that prefer transactional contracts view employees as commodities with limited value and potential that can be replaced or interchanged for other resources. This is contrast to spiritual organizations with more relational psychological contracts which view each employee as an invaluable rare resource with unlimited potential. It is this latter evaluation of employees that job seekers, and more specifically the Endangered Generation, are increasingly searching for. As organizations embrace a more spiritual culture their psychological contract offering becomes more palatable for job seekers searching for meaning in life. Consequently, organizations can expect to begin to reap the many benefits that come from a spiritual workplace.

One of the growing trends in today's workplace is a demand for more work with fewer employees. As a result, most individuals are working a greater number of hours every week. Since so much time is being spent at work many employees are turning to the workplace for many social, relational, growth, and developmental needs, i.e. spirituality. In return for fulfilling these needs and often augmenting the emotional and mental health of employees, many individuals are giving back to their organizations in the form of decreased turnover intentions, increased performance, greater efficiencies, and increased creativity and innovation. Organizations may soon find that it is the highly relational psychological contracts and their overt emphasis on workplace spirituality which will reconcile the disparity between the newest generation's searches for purpose and meaning juxtaposed against the graying of their existing employee base.

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FIGURE 1

Figures

Transactional Terms		Relational Terms

Focus

Economic ←————————————————————→ Economic, emotional

Inclusion

Partial ←————————————————————→ Whole person

Time frame

Closed-ended, specific ←————————————————————→ Open-ended, indefinite

Formalization

Written ←————————————————————→ Written, unwritten

Stability

Static ←————————————————————→ Dynamic

Scope

Narrow ←————————————————————→ Pervasive

Tangibility

Public, observable ←————————————————————→ Subjective, understood
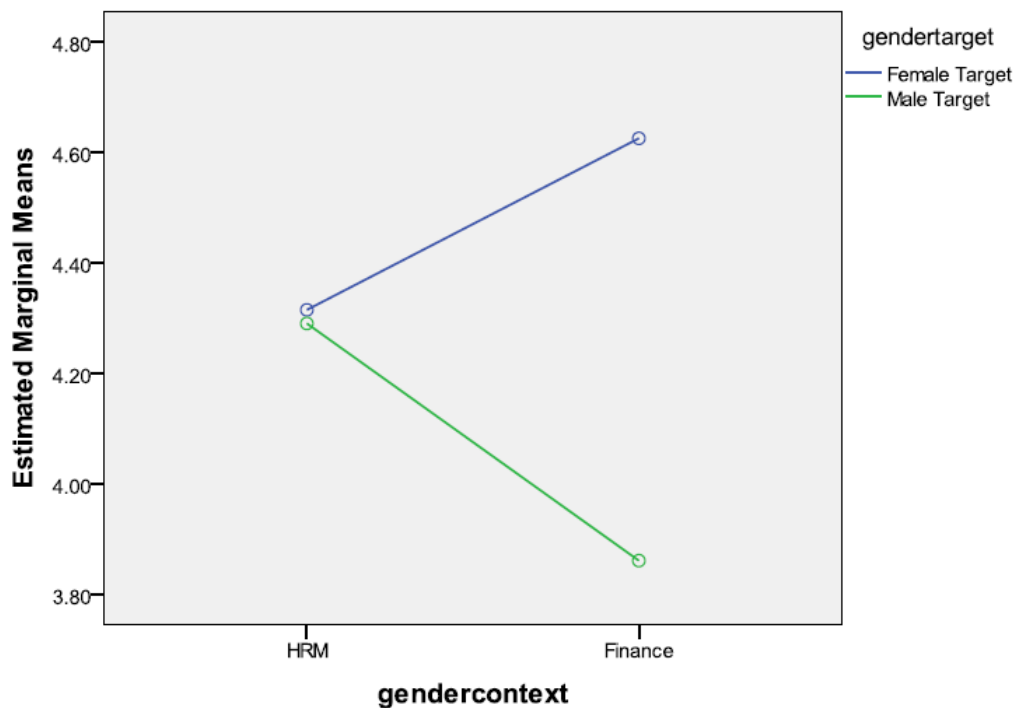
Figure 1, A Continuum of Contract Terms, (Rousseau, 1995: 92)

SOCIAL DOMINANCE ORIENTATION, DIRECTIVES, AND THE SELECTION OF TEAM MEMBERS AND Leaders
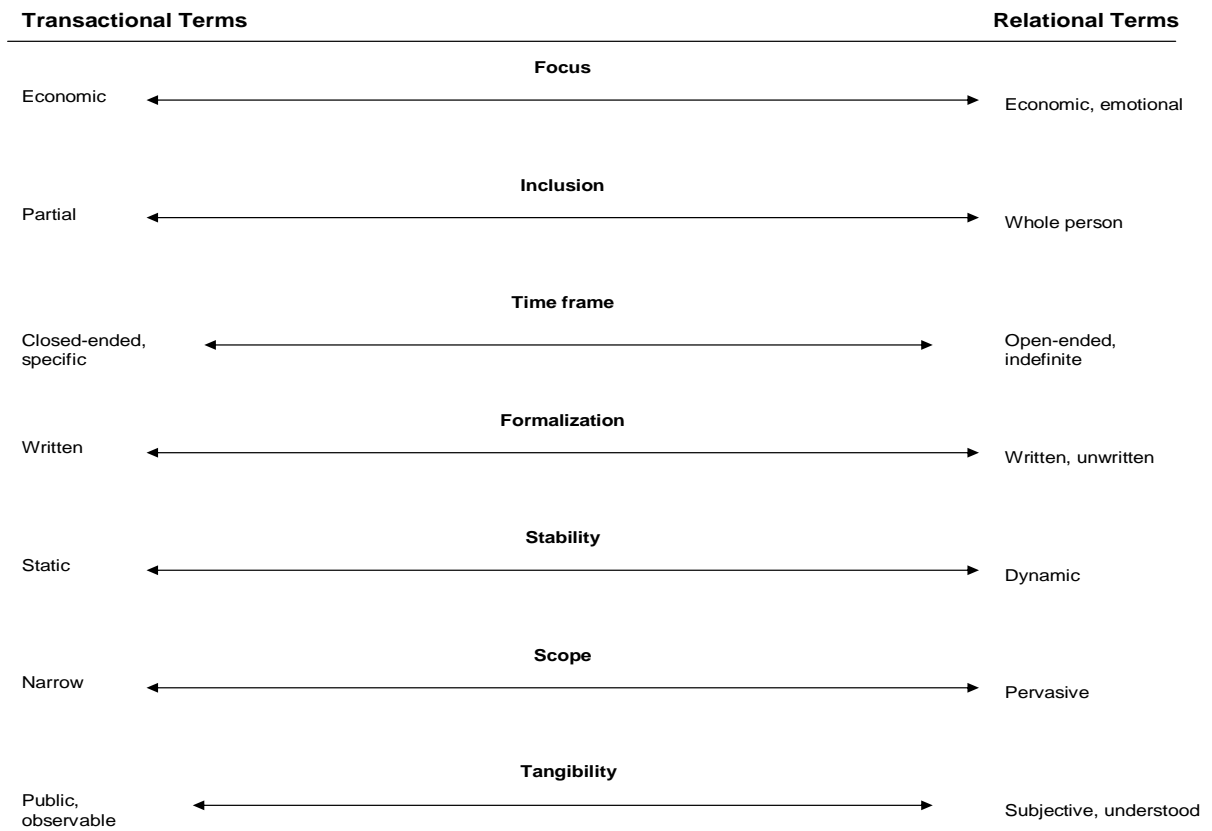
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ABSTRACT

People who are high in SDO tend to believe that high status groups (e.g., men) should be superior to low status group members (e.g., females). We seek to determine if directives from a superior will suppress the inclination of individuals who are high in SDO to discriminate against a low status group member (e.g., an African American female) when they are a candidate for a leadership position. We discovered that when directives are present there is a stronger relationship with SDO and the evaluation of a low status group member for a leadership position as compared to a non-leadership position.

Social Dominance Orientation, Directives, and the Selection of Team Members and Leaders

The workplace continues to increase in terms of diversity. Women now encompass almost half of the work place (United States Department of Labor, 2009). Similarly, minorities represent a significant number within the workforce; in fact, in 2008 the workplace was composed of about 14.3%, Latinos, 11.5% African American, 4.7% Asians, and 2.4% Other (Bureau of Labor Statistics, 2008). The large presence of both women and minorities has resulted in an increase in complaints and litigation with regard to discriminatory practices. For example, in 2003 Abercrombie & Fitch Stores, Inc. was sued by women and minorities who claimed that they were discriminated against by the company's hiring and recruiting practices. They also asserted that qualified minority and female applicants who were hired were assigned positions with little or no visibility (e.g., janitorial or product stocking jobs). In 2005, Abercrombie & Fitch Stores lost the lawsuit and were ordered to pay 50 million to the individuals who sued the company. Research has been conducted to determine the source behind the behaviors that generate these types of events.

Researchers have discovered that individuals, in part, engage in prejudice toward women because of sexism. In fact, scholars have determined that both benevolent sexism (i.e., women are the weaker gender and should be cherished and protected) and hostile sexism (i.e., women are sensitive and desire to have power over men) result in the maltreatment of women (Glick & Fiske, 1996). Similarly, racial minority groups have to cope with acts of prejudice toward them because of behaviors like modern racism. Modern racism is a subtle form of bias where individuals try to maintain a non-prejudiced image, but are inclined to engage in prejudiced actions against racial minority members (Brief, Dietz, Cohen, Pugh, & Vaslow, 2000; McConahay, Hardee, & Batts, 1981). Even though these individual differences (as well as other forms of biased behavior like ethnocentrism and classism) help explain why some individuals engage in racist and sexist behavior, they do not fully capture or provide a comprehensive explanation for discrimination (Sidanious & Pratto, 1999).

Sidanius and Pratto introduced social dominance theory (SDT) as well as social dominance orientation (SDO) to provide an additional framework and construct, respectfully; to further understanding about group based oppression (Sidanius & Pratto, 1999). SDT provides the theoretical underpinnings and suggests that some individuals are motivated to ensure that traditional hierarchies are maintained within society. They go on to explain that individuals who are high in SDO, which captures the extent to which one accepts and adheres to the tenants of SDT, believe that high status group members (i.e., men, Whites) should have access to positive social value like well paying jobs, wealth, and health care. Conversely, they believe that low status group members like women and racial minorities are more suited for negative social value like poverty and low level occupations (Sidanius & Pratto, 1999). Furthermore, previous work has demonstrated that individuals who are high in SDO may discriminate to keep low status group members subordinate to high status group members (Pratto, Sidanius, & Levin, 2006; Umphress, Simmons, Boswell, & Triana, 2008).

Research has been conducted to determine how this type of behavior can be mitigated in an organizational setting. Researchers have discovered that directives from a superior can help decrease the amount of bias that individuals who are high in SDO display when evaluating a candidate for a team member position who belongs to a low status group (i.e., a black male or a white female) (Umphress, Simmons, Boswell, & Triana, 2008). However, no empirical work has been done to uncover how individuals who are high in SDO might respond when a low status group member is a candidate for a leadership position. Thus, we seek to determine how individuals who are high in SDO respond to a low status group member (i.e., a black female) who is a candidate for a leadership position when given directives from a superior to make selection decisions based on task qualifications.

The purpose of this paper is to determine whether or not directives from a superior will mitigate bias against an individual who belongs to a low status group when they are a candidate for a leadership position as opposed to a non-leadership position. The paper will continue in the following order. We will further develop SDT and SDO. We will then provide support for why we believe that directives will decrease bias more strongly for a non-leadership position as opposed to a leadership position for candidates who belong to a low status group. We then describe our methodology and discuss the findings, limitations and future research.

THEORETICAL FRAMEWORK AND HYPOTHESES

SDT is a theoretical framework that helps explain why some individuals believe that there should be inequality within society. Furthermore, "the theory views all of the familiar forms of group-based oppression (e.g., group based discrimination, racism, ethnocentrism, classism, sexism) as special cases of a more general tendency for humans to form and maintain group-based hierarchy" (Sidanius, Pratto, van Laar, & Levin, 2004: 846). Thus, this theory centers on factors that play a part in group based repression and can be used to explain different forms of bias. It also suggest that group based oppression is not without purpose, but it is a systematic approach to sustain established hierarchies that individuals who are high in SDO work to maintain (Sidanius, Levin, Liu, Pratto, 2000; Sidanius, Pratto, van Laar, & Levin, 2004). SDO is an individual difference variable that captures these beliefs and is defined as, "…the

degree to which one endorses group-based social inequality and group-based dominance" (Sidanius & Veniegas, 2000: 12).

Furthermore, individuals who are high in SDO tend to belong to high status groups (e.g., males). Thus, their efforts to maintain traditional hierarchies often benefit them personally. However, research has found that even low status members (e.g., women) who are high in SDO can be biased against other low status groups to which they belong (Umphress, Smith-Crowe, Brief, Dietz, & Baskerville, 2007). Individuals who are high status group members who are high in SDO demonstrate in-group favoritism when they discriminate against low status group members, while low status group members who are high in SDO demonstrate out-group favoritism when they discriminate against low status group members (Sidanius & Pratto, 1999).

Individuals who are high in SDO have an inclination to discriminate against low status group members and previous work has determined that directives from a superior will mitigate this behavior. More specifically, Umphress and colleagues found that in the context of selection, directives from a superior will help diminish the tendency of those who are high in SDO to make biased choices against the best candidate who belongs to a low status group (i.e., an African American male, a Caucasian female) if they are a candidate for a team member position (Umphress, Simmons, Boswell, & Triana, 2008). Individuals who are high in SDO are likely to discriminate because they are motivated to maintain traditional hierarchies, but they are also more likely to adhere to the directives of authority figures because of their belief in supporting the established hierarchy in society. Therefore, individuals who are high in SDO are inclined to obey the instructions of an individual in an authoritative position (i.e., a superior) (Sidanius & Pratto, 1999). Thus, their inclination to obey their superiors can be utilized to counter their tendency to discriminate against low status group members.

As previous research demonstrates, the tendency for an individual who is high in SDO to discriminate can be overridden by a directive from a superior when a low status group member is a candidate for a non-leadership role (e.g., a peer, team member) (Umphress et al., 2008), but this may not be the case for a leadership position. A directive from a superior to focus on job criteria when a low status member is pursuing a non-leadership can better mitigate bias because choosing a low status group member to be a peer or a subordinate does not necessarily violate their belief in traditional hierarchies, because the low status member is not being selected for a superior or high-class position. However, the desire that they have to maintain established hierarchies may lead them to be prejudiced against a low status member candidate for a leadership position (i.e., an authority figure), even if a directive from a superior is present. We believe that their belief in a traditional hierarchy will move them to ignore directives from a superior if it conflicts with their core beliefs (i.e., inequality among group members and the superiority of high status group members). The act of selecting a low status member (i.e., an African American, female) for a leadership position would be in direct contradiction to their desire to ensure that high status group members (e.g., Whites) remain in superior positions and that low status group members (e.g., Blacks) remain in subordinate positions. Thus, when a leadership position is available and the best candidate is a low-status group member, an individual high in SDO, acting as a selector, will be more likely to disregard a directive from their superior to focus on performance criteria and act on their tendency to discriminate.

As mentioned, previous work has discovered that directives from a superior will mitigate bias for a non-leadership role (Umphress, Simmons, Boswell, & Triana, 2008), but no work has

determined if this would be the case for a leadership position. We seek to extend the literature in this regard and determine if directives from a superior will better mitigate the bias of an individual who is high in SDO when a low status candidate is the most qualified candidate for a non-leadership as opposed to a leadership position; thus, we hypothesize the following:

H1: SDO will interact with job position (leadership versus non-leadership position) on evaluations of a candidate who is a member of a low status group when directives are given to focus on job performance criteria such that the relationship between SDO and evaluations of a member of a low status group will be stronger when the candidate is being assessed for a leadership versus non-leadership position.

METHOD

Participants. This study included 92 participants that were recruited from a mid-sized university that is situated in the southwestern region of America. The majority (59.6%) of the participants were between 20 and 22 years of age. Fifty seven percent of the participants were female while 43% were male. In addition, the greater part (76%) of the participants, who were all undergraduate students, were from the College of Business Administration. The ethnicity of the participants was as follows: 64.8% White, 16.5% Latino, 12.1% African American, 2.2% Asian, and 1.1% were Native American. Lastly, 17.4% of the participants worked full-time, 44.6% worked part-time, and 38% were not employed.

Procedure. We conducted this study in two distinct phases. We collected the demographic information and control variables during the first phase of the study. The control variables for this investigation are as follows: right wing authoritarianism, hostile sexism, gender, racial identification, social self-efficacy, and employment status. The participants encountered the manipulation, in which they were asked to evaluate the eight candidates for a leadership or a non-leadership position, during the second phase of the investigation.

Phase One

This phase consisted of capturing the data for the independent variables, the control variables, as well as the demographic variables.

Independent Variables.

Social dominance orientation. We used Sidanius, Pratto, Sinclair, & van Laar's, 16-item scale to measure SDO (1996). A sample item states, "Superior groups should dominate inferior groups". The participants utilized a 7-point likert scale to respond to these 16-items. The scale ranged from 1 = strongly disagree to 7 = strongly agree. A mean was calculated for the items and the higher scores demonstrated a higher level of SDO (α = .89; Cronbach, 1951).

Controls Variables.

Hostile sexism. Hostile sexism represents a belief that women are inferior to men. This variable was developed by Glick and Fisk (1996) and it has demonstrated that individuals who are high in hostile sexism tend to have a negative evaluation of females. Thus, because the best candidate in our study was a female, we controlled for this variable. A 7-point likert (1 = strongly disagree to 7 = strongly agree) scale was utilized to capture the responses for this

variable. A mean was also calculated for the 11-items and the higher scores demonstrated a higher level of hostile sexism ($\alpha = .79$; Cronbach, 1951).

Race identification. This variable was controlled because individuals who have a level of identification with their race may be inclined to have a negative affinity for those who are not within their race. Individuals in this investigation responded to these items utilizing a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). A mean was calculated for the four items and the higher scores demonstrated a higher level of race identification ($\alpha = .81$; Cronbach, 1951).

Right Wing Authoritarianism. We controlled for this variable because these individuals tend to have a conservative viewpoint about issues and are inclined to obey traditional systems. Individuals who are high in RWA are also likely to engage in biased behaviors (Altemeyer; 1988, 1998). A 7-point likert scale was utilized (1 = strongly disagree to 7 = strongly agree) to capture the responses for this variable. A mean was calculated for the 24-items and the higher scores demonstrated a higher level of right wing authoritarianism ($\alpha = .76$; Cronbach, 1951).

Gender. Gender was controlled for because males tend to have a higher level of SDO than females. In fact, this finding is controversial and has been identified as *the invariance hypotheses* (Sidanius, Levin, Liu, & Pratto, 2000).

Employment Status. We controlled for employment status because individuals who are employed are more likely to understand the work scenario that was presented to them. They are also more likely to understand the team dynamic that was expressed in the manipulation, which was a vital component of our stimulus materials.

Social Self-Efficacy. Social self-efficacy was controlled for because these individuals may have a high level of confidence in their ability to work in a team setting. We used the scale developed by Sherer and colleagues (1982). A 7-point likert scale (1 = strongly disagree to 7 = strongly agree) was used to capture the participant responses to this construct. A mean was calculated for the six items and the higher scores demonstrated a higher level of social self efficacy ($\alpha = .76$; Cronbach, 1951).

Phase Two

The following methodology was modified from an investigation conducted by Umphress and colleagues (2008). Thus, this investigation was split into two separate phases that took place about six weeks apart. As mentioned, Phase One captured the independent, demographic and control variables while Phase Two contained the manipulation, in which the participants were asked to select potential candidates for a leadership or non-leadership position. The participants were also told that they would work together with the candidates that they selected in a third phase. However, no third phase exists. We informed them about a fabricated third phase so that they would take the manipulation seriously.

The participants were informed about both a selection role and a member role during Phase One. They were told that they would be randomly chosen to be a member of the team or a selector who would have the responsibility of choosing a candidate. They were deceived about the roles, because it was implausible for the participants to believe that all of the participants would be chosen to be a selector. In reality, all participants were selectors and they were asked to either choose a team member or a leader for the team. Thus, the team would consist of them (the participant), two assigned team members, and the one team member or team leader that they

selected. In the team leader condition, the participants were told that the team leader would have the added responsibility of directing the other team members with regard to the work task.

All of the participants were asked to make decisions based on the performance criteria. We informed the participants that the team members with the highest qualifications were likely to produce the highest performance. More specifically, the participants were told to make selections based on Leadership Potential Test (LPT) scores (i.e., a fabricated test) and the grade point average of the eight potential candidates. As mentioned, they were told that there would be a third phase and that they would actually work with the candidate that they selected.

The team task was then presented to the participants. They were told that the team members would work in a team of four on a command-and-control computer simulation task. They were then told that each team member would guard a particular quadrant of a naval base, but that the team members would work together to do so. The participants who were in the non-leadership condition were asked to select a team member, while the participants in the leadership condition were asked to select a leader. Participants in both conditions were told that the team that performed the best on the command-and-control task would receive additional extra credit points (i.e., more than what their professor had already promised in exchange for their participation in the study).

The participants were then presented with the eight candidates. They were lead to believe that all individuals made selection choices from eight different candidates; however, all participants assessed the same eight candidates. We informed the participants about the candidate's majors, classifications, education, gender, race, age, leadership potential score, overall grade point average, and relevant work experience. The leadership potential score was the result of a fabricated leadership scale that consisted of ten items that all participants answered during Phase One. This measure was given to the participants to provide the appearance they we were assessing their ability to do well on the command-and-control task.

The participants reviewed the eight candidates and were given a specific directive from the research team. The research team stated the following, "results from previous studies indicate that the best performers of this task are those with high grade point averages and leadership potential scores". The leadership potential scores and the grade point averages of the eight possible candidates indicated that there was one candidate that was more qualified than the other seven candidates. The most qualified candidate in this investigation was a black female candidate. We conducted a pretests and it verified our assumption (results available upon request) about the most qualified candidate. As mentioned, there were only two actual phases; thus, after the participants made their selection with regard to potential candidates they were debriefed and provided their extra credit points. All participants received the same extra credit points.

Intent to Select the Best Candidate. The individuals who participated in this study were asked to assess eight potential candidates. They responded to three items in order to evaluate the candidates. The three items were (1) Please select the one choice that best indicates the quality of the candidate as a potential work team leader (or team member). (2) Please select the one choice that best indicates the extent to which you believe this is an attractive work team leader (or team member). (3) Please select the one choice that best indicates your intention to choose this candidate as a work team leader (or team member). A 7-point Likert scale was utilized to capture the data about these three items (1 = strongly disagree to 7 = strongly agree). A mean was

calculated and a higher score indicated a higher level of assessment for the African American woman who was the most qualified candidate ($\alpha = .88$).

Manipulations. The individuals who participated in this investigation were randomly assigned to one of two conditions. The participants were assigned to a condition where they were asked to select a team leader (N=44) or they were asked to select a team member (N=48). In both conditions, the directives from a superior indicated that the participants should select the candidate that had the best qualifications for the job (i.e., those with the highest GPA or leadership potential scores).

RESULTS

Manipulation Check. The individuals who participated in this study were asked to respond to manipulation check questions. Each of the manipulation check items utilized a 7-point likert scale (1 = strongly disagree to 7 = strongly agree). We asked the participants about whether or not they were asked to select a leader or a team member to determine if our manipulations were successful.

The individuals who were randomly assigned to the leadership condition were asked the following question, "I was asked to select a team leader." A t-test was performed and it indicated that the manipulation was successful, $t(85) = -5.30$, p $\leq$ .05. Those in the leadership condition were more likely to agree (M = 5.74) than those in the non-leadership condition (M=3.76). The individuals who were randomly assigned to the non-leadership condition were asked the following question, "I was asked to select a team member". A t-test was performed and it demonstrated that the manipulation was successful, $t(85) = 4.56$, p $\leq$ .05. Those in the non-leadership condition were more likely to agree (M=5.96) than those in the leadership condition (M=4.24).

Hypothesis Testing. Table 1 displays the means, standard deviations, and intercorrelations for the constructs that we used in this study. In addition, we utilized the hierarchical multiple regression method to test the hypothesis. We used the method espoused by Cohen, Cohen, West, and Aiken (2003) and SDO, the independent variable, was centered to test for moderation.

Our regression analysis had three steps (see Table 2). Step one, intent to select the African America female candidate was regressed on the control variables: right wing authoritarianism, hostile sexism, gender, racial identification, social self-efficacy, and employment status. This step did not produce statistical significance ($R^2 = .08$). Step two, the intent to select the African American female candidate was regressed on the position for which the candidate was being assessed (i.e., team member or leader). This step of the analysis did not reach statistical significance ($R^2 = .10$; $\Delta R^2 = .03$). Step three, the interaction between the position and SDO manipulation (Job Position * SDO) were regressed on the dependent variable (i.e., evaluation of the African American female candidate). This step was found to be statistically significant ($R^2 = .15$; $\Delta R^2 = .05$). This statistical analysis revealed support for our hypothesis. Thus, SDO significantly interacted with the job position (team member or leader) on intent to select the African American female candidate (i.e., the dependent variable) ($\beta = -.544$, p $\leq$ .05). See figure 1 for an illustration of the interaction.

DISCUSSION

This investigation sought to determine if directives from a superior would mitigate the biased behavior of individuals who are high in SDO toward a low status member for a non-leadership position as compared to a leadership position. Participants were asked to focus on performance criteria when they evaluated candidates for either position. The data demonstrated a stronger relationship between SDO and a leadership position as compared to a non-leadership position when the best candidate is a low status member. Thus, it appears that the directives more strongly mitigated bias for the non-leadership position as opposed to the leadership position.

This data suggest that SDO has a stronger influence when a low status member (i.e., an African American female) is a candidate for a leadership role. The tendency to discriminate was observed for the leadership position even though a directive was given for the participant to focus on the job requirements and candidate qualifications. This may have been observed, because an individual high in SDO may not have perceived the non-leadership position as threatening as a leadership position. A leadership position, as opposed to a non-leadership position, is generally accompanied by more positive social value like respect, status, and wealth. An individual who is high in SDO may have a desire to obey their superiors when asked to focus on job criteria and qualifications when selecting a candidate, but their desire to exclude low status members from positive social value and high ranking positions appear to have a greater influence on their decision making. Furthermore, individuals who are high in SDO have a desire to compete and be successful (e.g., perform the highest on the command-and control task) (Son Hing, Bobocel, Zanna, & McBride, 2007), but these findings suggest that they are willing to possibly bypass this opportunity by disregarding the most qualified candidate (who should provide a higher level of contribution) if they are a low status group member. Thus, an individual high in SDO is willing to ignore their superiors, relinquish the possibility of having the highest performing team, which would result in additional extra credit points, if the best candidate belongs to a low status group.

This research provides an additional explanation for why there are so few low status group members (i.e., women and minorities) in corporate leadership positions (e.g., only one African American female has the position of CEO of a Fortune 500 organization) (Lewis, 2009). It appears that if a low status group member job candidate is qualified for a leadership position, they will be overlooked if the selector is high in SDO. This is a frightening practice as organizations require the best talent to compete in the global economy. The organizations performance is in jeopardy when the most qualified candidate is disregarded because of factors not associated with work criteria. Thus, the prejudiced behavior not only harms the most qualified candidate who happens to be a low status group member (i.e., an African American female) as they do not get the job or promotion, but it also harms the organization as both their organizational knowledge and potential are diminished.

Limitations and Future Research

This investigation used a dependent variable, in which the candidate belonged to two low status groups (i.e., an African American female). In some instances, the type of discrimination

that individuals who belong to two low status groups face is entitled, *double jeopardy* (Sidanius & Veniegas, 2000). This circumstance is unique, for example, African American women can face sexism from African American males as well as racism from White males or females. Thus, this study would be more comprehensive if we also uncovered how individuals who are high in SDO respond to a candidate for a leadership position that belongs to only one low status group (i.e., an African male, a White female) when directives are present. This information would also allow researchers to compare the level of discrimination that each low status group member (e.g., an African American female, an African male, a White female) would encounter from individuals who are high in SDO.

The student sample would also be considered a limitation. Because SDO is still rather new in terms of duration (as compared to literature streams with longer tenures like organizational justice), we concluded that it would be best to first conduct the investigation in a context where we could better control the variables and present a controlled manipulation to the participants. This helped to increase our internal validity, while it may have harmed the external validity of our findings (Kerlinger & Lee, 2000). Thus, the next step would be to replicate these findings in an organizational setting.

CONCLUSION

This study was an effort to extend the literature that pertains to SDO and help find solutions to the negative outcomes that often result when individuals are high in this individual difference variable. We replicated previous findings and discovered that when a directive is present individuals who are high in SDO are less likely to discriminate against low status group members (i.e., an African American female) when they are a candidate for a non-leadership position; however, the mitigation of bias, as the result of a directive from a superior, does not extend to a leadership position. Thus, directives to focus on job criteria were not as effective in decreasing discrimination when low status group members are candidates for leadership positions. Organizations should consider diversity training or a process to identify those who are high in SDO in efforts to ensure that they make decisions based on qualifications as opposed to biased and prejudiced behaviors.

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Table 1
Means, Standard Deviations, and Correlations among Variables

		Mean	SD	1	2	3	4	5	6	7	8
1	Right Wing Authoritarinism	4.64	.60	-							
2	Hostile Sexism	3.64	.79	.02	-						
3	Gender	1.43	.50	.00	.30*	-					
4	Racial Identification	4.57	1.33	.20	-.08	-.06	-				
5	Social Self-Efficacy	4.57	1.08	.24*	-.26*	-.11	.05	-			
6	Employment Status	2.21	.72	-.09	.03	.01	-07	.15	-		
7	Position [a]	.48	.50	-.04	.20	.14	.24*	.00	.06	-	
8	Social Dominance Orientation	3.12	.98	.10	.30**	.28**	-.05	-.06	.10	.17	
9	Best Candidate	6.01	1.07	.10	-.16	-.10	.09	-.06	.02	-.03	-.18

Note. N = 88 - 92

** p ≤ .01
* p ≤ .05
[a] Position was coded such that 0 = Team Member and 1 = Leader

Table 2

Results of Regression

| Step	Variable	β	R^2	ΔR^2
1	Right Wing Authoritarinism	.17	.08	
	Hostile Sexism	-.21		
	Gender	-.21		
	Race Identification	.10		
	Social Self Efficacy	-.11		
	Employment Status	.06		
2	Right Wing Authoritarinism	.23	.10	.03
	Hostile Sexism	-.17		
	Gender	-.15		
	Race Identification	.08		
	Social Self Efficacy	-.11		
	Employment Status	.09		
	Position	.17		
	Social Dominance Orientation	-.19		
3	Right Wing Authoritarinism	.26	.15	.05*
	Hostile Sexism	-.18		
	Gender	-.29		
	Race Identification	.10		
	Social Self Efficacy	-.13		
	Employment Status	.16		
	Position	.20		
	Social Dominance Orientation (SDO)	.02		
	Position * SDO	-.54*		

Note. *N* = 88

* *p* ≤ .05

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Figure 1.

Interaction of Social Dominance Orientation and Position on Best Candidate – Black Female
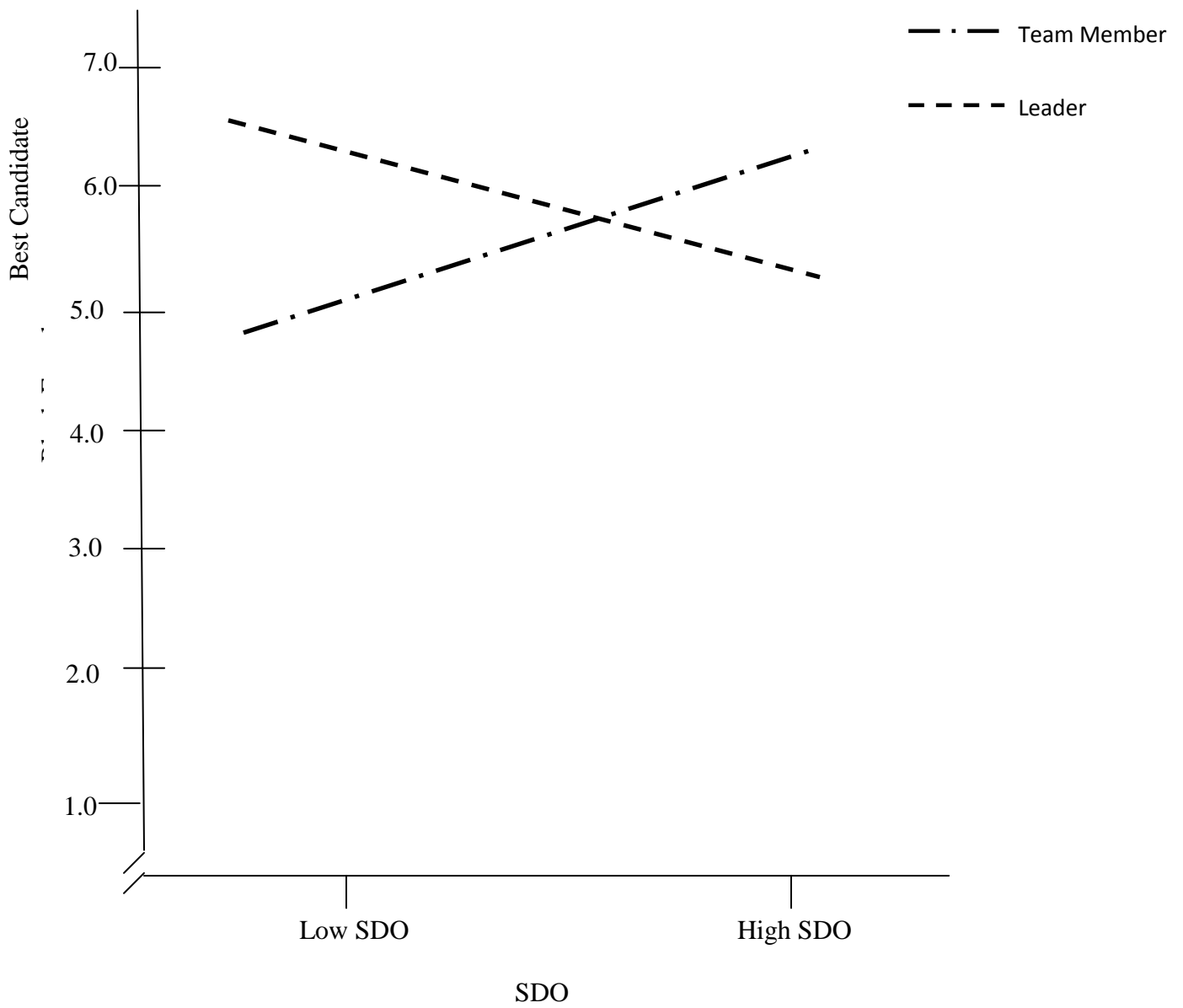
BACKLASH FOR ASKING FOR MONEY? IT DEPENDS ON THE GENDER OF THE NEGOTIATOR AND THE TYPE OF POSITION

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ABSTRACT

Although research has indicated that there are gender differences in the propensity to engage in salary negotiations, explanations for the role of context is lacking. To fill this void in the literature, the current study investigates the role of context in how women and men are evaluated during salary negotiations. We posit that women who attempt to negotiate their salary in male-typed positions will be evaluated negatively. The results of this study support this assertion. The findings of this study are discussed and future directions provided.

INTRODUCTION

Although women's presence in the workforce is nearly equal to their male counterparts, women continue to be under paid compared to men. For example, women working in the financial industry earn only 59 cents on the dollar compared to men working in the same position (Drago, 2010). One possible explanation is that there are gender differences in how women are perceived when they engage in salary negotiations in that they incur negative evaluations for asking for more money (Babcock, Gelfand, Small, Stayn, Cremer, Zeeland, et al., 2006; Babcock & Laschever, 2003; Boweles & Lai, 2007). In many ways, this suggests that women who negotiate for more money are perceived as more demanding and overbearing (Barron, 1993; Boise, 1996). To date, researchers have yet to investigate whether the type of job that women will occupy affects how they are evaluated during the salary negotiations. Further, it is unclear whether women working in traditionally female-typed jobs who negotiate for a higher salary are perceived more positively compared to women working in male-typed jobs. To address this gap, we propose that context matters when examining why and when there may be a backlash against women who engage in salary negotiations.

GENDER STEREOTYPING

Gender roles prescribe the ways in which men and women should behave (Eagly & Steffen, 1984). Female gender roles are communal in content, whereas male gender roles are considered agentic (Eagly & Steffen, 1984). Specifically, communal behaviors are described as being kind, helpful, sympathetic and concerned for others; however agentic behaviors are characterized as aggressive, forceful, and independent. As a result of the gender stereotypes that are linked to the usual job holder, some occupations are labeled as masculine or feminine and deemed suitable for men or women (Ely & Padavic, 2007). On the one hand, professional jobs in the financial sector

are seen as masculine because they fit the stereotypical image of men as agentic (Diekman, 2000; Heilman, 1995). On the other hand, jobs in the human resources industry are considered traditionally female-typed and align with a stereotypical image of communal traits.

According to Fiske (1993), prescriptive stereotypes explain how members of certain groups should think, feel, and behave and they demand group members to either conform to such prescriptions or suffer the consequences (e.g., backlash). For example, when women are acknowledged to have successfully performed male sex-typed jobs, they are considered to have the skills necessary to effectively execute the tasks and responsibilities required (Heilman, 2001). However, such women may be perceived as lacking feminine qualities such as sensitivity or social skills (Rudman, 1998). For this reason, women who take on a more agentic (e.g., assertive) role by asking for a higher salary may be perceived as demanding and overstepping boundaries.

Ambivalent sexism theory (AST; Glick and Fiske 1996, 1997, 1999) suggests that women encounter unfair and overt discrimination (such as hostility toward women who occupy nontraditional roles/jobs), but also that men face the same hostility, the resentment directed toward those with greater power. In many ways, hostile attitudes are direct attempts to change women and men to act in their gender ascribed manner. The Ambivalent Sexism Inventory (ASI; Fiske & Glick, 1996; 1997; Lee, Fiske, & Glick, 2010) assesses hostile (HS) and benevolent (BS) attitudes toward women. HS endorses paternalism, and gender-role segregation, whereas BS endorses protective paternalism, and romanticized heterosexuality. HS aims to penalize women who question male dominance, while BS emphasizes male dominance by giving women positive but low-status, communal traits (e.g., nurturing), which align with subordinate roles (e.g., caretaker). In the current study, the ASI is used to assess HS and BS attitudes toward women who negotiate their salary.

SALARY NEGOTIATIONS

We draw from the lack-of-fit theory (Heilman, 1983) to explain why the backlash that women receive when they negotiate their salary may depend on the gender-type of job they wish to occupy. The perceived lack-of-fit theory (Heilman, 1983) has been used to explain the existence of gender bias against women in organizational decisions including salary negotiations. According to this theory, the perceived incongruity between stereotypically based attributes ascribed to women (e.g. kind, caring, and loving) and the attributes believed necessary for success at male-gender typed jobs (e.g. tough, demanding, and achievement-oriented), gives rise to the expectation that women will not perform as well as men in these positions due to a perceived lack-of- fit (Heilman, 1983; 1995, 2004). The lack-of-fit theory further suggests that these role incongruities play a key role in evaluative processes because it may lead to biased evaluations. The expectations about how men and women should perform based on the gendered-typed position gives way to what type of behavior is attended to, how it is interpreted, and evaluated by others. Consequently, negative evaluations are a byproduct resulting from perceptions of the perceived lack-of-fit, which detrimentally affect how women are assessed, particularly when they negotiate their salary.

The perceived lack-of-fit theory has generally been applied in the context of performance evaluations (Lyness & Heilman, 2006). In a meta-analysis, Swim, Borgida, Maruyama, and Myers (1989) found empirical evidence that supports the assertion that woman face gender bias in performance evaluations. In a more recent study, Lyness and Heilman (2006) found that there is greater perceived lack-of-fit between stereotypical attributes of women and requirements of line jobs compared to staff jobs, and that women in line jobs receive lower performance ratings than women occupying staff jobs or men in either position.

The current study examines whether the lack of fit theory applies to how women are evaluated in the context of salary negotiations. Bowles and Lai (2007) investigated the social costs in gender differences in the propensity to initiate negotiations and found that evaluators penalized female job candidates more than male candidates for initiating negotiations. The current study extends the work in this area by examining the role of context in evaluations of women in salary negotiations. We examine how the type of position a woman seeks to occupy affects how she is evaluated when she negotiates her salary. That is, will women occupying female-typed positions (e.g. human resources) be evaluated negatively when they attempt to negotiated their salary, while men in the same role are viewed positively?

The lack-of-fit theory would predict that women who wish to occupy male-type positions and negotiate their salary might be perceived as acting counter to their ascribed gender roles (Heilman & Eagly, 2008; Heilman, Wallen, Fuchs, & Tamkins, 2004). Accordingly, women who desire to work in male-typed positions may be perceived negatively by others if they negotiate their salary because not only are they vying for a position that likely has characteristics that are perceived to be more closely related to men, but they are also "stepping out of line' by acting assertively in a realm where they may not be welcomed. In this regard, we expect that jobs that are considered male-type will exacerbate the negative reactions people have toward women during salary negotiations. Acting in conflict with ascribed gender role implies that a women negotiating her salary is behaving other than nice, but demanding. Based on the arguments presented above, we hypothesize the following:
Hypothesis 1: Women who negotiate their salary will be perceived more negatively than men who negotiate their salary.

Hypothesis 2: The type of job moderates the relationship between gender and negative reactions such that women who negotiate their salary for a male-typed job will be perceived more negatively than women who negotiate their salary for a female-typed job.

METHOD

Participants

The sample consisted of 104 undergraduate business students at a large southeast university who participated in exchange for course credit. The sample was 54% male. The ethnic racial

proportions for the sample are Caucasian, 76%; Asian and Hispanic 9%; and African American, 2%. In addition, more than 50% of the students were juniors in college.

Procedure

After obtaining the participants' consent to participate in the study, the experimenter directed each student at random to a computer. Each computer housed one of the four conditions for the study. The study was a 2 (sex of job candidate) X 2 (gender type of job) between subjects design. The conditions for the study included: human resources – female, human resources – male, finance – male, and finance – female. Once the participants were seated at a computer, the experimenter distributed a packet of information containing background information on the job (e.g. job description), offer letter, and a resume for the candidate. Each student was asked to read the following instructions:

> *This study is about the decisions that hiring managers make when selecting job candidates. In this exercise, you will be asked to play the role of a hiring manager and to review the resume and job description of a job candidate. This assessment is composed of several parts. Read each part carefully. The first part describes the firm, Creative Concepts. The following sections of the study will provide background information about the candidate and the job he/she was offered by the firm. Once you have finished reading the material in this packet you will be asked to complete a series of questions about your decision using an online survey.*

> ***Thank you for your participation.***

> *Imagine that you are a hiring manager at the Creative Concepts. Although many companies have laid off thousands of employees in this economy, the public relations industry continues to grow. There are many exciting opportunities in this industry. You have been tasked with finding the perfect candidate to fill a human resources manager position for Creative Concepts. This position is valuable to Creative Concepts. Human resource is the organizational function that deals with issues related to people such as compensation, hiring, performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration, and training. The objective of this department is to maximize the return on investment from the organization's human capital and minimize financial risk.*

> *According to Women for Hire, women outnumber men by 2-1 in the world of human resources.. Relative to other fields, "HR has one of the highest percentage of women in [top executive] positions," says John F. Johnson, an executive recruiter who places chief HR executives in Fortune 1000 companies. "You find a higher percentage here than in finance, legal or other functions," he adds. Salaries in comparable positions in other organizations tend to lie between $42,000 and $55,000.*

> *Creative Solutions is a leading marketing PR firm with operations in more than 50 countries. In addition, Creative Solutions provides quality marketing with cutting-*

edge technology to customers around the world. Creative Solutions common stock is listed in the U.S. on the New York Stock exchange.
Good news! You have found the perfect candidate for human resources manager position with your firm. You have made an offer to Christopher Smith, please read the offer letter for more information.

The candidate has decided to NEGOTIATE the offered salary. Christopher is asking for an additional $8,000 above the offered salary.

Please review the job description for this position, and the candidate's resume to better understand if the requested salary is warranted.

Measures

Benevolent Sexism. We measured benevolent sexism as a subscale of the Glick and Fiske (1996) twenty-two-item Ambivalent Sexism scale. The scale measured the extent to which participants agree or disagree with items related to benevolent sexism. Respondents indicated their agreement or disagreement on a 6-point Likert scale ranging from (1) strongly disagree to (6) strongly agree. Sample items include, "No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a women", "In a disaster, women ought not necessarily to be rescued before men", and "People are often truly happy in life without being romantically involved with a member of the other sex". Responses to the items were averaged to yield a scale score with higher scores indicative of higher levels of benevolent sexism. The internal consistency reliability of this scale is = .78.

Hostile Sexism. We measured hostile sexism as a subscale of the Glick and Fiske (1996) twenty-two-item Ambivalent Sexism scale. The scale measured the extent to which participants agree or disagree with items related to hostile sexism. Respondents indicated their agreement or disagreement on a 6-point Likert scale ranging from (1) strongly disagree to (6) strongly agree. Sample items include, "Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for equality", "Most women interpret innocent remarks or acts as being sexist", and "Women are too easily offended". Responses to the items were averaged to yield a scale score with higher scores indicative of higher levels of hostile sexism. The internal reliability for this scale is = .89.

We also controlled for race and gender in all analyses. Race was coded 1 = White and 0 = other and gender was coded 1 = male and 0 = female.

Negative Reactions. We measured negative reactions by using a modified version of Rudman and Glick's (1999) twenty-two-item Social Skills scale. The scale measured the extent to which participants agree or disagree with items related to feminine niceness. Respondents indicated their responses on a 7-point Likert scale ranging from (1) not at all to (6) perfectly. Sample items include, "cocky", "arrogant", and "demanding". Responses to the items were averaged to yield a scale score with higher scores indicative of more negative reactions towards the target. The internal reliability for this scale is .86.

RESULTS

Descriptive statistics, correlations, and reliabilities are shown in Table 1. The manipulation check was significant, which suggests the manipulation of the gender of the target and job was effective. Hypothesis 1 predicted that women who negotiate their salary will be perceived more negatively compared to men who negotiate their salary. An analysis of covariance (ANCOVA) was conducted with gender-typed job, race, benevolent sexism, and hostile sexism included as covariates, target gender and context as the independent variables and negative reactions as the dependent variable. The results revealed a significant main effect for target gender. Participants reacted more negatively to the woman who negotiated her salary (M = 4.47) compared to the man who negotiated his salary (M = 4.08), $F (1,103) = 4.18$, $p < .05$, in support of Hypothesis 1. Hypothesis 2 predicted that women who negotiate their salary for a male-typed job will be perceived more negatively than women who negotiate their salary for a female-typed job. A significant effect was found for the gender of target X gender typed job, $F (1,103) = 3.87$, $p < .05$. Participants reacted more negatively to the woman who negotiated her salary for the finance position (M = 4.63) compared to the woman who negotiated her salary for the human resources position (M= 4.32). Further, participants reacted more negatively to the man who negotiated his salary for the human resources position (M = 4.29) compared to the man who negotiated his salary for the finance position (M = 3.86). Thus, hypothesis 2 was also supported.

DISCUSSION

The results suggest that women who negotiate are generally perceived more negatively than men, but especially women who negotiated in the Finance condition (controlling for BS, HS, gender, and race). As displayed in Figure 1, for the HR position which was believed to be a "female type" job, sex of the candidate did not influence reactions. It appears that anyone negotiating in a "female job" is reacted to more negatively then men negotiating in a "male job". Negative reactions were the worst for the woman who negotiated in a male job.

Ascribed gender roles appear to have a double-whammy effect to reactions to negotiating behavior. First, negotiating in stereotypically female jobs is viewed more negatively than negotiating in stereotypically male jobs. Many reasons have been put forth for wage differentials between sex-typed occupations (Colella, McKay, Daniels, & Signal, in press). However, this unexpected finding leads to another causal avenue to pursue in examining occupational pay differentials. Second, the lack-of-fit predictions were supported, in that women were evaluated more negatively than men when negotiating for a "male typed" position.

Given that people anticipate negative reactions (Heilman, Wallen, Fuchs, & Tamkins, 2004), our findings suggest that women may be less likely to negotiate because they fear reprisal and negative reactions. Thus, our results suggest that a potential cause for pay differentials between men and women is due to different response to negotiating. Furthermore, this effect may take

place across occupations leading to lower pay in "female types" jobs, and within "male-typed" jobs, so that women are paid lower than men.

Issues of generalizability of our findings arise due to the experimental laboratory setting. However, there is evidence that such laboratory findings do generalize to real work settings (Heilman & Eagly, 2008). Thus, it remains for future research to replicate these findings in real work settings, both within and across occupations.

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TABLE 1

Means, standard deviations, correlations, and reliability for study variables.

_____

Variables	Mean	SD	1	2	3	4
1. Gender	1.51	.50				
2. Race	1.63	1.35	.06			
3. Hostile Sexism	3.57	.69	-.54**	.18	(.90)	
4. Benevolent Sexism	3.56	.65	-.08	.13	.34**	(.87)
5. Negative Reactions	4.25	.87	.14	-.05	.13	.05	(.86)

Note. N = 104. ** Significant at the p < .01 level; gender was coded as female = 1; male = 2

A RECESSION OF INTEGRITY: WHAT DON'T THEY KNOW ABOUT PLAGIARISM?

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ABSTRACT

The current economic environment is, in some ways good for universities. But just as our economy is suffering from an economic recession, universities suffer from an integrity recession. Student academic misconduct, particularly plagiarism is an all time high. Media reports suggest that upsurge in plagiarism is due the advances in information technology and the result of academe's failure to help students understand and appreciate the importance of academic honesty. While there has been a great deal of research that examines attitudes, motives, and demographic factors related to academic dishonesty, there has been little empirical investigation regarding what students actually know about plagiarism. This study finds students generally understand a great deal about proper citation and plagiarism, but there are significant and important gaps in their knowledge. Identifying those gaps is a necessary first step in resolving this growing problem, with important implications for universities and society as a whole.

INTRODUCTION

The theme of this year's conference – *recover, rebuild, renew* – is appropriately focused on responding to the current economic recession. While current economic conditions are disturbing, times are actually pretty good for the nation's universities and particularly colleges of business. The all-time historical records in university enrollments reflect reluctance of high school graduates to take chances with uncertain job market, focusing instead on improving employment opportunities by acquiring competitive skills, and business schools are leading this trend (Yen, 2010). Yet, while our enrollment records are being shattered each year, new records are also being set in academic dishonesty. Just as an economic recession occurs when real GDP underperforms potential GDP, universities face an integrity recession - real integrity underperforms potential integrity. It can be argued that, even as universities appear to be bucking the economic downturn, we have been in an integrity recession for some time.

Plagiarism, seems to have become almost commonplace these days, noted among famous authors, historians, and reporters from the most respected newspapers in the world, is also prevalent among students. At one of the largest public universities in the U.S., more than thirty students risk having their graduate degrees revoked – some several years after the fact – because of recently discovered plagiarism (Dames, 2008). At another of the nation's most prestigious universities, forty-eight students were forced to either quit or be expelled (Hansen, 2003). Perhaps even worse, faculty and schools have been sued (and a faculty member's home vandalized) for confronting the growing problem (Hansen, 2003). If academic integrity is the cornerstone of education, then unchecked plagiarism threatens the foundation of our educational system.

Various reasons are offered for this explosion of plagiarism and other forms of cheating, but three themes seem to emerge from media reports. First, the Internet has made plagiarism both more likely and more acceptable. Second, universities are expected to take responsibility for addressing this problem. Finally, there is a great deal of confusion regarding what is and what is not plagiarism in today's high technology environment. Clearly more understanding of student cheating in today's high tech learning environment is needed.

Student cheating is not just a U.S. problem. Empirical results comparing students from Europe, Central Asia, and the U.S. found cheating to be universally commonplace (Grimes, 2004). Confirming popular wisdom, Molnar, Kletke, and Chongwatpol (2008) found empirical evidence that students do find it more acceptable to cheat through information technology (IT). They note that ethical standards are still "evolving" where IT is concerned (p. 659). A recent *New York Times* article (Gabriel, 2010) reported that less than one-third (29%) of undergraduates believed that copying from the web should be considered "serious cheating" (A1). Moreover, Gabriel (2010) adds that the percentage of students who think that copying from the web is cheating is declining over time. More students find copying from the web to be acceptable today than in the past. That same article also discusses several examples of students who were caught plagiarizing, but whose major concern was how not to get caught again in the future (Gabriel, 2010). Guyette, King, and Piotrowski (2008) argue that not only do today's students have a looser approach to electronic information, but they also tend to view the Internet as their "research partner" (26). Guyette et al. go on to argue that "…the internet contains unlimited information and research sources, and students feel that they *have an unadulterated right to use this bank of knowledge* to complete academic tasks…" (p. 26, *italics* added). Etter, Cramer, and Finn (2006) argue that more empirical research is needed to either support or disprove the widespread public perception that students are using IT to cheat to a much greater degree than they did prior to the explosion in technology.

Most of the popular press reporting on higher education seems to concur with the opening line of Niiya et al. (2008), "Cheating is a pervasive and alarming problem among college students." (p.76). Sutherland-Smith (2010) counted 162 articles on plagiarism in one five year period (2003-2008) - in the Australian national press alone. Moreover, the author noted that in the majority of those articles the media laid the problem (if not the blame) at the feet of the academe. One of the most common student rationalizations for academic misconduct is that faculty do not teach or uphold sufficient academic standards (Kidwell and Kent, 2008). These authors relate the story of an Australian student who sued his university for not better preparing him to understand what constituted plagiarism and its serious consequences. It has even been suggested that unless something is done to stem the tide of plagiarism and other forms of cheating, the American higher education system may itself be at risk (Giacalone, 2007; Pillsbury, 2004).

Business schools and other professional schools are expanding their efforts to ensure that their graduates will conduct themselves in an ethical manner in their professional careers. Students who cheat in school, however, are more likely to engage in unethical behavior in the workplace, according to a study by Sims (1993). Given the scandals that rocked the U.S. business environment in the last ten years, it is incumbent on schools of business to train future business leaders to uphold high ethical standards. Research, however, suggests that business students may be even more likely to cheat than their peers in other disciplines (McCabe &

Trevino, 1995; McCabe et al., 2006). While one study (Klein et al., 2006) did find empirical evidence that business students were not any more likely to cheat than students in other professional schools, they also found that business students did exhibit a more tolerant attitude and were less stringent in their definition of cheating. Interestingly, Bloodgood, Turnley, and Mudrack (2009) found that the act of taking a business ethics course did not significantly influence student attitudes toward cheating. This suggests that a single ethics course may not be sufficient to deter student academic misconduct, and by extension, may not be sufficient to encourage ethical conduct in the student's later professional career. Clearly, specific research and teaching is needed to make certain that students do understand this important issue.

There is a growing body of research on the antecedents, attitudes to, and consequences of plagiarism. Similarly, there is a growing stream of research on methods to catch and/or prevent plagiarism. Underpinning most of this research, however, is the assumption that students *know* what constitutes plagiarism. Hansen (2003) suggests that this is not an accurate assumption - students don't fully understand what constitutes plagiarism. Warner (2010) goes further and argues that not only do students fail to understand what constitutes plagiarism, but that is why they plagiarize. According to these articles, plagiarism may be a crime of ignorance. This view is consistent with much of the reporting on plagiarism in the media. There is very little research, however, to test what students do or do not understand about plagiarism.

McCuen (2008) argues that plagiarism is a "decision" as well as an act and that training and knowledge are essential tools in preparing students not to make the decision to plagiarize. Getting students to understand and appreciate the importance of avoiding plagiarism is complicated by the fact that students can't help but notice the divergence between academic writing and other types of writing (Jameson, 1993). While there is at least one study (Thomas 2008) that concluded that students *do* understand plagiarism, that finding was based on self-report data (i.e., the results were based on the number of students who answered that they understood the meaning of plagiarism). Saying that they understand plagiarism may not be the same as actually understanding plagiarism. In another study, Martin (2005) found that student knowledge that anti-plagiarism tools (such as Turnitin) would be employed decreased the incidence of plagiarism. This may suggest that students understand the concept, but plagiarize anyway.

The present study helps fill this gap in our understanding of student plagiarism by empirically testing student knowledge of various facets of plagiarism. Specifically, this study seeks to answer three important questions. First, do business students understand what constitutes academic honesty? Second, do they understand their roles and responsibilities within the academic honesty process? Finally, is student comprehension of academic honesty universally distributed, or are there gaps in the student's knowledge maps, and if yes, do these gaps differ for different groups of students?

DESCRIPTION OF STUDY

Participants

The 163 students participating in this study are enrolled in courses at a mid-sized University situated in the Southwestern United States. The University, located in a major metropolitan area, serves a non-traditional student population with significant percentages of older, working and international students. The sample was obtained from the participants in six

classes offered by the School of Business. All of the participating students were in core business courses comprising one introductory undergraduate section, two undergraduate capstone sections, one first semester graduate section, and two graduate capstone sections. Because of the nature of the course participation, no overlap in students exists.

Three of the sections (86 students) are from undergraduate courses with the remaining three sections (77 students) from the graduate program. Further, three of the sections (70 students) met in a traditional, face to face format, while the other three courses (93 students) pursue their education in an online format. Two of the online sections (60 students) are undergraduate classes while one (33 students) is a graduate course. One of the face to face sections (26 students) is an undergraduate course while two sections (44 students) were from graduate courses. The School of Business for this University offers several online degrees; many of the students enrolled in online courses never take face to face classes.

Method

The students were assessed on their knowledge of plagiarism using an online quiz embedded in the web portion of their course. While the three online sections took place entirely within the web shell, the three face-to-face sections used the web shell for grade posting, some content delivery, and web-based discussions. The web-based course delivery system, WebCT, was the principle system used by the University. All Business students at this University are very familiar with the system and generally use it in some capacity in each of their Business courses.

Students were informed about the existence of the survey at the start of the semester. In all cases, students were made aware that their performance on the plagiarism quiz would have no adverse effect on their overall grade. They were additionally informed that they would be allowed to review incorrectly answered questions and receive guidance indicating the rationality for the correct answer. To this end, the students were informed that the quiz served as an educational tool, helping them understand rules and responsibilities of plagiarism.

As there were no adverse effects of low scores, students were advised to make their "best attempt" at the quiz on their first effort. Following that they were allowed to retake the quiz as many times as needed until they received 100%, at which point the benefits for quiz completion would be in effect. For three of the sections the benefit involved a small extra credit contribution, for the remaining three sections completion represented readiness to begin the course. No substantial differences were observed in the mean scores for the extra credit and readiness formats, all sections reported a mean score in the "C" range for first attempts. Most students received 100% on the second attempt, with a handful requiring three attempts. No student required more than three attempts to complete the quiz.

Measures

The "Academic Honesty Quiz," consists of 20 True/False items. Three of the items were unique to each of the instructors and contained information idiosyncratic to their syllabi - these items are not used in analysis. The remaining seventeen items addressed definitions of plagiarism, and requirements and basic rules pertaining to academic honesty. An example of one of the questions used is, "It is acceptable to use all or part of a paper obtained from an online source, as long as those resources indicate they are intended for student collaboration." These

items were developed based upon a similar quiz utilized by a senior faculty member and were revised through dialog between several faculty members before administration of the quiz.

Students received the items one at a time in a randomized order, with no ability to go backwards once they had answered an item. Upon completion of the quiz, students were able to see their score, assessing which items they had missed along with explanations for the rationality of the correct answer. To this end, the quiz provided students with an educational opportunity, positively influencing their understanding and awareness of academic honesty issues.

ANALYSIS

The data collected in this study was analyzed through cluster analysis segmenting performance on the items of the quiz. We conducted three distinct cluster analyses and report results for each below. The first cluster analysis explores item endorsement rates for undergraduates and graduate students. The second explores item endorsement rates for online and face-to-face students. The final cluster analysis examines item endorsement rates for the top-quartile and the bottom-quartile performers.

Cluster analysis is an analytic technique identifying underlying patterns in data (Hair, Anderson, Tatham & Black, 1998). Cluster analysis is often utilized to examine different attitudes and motivations amongst consumers (Seock & Chen-Yu, 2007), and additionally to identify underlying characteristics of products (Astebro & Michela, 2005). In our examination, we use cluster analysis on the exam items with the pre-defined student groups as the sorting methods. Our interest lies in finding knowledge clusters that differ by groups (e.g. Brinkmann & Lentz, 2007) as opposed to understanding client segments that differ by attitudes (Griffin, Jones & Spann, 2008; Rice & Ashby, 2007).

We are using cluster analyses to derive knowledge maps (Zims, 2007) and compare them for the groups of interest. The endorsement rate for all items can be viewed in Table One below.

Table One: Endorsement Rate for Items, by category

	Overall	U.Grad	Grad	Online	F2F	Top25%	Bottom25%
Plagiarism involves putting someone else work forward as your own (both exact words and exact structure)	97.6%	98.8%	96.1%	98.9%	95.7%	100.0%	91.4%
Plagiarism extends beyond failure to cite and reference.	46.7%	44.2%	49.4%	53.8%	37.2%	62.2%	23.6%
Short-quotes and long-quotes generally require different formatting	62.0%	60.5%	63.6%	66.7%	55.7%	89.4%	42.6%
Even when quoting there is a limit to how much of someone else's work you can use	70.6%	68.6%	72.7%	67.8%	74.3%	87.3%	50.8%
Tables and Figures from copyrighted material cannot be reprinted in full without express permission	13.5%	11.6%	15.6%	17.2%	8.5%	24.4%	5.1%
Students, rather than instructors, are ultimately responsible for obtaining information regarding plagiarism	77.3%	75.6%	79.2%	82.8%	70.0%	94.0%	59.5%
The University Writing Center assumes students are presenting their own work and can not check for plagiarism	60.1%	59.3%	61.1%	58.1%	62.9%	64.8%	61.0%
Students have a responsibility to report plagiarism and academic dishonesty if they become aware of it	71.2%	87.2%	53.3%	77.4%	62.9%	94.2%	44.9%
Even when writing in their own words, students should cite authors who influenced their thinking	77.3%	77.9%	76.6%	69.9%	87.1%	87.1%	61.9%
Cultural differences can lead some students to interpret plagiarism differently	68.7%	62.8%	75.3%	69.9%	67.1%	91.6%	47.8%
Differences in cultures do not justify reduced penalties for plagiarism	89.0%	88.4%	89.6%	92.5%	84.3%	95.5%	72.1%
Online and University resources can help them understand plagiarism and appropriate citation methods	99.4%	100.0%	98.7%	100.0%	98.6%	100.0%	97.6%
Web databases of student essays should not be submitted as your own work	85.9%	87.2%	84.4%	89.2%	81.5%	96.0%	68.6%
They should not use verbatim work from their prior courses, particularly from prior group projects	68.7%	68.6%	68.8%	75.3%	60.0%	86.5%	45.2%
It is possible to plagiarize from yourself	52.2%	51.2%	53.2%	52.7%	51.4%	73.5%	25.4%
It is not okay to cut and paste from websites	97.0%	97.7%	96.1%	97.9%	95.8%	100.0%	91.0%
Plagiarism has consequences in both the academic and business world	98.8%	98.8%	98.7%	98.9%	98.6%	100.0%	95.8%
Mean	72.7%	72.9%	72.5%	74.6%	70.1%	85.1%	57.9%
s.d.	.22	.24	.22	.22	.24	.20	.27
n	163	86	77	93	70		

In all cases, we began with a three cluster solution and extended the solution by adding clusters. We retained a model, in each case, providing a minimum number of clusters. The final solution generates an observable difference between clusters and minimal centroid distances within each cluster. Details of the cluster solutions are shown in Table Two.

Table Two – Cluster Analysis Details

	Model 1		Model 2		Model 3	
Maximum Distance between clusters	1.11		1.18		1.13	
Minimum Distance between clusters	.24		.26		.35	
Maximum Distance within cluster	.22		.14		.24	
Reference Groups	U.grad	Grad	Online	Face to Face	High	Low
Mean for Cluster 1	.95	.94	.98	.95	.99	.90
Mean for Cluster 2	.54	.57	.53	.44	.68	.25
Mean for Cluster 3	.12	.16	.72	.63	.24	.05
Mean for Cluster 4	.74	.71	.76	.81	.88	.54
Mean for Cluster 5			.17	.09		

Undergraduates and Graduate Students

Our first examination involved comparisons of knowledge maps for undergraduates and graduates respectively. This analysis is depicted as Model 1 in Table Two. The cluster analysis optimizes with a four-cluster solution. The first cluster involves items in which both groups score well (means .95 and .94). The second cluster involves items for which both groups exhibit significant confusion (means .54 and .57). The third cluster involves a single item which was answered incorrectly overwhelmingly by members of both groups (means .12 and .16 respectively). The final cluster involved items for which general knowledge exists, but some gaps are present (means .74 and .71 respectively).

Interestingly both groups perform relatively similarly in each given cluster. Indeed, the gap in endorsement rates hovers in the 2-3% range and scores yielding similar conclusions in each cluster. Details of the clusters appear in Table Three. With an average endorsement rate over 94%, cluster one consists of items which involve general understandings of plagiarism. Most importantly, respondents recognize that plagiarism involves putting forward another's work as your own. They also recognize that both academic and business worlds have consequences for plagiarism. This cluster suggests that students understand the basic domain of plagiarism and its importance. The items which comprise this cluster remain consistent in each of the two remaining analyses.

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Table Three – Undergraduate and Graduate Clusters

Both undergraduates and graduates know (95/94)
1. Plagiarism involves putting someone else work forward as your own (both exact words and exact structure)
2. Differences in cultures do not justify reduced penalties for plagiarism
3. Online and University resources can help them understand plagiarism and appropriate citation methods
4. It is not okay to cut and paste from websites
5. Plagiarism has consequences in both the academic and business world

Undergraduates and graduates exhibit moderate awareness with gaps (74/71)
1. Even when quoting there is a limit to how much of someone else's work you can use
2. Students, rather than instructors, are ultimately responsible for obtaining information regarding plagiarism
3. Students have a responsibility to report plagiarism and academic dishonesty if they become aware of it
4. Even when writing in their own words, students should cite authors who influenced their thinking
5. Cultural differences can lead some students to interpret plagiarism differently
6. They should not use verbatim work from their prior courses, particularly from prior group projects

Significant confusion exists for both undergraduates and graduates (54/57)
1. Plagiarism extends beyond failure to cite and reference.
2. Short-quotes and long-quotes generally require different formatting
3. The University Writing Center assumes students are presenting their own work and can not check for plagiarism
4. It is possible to plagiarize from yourself
5. Web databases of student essays should not be submitted as your own work

Neither undergraduates or graduates understand (12/16)
1. Tables and Figures from copywrighted material cannot be reprinted in full without express permission

The second highest scoring cluster (means .74 and .71) represents items with a reasonably high endorsement rating. The scores suggest most students know this material, but gaps in knowledge are present. Here items involve some specific practices and responsibilities. Results suggest that students generally understand that even when using appropriate citation, there are limits to how much of another's work they can report (e.g. particulars matter) and that they have a self-education responsibility.

The second lowest scoring cluster (means .54 and .57) represents items for which significant confusion exists. Here we find confusion regarding specifics involving use of quotation in the citation process. Our observation here suggests that students, while having a

strong understanding of the basic definitions of plagiarism, fail to understand their specific responsibilities within their own writing. Evidence here suggests, unfortunately, that students may indeed plagiarize without intention.

The lowest scoring cluster (means .12 and .16) consists of a single item. Students are generally unaware that they cannot lift figures and tables from copyrighted works. Generally speaking, students believe a simple note "adapted from [source]" covers their use of other's published tables and figures. They are unaware of requirements to obtain permission for use and are thus, quite likely, to violate these requirements. This cluster, with its single-item membership, appears in all three analyses.

Online and Face to Face Students

Our second analysis, model 2 in Table 2, consists of comparisons of knowledge maps for online and face to face students respectively. Here we find a five cluster solution optimal. The first cluster (mean .98 and .95) involves items well recognized by both groups. This cluster is populated identically to cluster one in analysis one. The second cluster (means .53 and .44) consists of items where online students fare better, but significant gaps in knowledge manifest for both groups. The third cluster (means .72 and .63) involve areas where the online students perform better than do the face to face students. The fourth cluster (means .76 and .81) consists of items for which the face to face students perform better than online students. The final cluster (means .17 and .09) consists of the same single item from cluster four in analysis one (use of tables and figures).

While we do not identify differences in the knowledge maps of undergraduates and graduate students, we do find that the knowledge maps of online and face-to-face students differ. With the exception of the highest and lowest endorsing clusters which contain identical items to the high and low clusters in model one, the gaps between online and face to face students are notable for the remaining clusters. Online students outperform face to face students by 9% each for cluster two and three while face to face students outperform online students by 5% in cluster four.   Table Four depicts the items associated with each of the three clusters for which knowledge maps differ for online and face-to-face students.

Table Four – Online and Face to Face Students

Face to face students know this material better than do online students (76/80)
1. Even when quoting there is a limit to how much of someone else's work you can use
2. Even when writing in their own words, students should cite authors who influenced their thinking
3. Web databases of student essays should not be submitted as your own work

Online students know this material better than do face to face students (72/63)
1. Short-quotes and long-quotes generally require different formatting
2. Students, rather than instructors, are ultimately responsible for obtaining information regarding plagiarism
3. The University Writing Center assumes students are presenting their own work and can not check for plagiarism

4. Students have a responsibility to report plagiarism and academic dishonesty if they become aware of it
5. Cultural differences can lead some students to interpret plagiarism differently
6. They should not use verbatim work from their prior courses, particularly from prior group projects

Online perform better, but both groups are confused by (53/44)
1. Plagiarism extends beyond failure to cite and reference.
2. It is possible to plagiarize from yourself

Face-to-face students appear to have a better understanding of their individual responsibilities for writing their own papers. They recognize that use of websites offering student essays are inappropriate. They additionally have a better grasp of the role of quotations in the citation and reference process.

Conversely, online students indicate a better understanding of self-educational responsibilities and citation specifics than do face-to-face students. Online students are more aware of the availability of self-education resources. Consistent with this, they exhibit a greater understanding of mechanics for quotation than do face-to-face students.

Finally, while online students fare better, both groups indicate confusion regarding mechanics of citation, as well as lack of awareness regarding the ability to self-plagiarize. The two items comprising this cluster reappear in our analysis of high and low performers.

Top and Bottom Quartiles

Our third analysis compares the knowledge maps of top-performers to those of bottom-performers. We use the top and bottom quartile, based on the exam performance itself, as our basis for group separation. Our analysis of the first model suggests that differences in knowledge maps are not well explained by academic level, specifically that undergraduates' and graduates' endorsement of items is nearly identical. Our analysis of the second model, though, suggests that knowledge maps differ between online and face-to-face student groups. The analysis of the third model explores whether the knowledge maps of high and low performers differ.

This analysis, model three in Table Two, yields a four factor solution. The first cluster (means .99 and .90) represents items which both high and low performers recognize quite well. This cluster consists of the same five items identified as the top cluster in models one and two. The second cluster (means .68 and .25) consists of items for which gaps in knowledge manifest – although high performers exhibit modest awareness. This cluster consists of the same two items which made up the second lowest cluster in model two. The third cluster (means .24 and .05) consists of the same single item forming the lowest cluster in models one and two. The fourth cluster (means .88 and .54) consists of items in which top performers exhibit strong knowledge while bottom performers indicate significant confusion. Table five, below, depicts the items comprising the fourth cluster of model three.

Table Five – Top and Bottom Quartile Performance

Top quartile students know, but bottom quartile students are confused by (88/54)
1. Short-quotes and long-quotes generally require different formatting
2. Even when quoting there is a limit to how much of someone else's work you can use
3. Students, rather than instructors, are ultimately responsible for obtaining information regarding plagiarism
4. The University Writing Center assumes students are presenting their own work and can not check for plagiarism
5. Students have a responsibility to report plagiarism and academic dishonesty if they become aware of it
6. Even when writing in their own words, students should cite authors who influenced their thinking
7. Cultural differences can lead some students to interpret plagiarism differently
8. Web databases of student essays should not be submitted as your own work
9. They should not use verbatim work from their prior courses, particularly from prior group projects

Using the top-quartile endorsement rates from cluster one (five items) and cluster four (nine items), we find that the top quartile performs quite well on fourteen of the seventeen items in the quiz. Examining endorsement rates for clusters two, three, and four for the bottom quartile suggests that there are twelve items for which the bottom quartile exhibits minimal understanding. However, top performers also perform poorly in cluster two and four. Thus, cluster four captures the nine items which distinguish between those who performed quite well and those who performed poorly.

DISCUSSION

We began this study motivated by three research questions. First, are business students knowledgeable regarding general issues of academic honesty? Second, are business students knowledgeable of their roles and responsibilities within the academic honesty process? Third, is knowledge of academic honesty universally distributed or (if not) how do gaps in knowledge maps manifest differently for different groups of students?

In regards to the first two issues, our findings are generally in the affirmative. The average performance on the academic honesty quiz was in excess of 70% and, discounting the lowest quartile, most students fared reasonably well across the quiz. Further, discounting the three items universally misunderstood, the mean grade for the Academic Honesty Quiz was 80%, suggesting that students are overall reasonably well versed on the topic. We find that there are five areas in which all students performed admirably. We find, additionally, that there are three areas in which all students performed poorly.

In terms of the third question, we find distinct knowledge map differences between online and face-to-face students. Additionally, there are substantial differences in the knowledge maps of high and low performers. We discuss each of these areas of findings below.

Common Findings

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All students in the sample indicated knowledge of five items. These items demonstrate a general awareness of plagiarism and an understanding of its importance. Specifically, they understand that plagiarism involves putting someone else's work forwards as their own. They understand that there are resources available to aid in their understanding of plagiarism. Further, they understand there are significant consequences in the academic and business world for plagiarism. These items were highly endorsed across all groups. Even amongst the lowest performers, these items average a 90% accuracy rate. It is, thus, reasonable to conclude that our students recognize the importance of the topic and they know not to cut and paste the work of others.

However, there were also areas in which all students performed poorly. Three items in particular evidence lack of knowledge - this gap encompasses graduates, undergraduates, and includes students otherwise well-versed on the topic. Students, in general, are unaware that they can plagiarize themselves. This is not unsurprising; it is rare for business students below the Ph.D. level to publish their work. Further, their written papers and projects are generally non-overlapping between courses. Having rarely been in a position where self-plagiarism is possible, they simply haven't considered the possibility.

They also tend to believe plagiarism is entirely avoided by citation and reference. While many of them exhibit an understanding pertaining to quotation, it appears this understanding is either encompassed in the meaning of citation or that they consider these as distinct and unrelated topics. These two items are poorly endorsed by graduate and undergraduate students. Those best-versed on the topic of plagiarism, however, exhibit some awareness of these issues.

Where each of the two prior items are generally misunderstood by students, an understanding of the appropriate mechanisms for using tables and figures is virtually non-existent. Students genuinely believe they can copy tables and figures, provided they use a footnoted "source." They are completely unaware of the need to obtain permission from the copyright holder. Even students well versed on the topic of plagiarism exhibit a lack of awareness on this topic. This is particularly concerning, given that this is the form of plagiarism most likely to manifest in their professional careers. Our evidence suggests that such acts are unintentional and that education on this matter is important.

Differences by Group

We admit surprise that there are few differences in the plagiarism knowledge maps of graduate and undergraduate students. Given the higher standards required for graduate school admissions and given that graduate students typically come from the more academically successful undergraduates, it is quite startling to discover that graduate students know no more, nor less, about plagiarism than an introductory business student. In fact, while the endorsement rates are relatively similar, undergraduates actually outperformed graduate students on the stronger performing items. One possible explanation is that graduate students once knew this information (as undergraduates), but their specific knowledge has dulled over time.

It is also interesting, although less startling, that online students and face-to-face students have different knowledge maps regarding plagiarism issues. Many of the online students in our sample pursue online degrees. These students have self-selected into a virtual classroom and do not take face-to-face classes. Our results suggest that these students differ in more than just their preference for course delivery. Online students exhibit a greater understanding of quotation mechanics than do face-to-face students. Specifically, they recognize rule differences based on

length of quotation and they understand not to reuse, verbatim, work from prior courses. Online students also evidence a greater awareness of their self-responsibility in the academic honesty process. To this end, they are more likely to realize that it is their requirement to understand what is and is not acceptable. They further understand that it is their responsibility to inform instructors and administrators when academic honesty violations occur. This seems to provide at least some support for Kidwell and Kent's (2008) finding that online students may be less likely to engage in academic misconduct than face-to-face students.

We believe that these differences can be explained by Internet efficacy. At the risk of redundancy, online students are more likely to be comfortable working in an online medium. They are placed in settings where education is self-directed and where it is typically their responsibility to find answers. They are likely more comfortable searching the Internet and more likely to realize that the answers are out there.

Face-to-face students, conversely, exhibit a better sense of self-responsibility in writing their own material. Face to face students understand that there are limits to how much you should quote. They understand that you should cite where you were influenced, not just when you quote. They also understand that online essay databases are inappropriate resources. Taken together, it appears that face-to-face students are more likely to write their own material - but are less likely to check rules of citation and quotation and thus more likely to commit technical errors. Online students are less likely to write their own material and more likely to quote the work of others. Further, while they recognize that online resources are available, online students may not know how to evaluate the quality or appropriateness of an online resource.

The strongest differences manifest between the top and bottom quartile of students. The top performers exhibited strong and broad understanding regarding plagiarism. While the average score for the top-quarter is 85%, the missing information is primarily explained by the three items most students answered incorrectly. Correcting for these three items, the average for top performers is 92%, suggesting that this group of students (with representatives from all academic levels) genuinely understands the rules and their responsibilities within those rules.

Conversely, for the bottom quartile, our evidence suggests that they genuinely do not understand what plagiarism means. Their mean score of 58% is largely propped up by their understanding that plagiarism is wrong and that there are consequences for plagiarism. Removing the five items which all students understand, the bottom performers' average is actually 45%. These students are in a perilous position academically. They know that they shouldn't plagiarize, and they know that there are consequences if they commit plagiarism. Unfortunately, they have little knowledge of what constitutes plagiarism and are, thus, quite likely to unwittingly commit acts of plagiarism.

There are limitations to all academic studies, ours included. The primary limitation of our study involves the non-randomness of our sample. While we have strong representation by academic level and course delivery medium, the sample is drawn from one university. The university itself tends towards non-traditional student enrollment consisting of older, working students at both undergraduate and graduate levels. All students in this sample are either night or online students, as are the overwhelming majority of business students at this university. It is therefore possible that our findings are only generalizable to non-traditional, older working students. To this end, it is advisable to extend our research to include participants from a more traditional enrollment campus.

Additionally, all of our students are business students. It is, therefore, unclear whether the presence (or lack) of plagiarism knowledge is unique to business students or students in general. We do not know whether business students have more, or less, knowledge than students in the humanities, sciences, applied sciences or education. We do, however, recognize that our field periodically expresses concern regarding the role of a Business education in influencing acts of ethics (e.g. Ghoshal & Moran, 1996). If it is possible that business students differ in their ethical make-up. Since business education promotes highly competitive behaviors, it is possible that business students have learned to overlook rules related to plagiarism in the name of performance. To this end, it is advisable for future research to examine differences between students at the discipline level.

Implications and Future Research

While recognizing the limitations of our study, our findings are interesting and startling. We find three implications arising from our results. First, there are certainly gaps in student knowledge pertaining to plagiarism. Recent studies suggest that students do not understand plagiarism and these studies advocate educational, rather than punitive approach to violations of academic dishonesty (Hansen, 2003; Warner, 2010). Our results neither fully support, nor fully reject this conclusion. We find that some students know a great deal about plagiarism. They understand meanings, rules and procedures pertaining to plagiarism. They also understand their roles and responsibilities within academic honesty. Within this context our evidence suggests that the traditional approach using punitive measures to counter plagiarism has merit. That plagiarism is serious, and has consequences, is well recognized by college of business students.

However, in support of both Hansen (2003) and Warner (2010), we find a number of gaps in student knowledge. Further, these gaps do not appear to be random. There are patterns in the knowledge gaps for online and face-to-face students, and these gaps are quite different. What one group knows, the other may not. Additionally, there is a group of students who know disturbingly little. These students are quite likely to gain an understanding of plagiarism via academic honesty violation.

To this extent, we conditionally agree with Hansen (2003) and Warner (2010). Education is an important, although we believe not sufficient, piece of the academic honesty maintenance process. Students need to be informed about more than just the general expectations and the specific consequences. Students need exposure to the specific expectations at every academic level. Our field, and our students, would be stronger if an academic honesty module was included in most (if not every) course. We also found support for the research that suggests that punitive consequences for plagiarism remain an important element in promoting awareness (e.g. Kidwell & Kent, 2008; Martin, 2005; Sutherland-Smith, 2010).

To the extent that certain instructional elements are easy to implement, we should expend effort to eliminate sources of confusion. Indeed, it may take as little as a 20-item quiz with multiple retakes to increase student awareness. Discussion with students who completed the academic honesty quiz suggests that most found a surprise or two in their results.

However, our findings suggest that classroom elements are not enough for some students. While a refresher quiz or reading is beneficial for any student, a number of students in our sample have little topic knowledge. These same students generally believe it is the institution's responsibility to teach them this information and provide services preventing them from plagiarizing. That is an expectation unlikely to be achievable in most (if not all) business

courses. Many of the items these students misunderstand are covered in secondary education, the time for institutional instruction on these issues has largely come and gone by the time we work with them. Yet, they do not know these things and are at great risk because we expect them to know. It is crucial to identify these at-risk students as early as possible; they need access to writing assistance programs outside the business curriculum.

Our findings additionally suggest the need for future research with three specific extensions. The first extension, detailed in our limitations, involves replication with more diverse samples. Such replication will allow a better understanding regarding differences between traditional and non-traditional students, as well as between business students and students of other degree programs.

The second warranted direction involves early identification of at-risk business students. In our sample, nine items separated the top and bottom performers. Nothing in our results suggests that these poor performers are uniformly undergraduates, graduates, face-to-face or online-only students. The question thus remains, which students do not know this material? We suggest additional sampling of the academic honesty quiz and examination by demographics. To offer an example, are these questions more likely to be missed by younger or older students? By domestic or international students? By first-generation college students? Prior research offers evidence that these factors explain other drivers of academic performance (Etter, Cramer, & Finn, 2006; McCuen, 2008; Megehee & Spake, 2008; Yu, Ballantyne, North, & Crocker, 2008). We did not collect such information in this sample; our primary motivation was driven by differences at academic level and course methodology. Further, prior research pertaining to plagiarism knowledge maps suggests such knowledge may be uniformly missing (Hansen, 2003; Warner, 2010). Finding that understanding and misunderstanding is evenly distributed across academic levels suggests moving forwards to individual demographic factors.

The third extension from our research represents an important caveat in our findings. Our study suggests that academic honesty knowledge maps differ across students. Our study does not suggest which students are more, or less, likely to engage in acts of academic honesty. While we warn that those with low academic honesty awareness are quite likely to inadvertently plagiarize, we cannot state that those with awareness will not plagiarize. Indeed, it is certainly possible that those who willfully engage in acts of plagiarism know the specific rules they break. While it is difficult to study intent (or acts) of cheating, we suggest future research attempt to examine intent or practice in context of both moral development (Chapman, Davis, Toy, & Wright, 2004) along with our examination of knowledge maps.

CONCLUSION

We began our study seeking an understanding of plagiarism knowledge maps for students of different academic levels and course delivery systems. Our findings suggest that undergraduate and graduate business students have relatively similar plagiarism knowledge maps. They know, and do not know, similar things. We further identify that online students and face-to-face students have different knowledge maps. Students of one course delivery system are likely to understand plagiarism differently and are likely to engage in different procedures in the development of their written work.

It seems that this study leads us back to Jameson's (1993:18) question, "Are we giving students a complete understanding of what constitutes plagiarism and how to avoid it?" While our findings offer comfort that the top quarter of students know a great deal about their responsibilities pertaining to plagiarism issues, this comes with little solace given the broad lack of awareness for an equal number of students. Plagiarism is an important issue both in academia and business, it is thus imperative for instructors to understand what students know and do not know. Our results suggest a need for education both in the classroom and from student support services outside the classroom. There are, it turns out, important things that they do not know.

Like current economic reports, our findings are a mixed bag. On the one hand, students do understand much of the basics regarding plagiarism. Not necessarily complete understanding of academic integrity, but student knowledge is better than we feared. We also found, however, that there are important gaps in student's knowledge and understanding of plagiarism and fair use of other's work and ideas. The stakes are high, both for universities and for the society they serve that we address these gaps. It is indeed time for us to *recover* from the integrity recession. To do this, we need to *rebuild* student commitment to academic integrity, and *renew* the trust students are doing honest academic work, and the trust that society places in us to turn out the well-trained and ethical leaders of tomorrow.

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WARNING THIS WEBSITE WILL SELF-DESTRUCT: INTRODUCING STUDENT-PROFESSOR FIT AS AN ALTERNATIVE TO PROFESSOR RATING WEBSITES

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ABSTRACT

The popularity of professor rating websites has dramatically risen in recent years with college students. While these websites are fraught with psychometric weaknesses, these websites do provide informational value to college students. Specifically, not all students have equal access to peer informational networks and very few universities provide public access to student evaluations of teaching. In response to these issues, this study proposes practical and theoretical alternatives to professor rating websites by integrating the person-environment fit literature from educational and social psychology, organizational behavior, and vocational behavior into a conceptual model of student-professor (S-P) fit. From this conceptual model, we encourage researchers to explore the relationships presented in our model and to develop an evidence-based practice measure of S-P fit.

> "Excellent teacher; understands the material; If you want to learn he is the guy to learn from. Most importantly, very kind."
>
> Anonymous

> "Bad, very bad. I've come to the conclusion that the only reason he works as a professor is because he finds some twisted joy in making students miserable."
>
> Anonymous

These anonymous online professor ratings represent two reviews of the same professor and for the same course but from two different individuals. Yet, the reviews are dramatically different and appear to represent two different professors. What gives? Does the professor truly have a Jekyll and Hyde personality, or are the reviews the result of students who wish to praise and slam professors? While there are many websites that allow students to do the grading of professors such as Facebook, Professor Performance, Rate My Professors (RMP), and Twitter, RMP remains the most popular of these professor rating websites. Specifically, RMP boasts of having more than 11 million student-generated ratings of over one million professors in the United States (RateMyProfessors, 2010). The main goal of RMP and other professor rating websites is to allow students to choose professors and courses that best fit their needs in order to improve their education. However, substantial debate remains as to the quality of data that is provided (e.g., Davison & Price, 2009; Felton, Mitchell, & Stinson, 2004; Felton, Koper, Mitchell, & Stinson, 2008), as anyone is able to access these websites and create ratings of professor performance regardless of actual teaching effectiveness. Many students believe that professor rating websites are not only reliable, but valid predictors of which professors to actually take for a course (Davison & Price, 2009). Professor rating websites serve as a popular

source of information, especially when students do not have access to peer informational networks (e.g., Field, Bergiel, & Viosca, 2008). However, there are inherent psychometric weaknesses with current versions of professor rating websites (e.g., Davison & Price, 2009; Felton et al., 2004; Felton et al., 2008; Freng & Webber, 2009; Lawson & Stephenson, 2005; Silva, Silva, Quinn, Draper, Cover, & Munoff, 2009).

In response, this paper seeks to overcome weaknesses with professor rating websites by proposing alternative mechanisms to creating fit, or congruence, between the student and the professor in the classroom. First, this paper will contribute to the growing literature on the benefits and drawbacks of online student ratings[i] and professor rating websites by providing a comprehensive review of the extant literature. Second, this paper will explain practical and theoretical alternatives to professor rating websites by integrating the person-environment fit literature from educational psychology, organizational behavior, social psychology, and vocational behavior into a conceptual model of student-professor (S-P) fit. Finally, we reflect upon and incorporate the literature from these diverse fields to create several innovative propositions for future S-P fit research.

LITERATURE REVIEW: FACULTY RATING WEBSITES

What Does RMP Measure?

When reviewing student ratings from professor rating websites, one is struck by the consistent focus by students on the easiness, helpfulness, and entertainment value of professors. However, the emphasis on these components calls into question what these websites are measuring and whether or not students are actually using this information in choosing professors and courses. For example, on the most popular rating website, RMP, individuals can post ratings for a professor either as a registered user or anonymous guest. Individuals rate a professor on a 1 to 5 point Likert scale in four areas: Clarity, Easiness, Helpfulness, and Rater Interest. An overall quality rating is based on the combination of Clarity and Helpfulness with additional ratings for "hotness" of professors and an area for written comments. Even with the Likert rating scales, most individuals ignore the quantitative ratings and only read the open-ended comments about the professor. In reality, many of the comments on the website are in violation of what RMP claims to monitor (Davidson & Price, 2009).

As researchers understand, there is inherent bias in the current rating system at RMP. Also, the external validity of RMP is highly questionable. Specifically, any person is able to rate any professor regardless of whether or not they took the professor for a particular course. Further, individuals are not required to create accounts in order to rate professors thereby promoting the condition of anonymity yet allowing an individual to post as many times as desired for the professor and course[18]. In addition, even if the individual was a current or former

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[18] RMP claims to track IP addresses by using cookies and claims to be successful at screening multiple posts coming from the same IP address in a short period of time.

student of the professor, the student can rate the professor and course at any point in time ranging from while the student is currently taking the course to many years after the student has taken the course. Although the dates are given, these ratings could come throughout course of the semester or after students have received their grades. However, the end user of the ratings would not know how the timeliness of the rating impacted the overall rating of the professor. This in turn creates a strong bias factor that skews professor ratings (Davidson & Price, 2009). Also, in some unscrupulous incidences, professors are even known to rate themselves or other professors. After hundreds of incidents such as these that go unmonitored every day, how do students know which information is valid within the RMP website? Thus, the generalizability of RMP is questionable such that the ratings may not represent the overall teaching effectiveness of the professor across settings and over time.

A more troubling issue with RMP is the lack of reliability and internal validity, as the items underlying the measures of teaching effectiveness are poorly defined. As noted earlier, RMP uses single-item measures of clarity, easiness, helpfulness, rater interest, and hotness with no clear definition of each construct. Further, several studies have found a strong and significant correlation ranging from .85 to .94 between clarity and helpfulness (Davison & Price, 2009; Felton, Koper, Mitchell, & Stinson, 2008; Kindred & Mohammed, 2005; Otto, Sanford, & Ross, 2008). This high correlation means that students cannot distinguish between these two items on the RMP website. Davison and Price (2009) argue the following:

> …to have the overall score (posted prominently by each instructor's name), which is perceived as overall effectiveness, defined only by clarity and helpfulness, while not asking anything about the learning process or attained knowledge, calls into question the validity of the website. (p. 52)

While substantial research has accumulated on university-sponsored student evaluations of teaching (SETs: Greenwald, 1997; McKeachie, 1997), the literature for non-university, web-

based student evaluations of professors is only beginning to accumulate (e.g., Davison & Price, 2009; Felton, Mitchell, & Stinson, 2004; Felton et al., 2008; Kindred & Mohammed, 2005; Otto et al., 2008). However, the expansive literature on university-sponsored SETS suggests that when students evaluate the teaching effectiveness of professors, their ratings are sometimes biased by course grade expectations (Cerrito, 2000; Stapleton & Murkinson, 2001), course grading leniency (Greenwald, 1997; Greenwald & Gilmore, 1997a, 1997b; Stumpf & Freedman, 1979; Worthington & Wong, 1979), course workload (Stapleton & Murkinson, 2001), and professor attractiveness (Feely, 2002; Felton et al., 2004; Felton et al., 2008). At the same time, researchers have found that the relationship between course grades and instructor ratings is often explained by an unspecified third variable (Greenwald, 1997; Howard & Maxwell, 1980; Marsh, 1980). Specifically, Greenwald & Gilmore (1997a) provide an overview of three theories that explain the spurious relationship between course grades and instructor ratings:

- Teaching effectiveness influences grades and ratings.
- Students' general academic motivation influences grades and ratings.
- Students' course specific motivation influences grades and ratings.

Since extraneous variables may explain the relationship between the independent variable (i.e., course grades, grading leniency, course workload, etc.) and dependent variable of interest (i.e., instructor ratings), a significant threat to internal validity exists (e.g., Shadish, Cook, & Campbell, 2002). Further, two additional threats to internal validity are readily identifiable with the RMP website- 1) the measures used to examine teaching effectiveness have low to no reliability and 2) students self-select into rating professors.

Drawbacks to Professor Rating Websites: Empirical Evidence

Based on the two student ratings of the same professor in the beginning of this paper, the question still remains - how do students know which ratings are more accurate in depicting the professor or course? Unfortunately, the reliability and validity of the information contained in these websites is highly questionable (e.g., Davison & Price, 2009; Felton et al., 2004; Felton et al., 2008; Freng & Webber, 2009; Jaschik, 2007; Lawson & Stephenson, 2005). Lawson and Stephenson (2005) argue that website ratings of professors are highly subjective without benchmarks or criteria for reference, do not represent a random sample of students, are sometimes based on a limited number of ratings, and do not account for the content or discipline of the course. In a sample of 216 undergraduate sociology students, Davison and Price (2009) found that 55% to 75% of students believe that the professor's knowledge and the amount that they learned in the course were important characteristics when selecting a professor. However, RMP does not use these indicators to reflect teaching effectiveness and focuses on less helpful characteristics such as easiness and hotness of the professor. Even given these weaknesses with website ratings of professors, RMP ratings are the types of information that students use to judge whether or not they should take a particular professor or course.

Researchers have other areas of concern with professor rating websites such that data from these websites is heavily biased. Indeed, a growing body of literature suggests that ratings

on these websites are influenced by halo effects, such as the professor's attractiveness and grading leniency, and are therefore not valid measures for either professor performance or student learning (e.g., Davison & Price, 2009; Felton et al., 2004; Felton et al., 2008). For example, in two large scale studies that used data from 25 universities in the United States with the most RMP ratings and from all universities and professors in the United States and Canada with at least 20 ratings from RMP, researchers have found that overall sexiness and easiness were strongly related to student evaluations of teaching such that those professors who were more sexy or easy received higher quality ratings as a professor (Felton et al., 2004; Felton et al., 2008). In essence, Felton and his colleagues believe that the halo effect comes into play with online ratings because students who provide ratings based on the attractiveness of their professors provide high or low ratings regardless of performance in the classroom. Other researchers have confirmed the halo effect with professor rating websites such that the easier the course the higher the rating of the professor (e.g., Davison & Price, 2009). Further, Freng and Webber (2009) extended Felton and colleagues' previous studies by randomly selecting RMP ratings from 2,281 professors in the United States. After controlling for easiness, rater interest, and the number of ratings for each professor, they found that attractiveness explained unique variance in quality ratings for professors. While these results reaffirm support for the halo effect, the previously discussed weaknesses in the measure of quality (i.e., teaching effectiveness) constrain the overall validity of RMP and the generalizability of the study. In sum, current approaches to online professor ratings do not appear to be reliable or valid indicators of teaching effectiveness or student learning.

Benefits of Professor Rating Websites: Empirical Evidence

While students may also obtain information about professors through formal and informal networks of peers (Field et al., 2008), some students may not have access to these networks (i.e., in particular students who are new at colleges and universities). In particular, choosing a professor can be a daunting task and only becomes more complicated when a student arrives at a college or university their first year, whether they are an incoming freshman or transfer student. Students that have attended the respective college or university possess a distinct, informational advantage because they may ask the opinions of their peers, have heard comments from other students in passing, or have seen a professor in action. Further complicating this problem of information asymmetry is the fact that some universities do not require SETs to be publicly posted, SETs are kept confidential, and students are not able to review institutionally-based SETs (Field et al., 2008). Thus, professor rating websites help to provide information to students who may not otherwise have access to information on professors or courses.

In support of the informational value (i.e., awareness and utilization) of RMP, a recent study based on a limited undergraduate sample of 216 students from Appalachian State University found that many students use the RMP website to decide whether or not to take a particular professor or course (Davison & Price, 2009). Further, many of these same students view RMP as credible and helpful while less than 30% actually use the website to rate their professors. Other studies of RMP have found that students' positive comments outweigh the

negative comments about their professors and courses. For example, Silva et al. (2008) examined comments and ratings at RMP from 636 psychology instructors from 100 universities in the United States and 478 psychology instructors from 45 universities in Canada. Their results showed that students' comments focused on instructor characteristics (e.g., enthusiasm, respect, fairness, knowledge of topics, etc.) and least on student development (e.g., student learning). These results are congruent with Kindred and Mohammed's (2005) study that examined RMP ratings and comments from more than 600 professors who worked in the United States and in various disciplines. Specifically, Kindred and Mohammed (2005) found that professor competence (e.g., ability in the classroom) and personality (e.g., personal traits and communication abilities) was a major concern for students and these comments were moderately and positively related to easiness, helpfulness, and clarity. While RMP lacks both external validity (i.e., no way to control who posts and when they post) and internal validity (i.e., students cannot distinguish between helpfulness and clarity and no valid measure of teaching effectiveness is available), RMP is one of the few online community forums for exchanging information about professors and courses.

RMP holds the potential to continue to provide informational benefits to students and universities until institutions of higher education make their official SETs public (e.g., Albrecht & Hoopes, 2009; Coladarci & Kornfield, 2007). Initial evidence suggests that RMP ratings and official SETs show moderate correlations (e.g., Albrecht & Hoopes, 2009; Coladarci & Kornfield, 2007). Coladarci & Kornfield (2007) examined RMP and formal in-class SETs from 426 professors of undergraduate classes at The University of Maine and found significant correlations between measures of overall quality ($r = .68$) and course workload ($r = .44$). In contrast, Albrecht and Hoopes (2009) used RMP and SETs from 75 professors (6874 official evaluations and 1073 RMP ratings) at the business schools of one large private research-oriented university and one large public teaching university in the United States. They found that professors were consistently rated lower on RMP as compared to official SETs regardless of the number of students that rated them. However, the correlations between RMP ratings and SETs were moderate and significant. In essence, research suggests that RMP is fulfilling their goal by giving students the opportunity to compare different professors for course scheduling, albeit the evidence suggests that the empirical evidence on RMP and other faculty rating websites are more negative as compared research on SETs (Albrecht & Hoopes, 2009).

Integrating Mechanisms

Given that students desire to take courses from professors that they find to be congruent with their learning needs and dispositions and provided that most university-sponsored SETs are not available to the general public, there is little surprise that online professor ratings are so popular with students. At the same time, given that professors yearn for motivated students in their classrooms and since there are few mechanisms to create and gauge fit between the student and professor, both practitioner and theoretical insight into the development of student-professor fit is ripe for investigation. Along these lines, we make the argument and concur with researchers that professors aid in the development of tangible and intangible skills (Feldman, Smart, & Ethington, 2004), and academic environments have important influences on what students learn

during college (Feldman & Newcomb, 1969). Further, contemporary educational theorists argue in favor of a co-constructivist approach to effective teaching where learning shifts from individuals to constructing collective knowledge through collaborative dialogue (e.g., Carnell, 2007; Carnell & Lodge, 2002; Chalmers & Fuller, 1996). In essence, the focus is building a community of social and learning relationships "…where learners decide and review; belongingness develops, cohesion emerges; diversity is embraced [sic]" (Carnell, 2007, p. 37).

One means of developing a community of learners in higher education is by extending the person-environment (P-E) fit literature to the interaction between student and professor by drawing from the related literatures of educational psychology, organizational behavior, social psychology, and vocational behavior. Specifically, seminal work in social psychology suggests that behavior is a function of the interaction between the person and environment (Lewin, 1933), and the fundamental assumption is that good fit results in better outcomes for the individual (Edwards, 1991; Kristof, 1996). Research in organizational behavior (e.g., Pervin, 1968; Schneider, 1987; 1987b) has capitalized on Lewin's early assumptions such that P-E fit has been conceptualized as the matching of the characteristics of the individual with different elements of his or her work environment (Kristof-Brown, Zimmerman, & Johnson, 2005). Borrowing from the major tenets of Lewin's (1951) field theory which supports the view that behavior is a function of the totality of life spaces (i.e., family, school, work, etc.), organizational researchers (e.g., Jansen & Kristof-Brown, 2006) have argued that P-E fit is a multidimensional construct which encompasses person-vocation (P-V) fit, person-job (P-J) fit, person-organization (P-O) fit, person-group (P-G) fit, and person-person (P-P) fit.

Despite the pervasiveness of this work, far less attention has been given to the importance of extending the P-E fit literature to the interaction between students and professors (e.g., Westerman, Nowicki, & Plante, 2002) with most educational and social psychology research focusing on the socialization aspects between the student and the academic or university environment (e.g., Feldman, Ethington, & Smart, 2001; Feldman, Smart, & Ethington, 1999; Feldman et al, 2004; Smart, Feldman, & Ethington, 2000). The extension of P-E fit into the realm of students and professors is possible by using Holland's Theory of Careers (Holland, 1997). While Holland's theory is generally used in career guidance for vocational behavior, Holland has repeatedly insisted that his theory can be extended to educational settings (e.g., Astin, 1999a). Specifically, the overarching basis of Holland's theory is that human behavior is a function of the fit between the environment and individuals. There are three specific assumptions associated with this theory: (1) individuals choose environments that are compatible with their personality types; (2) environments reinforce and reward different patterns of abilities and interests; and (3) people flourish in environments that are congruent with their dominant personality types. While most vocational behavior research has focused on the validity of personality types and searching behavior (i.e., self-selection assumption) and the consequences of congruent and incongruent career environments (i.e., congruence assumption), educational psychology research has focused on the rewards and reinforcement aspects of academic environments (i.e., the socialization assumption). In the upcoming paragraphs, we seek to highlight the major findings from the P-E fit literatures of educational and social psychology,

organizational behavior, and vocational behavior in order to build a theoretical foundation for the impetus behind S-P fit.

Educational and Social Psychology Literature

An important stream of research has capitalized on the sociological aspect of Holland's (1997) theory of careers. This research has focused on the extent to which academic environments reinforce and reward student growth and development of multiple abilities regardless of the initial prominent characteristics of incoming freshman (Feldman et al., 2004; Smart et al., 2000). The research of Feldman et al. (2004) and Smart et al. (2000) was based on two assumptions. First, "faculties create academic environments inclined to require, reinforce, and reward the distinctive patterns of abilities and interests of students in a manner consistent with Holland's theory" (Smart et al. 2000, p. 96). Second, "students are not passive participants in the search for academic majors and careers; rather, they actively search for and select academic environments that encourage them to develop further their characteristic interests and abilities and to enter (and be successful in) their chosen career fields" (Smart et al., 2000, p. 52). At the same time, these researchers found that professors were the primary representatives of the academic discipline and played a significant role in requiring, reinforcing, and rewarding a specific repertoire of competencies and values to students who chose their majors. In both studies, the researchers concluded that students who were in congruent academic disciplines for their personality had higher levels of interests and abilities at the end of four years as compared to students in incongruent disciplines. However, they also found that students in incongruent disciplines made parallel changes in self-reported abilities and interests over the four years. From a practical standpoint, professors play a valuable role in socializing students to the respective norms and values of their chosen careers. Further and from a theoretical perspective, the sociological aspects of Holland's theory are just as important as the psychological components. However to the authors' knowledge, no educational psychology research to date has explicitly examined the congruence, self-selection, or socialization assumptions with emphasis on the development of S-P fit and its corresponding impact on student outcomes. Further, the educational and social psychology studies help to strengthen the impetus for examining S-P fit because this research has focused on the importance of educational settings in relation to Holland's assumptions.

Organizational Behavior Literature

A paucity of empirical insight on student-professor (S-P) fit is available from the organizational behavior literature. The lack of research is quite surprising given that a large body of theoretical and empirical research on other forms of P-E fit has proliferated in this field (Kristof-Brown et al., 2005). Regardless, initial research from Westerman and his colleagues (2002) suggests that S-P fit is an important predictor of various student outcomes. Specifically, data from 171 undergraduate business students and three of their professors provides initial evidence that personality congruence is a moderate and significant predictor of student performance ($\beta = .21$, $p < .01$) but not student satisfaction ($\beta = -.03$, n.s.). Further, values

congruence was a significant predictor of satisfaction ($\beta = .17$, $p < .05$) but not performance ($\beta = .13$, n.s.). The results were similarly mixed with classroom environment congruence being a strong and significant predictor of satisfaction ($\beta = .41$, $p < .001$) but not of performance ($\beta = .11$, n.s.). In general, this study demonstrates that measures of S-P fit play an important role in predicting student outcomes. However, the results of the study are somewhat tempered given that the sample size was small and limited to one academic discipline.

While substantially little to no research has been done on what lends to the development of S-P fit and whether or not S-P fit is positively related to student outcomes, it is important to briefly how S-P fit has been measured in the extant research. Westerman et al. (2002) used three different measures to operationalize S-P fit. Personality congruence was measured by asking both students and professors to complete the NEO Five-Factor Inventory Form S (Costa & McCrae, 1991). Then, the overall fit between the professor and the student was calculated by correlating the items in the two personality profiles. Values congruence was measured with the Organizational Culture Profile (OCP) (O'Reilly, Chatman, & Caldwell, 1991). Each student completed two Q-sorts. In the first Q-sort, students were asked to describe "ideal" classroom values. In the second Q-sort, students described values that existed in their current classroom. The overall fit between the "ideal" classroom and the existing classroom was determined by correlating the ratings between the two Q-sorts. Classroom environment congruence was measured with the CES (Moos, 1994). In a similar method to the value congruence measure, students were asked to measure their ideal classroom environment with Form I and the real classroom environment with Form R. The overall fit was calculated by correlating each student's ratings of the ideal classroom environment with each student ratings of the real classroom environment. The current measures for S-P fit are subjective in that they assess perceived fit rather than objective fit. Perceived fit involves asking individuals how they well they fit with their environment (Kristof, 1996). In contrast, objective fit measures the person and environment separately by using difference scores (Edwards, 1993).

While fit has been measured as both subjective and objective fit in the organizational behavior literature (Kristof, 1996), evidence suggests that perceived fit is more important than objective fit (Ostroff, Shin & Kinicki, 2005; Wessel, Ryan & Oswald, 2008). Pervin (1968) addressed this issue and concluded that behavior is better understood when the perceived environment is taken into account. Thus, perceived fit should better predict outcomes variables as compared to actual fit (Cable & DeRue, 2002). In sum, we make the argument that perceived congruence or fit between the student and professor will have stronger relationships with student outcomes.

It is important to note that while little research has examined S-P fit several other studies have examined person-person (P-P) fit (Meglino, Ravlin, & Adkins, 1989; Ostroff et al., 2005; Van Vianen, 2000). P-P fit represents congruence between an individual's personal characteristics and other's personal characteristics in the work environment. Schneider's Attraction-Selection-Attrition (ASA) theory (e.g., Schneider, Goldstein, & Smith, 1995) and his corresponding argument that "the people make the place" (Schneider, 1987a, 1987b) helps to provide the theoretical support for P-P fit. Schneider asserts that over time forces within an

organization operate to attract, select, and retain an increasingly homogeneous workforce. Thus, people with the same values and personality are attracted to, selected by, and remain in organizations where others have those same characteristics. Leader-member exchange theory provides additional support to the notion that values congruence is important for employees and leaders. Specifically, higher quality exchanges resulted when employees and leaders shared similar values (e.g., Ashkanasy & O'Connor, 1997; Steiner, 1988; Weiss, 1978). Further, Meglino et al. (1989) exclusively studied P-P fit and found significant, albeit weak, relationships between employees' and supervisors' personal values and job attitudes (i.e., job satisfaction and organizational commitment). In contrast, Van Vianen (2000) looked at P-P fit between newcomers and supervisors and found weaker relationships with commitment and turnover intentions. Similarly, Ostroff et al. (2005) found weak results for the effect of P-P fit on job attitudes and turnover intentions, but they speculated that P-P fit may be stronger for attitudes, goals, personality, and other factors.

Based on the organizational behavior literature, we can solidify a definition for S-P fit. Specifically, S-P fit represents congruence between the student's personal characteristics and the professor's personal characteristics in the educational environment. In addition, we can operationalize S-P fit as attitudes congruence, goals congruence, personality congruence, or values congruence. Finally, S-P fit should be measured as subjective fit.

Vocational Behavior Literature

A wealth of evidence (e.g., Assouline & Meir, 1987; Tranberg, Slane, & Ekberg, 1993; Spokane, 1985) supports the validity of the consequences of personality types and career choices (i.e., self-selection assumption) and of fit between dominant personality type and the environment in which one works (i.e., congruence assumption). Specifically, Spokane's review of 63 studies on Holland's (1985; 1997) congruence hypothesis found correlations between congruence and various outcomes in the range of .25 to .35. In comparison, Assouline and Meir's meta-analysis of 41 studies found correlations between congruence and well-being measures up to .55 depending on the congruence measurement method, but the mean congruence-satisfaction correlation was .21. Also, they found the mean correlation between congruence and stability of vocational choice as .15 and the mean correlation between congruence and achievement as .06. Further, Tranberg et al. (1993) conducted a meta-analysis of 27 studies and found weak support for the congruence hypothesis with a mean correlation of .22 between congruence and overall satisfaction. In general, these studies provide positive, albeit weak, support that congruence is related to personal adjustment, satisfaction, and vocational stability.

As with the educational psychological literature, S-P fit has also not been examined in the vocational behavior research. However, several studies have looked at the relationships between congruence and personal stability (e.g., Walsh, 1974; Walsh & Barrow, 1971; Walsh & Lewis, 1971). Walsh and Barrow (1971) measured personality by using the California Personality Inventory (CPI). Their results showed that neither congruent nor incongruent P-E relations were associated with personality variables. However, Walsh and Lewis (1972) measured personality

with the Omnibus Personality Inventory (OPI) and divided their congruent and incongruent groups into male and female groups. They found that students in the male group had greater satisfaction, more stable college major choices, and greater personal stability as compared to those students in the undecided and incongruent male groups. Walsh (1974) incorporated both measures of personality into his study and found similar results to that of the Walsh and Lewis study except that the pattern of relationships were stronger for the CPI. This group of studies suggests that congruence does seem to be related to general measures of personality and personal stability. In conclusion, the vocational behavior studies contribute to the construction of the conceptual model and S-P fit by providing substantial support for the congruence and self-selection hypotheses and by introducing the importance of personality and personal stability in relation to P-E congruence and self-selection.

Conceptual Model

In comparison to most models of students' interactions with their environments, we are focused on the student perspective rather than the institutional perspective. Thus, the unit of analysis in our model is rooted in the individual and not the institution unless responses are obtained from both students and faculty. Then, hierarchal linear modeling (HLM) should be used to avoid ecological fallacy where individual differences become masked (e.g., King, 1999; Kreft & De Leeuw, 1998). Specifically, if one is interested in the context created by faculty and its relationship to students, then the use of HLM overcomes the problems associated with modeling individual and institutional effects. Based on the main tenets of Holland's (1997) theory, we expect the choice of professor for a college course to be a reflection of student characteristics and that students will self-select into a professor's classroom because of the assumption of S-P fit (i.e., the self-selection assumption). At the same time, the professor acts to reinforce and reward the abilities and interests of their students through effective educational practices (i.e., the socialization assumption). Finally, students will flourish in academic environments and experience more positive educational outcomes that are congruent with their dominant student characteristics (i.e., the congruence assumption). Figure 1 presents a conceptual model that depicts the relationships among these propositions. In the tradition of Holland's (1997) theory, there are three underlying assumptions in our proposed model, each of which will be discussed in the following discussion.

The Congruence Assumption

First, the core of the proposed model examines the congruence assumption such that S-P fit will mediate the effect of student characteristics on various educational outcomes. Specifically, student characteristics will have a direct impact on educational outcomes but also student characteristics will influence educational outcomes indirectly through S-P fit. In order to fully understand the relationships in the core of the proposed model, it is necessary to briefly review two models of students' interactions with their environments. Typically, educational researchers rely on the models developed by Astin (1993b; 1993c) and Tinto (1993). Both models suggest that when students are engaged in college experiences, it is more likely that learning, retention, and other quality outcomes will occur.

Astin's (1993b; 1993c) input-environment-output (IEO) model implies that inputs have direct effects on student outcomes and more indirect effects through the educational environment. Inputs "…refers to those personal qualities the student brings initially to the education program (including the student's initial level of developed talent at the time of entry)" (Astin, 1993b, p. 18). In essence, inputs are student characteristics that are brought to college. We are focused on student characteristics that are brought into the professor's classroom, so examples of student inputs include career choice, degree aspiration, demographic information, dispositions, educational background, life goals, reason for selecting an institution, and reason for attending college. Environment "refers to the student's actual experiences during the educational program" (Astin, 1993b, p. 18). Environmental factors may include the S-P fit and educational practices of the professor. Outputs "refer to the 'talents' we are trying to develop in our educational program" (Astin, 1993b, p. 18). Specifically, outputs are outcome variables such as student attitudes (e.g., student course satisfaction), student behaviors (e.g., student engagement and student involvement), student development (e.g., gains in personal and social development), student learning (e.g., course performance, gains in workforce readiness and general education skills, and gains in domain specific knowledge), and student course retention (e.g., student attrition and student completion). Thus, we can extend the implications of Astin's model to our proposed model such that inputs are analogous to student characteristics, the environment is represented by S-P fit and effective educational practices, and outputs are represented by student attitudinal and behavioral outcomes, student learning and development outcomes, and student course retention. While Astin's IEO model helps to elucidate the core relationships in our conceptual mode, we still must explain the relationships among the outputs.

The central argument behind Tinto's (1993) model is that the student's decision to persist or withdraw depends on their academic and social integration into the informal and formal academic and social systems of the institution. Tinto also found that academic and social

integration was dependent on daily interactions between faculty and students. In comparison, Astin (1993c) examined the extent to which institutional practices and environmental experiences (e.g., faculty-student contact, pedagogical approaches) influence student outcomes (e.g., student engagement and student learning). Further, Astin insisted that student involvement with faculty and peer groups enhanced student learning and development. Later, Astin (1999b) also argued that the amount of time, along with physical and psychological energy, that students invest into their college education influences their learning and development. Based on both Astin's (1993c) and Tinto's (1993) models, we see that student attitudes and behaviors indirectly influence student retention through student development and learning.

Figure 1 A Conceptual Model of the Emergence and Outcomes of Student-Professor Fit
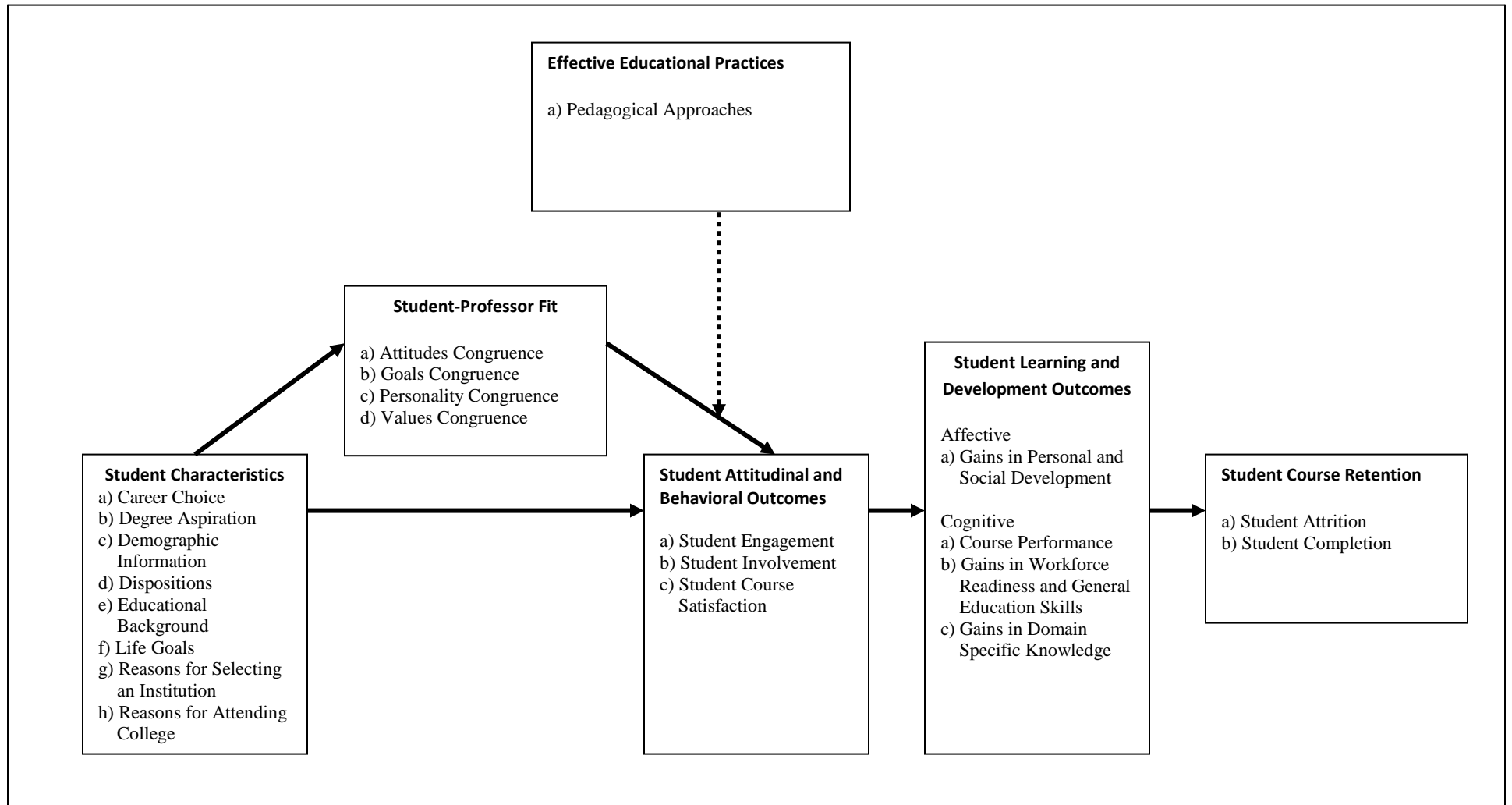
The Socialization Assumption

Second, an important aspect of this model is the moderating effect of effective educational practices on the indirect effect of student characteristics on student attitudes and behaviors through S-P fit. This moderating effect acts a lever such that even if the congruence assumption is fulfilled the socialization assumption must also occur in order to precipitate optimal outcomes. For example, effective educational practices could be operationalized as pedagogical approaches used by faculty. Chickering and Gamson (1987; 1991) outlined the following pedagogical practices for influencing the quality of education experiences: communicating high expectations, encouraging active learning, encouraging contact between students and faculty, encouraging cooperation among students, emphasizing time on task, giving prompt feedback, and respecting diverse talents and learning styles. Both Astin (1993c) and Umbach and Wawrzynski (2005) maintained that these approaches were important components that contributed to the learning and engagement of their students. However, we take their assumptions one step further by arguing that effective educational practices will have strong moderating effects on the indirect effect of student characteristics on student attitudes and behaviors through S-P fit. In this sense, effective educational practices act to reinforce and reward S-P fit and the corresponding abilities and interests of students to produce optimal student outcomes.

The Self Selection Assumption

Third, the self-selection assumption requires that researchers examine the invariant latent mean structure of three different groups of students. Specifically, we are concerned with the extent to which the differences among these groups are statistically significant. Thus, researchers should use structural equation modeling (SEM) to examine differences among these groups on the latent constructs. The first group comparison will look at those students who self-select into a professor's classroom because of the assumption of S-P fit versus those students who do not self-select because of S-P fit. We expect that the relationships in the model will be stronger for those students who self-selected into the professor's class because of the S-P fit. In addition, of those students that self-select into the professor's classroom because of S-P fit, it is critical to also look at the stability of choice in terms of course completion versus dropping the course. Thus, the second group comparison will examine differences among the completion versus non-completion group. We expect that the completion group will have stronger relationships in the proposed model. Finally, the third group comparison will consist of those students who did not self-select into the professor's course because of S-P fit and either completed the course or dropped the course. It is our expectation that those students who completed the course will have stronger relationships among the constructs as compared to those students who did not complete the course. Finally, we propose the relationships in the conceptual model will be strongest for those students who chose and completed the professor's course because of S-P fit, followed by those students who did not select the professor's course based on S-P fit yet completed the course. We believe that those students who persist regardless of the initial assumption of S-P fit will develop S-P fit over time. Finally, the relationships for those students who dropped will be attenuated

Additional Theoretical Assumptions

A final intriguing aspect of this model is that students with negative dispositions will experience weaker or even negative outcomes regardless of the level of S-P fit or overall teaching effectiveness of the professor. Empirical evidence suggests that the no-type student (i.e., a student with a flat vocational profile and no match to the seven types proposed by Holland) typically has low educational achievement, minimal extracurricular involvement, and low levels of involvement with faculty and students (Astin, 1993a). Further, Astin argues that these no-type students resemble Holland's (1997, p. 149) low vocational identity individuals who possess a cluster of negative characteristics such as neuroticism, low self-esteem, and higher attrition from college. Unfortunately, these students come from families with lower incomes and lower parental educational levels. Although this aspect of the model is subject to substantial debate, this aspect of the model does not necessarily paint a gloomy picture for these students especially given that research has found that disciplinary-based academic environments helps to shape the growth of students (e.g., Feldman, Smart, & Ethington, 2008; Laird, Shoup, Kuh, & Schwarz, 2008). However, it is worth noting that the relationships among these constructs will be attenuated for students with negative dispositions.

Implications for Researchers and Practitioners

We implore our readers to follow the old adage: "Out with the old, in with the new". While the benefits and drawbacks to professor rating websites have been clearly stated in this paper, we must realize that our students will continue to use the websites until they are replaced with something that better meets their needs. Some researchers have suggested that one solution to the problem is making SETs available to the general public (e.g., Albrecht & Hoopes, 2009; Coladarci & Kornfield, 2007). However, the backlash from accreditation agencies, faculty, faculty collective bargaining units, and faculty professional groups would prevent this option from being fully implemented. Therefore, we propose an alternative approach that is focused on building a community of learners and where learning shifts from individuals to constructing collective knowledge. Hundreds of studies (e.g., Pascarella, & Terenzini, 1991) have found that the greater the student involvement with academics, faculty, and peers, the greater the learning and personal development. Stronger fit between the professor and the student will help to stimulate involvement. In order to accomplish these goals, reliable and valid measures must be created that evaluate fit between the student and professor. These measures must be available on an institutional-wide basis to help properly match students to professors for their courses and to achieve optimal student outcomes. At the same time, as research begins to accumulate on measures of S-P fit and the antecedents and outcomes of S-P fit, the existing measures and our approach to developing and sustaining S-P fit must be revised based on evidence-based practice.

CONCLUSION

Given the paucity of research on S-P fit, our goal is to introduce a conceptual model that incorporates theoretical assumptions from several related disciplines and to propose theoretical and practical alternatives to professor rating websites. Specifically, we understand that some students use professor rating websites to gain information about professors and courses because they have limited access to information from their peers and institutions on the teaching

effectiveness of professors. However, the fallacy in this approach is that the information on these websites is not reliable or valid. So, the purpose of our conceptual model is to stimulate new research on S-P fit and to encourage researchers to develop an evidence-based practice, reliable and valid measure of S-P fit. The ultimate goal with this research is to develop congruent and stable matches between students and professors in order to stimulate student involvement, satisfaction, and learning and development and to increase student retention at the course level. In return, these favorable outcomes should translate across to overall educational effectiveness in programs and institutions. In conclusion, getting students into college is half the battle and keeping students in college is the issue that has yet to be fully resolved. Because of the healthy learning atmosphere and relationships that students will develop with their professors, the theoretical and practical development of S-P fit will widen the gap between those universities that are seeking excellence and those that are accepting mediocre effort from brilliant minds.

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MANAGING CHANGE: ADDRESSING RESISTANCE TO WORKFLOW AUTOMATION

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ABSTRACT

This paper documents the experiences of a prominent mid-size CPA firm in a large Southern U.S. city as the Principals of the firm worked to implement a widely adopted accounting practice information system. The goal was to achieve a "paperless office" to realize the highly touted benefits of such an office. However, this implementation quickly met obstacles. The results, over time, were acceptable, but were quite different from the original expectations. The article discusses this firm's experience, confronting resistance to change, and managing this implementation to a successful outcome. Recommendations to increase chances of a successful automation effort are included.

BACKGROUND

Accounting is a paper intensive business, with well-established standards for retention of "documents". The profession is steeped in a history focused on record-keeping. For those firms engaged in tax work and accounting for client organizations, the record-keeping trail begins at the client corporation itself, with extensive records, often manual, of all transactions, expenses, income, etc. These records are copied and shared with the tax preparation and accounting firm that prepares the financial statements, the taxes and other required reporting documents for the client. As computing technology has become ubiquitous, accounting firms are often the intermediary. They are trying to deal with manual, or incompatible automated documents submitted by clients, managing their own manual or automated work processes to fulfill their obligations to clients and finally reporting, often through governmentally mandated automated systems, to various governmental and professional entities (Sledgianowski *et al.* 2010).

The elusive goal of the "paperless office" may be within reach given today's advanced technology. Manzelli (2010), writing in the *Journal of Accountancy*, recognized that the adoption of technology in an accounting practice was relatively uncomplicated; however, adapting the culture and practices of the firm to make successful use of the technology is the really hard part. This study discusses the journey of one mid-size accounting firm in a large southern U.S. city as it worked to automate its tax and accounting practices.

THE "PAPERLESS" OFFICE

The term "paperless office" refers to the application of an integrated information system with multiple software tools to enable a firm to reduce paper expenses, to increase worker productivity through easy access to documents, and to decrease reliance upon physical storage space (Sellen and Harper, 2001). The term "paperless" is somewhat misleading as there has been little evidence that the use of paper within a transitioning entity actually declines. However, there is ample evidence that once integrated, the online database and software tools often improve everyday employee efficiency and reduce storage costs and space requirements.

According to the CPA Leadership Institute, there are a variety of benefits and challenges when implementing a "paperless office":

Benefits:

- Productivity should increase because present staff can complete more work, thus increasing billable time.
- Costs should decrease as printing, mailing, copying and storage space requirements decrease.
- The ability to access documents electronically immediately positions the staff to answer client questions more efficiently and more effectively.
- With proper security and backup, risk is reduced since reliance on paper is minimized, and paper is at risk for physical damage in natural events such as fires, earthquakes, tornados, floods and hurricanes.

Challenges:

- Automated systems are a financial burden to single-office firms, especially during implementation when the usual, customary workload needs to be finished at the same time that a new system is being learned.
- Developing a successful scanning policy is paramount. Assurances must be in place to assure that documents are not lost in transit. The firms must also decide whether to front scan or back scan documents (at the beginning or end of the review process.)
- Restrictions on file access must be developed to protect customer privacy.
- Firms must assure that processes are changed to take advantage of new systems. The new technology usually does not adapt well to older processes. This is one of the most difficult challenges. Many employees will attempt to recreate old processes that are familiar to them and allow them to more readily maintain billable hours – at least in the short term.
- Cost analyses must be done both before and during the process with decisions about hosting in-house, using an Application Service Provider or some other method.
- The firm must decide to return old documents to clients, to shred them, or to save them. In the latter case particular, retention procedures must be developed.
- Finally, in a relatively conservative industry such as accounting, a firm must adequately disclose the benefits and risks to its employees while constantly working to overcome any employee resistance. The management of employee dissonance is often the most critical aspect of the transition process.

There has been a trend in recent years for small and mid-size accounting firms in the United States to adopt an automation strategy driven by the list of potential benefits shown above. Two very popular systems are tax and accounting systems from Thomson Reuters (thomsonreuters.com) and corporate accounting software from the CCH Group (http://tax.cchgroup.com). Both of these vendors have a wide range of products that integrate and automate various functions rather easily and are available through online interfaces. However, automated systems are seldom compatible with established work practices or with other information systems already in use in a firm.

"BESTACCOUNTANTS, PC" TAKES THE AUTOMATION PLUNGE

The CPA firm of interest here will be called BestAccountants, PC, abbreviated as B-ACs below. Disguised here for the purposes of this discussion, B-ACs is a very real and successful mid-size accounting firm which wishes to remain anonymous. This firm implemented a "paperless" workflow automation system at the beginning of 2008. Initially, many employees viewed the system as either unnecessary or as a failure, or both. The firm faced resistance during tax season as many Principals were forced to absorb billing costs due to implementation inefficiencies. Despite these issues, B-ACs decided to maintain their automation goals and their transition plans. They felt that they would be successful in the longer time horizon.

When trying to implement the system during a busy season, such as tax season, training inadequacies are often exposed. Many employees develop a mistrust of a new system as they are required to learn "on the job" while facing immense pressure to meet deadlines, increase billing hours and satisfy clients. In the city hosting this study, three mid-size accounting firms, within the last several years, have stopped their automation projects because their systems could not be effectively assimilated by their accounting staffs. Many accountants preferred their current procedures and refused to use a new system in the way it was envisioned (Interviews, 2008 and 2009).

Other firms decided to keep working toward the goal of a "paperless" office and many of those have seen an increase in employee efficiency, an increase in billable hours, and a decrease in the storage space needed for documentation. However, the use of paper has often increased (Interviews, 2008 and 2009). Most of these firms based the performance goals for their new systems on three year plans for implementation, recognized the obstacles ahead of them and allowed time to address these obstacles. In the first year the firms often experienced an increase in expenses not related to hardware and software costs. This included training, repairs, unexpected requirements to hire additional technical support people to work within the firm, etc. In year two, the firms gradually saw an improvement in office work efficiencies and in year three the transition often reached completion.

Upon completion of the 2009 tax season, the new information system at B-ACs was successfully adopted and used by all employees. Despite a very intense and difficult implementation learning curve, after two years, B-ACs witnessed a dramatic increase in employee efficiency and billable hours. The most difficult part of the implementation plan was overcoming the resistance to change. This resistance manifested itself, surprisingly, primarily at the top levels of the firm. Throughout the implementation process, the firm continued to stress training and eventually mandated the use of the new software to overcome employee resistance.

SYSTEMS BACKGROUND AT B-AC'S

To present the case of BestAccountants, PC most effectively, a brief description of the old and new systems is necessary. The old system relied upon two software packages supplied by Thomson Reuters. The accounting software was purchased and maintained in house. The software addressed the Audit and Tax needs of the firm. To complete tax returns, the firm used GoSystem RS Tax, an internet-based tax return preparation and management software application, also from Thomson.

The major weakness of the old system was the use of paper work papers. Each employee spent a significant amount of time organizing the work papers, assembling them into files using a

combination of tape, staples, print tapes, and copied documents. To complete a current year's return, the staff was required to look through prior work papers. Often staff would have three years of files open at once, highlighting space deficiencies and increasing errors as staff constantly flipped through documents. There was no central database system; employees were often required to search throughout the firm to find needed files.

When the new system was developed, the firm decided that it would use the GoFile Room Database with a structure differentiating between tax, audit, consultation, and permanent documents. The firm also decided to purchase and to maintain new accounting software known as CS Engagement, allowing the employees to directly scan and mark up documents. This was much more efficient for the staff. The work papers could then be saved electronically in the GoFileRoom database. Despite the availability of a much more efficient system, employees often attempted to use the new software to replicate old processes or even bypassed the new system altogether. B-ACs had to continually push its employees to embrace and take advantage of the newer and better tools available in the new system.

Many B-ACs employees had a misperception of the benefits and advantages of the new "paperless" system, expecting only a sizeable reduction in paper usage. They doubted the value of this paper reduction and thought the resources required to implement the plan were a waste of time and money (Interviews, 2008). In addition, many of the older employees had moved through the previous software transition to the current system five years earlier, experienced problems, and were hesitant to make the changes now needed. The well-known (within the CPA community) automation transition failures of other local firms created headwinds for the management and IT teams.

TRANSITION PROCESS AT B-AC'S
The major players in the transition process for B-ACs were the Managing Partner, Ima Bigwig, the IT Principal, Jacque Computer, plus the general administrative staff. Also included were a few Principals who were unwilling to adopt the new system, most notably I.M. Notwilling, and other Principals seeking to adopt immediately, such as Les Goahead, and Lukes Good. All of these names are fictitious, of course; however, these were very real people.   The interplay between these agents gives insight to the transition failures and successes at B-ACs.

The creation of an office without paper was initially suggested by the Managing Partner, Ima Bigwig. She saw that there was room for the firm to grow and felt that modernizing the firm's technology would lead to expense reduction and billing efficiency thus allowing the firm to add clients without having to dramatically expand its staff. Bigwig, along with the transition group lead by IT Principal Jacque Computer, decided that the firm would host the new system on their own servers while having offsite, online backup systems hosted by GoFileRoom.

The implementation team developed a training program focused on demonstrating the benefits of the new system to the firm's employees. Despite the desire to have a strong training program, time constraints made it difficult. CPA firms generally have two extremely busy periods. January through April are extremely busy months, with B-ACs employees billing approximately sixty hours a week to their various clients. Training is just not a viable option during this period. In addition, August, September, and October are busy tax months with most trust, partnership, and corporation returns, and many personal returns, due during this period. As a result, major training programs are not advised during January through April or August through October.

Because of these busy billable periods, the most appropriate times for training are May through July or November and December. However, this is also when many of the firm's employees are on vacation. Because of these timing issues, B-ACs decided to proceed with "on the job" training, even though this meant employees must try to learn the new system while billing out hours and meeting often demanding customer requirements. The firm also did not think about the need for a "best practices" program across the firm. Thus, as employees learned the new system while doing client work, they developed their own processes independently as they saw fit. Different approaches to performing the work at the firm would propagate significant compatibility conflicts that would take over a year to fully resolve.

The new paperless office was first installed at B-ACs at the end of 2007 with the goal that it would be in full use by the 2008 tax season. Despite a general knowledge of the new application by the staff, problems quickly arose during the 2008 season. Mrs. I.M. Notwilling, an expert in trust and estates, believed that the new software hindered her ability to meet her billing requirements. She continued to use paper documents until the final stages of review. Then she would return to the staff and have the documents updated and scanned in to GoFile Room. This approach created serious inefficiencies. Input inconsistency and fragmentation of 2008 documents made them difficult to use as reference materials during the 2009 tax season. Even worse, not all documents were placed into the new database system. Notwilling and her staff frequently used the in-house client hard drive to save permanent documents and Excel sheets, thus they were never even included in the new system.

Notwilling was not the only principal to avoid using the new system. A steady stream of complaints led the firm to briefly abandon the new system at the end of the 2008 tax season as Principals became concerned that they were grossly overbilling clients and that they would be unable to meet their April 15th deadline. Finally, Bigwig decided to suspend implementation for the two weeks prior to the deadline. Though it appeared that the automation transition had failed, the hardware and software worked perfectly well. The real problem was the resistance from employees. At the conclusion of the 2008 tax season, the firm immediately convened meetings among both staff and Principals to reinforce commitment to the new system. Employees complained that the new accounting software was not compatible with the tax software and that the GoFileRoom database was poorly organized.

In addition, employees had noticed that the amount of paper used actually increased. Because it had been called "paperless," many employees viewed the amount of paper used as a gauge for the success of the system. Seeing their billable time decrease in conjunction with the increase in paper usage, employees mostly viewed the transition as a failure. Ima Bigwig and Jacque Computer decided to push the implementation harder while working more diligently to demonstrate the broader benefits of the system to the workforce.

The first "myth" to debunk was the idea of an immediate decrease in paper use (Sellen and Harper, 2001). A theory developed by William Stanley Jones, when studying the coal industry, stated that as technology increases efficiencies in various entities, the use of natural resources actually increases in relation to the efficiencies achieved (York, 2006). When implementing the "paperless" office, the amount of paper used often increases initially as employees feel more confident having both a computer and hard copy. Employees often print many drafts for edit and review before reaching the final stage of a document. Principals reviewing tax returns often prefer hard copies for marking up corrections, omissions, etc. Thus, paper use did not decline. However, paper storage did decline rapidly and the Principals implementing the plan refocused

on the employees' desire for paper reduction and emphasized the potential for space requirements reduction instead.

After failure to fully implement the paperless office strategy at the end of the 2008 tax season, the implementation team decided to establish a "best practices" plan including procedures for use of the new system. In addition, the Principals decided to address employee discontent through both a carrot and stick approach. The carrot was to emphasize that increased efficiency that would lead to an increase in billable hours. The stick was a requirement that the new system must be in full use by the 2009 tax season with all employees being evaluated based upon their efficient use of the new system during that tax season.

The Principals recognized that the most efficient users of the new system were the tax and audit staff and the firm turned to them to assist in the development of the "best practices" for the new system. The firm determined that their familiarity with the system meant they could create a workable and complete standardized flow structure, and document it as a series of "best practices". Throughout the summer of 2008, the firm held numerous meetings to identify and organize procedures and to document the process.

One of the first concerns identified was the use of a front end scanning system. When tax returns for individuals and trusts were prepared, a variety of client documents and Excel spreadsheets were used. During the 2008 Tax Season, these documents were scanned in by the staff then merged with other documents, utilizing Adobe, throughout the preparation process. Upon completion of the return, all client documents were merged and organized and then entered into the GoFile Room database. Front end scanning led to a variety of problems. Oftentimes, the documents were improperly scanned or merged and thus did not appear in the work papers. Poor training in the use of the Adobe system led to improperly bookmarked work papers causing widespread confusion. These issues were a major reason the firm backed away from implementation during the 2008 tax season. After consultation, the firm decided to back end scan the work papers. This is the process used by many larger firms. When the documents are back end scanned, the work papers are organized with bookmarks that can be scanned and the work papers are not scanned into the database until after the review is completed. This allows the staff to organize the work papers in an efficient manner while also allowing reviews to add or remove documents when necessary. This process was implemented during the 2009 tax season and was immediately successful. Efficiencies in preparation increased dramatically; work papers were better organized; and the Principals who had been complaining became more agreeable.

In addition to back end scanning, the firm, following the advice of staff, developed a standardized work paper entry process for the CS Engagement software (used when preparing corporate returns). This included standardized work paper organization and mark ups, and standardized work paper references. An Adobe training session was created to enable staff to take full advantage of that software. Because of this standardization, paper use actually did decline marginally. This standardized practice also made review work much simpler as all documents were at reviewers' fingertips through the use of the CS Engagement and the GoFileRoom database.

B-ACs reduced Principal discontent through a reverse training process. The staff was enlisted to teach the Principals the best uses of the software and numerous ways to increase efficiency, thus reducing the stress that Principals felt with the new software. If the Principals had questions regarding implementation or use, they would ask a staff member what to do as opposed to

relying upon a limited IT department. By shifting these tasks to the staff, the firm was able to free the IT staff so that they could focus on system maintenance and improvement.

FOCUSED TRANSITION SUPPORT

A further, more detailed example will show how the firm used the staff to allay the fears of many of the Principals. Itsy Gnutome was hired by the firm during the summer of 2008 to replace another staff member who had moved to the oil and gas division. Mr. Gnutome was assigned primarily to I.M. Notwilling as the previous staff member had been in her area. When Gnutome arrived at the firm, Mrs. Notwiling had serious misgivings about the new system. She had maintained a billable rate of only eighty three percent during the 2008 tax season and she blamed the new system. During training, Mr. Gnutome was asked to try to influence her to adapt. Though he had limited experience with the new software, he had no experience at all with the old. The benefit arising from this situation was that he had little idea of the old processes required by the old software and adapted quickly to the new software and its processes.

Mr. Gnutome observed the differences in processes used by many of the Principals. Some used the new system very efficiently while others still refrained from using it at all. One Principal had a very efficient work paper documentation system. The staff saw the benefits of this system and many quickly adopted these practices. As mentioned previously, these were soon standardized as "best practices" for use across the firm. When Gnutome began working with Notwilling and a few other Principals, he witnessed their negative reactions to the new software. Being unfamiliar with the old system, he saw the new system as unquestioningly more efficient and effective. Many other staff members saw the same thing and worked to convince the Principals that proper use of the system would be extremely beneficial.

One of the reasons Notwilling did not like the new system is that her trusts and estates specialties were not adequately supported. Mr. Gnutome developed a standardized organization and scanning technique to be used for trusts and estates thus allowing her more efficient use of the new database to meet her work needs. By creating a standardized entry system, the preparation of large estates was made much more efficient, much to Notwilling's satisfaction.

Another example of the benefits of the system was shown to Mrs. Notwilling during the 2009 tax season. One client that Mr. Gnutome prepared was a limited partnership with approximately ten million in assets held in a variety of brokerage and non-equity asset accounts. This return was always difficult to prepare because of the variety of accounts combined with a partially used Quicken Account. In addition, a variety of necessary Excel documents were stored in the client drive instead of the GoFileRoom database. When Gnutome prepared the return he noticed that there was widespread duplication of documents from prior years, thus making it difficult to follow the preparation of the return. One Excel sheet was in the client drive while an incomplete sheet was in the CS Engagement software which was the software used to make the trial balance, adjusting entries, etc. Because of the ambiguous nature of the partnership return itself combined with the duplication of spreadsheets, it was difficult to discern which documents were proper. This return had to be completed before April 15 every year and in 2008 was a victim of the brief abandonment of the new system, thus contributing to the disorganization.

Upon seeing the discrepancies, Gnutome organized the Quicken Account to correctly reflect the prior year balances. In addition, he combined the necessary spreadsheets into a linked spreadsheet. He also transferred the sheets from prior years into the new GoFileRoom database. These were the sheets that had been stored on the client's hard drive. This compilation made the

work paper presentation in CS Engagement more efficient to use. All necessary forms were organized separately in the Engagement Software with current work paper references. Using the system in the way that was intended, the return was sent for review from Gnutome to Notwilling with an organized and detailed set of work papers. Though Mr. Gnutome billed approximately the same number of hours as in the previous year, the percentage of billable hours by Notwilling was improved dramatically. The return was finalized before April 8th (usually the return was completed around the 14th) and the percentage of total billable hours to hours used increased from sixty five percent in 2008 to ninety five percent in 2009. Mrs. Notwilling immediately noticed the efficiency increases and warmed to the new system overnight. The automated workflow appeared to be a positive thing as many in the industry had predicted (Johnson, 2010).

THE 2009 TAX SEASON

The 2009 tax season was dramatically different from the prior year with additional stressors for B-ACs. The firm hired four new staff members during the off season but lost three to other practices. The firm had also contracted with a large number of new clients, thus the new system would be stressed. However, by 2009, employees had been adequately trained to recognize the efficiencies offered by the system. 2009 would also be a test as the system failed in 2008 and many Principals were skeptical of the "paperless" office. The standardization of work paper processes and the use of a back end scanning system had immediate positive results.

But despite the new procedures, problems arose. Staff members often did not follow all procedures regarding work paper organization and some Principals still relied upon written review notes. Two weeks into the new tax season a meeting was called. Ima Bigwig and Jacque Computer told the employees to trust and use the system following the new "best practices" procedures and not to return to previous work processes. This meeting included both staff and Principals. All were directed to comply. Despite a lower ratio of staff to client, the 2009 tax season was markedly more successful. More returns were completed by April 15th and did not have to be extended. Fifty percent of total returns were extended in 2008 versus forty percent in 2009. In addition, the standardization measures are expected to greatly improve efficiency for the 2010 tax season as staff will know exactly where to look for documents and reviewers will have easy access to organized prior year work papers as needed
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REFLECTIONS AND RECOMMENDATIONS

The implementation of a "paperless" office is a very difficult decision for a small to midsize accounting firm. The costs associated can be huge while efficiencies often take years to be achieved. A major issue facing these firms is dissonance from Principals who are used to the old system and resist change. B-ACs used a variety of techniques to overcome these problems, such as encouraging contributions and suggestions from staff members and improving the morale of the staff. These staff members were then able to demonstrate the benefits to the Principals who previously had rejected the new system.

Serendipitously, Hurricane Ike mitigated some of the Principals' fears because the use of offsite back up proved to be crucial for the firm's recovery after the storm. Most firms use offsite back up for prior year returns but often the actual work papers are stored onsite or with a local storage company. As Hurricane Ike swept through, several local firms had their offices flooded or had windows broken, thus destroying their onsite documents. B-ACs' offices had windows shattered and documents destroyed throughout. Fortunately, serious losses to files were minimal, but the

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potential risks were highlighted and realized by all the employees. Principals quickly recognized the importance of electronic offsite work paper storage. Though this benefit was often discussed to encourage use of the new system, many did not fully grasp the potential significance for the practice. After the hurricane, returning to their office building with many broken windows and water covering the lower floors made quite an impact.

Despite the successful 2009 tax season, many issues remained unresolved. The firm was forced to purchase a new copier to handle the workload, a purchase previously deemed unnecessary. Not all returns used the standardized work paper system and more than a few Principals did not use the tax return routing and review note system offered by GoFileRoom. Though this may appear a minor issue, it has led to inefficiency problems. Some Principals refused to use the system, instead directly asking their favorite and most trusted staff members to prepare returns. This is a common practice with the implementation of workflow automation systems of all kinds. Examples such as bosses having the secretaries send and receive their emails for them are instructive here.

Because some Principals had their staff members preparing returns using the new system, those Principals who used the routing system as intended often found their projects stuck in the work flow as the staff members worked on the individual projects directed by their superiors. Because of this, a few Principals were forced to request time extensions for returns that should have been completed.   Some Principals also relied upon hand written review notes instead of the GoFileRoom version. Often hand written notes are illegible and they can easily get lost as files transfer hands. By not utilizing electronic notes, future returns experience similar problems. Overcoming this form of employee resistance is the next task to be undertaken.

Another way to decrease employee resistance is to minimize software inefficiencies. Many of the software packages are still not entirely integrated, thus causing some exasperation and adding to the confusion. The software is also susceptible to crashes and this, of course, ads to the frustrations. Most work now runs through the IT system, thus when the system is down, little work can be done. Sporadic internet outages have also caused a few complications. A two day outage caused by building maintenance essentially shut the firm down. Despite these issues, the implementation of the "paperless" office has led to increased efficiencies in just eighteen months. Most models give a three year time table for the new systems to break even and B-ACs is well on its way to achieving this goal. The local firms that tried and failed to implement a "paperless" office will not be competitive with those that were successful. The major reason given by the failing firms was internal resistance by employees.

CONCLUSION

BestAccountants, PC successfully implemented its "paperless" office system by carefully working to address and alleviate employee resistance. Reasonable infrastructure costs are relatively easy to cost justify, but it is difficult to determine how or even if employees will cooperate in using a new system. Despite the setbacks in 2008, the firm decided to push ahead with its implementation program.   Had the Principals' desires been followed after the 2008 tax season, the efficiencies realized during the 2009 tax season would never have materialized. Though the term "paperless office" implies that efficiencies are reached through lowering the costs of supplies, the reality is often quite different.   To be able to successfully manage a "paperless" office system, employees must realize that benefits derive from increased work

efficiencies, and that the costs relating to paper and its byproducts may actually increase. Getting employees to support the new system is the fundamental priority, and accurately identifying the sources of efficiency gains can be an extremely helpful tool. In addition, some staff members have a modicum of computing experience and soliciting input and suggestions from these employees will improve morale (Westover, 2010). When the staff develops grass-roots confidence in the system this passes up the chain to the Principals.

I.M. Notwilling was often considered to be the most conservative and hesitant regarding the use of computers and electronic documentation, but through a successful 2009 tax season, she came to understand how her billing percentage could be improved by the new system. Her 85% billing rate from 2008 was improved to 94% in 2009. She is now almost completely integrated into the new system. BestAccountants, PC has been one of the most successful firms to implement the "paperless" office, supplanting many of its peers. The firm realized that employee resistance was a fundamental challenge to its success and spent the majority of its attention and effort fully bringing all employees into the implementation process. Though still engaged in its transition to the new system, BestAccountants, PC has already determined that the "paperless" office (seen in its correct context) has been an unquestioned success.

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THE IMPACT OF INFORMATION AND COMMUNICATIONS TECHNOLOGY INFRASTRUCTURE ON THE MOMENTUM OF CHANGE

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ABSTRACT

This study explores the role of Information and Communications Technology (ICT) infrastructure in facilitating the momentum of change. Research in this field of study prevalently examines the two subject areas individually. However, there is limited research connecting ICT infrastructure and organisational change as interrelated factors. Studies concerning organisational change have generally viewed ICT as one of many factors influencing change momentum, rather than a driver. The research strives to create a framework enabling organisations to successfully implement ICT, and has arisen due to the absence of a sufficient body of knowledge on the correlation between ICT integration and organisational change.

INTRODUCTION

New technologies that have enabled further collaboration within organisations. Cairncross (2003) argues that organisations obtain the most benefit from new technology when the organisational structure can accommodate ICT. This study explores momentum during the early stages of change, and explores the attributes of time, technology, scope, human resources, and the cost of implementing technology. In addition, the article aims to examine the events and activities that generate initial momentum, and cause fluctuations in momentum over time. This study reports on research that investigated the role of Information and Communications Technology (ICT) infrastructure in facilitating the momentum of change. The study concludes by drawing attention to the need for further research over a wider range of organisations to determine the extent to which Information and Communications Technology (ICT) infrastructure facilitates the momentum of change.

RESEARCH PROBLEM

The body of knowledge surrounding the integration of ICT infrastructure and change momentum is explored, including the parent and immediate disciplines. The review of literature focussed on two parent disciplines; Information and Communications Technology (ICT), and change momentum. One of the challenges for organisations undertaking organisational change is the effective integration of ICT infrastructure.

Therefore, failure in ICT integration remains prevalent, and the existing strategies are incapable of adequately addressing the new environment businesses face, which is increasingly competitive

and global. The narrow view of addressing arising factors individually inevitably leads to failure, due to a disdain of the resultant effect from factors influential in implementing ICT into an organisation (Ashry & Taylor, 2000). The absence of a sufficient body of knowledge on the role of ICT infrastructure in change momentum leads to the following research questions:

1. How does the integration of ICT infrastructure affect the momentum of organisational change?
2. What causes the momentum of organisational change to fluctuate?
3. How does the learning process influence the momentum of change?
4. How does ICT infrastructure integrate learning into policies and processes?
5. Who is the change agent in an organisation, and how does this influence the momentum of organisational change?
6. What are the barriers to the momentum of organisational change?

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Technology has the potential to enhance the end result of organisational change initiatives (Kuruppuarachchi, 2000). Organisations have increasingly used computers to monitor employees. Hence, technology has resulted in the dehumanisation of the supervising process. Contrastingly, technology has also rendered certain positions obsolete. The Internet will have a profound influence on organisational structure and many business practices (Cairncross, 2003). Knowledge Management can be facilitated through Information Technology once information becomes available (Balthazard & Cooke, 2004). Cairncross (2003) predicts that organisations of the future will concentrate more on managing their people than physical assets. Balthazard and Cooke (2004) argue that information, in terms of its availability, source and flow, is to a great extent the result of human processes.

Thus, ICT has the potential to support optimal communication and knowledge flow between intra and inter-organisational partners (Balthazard & Cooke, 2004, p. 1). However, it is argued that ICT is a necessity for knowledge management, though there is no assurance that ICT alone will result in successful knowledge management at all levels of an organisation, or across multiple organisations (Balthazard & Cooke, 2004). Cairncross (2003) argues the challenge now is to complement electronic delivery channels with the physical delivery channels in order to realise the Internet's potential (Cairncross, 2003).

Furthermore, organisations are considered 'well-organised' when they demonstrate a structure that is facilitative of expansion in intellectual capital. A winning organisation combines good people, good structure and good software. Cairncross (2003) proposes that training staff in the use of new technology creates competitive advantage. Transparency will become of increasing importance to organisations (Cairncross, 2003). The characteristics of innovation are crucial predictors of successful implementation (Ash & Goslin, 1997).

In addition, technology integration is influenced by "Workforce characteristics, responsiveness, receptiveness, adaptability, flexibility, technology assimilation, experience and willingness to learn and change" (Kuruppuarachchi, 2000). The integration of technology can be viewed as a series of stages similar to those of the medical technology adoption model developed by Koch, Lam and Meyer (1996). Their model proposes three stages for adopting technology; Knowledge-Awareness, Evaluation-Choice, and Adoption-Implementation (Koch, Lam & Meyer 1996).

Evidently, Chinowsky and Carrillo (2007) argue that the current state of the business arena demands the adoption of new technology. This enables organisations to improve their sustainability through its facilitation of individual learning across an organisation (Chinowsky & Carrillo, 2007). However, certain forms of knowledge sources "have largely failed to be supported by traditional information and communication technologies" (Ferneley, Hughes, & Berney, 2001).

Moreover, innovation diffusion theory is suitable for studies concerning "technology evaluation, adoption, and implementation" (Ashry & Taylor 2000a). However, to acquire an understanding of the implications of innovation diffusion, distinct definitions of innovation and diffusion are required first. Organisational innovation is defined as "the adoption of an idea or behaviour that is new to the organisation adopting it" (Daft 1978, p. 197). Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers 1995, p. 10). Hence, the diffusion of innovation is "the pattern of its adoption by an organisational population over time" (Swanson 1994, p. 1071).

Furthermore, innovation attributes are key determinants of "the spread of usage (internal diffusion) and depth of usage (infusion)" (Ash & Goslin 1997, p. 751). Moore and Benbasat (1991) devised several measures for assessing 'innovation attributes'. Several of these attributes have specific relevance to innovation in Information Technology (IT), and include voluntariness, image, ease of use, result demonstrability, and visibility (Moore & Benbasat 1991).

Similarly, the barriers inherent in technology integration can arise from issues related to the cognitive limitations of users. The needs of multiple users may be conflicting. Users may be reluctant to use a new system if they do not completely agree with the reasons for the system's implementation. In addition, age influences ICT usage, indicating a possible link between age and familiarity with ICT. Issues related to usability can be resolved by considering usage patterns in the design phase (Ashry & Taylor, 2000). Integration can be further limited through a lack of common language between analysts and experts (Ashry & Taylor, 2000).

In addition, boundary-spanning between an organisation and the surrounding environment need to take place in order to propagate the spread of ICT usage (Lysonski & Woodside, 1989). Boundary-spanners are defined as people in roles that cross between the departments that implement the technology and the users (Ash & Goslin, 1997, p. 751). Ash and Goslin (1997) propose that attributes of innovation, the organisation, and boundary-spanning are important for diffusion.

Further, lack of trust in ICT and ICT staff is a further hindrance to successful technology integration. Lack of trust may arise from inappropriate planning, setting up, and costing of ICT Projects (Ashry & Taylor, 2000). Another barrier to integration is poor design and complexity, which arises due to the availability of software and hardware, an issue that is commonly faced. Another issue is the dichotomy of infringement of privacy and sharing of information. Furthermore, undefined responsibilities pose a threat to the successful integration of technology (Ashry & Taylor, 2000). A review of extant research on the correlation between ICT and momentum identifies factors enabling the prediction of change momentum.

KNOWLEDGE MANAGEMENT

The success of an organisation in the long-term is defined by its ability to manage knowledge (Nonaka & Takeuchi, 1995). Knowledge assets have the potential to facilitate competitive advantage (Hendricks & Vriens, 1999; Stonehouse & Pemberton, 1999). Further, knowledge is a socialisation process, gathered 'through observation, induction and increasing participation, rather than formal inquiry' (Eraut, 2000, p. 122). Hence, most learning is non-formal (Eraut, 2000). Knowledge transfer is integral to organisational change (Chinowsky & Carrillo, 2007; Cummings & Worley, 2009), and considered to entail cross-learning among specialists, leading to the successful implementation of organisational change (Kieser & Koch, 2008). Similarly, the capabilities of the ICT infrastructure employed in an organisation determine knowledge management and learning (Chinowsky & Carrillo, 2007).

Similarly, Schulz (2001) proposes three learning processes, collecting new knowledge, codifying knowledge, and combining old knowledge. The collection of new knowledge strengthens vertical knowledge flows, the codification of knowledge facilitates horizontal and vertical knowledge flows, and the combination of old knowledge mainly affects the horizontal flow of knowledge across the same hierarchy level within an organization. Vertical knowledge flow facilitated the rapid dissemination of knowledge, and hence quickening the process of understanding and making connections with other knowledge (Schulz, 2001).

In addition, knowledge transfer is facilitated through training programs. Training is defined as "the provision of knowledge and skills" (Elena P. Antonacopoulou, 2006). Training provides members of an organisation with knowledge on a specific area (E. P. Antonacopoulou, 2006). Formal education and training assists individuals to adapt to environmental changes in an organisation (Casey, 2005). Training programs create well-informed individuals who can subsequently utilise a system confidently and effectively.

Furthermore, training involves learning. Learning is defined as "the process of acquiring knowledge and skills" (Elena P. Antonacopoulou, 2006). However, ICT has been identified that the majority of learning initiatives have involved formal training, and as a result have been unable to achieve consistency in the retention of information in terms of the period of time knowledge is held (Antonacopoulou, 1999a, 1999b).

Moreover, Cairncross (2003) argues that new technologies are simultaneously reducing the cost and increasing the rate at which information is processed, transmitted and stored. Technology can enhance internal communications in organisations by providing staff with access to corporate news and views (Cairncross, 2003). Chinowsky and Carrillo (2007) contradict the positive aspects of technology, arguing that information systems disturb learning in an organisation. However, the authors also argue that ICT is a crucial source of support for learning and the transfer of knowledge (Chinowsky & Carrillo, 2007).

ORGANISATIONAL CHANGE

Change arises as organisations are subjected to shifts in the operating and external environment in the form of planned, unplanned, frequent and diverse changes (Casey 2005). Organisational change is stimulated when a need emerges, hence requiring the assignment of resources for change implementation and adoption (Cummings & Worley 2009; Reissner 2005; Pettigrew,

Woodman & Cameron 2001). Change can be viewed as a cyclical process, alternating between clarity and ambiguity, and leading to greater clarity at the end of the cycle (Corley & Gioia 2004). Ambiguity is a potential product of change, hence organisations are required to identify and understand ambiguity to facilitate clarity in the change process (Corley & Gioia 2004).

Furthermore, learning leads to change (Antonacopoulou & Chiva 2007), and change itself can be a cause for further change (Hannan, Polos & Carroll 2003). Organisational change requires an environment that is accommodative of change to ensure success (Antonacopoulou 2006a). Organisational politics, policies and procedures are key determinants of the implications of change, and how change is potentially influenced by leadership, culture, and structure (Cummings & Worley 2009). The period of time over which change is implemented will define how change is approached by an organisation (Sorensen 2002). The individuals who participate in the change process can be grouped as strategy leaders, implementation person and recipients (Hao, Xu & Qian 2009). Resistance to change emanates from individuals in an organisation (Hao et al. 2009). There is wide consensus that the process of organisational change is one of great complexity (Cummings & Worley 2009; Reissner 2005; Poole & Van de Ven 2004).

Moreover, momentum predicts organisational progress towards goal attainment, and therefore, a correlation between goal attainment and momentum exists. Dominant triggers for momentum are perceived momentum, goal attainment, trajectory gap, change related commitment, and frequency of change-related interaction (Jansen, 2004, pp. 284-295). Jansen (2004) proposes avoiding the dominant focus in the literature on a 'strategic persistence' view of momentum by moving to 'dynamic conceptualisation'. The significance of this departure from the existing literature is greater distinction between 'inertia', 'momentum associated with strategic persistence' and the 'momentum of strategic change' (Jansen, 2004, p. 276).

METHODOLOGY

Research Paradigm

The constructivist approach is utilised as the study involved the collection of empirical evidence, hence enabling the establishment of a foundation on which to build theory (Guba & Lincoln, 1994). This approach is selected for its relativist ontology, enabling focus on constructs within a context. The relativist ontology of constructivism implies that data is dependent on the form and content of the individual persons or groups holding the constructions (Guba & Lincoln, 1994). The constructivist approach is selected over the positivist approach in this study for its comparatively higher capacity for developing new constructs through its unstructured nature (Eisenhardt, 1989; Silverman, 1993).

Constructivism exhibits a transactional and objectivist epistemology, where findings are created as research is conducted. The transactional and objectivist epistemology of constructivism creates knowledge through interaction with research participants (Guba & Lincoln, 1994). Constructivism requires researchers to engage with the subject of their research. The paradigm calls for subjectivity to be accepted, and research involves inductive qualitative methods (Veal, 2005).

A constructivist approach is particularly useful in studying Organisational Development, as ICT involves multi-voice reconstruction, to understand and subsequently reconstruct the constructs held by the researcher and research participants through consensus building (Guba & Lincoln,

1994). This approach provides flexibility for new interpretations through data improvement and refinement of research techniques (Guba & Lincoln, 1994).

Constructivist research integrates values that influence research, hence the intrinsic nature of ethics in this paradigm. There is an inclination in this paradigm for a process tilt towards revelation (Guba & Lincoln, 1994). Knowledge is created through an understanding of the studied phenomenon (Easterby-Smith, 2002; Krauss, 2005). The nature of knowledge in constructivism is the accumulation of knowledge by developing constructs through the hermeneutical/dialectical process (Guba & Lincoln, 1994).

Furthermore, ICT involves the identification of complementary constructs, or the development of consensus amongst individuals with the capacity to understand constructs in their surroundings (Guba & Lincoln, 1994). The hermeneutical/dialectical nature of the constructivist paradigm facilitates transparency, as respondents are conscious of the research objectives. Hence, advocacy and activism play key roles in realising successful constructivist research. Respondents are then able to form new constructs (Guba & Lincoln, 1994).

Research Methodology

The rationale behind selecting the organisations in this research is based on several factors. Most of the organisations selected have been in operation for more than five years and in a phase of rapid growth and ICT change. The rationale behind choosing senior management as interviewees was their access to extensive knowledge of organisational operations, involved in decision-making, and in a position to influence organisational ICT change. Furthermore, the interviewees were sought from positions that were exposed to a wide range of cultural dynamics indicative of the entire organisation, through personal experiences, involvement in decision-making, interaction with employees, feedback from peers, and observations of the organisation.

This study adopted a case study approach, interviewing several organisations. Case studies were selected as the study entailed an exploration of social phenomena within a specific context (Veal, 2005), requiring analysis of data through hermeneutics (Hussey, 1997; Remenyi, Williams, Money, & Swartz, 1998). The in-depth interviewing method is used in this study to gather a detailed account of individual experiences and understanding of the phenomenon within the studied context, in order to develop meaning from research findings (Eisenhardt, 1989; Ragin, 1987; Yin, 1994).

Moreover, using a semi-structured schedule enabled the interviewees to express their ideas and impart knowledge without restriction. Probing was used to encourage interviewees to elaborate on their responses, and to ensure that data obtained from interviews remained relevant to the research question (Whyte, 1982). The combination of these technique enables researchers to obtain a large amount of data from a small number of research participants (Veal, 2005).(Taylor, Sinha, & Ghoshal, 2006)

The interviewees consisted of 18 interviews with five organisations. This approach is undertaken due to the added benefit of studying change from multiple perspectives (Reissner, 2005). Interview data is recorded in the study using electronic verbatim transcripts to extract facts, ideas, opinions, emotions and motives (Silverman, 1993). Verbatim transcripts provide a comprehensive record of original information, and are used due to the large amount of descriptive data inherent in conducting qualitative research (Veal, 2005). Data analysed in this study involved analysis of verbatim interview transcripts. Qualitative data is analysed using computer-aided qualitative data analysis (QDA) software.

RESULTS

Introduction

In the interviews with senior managers of the studied organisations, it was discovered that the organisations shared a similar behavioural pattern. A number of issues were identified where organisations that had been through organisational change, and struggling to revive a culture of learning to cope with recent technological advancements. The interviews revealed that the rapid advancement of ICT and globalisation have raised new challenges and issues beyond managerial expectations.

ViaCom

The ViaCom headquarters is based in Melbourne, Australia, with multiple state and regional offices. The organisation was the result of a merger between four organisations in 2004. One of the biggest challenges following the merger has been the deployment of new unified ICT infrastructure, particularly in the creation of an intranet, as there were some advantages in this area with some of the merged organisations, without disturbing day-to-day operations. Further, as some of the organisations that had joined the merger had comparatively older ICT infrastructure and human resource practices, the need for the creation of a new culture of learning became apparent, and the organisation is currently in the process of implementation.

ViaCom required the establishment of a culture of learning, specifically amongst senior management, in order to facilitate they can cooperate in achieving the goals. In the momentum of change, there was a time delay because of the new merger, which needed a new culture. From the organisations interviewed, only ViaCom had shown some empathy in protecting the culture during organisational change. ViaCom identified that to implement major ICT infrastructural change, the merged organisation, needs to create a learning culture, which has its roots in all four pre-merged cultures, and achieving this goal has consumed a considerable amount of time and resources, and affected the momentum of change.

The implementation of ICT change coincided with the global financial crisis, and due to this external factor, Viacom had no other option to accelerate the momentum of the change in the context of cost reduction, and this action put great strain on HRM, and resulted in a high incidence of staff turnover. The Executive Board and senior management have been change agents, and the change has been dictated, rather than being consulted with stakeholders, and the external contractors provided consultancy. Therefore, the change was effective, albeit not sustainable.

HTI learning

HTI learning is an educational institution, started in Melbourne, Australia, with a number of campuses in Victoria, and four other countries in the Asia-Pacific region. ICT is a major part of the organisational strategic plan for Hitch, and due to the constant need for new ICT, the CEO issues late notice to the IT department. As ICT is unpredictable when many of the ICT projects start, the organisation created a culture of fast tracking and agile project management, in order to keep in sync with the momentum of change. As a result, staff are prepared to work overtime, including weekends, when an ICT project comes through, and a sense of cooperation exists where each stakeholder is committed to get on with projects without any hesitation. As the

changes are fast paced, external sub-contractors specialised in ICT project management are hired, and external consultants are outsourced to satisfy customer demand during phases of rapid growth.

One of the issues facing HTI learning is gaining the support of local employees for an international project, as the workload exceeds its resource limitations. The new culture of a typical workday from 5am to 11pm significantly affects the performance of employees, which resulted in mass staff turnover. This causes underperformance, and diminishes the high level of innovation that the organisation was benefitting from prior to this phase of rapid growth. As a result of the extreme workload, the organisational culture was affected in terms of less time for ceremonies and rituals, and also other activities such as organisation picnics, and the habit of celebrating birthdays, which is almost disappearing.

HTI learning is experiencing rapid growth, and to expand nationally and internationally, the organisation needed change in ICT infrastructure. Sudden changes have become a challenge for HRM. The rapid growth phase has reduced the amount of cooperation between different departments of the organisation, and cross-departmental communication has been reduced dramatically due to time constraints and workload.

HTI learning has been open to implementing change. However, the main barrier to the momentum of change has been a delay in reviewing long-term strategic planning, which have been far outdated, due to the introduction of new ICT. In addition, a major barrier is a lack of understanding as to how internal resources are utilised, and outsourcing external professional assistance.

At HTI learning, change initiatives come from top management, although occasionally employees take initiatives to instil ICT change. Senior management supports change initiatives of the organisation, to the extent that day-to-day operations of the organisation are not interfered with. The CEO and Founder of the organisation are the primary change agents. The organisation is more reactive than proactive. HTI learning is an innovative organisation, placing great emphasis on the innovative staff development. This initiative resulted in the creation of a learning culture, which supports change in the organisation, and smooth cooperation between project teams from different departments, which have been appointed by heads of departments and the CEO.

Si-Com Ltd

Si-Com Ltd headquarters is located in Melbourne, Australia, with offices in major cities, and a number of regional offices in the Asia-Pacific region. In the era of new technologies, the survival of a telecommunications organisation depends on adopting a culture capable of adopting change quickly, and Si-Com Ltd is not immune to this. As Si-Com Ltd now not only faces competition from Silicon Valley, other countries have emerged, such as India, the UK and Canada, and as a result, Sirius found itself in a position where ICT required sudden change in ICT infrastructure. That sudden change included the technological, cultural, and HRM practices, which demanded replacement of management and the board. These changes created waves of disturbance throughout the organisation.

Si-Com Ltd is open to change, though the change process is not managed well. Change initiatives and issues are not well communicated, which leaves employees feeling insecure. Further, the lack of a change agent and communications plan has resulted in slow change momentum. Change has generally been imposed on employees suddenly, resulting in disruptions

to day-to-day operations of the organisation. The senior management team are authoritative, and knowledge is mostly from top to bottom, and inconsistent. Eventually, a change agent was hired, and that created a cultural clash. Hiring a change agent did not assist in the goals of the company in accelerating ICT infrastructure, rather, it produced a reverse effect, due to resistance from the prevailing culture.

Uni-Co

Uni-Co is a non-governmental organisation based in Sydney, Australia. Uni-Co is an organisation that has been very slow in implementing changes in ICT. This study identified that when ICT infrastructure growth in an organisation is not organic or well planned, the organisational change will not be effective. However, sudden changes in ICT infrastructure impact the organisation and its culture significantly. Therefore, the effects of the change need to be identified to reduce risks. The existing narrow view prevalent in organisations for addressing arising factors individually has led to the widespread failure of change initiatives, due to a disdain of the resultant effect of factors influential in implementing ICT into Uni-Co.

Uni-Co recently revived its cultural roots, which was about promoting intellectual cooperation. A sub-committee was appointed to implement changes in the organisation, including changes in ICT. To implement change, Uni-Co used a unique strategy to overcome the de-professionalization of employees, and over politicisation of the organisation. In order for this to occur, there needs to be greater emphasis on management, and less on leadership and delivering a program. Senior management is more reactive than proactive. During organisational change, some members of senior management pushed for change, though were rarely successful.

The role of leadership, senior management in implementing changes were improvised rather than strategically planned. The organisational culture is influenced by Uni-Co, and its universal mandate, and due to that, the culture got its roots deeply in those values and norms that Uni-Co promotes, and to change the culture and push for a change whenever it is required. Uni-Co is a great example of an organisation that the mindset of the leadership has not absorbed the importance of the ICT infrastructure in implementing changes. The organisation faced a great setback, as social and other digital media have not been utilised.

Insuranz Ltd

Insuranz Ltd is an online insurance broker that was established to fulfil the emerging needs of the insurance industry. The organisation started with a small number of friends with a background in ICT, and the organisational structure has been developed around this close consist of relationship. The three major departments call centre, programming and accounts. Information flow across the organisation is open, and employees are kept informed of all changes and developments at most levels. The culture of trust at Insuranz Ltd inspires staff to be more innovative in the area of ICT, which is a key income stream for the organisation.

A culture of rewards and recognition creates a feeling of common wealth, and this plays a great role in the success of Insuranz Ltd. The learning culture within the organisation has been designed and implemented to stand out from mainstream business standards. There is consensus at Insuranz Ltd that as the size of the organisation increases, maintaining up-to-date ICT infrastructure becomes increasingly difficult. Despite the limited resources, the IT department strives to maintain a current ICT system. The open door policy of the Executive Director's office supported individual initiatives, and facilitated knowledge transfer. This resulted in the

implementation of new practical ideas to increase productivity, and support the sustainability of a relatively young organisation.

Further, time was a major factor in the implementation of ICT infrastructure, as the IT department had limited resources. As a result, new investors were invited to join the organisation to support the cost of the ICT infrastructure, resulting in the acceleration of the momentum of change. However, having the new investors as members of the Board of Management affected the momentum of change, as they have vetoed all major changes. To implement ICT change, a number of employees have been appointed to work as a project team, including at least one member of the senior management team on the Board.

Insuranz Ltd eventually decided to buy back shares of the new investors to ensure its sustainability, which is dependent on constant ICT change. The support of senior management of the ICT project management team, involvement of all stakeholders during planning sessions, and informing key staff of future changes created an atmosphere of cooperation, resulting in the acceleration of the momentum of change. To support ICT change, professional contractors were hired to educate and support the proposed changes. These strategic changes ensured the culture at Insuranz Ltd remained innovative and vibrant.

Strategies for Technology Integration

This study examines the influence of certain change-related events and social processes on momentum during the early stages of organisational change. In addition, the study found that communications planning is essential to set the momentum required during change. Evidently, meticulous research planning and consultation was undertaken. Though the research may not have provided an overarching view of momentum throughout the entire change process, this study has provided insight into momentum early in the change process, providing a base for further research. An organisation can support the development of culture strategies, which could become more innovative than conservative. Aligning the culture with organisational change, creates a chain reaction, where the culture supports change in the organisation, and the coming changes will support the culture.

Therefore, this study identified that momentum predicts the progress of an organisation towards reaching a specified goal, hence implying a correlation between goal attainment and momentum. Further, it was found that planning of organisation-wide communications during the implementation of change is critical in determining the momentum at which change occurs, as ICT determines perceptions of momentum within an organisation. Furthermore, this study provides empirical evidence for verifying the hypothesis to support the proposed momentum model, and identify momentum-predicting factors. However, organisations are more likely to encounter confusion when the momentum of organisational change is increased, which occurs due to the integration of ICT infrastructure.

LIMITATIONS AND KEY ASSUMPTIONS

Limited research exists correlating ICT infrastructure and the momentum of change. Further, these two discipline areas have to this point been examined in the literature as relatively distinct research areas. In addition, there is limited literature exploring the correlation between ICT, change, innovation and the diffusion of innovation. The key assumptions are that ICT plays a critical role in organisational change, and in this rapidly changing business environment,

organisations are continually pushed to upgrade their technology in order to sustain competitive advantage within their industries.

CONCLUSION

This study has theoretical and practical implications for ICT infrastructure in the context of momentum and change. There was a commonality in the interview data, especially in regards to a lack of diagnosis and analysis prior to implementing change, especially in regards to the effects of organisational change on culture. Excluding ViaCom, the other four organisations suffered substantially due to unplanned change, and some of the changes implemented were counter-productive. For instance, in the case of Si-Com Ltd, the organisation suffered from a high number of staff turnover, which paralysed the organisation for a number of years following the change. The loss of key people in the organisation meant the loss of a number of contracts that were due to be renewed. Changes in ICT infrastructure require delicate planning to ensure that the efficiency of change is optimised, rather than slowing change momentum.

Furthermore, technology transfer innovations have specific managerial implications, and entails meticulous observation of the individual variables arising from implementation. This requires a focus on the technological issues involved in innovation. Technology integration can be promoted through increased knowledge transfer. One strategy for engaging end-user involvement is to convey to users how part of a system fits into the bigger picture. End-users are willing to change work practices if there is adequate justification, or at a minimum they are consulted.

In conclusion, the majority of the organisations interviewed indicated a need to facilitate the diffusion of new technology through computer literacy and training, and in particular, an on-site training centre. Furthermore, introducing organisational reward systems has the potential to encourage the usage of new technology. The most valued staff rewards include professional rewards associated with the work itself, the career development process, and the organisational processes employed.

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DON'T BLAME ME: THE EFFECTS OF CEO POWER, BOARD AFFILIATION, AND SARBANES-OXLEY ON CEO TURNOVER FOLLOWING FINANCIAL MISREPRESENTATION

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ABSTRACT

I examine the conditions under which CEOs are terminated as an outcome of firm financial restatements. I find that chief executive's power acts to limit terminations, especially in cases of more severe restatements, while board members most closely affiliated with the CEO appear to avoid the stigma of financial restatements by deflecting blame to the CEO, increasing terminations. I also examine the effectiveness of regulatory remedies such as Sarbanes-Oxley, aimed at strongly penalizing CEOs for financial misrepresentation. Sarbanes-Oxley significantly alters the relationship between CEOs and their board. My context is restating U.S. public firms before (1995-1998) and after Sarbanes-Oxley (2003-2006).

INTRODUCTION

Do top managers of firms suffer personal consequences for engaging in fraudulent behavior? A Fortune magazine cover story on white collar crime titled "They lie, they cheat, they steal and they've been getting away with it for too long," (Leaf, 2002: 84) argued that managers in firms which engage in fraudulent financial reporting and misrepresentation face few negative repercussions for their actions. Scandals at Enron, Fannie Mae, Worldcom, Adelphia Communications, and other firms underscore the prevalence with which managers manipulate and misrepresent the material position of the firm for their own gain. Much of the motivation for the enactment of Sarbanes-Oxley legislation in 2002 (SOX) was to increase the penalties and the personal exposure that top managers, especially CEOs, face for financial misrepresentation.

Despite calls for penalties and clear consequences for financial fraud and misrepresentation, past research has shown that managers in charge of the firm bear little direct personal cost while shareholders amass large losses (Agrawal, Jaffe, & Karpoff, 1999; Burks, 2010; Flanagan, Muse, & O'Shaughnessy, 2008). A recent US federal report highlighted how banks that received government bailouts paid out $1.58 billion in unwarranted bonuses to their top earners at the height of the recent financial crisis (Dash, 2010). The lack of meaningful sanction as the result of financial mismanagement raises questions as to whether firm governance structures are effective in deterring managerial misconduct and disciplining illegal behavior. This question has become especially relevant as policymakers attempt to deal with the problem through laws and regulations, such as SOX, which may have only limited effectiveness.

The reputation-damaging disclosure I investigate in my study is a financial restatement, an SEC-mandated negative restatement of earnings which occurs when a firm is determined to have misrepresented its earnings and is required by the SEC to revise its earnings downward. In

a case like this, past work has argued that organizations should take decisive action to restore legitimacy and rebuild support after the disclosure of misconduct by a firm (Pfarrer, Decelles, Smith, & Taylor, 2008). One of the means by which firms can reestablish their reputation in the aftermath of financial misrepresentation is by taking strong public acts, such as the replacement of the firm's top management (Harris, 2007; Arthaud-Day, Certo, Dalton, & Dalton, 2006)

However, despite a presumption that financial misrepresentation should lead to actions such as top management dismissal, past work has reached conflicting conclusions as to whether executives are at significant risk of termination as the result of financial misrepresentations. In earlier studies Beneish (1999) and Agrawal et al., (1999) found no effect of earnings restatements on turnover, concluding that, "managers' employment losses are similar in firms that overstate earnings and in firms that do not." (Beneish, 1999:425). But in a later study of financial restatements Arthaud-Day et al. (2006) found evidence that managers did tend to lose their jobs following restatements. Scholars have argued that one of the most important reasons why earnings restatements may not lead to management turnover is the firm's internal governance process, which may not be robust enough to prompt management turnover in the face of financial misrepresentation (Agrawal & Cooper, 2007).

My study examines key aspects of the governance process, including the effects of CEO power, board affiliation, restatement severity and regulatory intervention (SOX) on the likelihood of chief executive replacement following a financial restatement. I focus on three aspects of this process. First, I examine whether and under what conditions chief executive power acts as an effective deterrent to CEO replacement, especially in cases of more significant and severe restatements. Second, given that financial restatements have been shown to be stigmatizing events for organizations and their top managers (Devers, Dewett, Mishina, & Belsito, 2009; Wiesenfeld, Wurthmann, & Hambrick, 2008), I investigate whether board members distance themselves from the stigma by deflecting blame to the chief executive, increasing the likelihood that the CEO will be replaced. Finally, I examine the effectiveness of legal and regulatory remedies such as SOX, which are aimed at more strongly penalizing the CEO for financial misrepresentation and fraud. I study these questions in the context of listed public firms in the U.S. over two separate four-year periods, prior to the enactment of SOX (1995-1998) and following the enactment (2003-2006).

THEORY

Organizations that engage in some form of illegitimate practice, such as a financial restatement, risk offending stakeholders who may perceive irreconcilable differences between their values and those of the offending organization (Devers et al., 2009; Wiesenfeld et al., 2008). Past work has demonstrated that organizations engaged in illegitimate actions suffer from diminished stakeholder support, have more limited access to resources, and face a higher probability of failure (Elsbach, 2003; Palmrose, Richardson, & Scholz, 2004).

While the acknowledgment of past mistakes has been shown to be more effective in restoring legitimacy than the denial of responsibility (Elsbach, 1994), such an admission alone is often not sufficient to appease external audiences. External groups and stakeholders expect organizations which have engaged in fraudulent behavior to serve punishment appropriate to the seriousness of their offense. In this regard, past research has demonstrated that most organizations share a propensity to take some type of action in response to performance

problems, even if the resulting effects are mostly symbolic (Boeker, 1992; Ginzel, Kramer, & Sutton, 1992; Pfarrer et al., 2008; Pfeffer, 1981).

Moreover, Wiesenfeld et al. (2008) have noted that external audiences desire simple explanations for corporate failure and clear punishments for those seen as responsible. Changing leaders and placing predominant blame on the chief executive then becomes one of the most effective means for the organization to prove it is serious about repairing its reputation (Elsbach, 2003; Wiesenfeld et al., 2008). In such cases the replacement of the CEO following financial misconduct may convince stakeholders that specific, strong actions are being taken to reestablish the reputation of the organization and to ensure its future success (Boeker, 1992).

Financial restatements. My study focuses on a specific form of financial misconduct, financial restatements, which are the result of significant accounting irregularities. Firms may misstate their earnings to avoid earnings decreases and losses (Burgstahler & Dichev, 1997) or to boost the value of CEO stock options (Zhang, Bartol, Smith, Pfarrer, & Khanin, 2008). These restatements are identified by the General Accountability Office (GAO) as resulting from misuse of facts, misinterpretation of accounting rules, or fraud (Flanagan et al., 2008; U.S. GAO, 2002, 2006). A misstatement of financial information can then be indicative of intentional, manipulative, or even fraudulent behavior (Agrawal et al., 1999; Arthaud-Day et al., 2006; Harris & Bromiley, 2007), and can often be traced to specific actions and actors within the firm.

Chief Executive Power

Despite the potential association between financial misrepresentation and chief executive replacement, past empirical evidence is mixed concerning whether misrepresentation leads to CEO turnover, and scholars have noted that financial misrepresentation does not always prompt managerial changes. Although Arthaud-Day et al. (2006) demonstrate that financial restatements led to the replacement of firm management, other research suggests, "the public revelation of fraud might have only a negligible effect on managerial turnover," (Agrawal et al., 1999, p. 311). As Agrawal and Cooper (2007) note, this could be because powerful CEOs can buffer themselves from termination. As past works have paid minimal attention to the effects of CEOs' power in affecting their replacement following a financial restatement (see Arthaud-Day et al. (2006) for an exception), I here examine the effect of three sources of chief executive power: ownership, reputation and compensation.

CEO ownership. Organizational ownership is a source of power that can be used to support or prevent the replacement of the chief executive. Since Berle and Means (1932), theorists have been interested in the implications of varying relationships between owners (principals) and managers (agents). Early works found that CEOs with more substantial ownership positions had longer tenures in poorly performing organizations than did CEOs with less ownership (Denis, Denis, & Sarin, 1997; Salancik & Pfeffer, 1980). Fredrickson, Hambrick and Baumrin (1988:265) similarly noted that, "as a chief executive's stockholdings increase, it becomes less likely that he or she will be dismissed." Chief executives with significant shareholdings are also much more likely to influence important firm decisions (Daily & Johnson, 1997), and few decisions are likely to be as important to the CEO as the preservation of his or her own position, especially following a restatement event.

Hypothesis 1. Chief executive ownership is negatively related to chief executive replacement in firms restating earnings.

CEO reputation. The reputation of a chief executive may have an important influence on whether he or she is replaced, or even blamed, following a financial restatement. Chief executives who are more commended and praised by outside, ostensibly neutral, parties should be able to garner support within the firm as well as from outside constituencies (Wade, O'Reilly, & Chandratat, 1990). As "people are persuaded more by the actions of others than by any proof I can offer" (Cialdini, 1984: 119), internal and external stakeholders are more likely to support chief executives whose reputation has been acclaimed by others. The additional support provided through external approval may permit a greater accumulation of power by the CEO, allowing him or her more influence in firm decisions, including decisions regarding his or her replacement (Wiesenfeld et al., 2008).

Hypothesis 2. CEO reputation is negatively related to CEO replacement in firms restating earnings.

CEO compensation. Unsurprisingly, the power, prestige, and influence of most individuals (especially chief executives) is reflected in and correlated with the amount of pay they receive (Finkelstein, Hambrick, & Cannella, 2009). Finkelstein's (1992) research on the measurement and operationalization of executive power highlighted the role of structural power, measured by the compensation of the executive, as an indicator of the formal power of the executive. CEOs that have been able to acquire greater compensation are viewed as more valuable by external and internal parties, with higher compensation providing a concrete indication of their value and influence within the firm (Hambrick & D'Aveni, 1992; Shen & Cannella, 2002). Given the greater power that higher compensation bestows, I predict that more highly compensated CEO will be less likely to be replaced in cases of financial restatement.

Hypothesis 3. CEO compensation is negatively related to CEO replacement in firms restating earnings.

The Role of the Board

Inside board. Boards of directors play the primary role in the replacement of the chief executive and hold the formal authority to decide whether and when the CEO should be replaced. Early work by agency theorists proposed that boards that are dominated by outside directors are more likely to act independently from management and be better positioned to monitor executives and curb their opportunistic behavior (Fama & Jensen, 1983). These arguments have held that members of the board who report directly to the chief executive, inside directors, may be less willing to monitor and evaluate the CEO in an objective manner. Although this relationship has received empirical support, subsequent work argues that it neglects key conflicts of interest within the top management group and the potential spillover effects of stigmatization that may taint insider board members' reputation (Ocasio, 1994; Shen & Cannella, 2002).

When firms are accused of financial incompetence, fraud, or malfeasance, the reputation of the firm suffers, as does each senior executive's reputation and value in the external labor market (Collins, Masli, Reitanga, & Sanchez, 2009; Fama, 1980; Semadeni, Cannella, Fraser, & Lee, 2008; Shen & Cannella, 2002). The occurrence of an illegitimate and reputation-damaging event provides a highly unsettling context in which the interests of individual board members may shift from supporting the CEO to the protection of their own reputation from the threat of stigmatization. Inside board members, in their dual roles as board members and top managers of the organization, may find themselves closely linked to their firm's financial restatement and be stigmatized through that association (Goffman, 1963). Consequently, inside members may have

a compelling impetus to limit or remove any connection between the reputation-damaging acts of the firm and their own reputation (Elsbach & Bhattacharya, 2001).

Rather than encouraging a narrative which broadly blames the entire top management for the financial restatement, it may best serve top managers to limit blame to the chief executive, who can be scapegoated; preventing the stigmatization to spread to other members of top management (Devers et al., 2009). By focusing the stigma of financial restatement to the firm's leader (the chief executive), a simple account can be constructed around CEO misconduct that permits inside board members (firm top managers) to distance themselves from the chief executive while maintaining their own reputation. Replacing the chief executive is a straightforward way for the board to demonstrate their own independence and vigilance. Shen and Cannella (2002) have demonstrated that the likelihood of CEO replacement among companies experiencing crises increases with the proportion of inside directors. In a similar manner, the crisis precipitated by a financial restatement may lead inside directors to advocate more strongly for the *removal* of the CEO, leading to a *greater* likelihood of CEO replacement.

Hypothesis 4. Firms with boards of directors having a greater proportion of insiders will be more likely to replace their CEO following a financial restatement.

Board appointed by CEO. Although directors are generally supportive of the CEO (Mace, 1971; Lorsch, 1989) they may be less so in cases where their own reputation may suffer (Useem, 1984). Board members appointed by the current CEO are likely to feel greater loyalty to that chief executive and the existence of these loyalties and personal ties can critically affect their ability to act independently (Wade et al., 1990). Board members appointed by the CEO may also be most closely identified with the CEO, thus facing a greater degree of stigma-by-association that may negatively affect their own reputation (Goffman, 1963).

Since possible spillover effects of stigmatization are most likely to affect those closely associated with the disgraced leader (Goffman, 1963; Semadeni et al., 2008), board members appointed by the CEO should be motivated to avoid blame and stigma through disassociating with the CEO. To avoid further affiliation with the stigmatized leader and distance their role from that of the chief executive, CEO-appointed board members may blame the CEO for financial misrepresentation, providing a convenient scapegoat and single point of focus for the failings of the firm. Board members appointed by the CEO may *replace* the CEO to signal their own independence and demonstrate that they are not complicit in protecting the CEO.

Hypothesis 5. Firms with a greater proportion of board members appointed by the chief executive will be more likely to replace the CEO following a financial restatement.

Moderating Effect of the Sarbanes-Oxley Act

High-profile accounting scandals at Enron, Worldcom, and other corporations have sparked public concern about managerial misdeeds and lax board oversight, leading to passage of the Sarbanes-Oxley Act of 2002. SOX emphasizes the accountability of management for the financial reports issued by their firms, requiring CEOs (and CFOs) to certify the accuracy and completeness of the reports. To ensure that CEOs make an informed certification, section 302 requires careful review of the information disclosed in the report for accuracy and completeness. These provisions of SOX represent an attempt to hold CEOs more accountable for these processes, personally certifying their integrity and validity (Burks, 2010).

By directing attention to the chief executive, SOX alters the relationship between the CEO and board members perceived to be closely associated with the CEO (in my study, inside

board members and those appointed by the CEO). Prior to SOX, such board members faced a significant risk of being stigmatized due to their perceived association with the CEO (Goffman, 1963), but such a risk is reduced following its passage. By focusing explicit attention on the CEO, and holding the CEO responsible for financial misrepresentation, the Act effectively singles out and isolates blame and stigma to the chief executive, rather than others associated with the CEO. As such, SOX distances board members from the stigmatization process (Devers et al., 2009) and lowers the risk of stigmatization spillover from the CEOs to closely associated board members. With a lower risk of stigma-by-association, the earlier positive effects of having more insider board members or members appointed by the chief executive on CEO replacement is argued to be *reduced* following the passage of Sarbanes-Oxley.

> *Hypothesis 6. The positive effects of inside board members and directors appointed by the CEO on CEO replacement will be reduced following the passage of the Sarbanes-Oxley Act of 2002.*

Moderating Effects of Restatement Severity on CEO power

Restatements vary in their severity – greater restatement severity may indicate that more pervasive and extensive problems face the firm, whereas less significant restatements may be attributed to more minor infractions rather than widespread financial malfeasance. In cases of more severe restatements, external stakeholders are likely to expect the firm to take more forceful and assertive action to demonstrate that the problem is being dealt with seriously and to reestablish the organization's legitimacy. For firms facing more severe restatements, the power base of the chief executive may be especially critical in affecting whether the CEO is replaced. Specifically, when restatement severity is higher, CEOs with more power and influence will use their power and influence more, and hence will be less likely to be replaced than those with less power and influence; suggesting an interaction between restatement severity and chief executive power in predicting CEO replacement.

> *Hypothesis 7. Chief executive power will moderate the effects of restatement severity on CEO replacement. CEOs with greater power will be less likely to be replaced when restatement severity is high than those with less power.*

METHODS

Data

Past empirical work on restatement activities has shown that financial restatements damage firms' reputation (Desai, Hogan, & Wilkins, 2006; Flanagan et al., 2008; Karpoff, Lee, & Martin, 2006). Following past literature, I included only restatements that involve earning manipulations, and not errors or normal corporate activities since it is the disclosure of illegal earnings manipulations that are likely result in loss of reputation for the firm (Hennes, Leone, & Miller, 2008; GAO, 2002, 2006). To screen for instances of earnings manipulations, I took meticulous care in my data preparation, and further refined my sample selection process by imposing several other criteria. First, as in past works on restatements (Arthaud-Day et al., 2006; Harris & Bromiley, 2007), I excluded financial restatements resulting from normal corporate activities, such as discontinued operations, stock splits, issuance of stock dividends, currency-conversion issues, general accounting changes under generally accepted accounting principles (GAAP), and litigation settlements. Second, I excluded cases that do not affect firm earnings,

such as reclassifications of assets in firm balance sheet. Third, I included only cases in which the restated earning is lower than the financial earning initially stated. This step helps exclude cases that may occur from minor accounting errors (Flanagan et al., 2008; Hennes et al., 2008). Finally, I excluded non-US-based firms to avoid any differences in culture or financial reporting requirements.

I divided the time frame in which I examined the restatements into two periods, before and after the enactment of Sarbanes-Oxley Act on July 30, 2002. For the post-SOX time frame, I examined financial restatements for the four year period from 2003 to 2006. I began in 2003, two years after the collapse of Enron in order to ensure that CEO turnover is not due to spillover effects following the Enron collapse (Arthaud-Day et al., 2006). The study ended in 2006 so that I could have ample time (two years) to observe the occurrence of CEO turnover after a restatement occurs. For this time frame, I obtained the name of restating firms and their restatement dates, from the GAO report (2006). For the pre-SOX time frame, I examined financial restatements for the four year period from 1995 to 1998. Similar to the post-SOX timeframe, I wanted to observe the impact of a restatement on CEO turnover for up to two years after restatement. In addition I did not want the Enron collapse to influence my observations. Thus, I excluded CEO replacements that took place in 2001, to prevent potential spillover effects. My data collection for the pre-Sarbanes-Oxley period began in 1995 and extended for a four year period (like my post-SOX sample) to 1998.

However, the GAO only identified firms that restated after 1997, requiring that I identify firms that restated prior to 1997 myself. To ensure a consistent comparison to the GAO report, I followed its exact method. Doing so, I entered the following search terms into Lexis-Nexis power search: "(restatement OR restate OR restated OR restates OR restating OR adjust OR amend OR revise) w/50 (financial statement or earning)". Similar to the GAO report (2006), I specified "US newspapers and wires" as the source. I specified the time period to be from January 1, 1995 to December 31, 1996. I subsequently read each article and applied the sample selection criteria above. To ensure reliability, I used two coders for this process, and the resulting inter-rater agreement was 88% with any discrepancies resolved by the senior author.

Measures

Dependent variable. The dependent variable in all hypotheses is *CEO turnover,* which was operationalized as a binary variable assigned a value of 1 when the incumbent CEO is replaced within two years of the restatement and 0 otherwise. The two-year window was chosen because the turnover of a CEO may take more than one year to be successfully implemented, while examining CEO turnover more than two years subsequent to the event may introduce a number of confounding factors unrelated to the restatement. Given that CEOs may leave due to retirement, I excluded any turnover cases that involve CEOs who are 62 years or older.

Independent variables. In hypotheses 1 through 3, I predicted that CEO power will negatively affect CEO turnover. To test hypothesis 1, in which a higher CEO equity ownership was predicted to negatively affect CEO turnover, I measured *"CEO equity"* ownership as the percentage of firm equity held by the CEO in the year of the restatement.

In hypothesis 2, I predicted that CEO reputation will negatively affect CEO turnover. *"CEO reputation"* was measured as whether or not the CEO was featured in the Forbes list of top 500 CEOs, which is based on a mixture of firm performance and compensation measures

(*Forbes top 500 CEOs*) (www.forbes.com)[19]. Given the wide circulation of Forbes magazine, the selective process to be included in the list and the publicity that accompanies being recognized by Forbes, CEOs in the list are likely to have a higher reputation than other CEOs. I assigned a binary value of 1 when the CEO was in that list in the year of the restatement or the prior year, and 0 otherwise. Because Forbes began its top CEO list in 1998, I only have limited data for the pre-SOX time frame. As such, I only included and reported the "*CEO reputation*" variable for the post-SOX data (2003-2006). Hypothesis 3 predicts that higher CEO compensation is negatively related to CEO turnover. "*CEO compensation*" was measured as the sum of the CEO's salary, bonus, restricted stock, and stock option value (using Black-Scholes model).

Hypotheses 4 and 5 examined the role that board independence plays in influencing CEO turnover. In hypothesis 4, I measured *inside board members* as the proportion of non-CEO board members who are also executives of the firm. In hypothesis 5, I measured *board appointed by CEO* as the proportion of board members appointed after the focal CEO was elected to the chief executive position. Hypothesis 6 argued for an interaction between the board variables identified in hypotheses 4 and 5 and the passage of SOX (operationalized as *Post-SOX*). To provide further insight regarding these effects, I split my sample into two subsamples representing the pre- and post-Sarbanes-Oxley time periods. Finally, for tests of hypothesis 7, which predicted an interaction between the effects of CEO power and restatement severity, I multiplied the CEO power variables with the "*severity of restatement*" (measured as a percentage of revenue).

I also included a number of control variables in my models. *Firm age* was measured in the restatement year and *firm size* was measured using firm revenue. I controlled for temporal variation by including year dummies for each year of restatement (1996-1998 and 2003-2006). I controlled for firms' *prior performance*, measured as average ROA (in percentage) for the prior three years. I also controlled whether the firm was merged or acquired within two years after the restatement date by including a dummy variable, *M&A*. I controlled for board characteristics such as *board size* and *average board tenure*. Finally, I controlled for the extent of *firm diversification*, measured as the number of business segments a firm operates in.

Model and Estimation

Because my dependent variable, CEO turnover, may be right-censored (some CEOs may not be replaced by the time I ended my observation two years from the restatement), I estimated my models using continuous-time event history analysis. In my event model the hazard function is the likelihood of experiencing an event (CEO turnover). I used the Cox proportional hazard rate model (Cox, 1972). As event history analysis requires information about when an event (CEO turnover in my case) occurs, I calculated the length of time between when a restatement and a CEO turnover occurred (if at all). I consistently used robust standard error.

RESULTS

In Table 1, I report the descriptive statistics. Several variables were mean-centered and/or logged to reduce potential multicollinearity (Cohen, Cohen, Aiken & West, 2002). For ease of exposition, the means and standard deviations of all variables are shown in their original metrics.

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[19] Forbes does not reveal any further its proprietary methodology, including its measure of CEO performance, except that only chief executives who have six years of tenure and compensation history are included in the list.

I report the results of all the hypotheses in Table 2. Model 1 introduces only the control variables, which indicate that the effect of severity of restatement on CEO turnover is positive and significant (p < .05 across all models). This confirms the baseline argument that a more severe restatement will increase the probability of CEO turnover. The effect of merger and acquisition on CEO turnover is also positive and highly significant (p < .001), suggesting that restating firms are also more likely to be engaged in mergers and acquisitions. Larger firms were more likely to replace their chief executives following a restatement in models 2 and 4 of Table 2, but these results were not consistent. Finally, year effects (included in all models) were mostly insignificant and are not displayed to improve interpretation.

Model 2 of Table 2 adds the CEO power variables. Hypotheses 1, 2, and 3 predicted that CEO equity ownership, CEO reputation, and CEO compensation decreases CEO turnover in cases of restatement. My results confirm that CEO equity and CEO compensation are negative and significantly (p < .05 and p < .001 respectively) related to CEO replacement. Similar results were also found for the effect of CEO reputation, which was negatively related to CEO turnover (p <.05). However, as I note in the Methods section, this variable was only available for the post-SOX period, limiting any interpretation of this result to that period. I footnote the effects of CEO reputation in Table 2, prior to demonstrating their effects in the post-SOX period in Table 3.

Results for hypotheses 4 to 6 are presented in Model 3 of Table 2. Hypotheses 4 and 5 predicted that having a higher proportion of inside board members and board members appointed by the CEO would lead to an increased likelihood of CEO replacement following a financial restatement. Results in Model 3 demonstrate support for both of these hypotheses, showing that a higher proportion of such board members had positive and significant effects on CEO turnover (p < .05 for each). Model 3 also includes the effects of the Sarbanes-Oxley Act predicted in hypothesis 6. Hypothesis 6 argued that a less independent board, whose members are more closely associated with the CEO, should feel less need or pressure following SOX to replace the CEO in order to avoid any personal stigmatization. The interaction effects between the two board variables and the post-SOX period are highly significant (p < .01 and p < .05 respectively), offering strong support for hypothesis 6.

To clarify the interpretation of these results, Models 1 and 2 in Table 3 separated the data into pre- and post-SOX periods. As is indicated in the models, while a higher proportion of inside board members and board members appointed by the CEO increases CEO turnover prior to the Sarbanes-Oxley Act, the effect weakens (and even becomes marginally negative for inside board members) after enactment (p < .10 for inside board members, and not significant for board members appointed by CEO). To visualize the change in the effects of inside board members and board members appointed by the CEO after the passage of Sarbanes-Oxley, I plotted the interactions between my board variables and the pre- and post-SOX periods in Figure 1a and 1b. These figures illustrate that, prior to Sarbanes-Oxley, a less independent board (higher ratio of inside board members, and higher ratio of board appointed by CEO) increased CEO turnover. However, for both measures, the effects visibly weaken after passage of SOX.

Hypothesis 7 argued that restatement severity moderated the effect of CEO power on CEO replacement. Model 4 in Table 2 confirms that CEO equity and CEO compensation significantly moderate the effect of restatement severity. To confirm the effect of the interactions, I plotted their effects in Figure 2a and 2b. As the figures demonstrate, greater CEO power and influence reduced the effect of increased severity of restatement on the replacement of the CEO, consistent with Hypothesis 7. The benefit of having greater power is especially

pronounced when the level of restatement is high (one standard deviation above the average). For example, the results suggest that CEO power decreases the CEO's likelihood of being replaced from 1.3 times to 0.4 times if the CEO has higher equity, and from 1.4 times to 0.4 times if the CEO has higher compensation. This is *a reduction of around 70%*, and offers a powerful safeguard to employment risk for CEOs if the restatement is more severe.

TABLE 1
Descriptive Statistics and Correlations[a]

Covariates	Mean	Stdev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 CEO turnover	0.46	0.50																					
2 Time to CEO turnover (days)	513.37	288.68	-0.82																				
3 Firm age (year)[b]	28.48	29.77	-0.06	0.06																			
4 Firm size (revenue, USD mil.)[b]	2,320.82	8,020.53	0.01	0.01	0.30																		
5 Year1996 (dummy)	0.03	0.18	0.05	-0.02	-0.13	-0.09																	
6 Year1997 (dummy)	0.03	0.18	0.12	-0.20	-0.07	-0.01	-0.03																
7 Year1998 (dummy)	0.03	0.18	0.17	-0.17	-0.12	0.00	-0.03	-0.03															
8 Year2004 (dummy)	0.19	0.39	-0.11	0.05	-0.07	-0.04	-0.09	-0.09	-0.09														
9 Year2005 (dummy)	0.35	0.48	-0.01	0.06	0.15	0.23	-0.13	-0.14	-0.13	-0.36													
10 Year2006 (dummy)	0.15	0.36	-0.06	0.09	0.03	-0.05	-0.08	-0.08	-0.08	-0.20	-0.31												
11 Prior performance (%)[b]	-0.05	0.25	0.01	0.02	0.08	0.37	0.05	-0.03	-0.01	-0.06	0.15	0.00											
12 M&A (dummy)	0.24	0.42	0.37	-0.24	-0.11	-0.01	0.08	0.13	0.04	-0.05	0.06	-0.01	0.06										
13 Board size	7.87	2.25	-0.06	0.05	0.26	0.54	-0.04	-0.02	-0.08	0.03	0.12	-0.03	0.20	-0.03									
14 Average board tenure (year)	6.46	3.60	-0.04	0.03	0.37	0.15	-0.01	-0.10	-0.05	-0.08	0.04	0.02	0.10	-0.09	0.19								
15 Firm diversification	2.10	1.49	-0.07	0.06	0.16	0.24	-0.06	-0.08	-0.02	0.09	-0.13	0.09	0.05	-0.06	0.25	0.14							
16 Post-SOX (dummy)	0.88	0.32	-0.19	0.22	0.22	0.13	-0.49	-0.51	-0.49	0.18	0.27	0.15	-0.03	-0.12	0.12	0.08	0.13						
17 Severity of restatement (% revenue)[b]	12.55	93.79	0.09	-0.13	-0.17	-0.43	0.05	0.14	0.12	0.11	-0.30	0.02	-0.30	0.02	-0.13	-0.14	-0.03	-0.17					
18 CEO equity (%)[b]	6.20	10.93	-0.06	0.09	-0.09	-0.28	0.09	0.00	0.02	-0.08	0.01	-0.08	-0.08	0.04	-0.34	0.02	-0.19	-0.11	-0.04				
19 CEO reputation (dummy)	0.11	0.31	-0.13	0.10	0.18	0.45	N/A	N/A	N/A	-0.11	0.06	0.03	0.06	-0.18	0.46	0.03	0.08	N/A	-0.05	-0.20			
20 CEO compensation (USD '000)[b]	3,435.18	7,676.15	-0.09	0.04	0.10	0.49	-0.13	0.11	-0.04	0.01	0.14	-0.01	0.17	-0.01	0.45	-0.02	0.20	0.08	-0.01	-0.41	0.41		
21 Inside board members	0.12	0.15	-0.05	0.03	0.02	-0.12	0.16	0.02	0.04	-0.02	-0.05	-0.14	0.05	0.06	0.09	0.26	0.03	-0.15	0.03	0.22	0.01	-0.13	
22 Board appointed by CEO[c]	0.48	0.30	-0.01	0.02	0.03	0.07	0.01	0.07	-0.06	-0.15	0.10	0.04	0.01	0.03	-0.06	-0.15	-0.05	-0.02	-0.09	0.44	0.00	-0.05	0.02

a Means and standard deviations are reported in the original metric; correlations whose absolute values are greater than 0.10 are significant at $p < 0.05$.
Except for binary variables, all variables are mean-centered unless otherwise specified.
b Variable is logged
c Variable is not mean-centered

TABLE 2

Combined Pre- and Post-Sarbanes Oxley [a,b]

Covariates	Combined Pre- and Post-SOX							
	Model 1		Model 2		Model 3		Model 4	
Firm age	0.00	(0.10)	− 0.01	(0.10)	− 0.05	(0.11)	− 0.05	(0.10)
Firm size	0.09	(0.06)	0.13*	(0.07)	0.07	(0.07)	0.11+	(0.07)
Year1996 (dummy)	− 0.75	(0.28)	− 1.06	(0.22)	− 1.75	(0.19)	− 1.37+	(0.19)
Year1997 (dummy)	0.19	(0.91)	0.52	(1.20)	0.82	(1.93)	0.73	(1.51)
Year1998 (dummy)	0.07	(0.69)	0.00	(0.64)	− 0.00	(0.87)	0.01	(0.68)
Year2004 (dummy)	− 0.60+	(0.17)	− 0.60+	(0.17)	− 0.69*	(0.15)	− 0.61+	(0.17)
Year2005 (dummy)	− 0.22	(0.19)	− 0.18	(0.20)	− 0.26	(0.18)	− 0.17	(0.20)
Year2006 (dummy)	− 0.47+	(0.17)	− 0.49+	(0.17)	− 0.60*	(0.15)	− 0.54*	(0.15)
Prior performance	0.32	(0.68)	0.30	(0.62)	0.18	(0.45)	0.19	(0.53)
M&A (dummy)	1.31***	(0.67)	1.35***	(0.69)	1.41***	(0.75)	1.41***	(0.73)
Board size	− 0.07	(0.04)	− 0.06	(0.04)	− 0.01	(0.05)	− 0.01	(0.05)
Average board tenure	0.00	(0.02)	0.00	(0.02)	0.02	(0.03)	0.02	(0.03)
Firm diversification	− 0.03	(0.06)	− 0.04	(0.06)	− 0.05	(0.06)	− 0.01	(0.06)
Post-SOX (dummy)	− 0.46	(0.32)	− 0.52	(0.31)	− 0.31	(0.52)	− 0.59	(0.30)
Severity of restatement	0.10*	(0.06)	0.11*	(0.06)	0.12*	(0.06)	0.11*	(0.06)
CEO equity			− 0.14**	(0.05)	− 0.85**	(0.14)	− 0.12*	(0.06)
CEO compensation			− 0.25***	(0.06)	− 0.44+	(0.17)	− 0.28***	(0.06)
Inside board members					6.66*	(7.80)	− 0.49	(0.52)
Board appointed by CEO					2.56*	(2.72)	− 0.01	(0.39)
CEO equity x Post SOX					0.75*	(0.71)		
CEO compensation x Post SOX					0.22	(0.36)		
Inside board members x Post SOX					− 7.97**	(0.00)		
Board appointed by CEO x Post SOX					− 2.71*	(0.08)		
CEO equity x Severity							− 0.12**	(0.03)
CEO compensation x Severity							− 0.07*	(0.03)
Year fixed effects	Included		Included		Included		Included	
χ2	77.02 ***		97.58 ***		119.83 ***		107.60 ***	
Log pseudolikelihood	-772.77		-757.93		-738.68		-739.34	

[a] Regression models are as indicated; Control variables: 2-tailed test, Hypothesized variables: 1-tailed; Robust standard error.
[b] Results for CEO reputation, which is only for post-SOX period, is negative and significant (β = -1.05, p-value < .05).

+ $p \leq 0.10$
* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$

TABLE 3

Separate Pre- and Post-Sarbanes Oxley[a]

Covariates	Pre-SOX Model 1		Post-SOX Model 2	
Firm age	− 0.46	(0.22)	− 0.04	(0.11)
Firm size	0.24	(0.40)	0.15*	(0.08)
Year1996 (dummy)	− 1.64+	(0.19)		
Year1997 (dummy)	− 0.34	(0.52)		
Year1998 (dummy)	− 0.25	(0.72)		
Year2004 (dummy)			− 0.74*	(0.15)
Year2005 (dummy)			− 0.32	(0.18)
Year2006 (dummy)			− 0.57*	(0.15)
Prior performance	4.24	(5.27)	− 0.06	(0.31)
M&A (dummy)	1.34*	(2.47)	1.41***	(0.80)
Board size	− 0.14	(0.17)	− 0.00	(0.05)
Average board tenure	− 0.26+	(0.11)	0.04	(0.03)
Firm diversification	0.17	(0.19)	− 0.12+	(0.06)
Severity of restatement	0.49*	(0.41)	0.13*	(0.07)
CEO equity	− 0.52+	(0.20)	− 0.12*	(0.06)
CEO reputation (dummy)			− 1.05*	(0.18)
CEO compensation	− 0.16	(0.32)	− 0.20**	(0.06)
Inside board members	7.97*	(9.29)	− 1.38+	(0.21)
Board appointed by CEO	3.38+	(4.12)	− 0.14	(0.35)
χ^2	79.97 ***		79.58 ***	
Log pseudolikelihood	-58.71		-609.19	

[a] Regression models are as indicated; Control variables: 2-tailed test, Hypothesized variables: 1-tailed; Robust standard error. N = 50 restatements for pre-SOX, and 394 for post-SOX.

+ $p \leq 0.10$

* $p \leq 0.05$

** $p \leq 0.01$

*** $p \leq 0.001$

FIGURE 1a

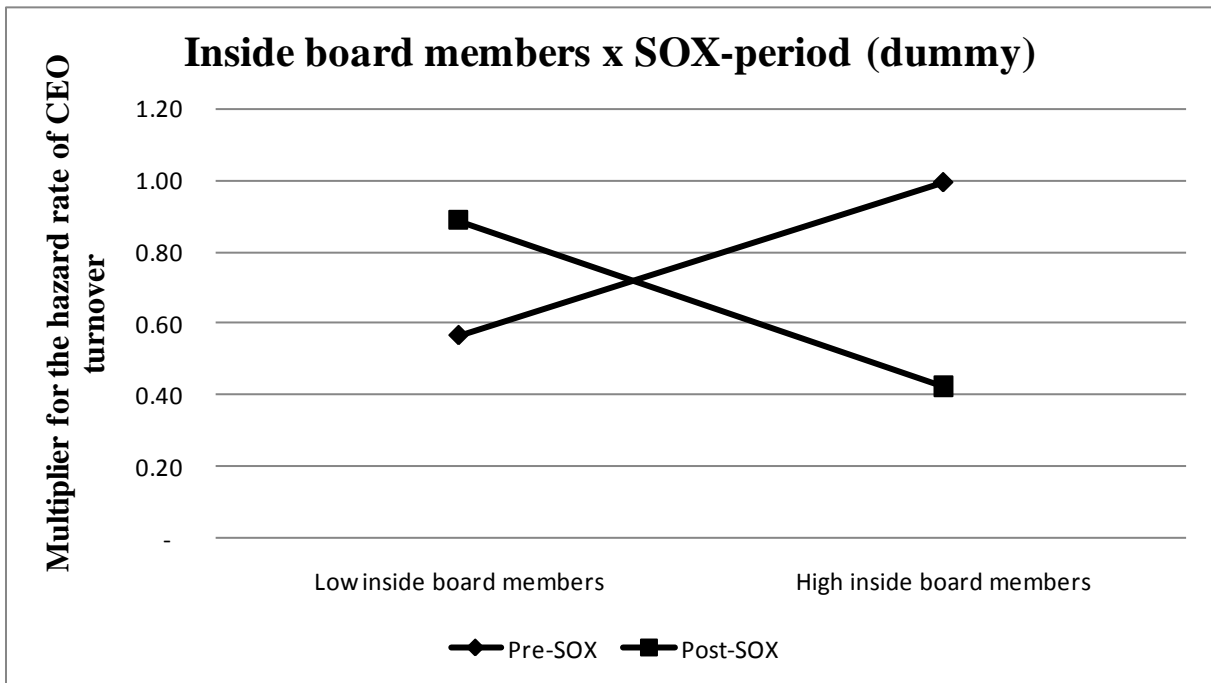**Moderating Effect of Sarbanes-Oxley on the Effect of Ratio of Inside Board Members**

FIGURE 1b

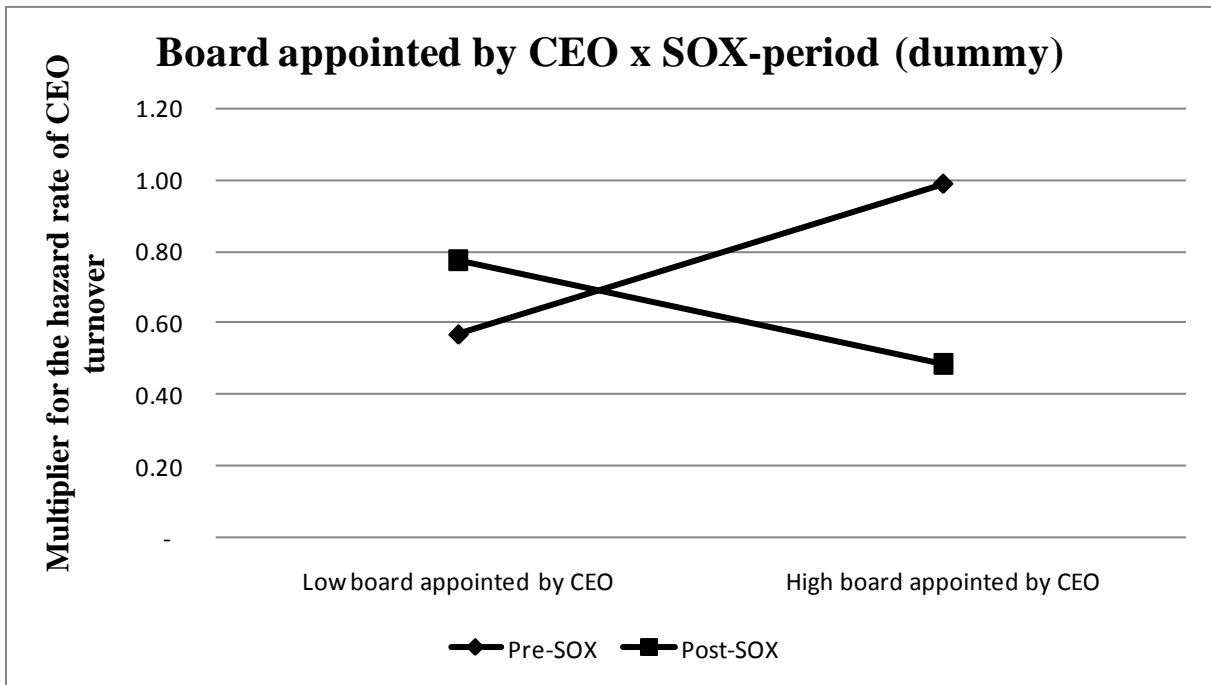**Moderating Effect of Sarbanes-Oxley on the Effect of Ratio of Board Members Appointed by CEO**

FIGURE 2a

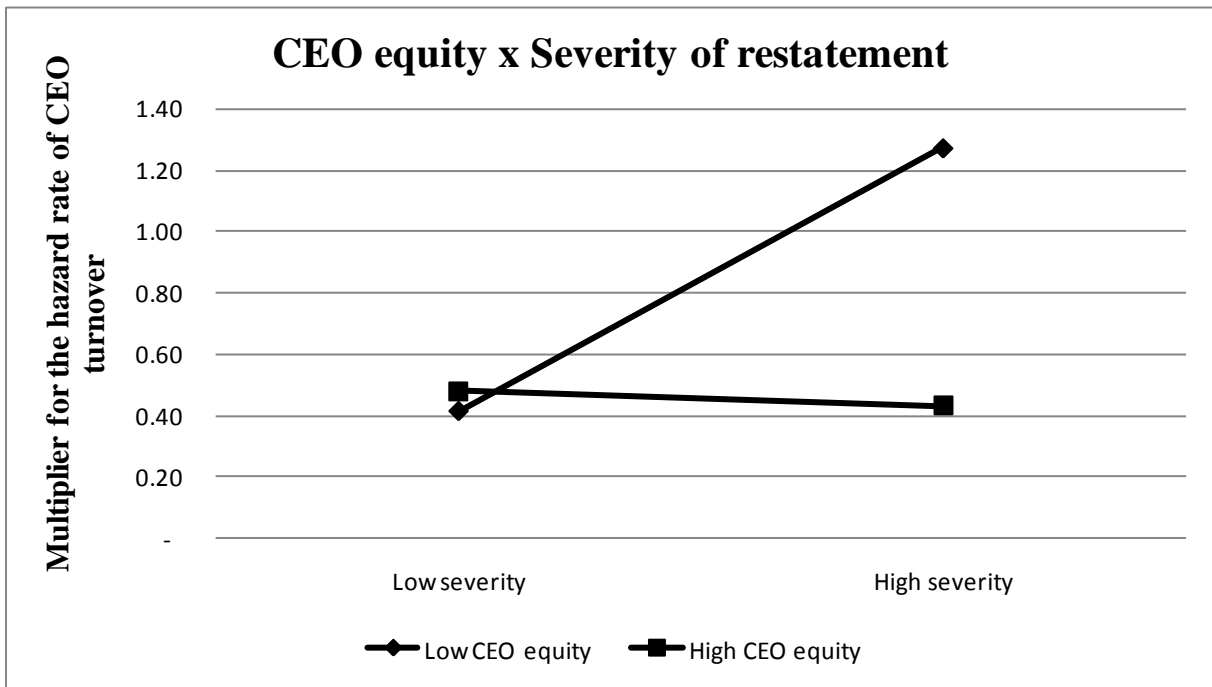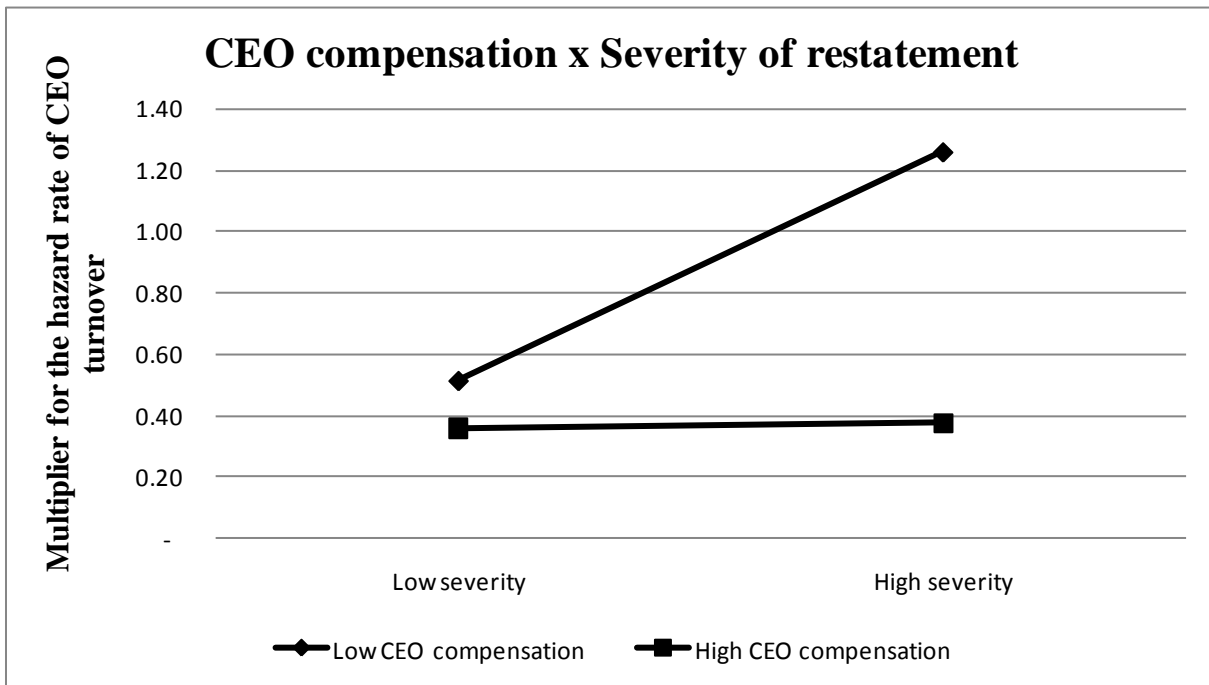**Moderating Effect of CEO Equity on the Effect of Severity of Restatement**

FIGURE 2b

Moderating Effect of CEO Compensation on the Effect of Severity of Restatement

CEO compensation x Severity of restatement

DISCUSSION

The primary objective of this research is to understand how key aspects of the governance process, including CEO power, board affiliation, restatement severity and regulatory intervention affect the likelihood of chief executive replacement following the reputation-damaging effects of financial misrepresentation by the firm. Researchers have noted that firms suffer damage to their reputation when they are forced to restate their earnings downward (Agrawal et al., 1999; Arthaud-Day et al., 2006; Flanagan et al., 2008; Harris & Bromiley, 2007), compelling the firm to take action in an attempt to restore legitimacy. I argue that organizations target the CEO of the organization to assign blame for illegal activities, and may choose to remove the CEO in order to placate outside stakeholders. I show that more powerful CEOs were able to buffer themselves from the threat of replacement, especially when a restatement was more severe. Board members most closely associated with the CEO – both inside members of the board and those appointed by the CEO – were found to distance themselves from the stigmatizing event by demonstrating a *greater* willingness to replace the CEO. The effects of stigmatization avoidance and board distancing were shown to be *weaker* following the passage of the Sarbanes-Oxley Act of 2002.

I believe this study offers several theoretical contributions to the literature. To start with, I demonstrate that firms take specific actions to defend their legitimacy and recoup their reputation (Pfarrer et al., 2008; Wiesenfeld et al., 2008). The occurrence of a restatement did lead to greater likelihood of CEO replacement, and the degree of severity had a direct effect on the

occurrence of CEO replacement. My findings also extend past work on stigmatization, which has shown that firms attempt to recover their reputation and legitimacy by disassociating the organization from individuals seen as responsible for the loss of reputation (Goffman, 1963; Devers et al., 2009). However, my results also demonstrate that CEO power can protect a CEO especially when the situation is undesirable from stakeholders' viewpoint, i.e. CEO power lowers the likelihood of replacement when the severity of the restatement is especially high.

More importantly, my work extends the stigmatization notion to the members of the board most closely associated with the CEO and most likely to be stigmatized through that association: inside board members and board members who have been appointed by the chief executive. My results demonstrate that these board members most closely associated with the CEO were most likely to act in *replacing* the CEO, isolating blame to the chief executive in order to maintain their own reputations. My study highlights the counterintuitive notion that having firm executives or CEO's appointees seated on the board may not entrench the CEO in times of crisis, when blame is being assigned. The findings further supports Ocasio's (1994) argument that, under economic adversity, the presence of a greater proportion of inside board members can actually increase CEO turnover. It also provides support for Shen and Cannella's (2002) work on the presence of conflicts of interest between the board and the chief executive. The potential spillover effects of stigmatization, which may taint the reputation of inside board members or those appointed by the CEO, provides sufficient incentive for such board members to challenge the incumbent CEO. My study raises some cautions against the conventional view that "loyal" board members, i.e. inside board members, or those appointed by a CEO, are necessarily mindless adherents to the CEOs' wishes, or detrimental to corporate governance.

This study is one of the few to focus on the role of regulation and accountability in affecting the relationship between board members and the chief executive. By directing attention to the explicit responsibility of the CEO for any financial misrepresentations of the firm, the Sarbanes-Oxley Act alters the relationship between the CEO and board members more closely associated with the CEO (inside directors and those appointed by the CEO). Past work has demonstrated that these members are more loyal and less likely to question the CEO, or his or her motives. In the context of corporate malfeasance, however, those relationships may be offset by board members' concerns for their own reputations. Since the Sarbanes-Oxley Act focuses responsibility more squarely on the CEO, it deflects blame from the board and lowers the risk of stigmatization spillover from the CEO to closely associated board members (Devers et al., 2009). Given lower stigmatization by association, such board members may feel less concerned by the negative effects of being associated with the chief executive. Theoretically, this points to one of the possible downsides of imposing public accountability on a CEO. While the nature of such accountability does curb chief executive power, it might also inadvertently lower the sense of responsibility on the side of the directors.

This study also strengthens the intuitive notion that CEOs will leverage their power to protect their position even in cases where regulatory changes are imposed to create more responsibility. Even after the enactment of Sarbanes-Oxley more powerful CEOs can still limit their risk of being replaced. This demonstrates that the relationship between CEO power and retention of position in the face of a stigmatizing event may not necessarily change with the imposition of greater public accountability upon the CEO.

Future research can try to address a critical limitation to my study, which is the generalizability of my findings to other institutional environments outside the United States.

While my findings concerning board affiliation provide important insights into the role of stigmatization and avoidance of stigmatization by association, future research should develop these results further in other contexts. Additional research should also be done to better understand the role of legal actions in affecting the interaction between organizational politics and executive replacement. The current economic crisis certainly heightens the concern of many that oversight of firms may need to be tightened even further to prevent illegitimate actions on the part of firms.

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TRANSFORMATIONAL LEADERSHIP AND UNION CITIZENSHIP BEHAVIOR

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ABSTRACT

This paper explores the relationship between transformational leadership and discretionary citizenship behaviors and organizational commitment. The literature demonstrates the elevation of positive citizenship behavior in the presence of transformational leaders. Based upon the literature, transformational leadership should enhance union citizenship behavior, a specific form of organizational citizenship behavior, and serve as a predictor for increased personal commitment to a member's union in the form of greater activity.

Keywords: Transformational leadership, organizational citizenship behavior, union citizenship behavior

INTRODUCTION

Transformational leadership is an approach to leading that seeks to motivate, promote positive change and recognize value within followers. Through "trust, admiration, loyalty and respect toward the leader", followers are encouraged to suspend self-interest and low-order needs in order to achieve task-oriented goals for the advancement of the organization (Yukl, 2010, p.275). Formulated by James Burns (1978) while researching political leaders, transformational leaders focus on transforming others to assist and watch over each other as well as the organization. By modifying expectations and values, follower perceptions are altered and positive organizational change is possible. The foundation of the leader-follower relationship in transformational leadership is not based upon a specific or established exchange; rather, the leader's persona and a set of behaviors, coupled with compelling goals and the articulation of an inspirational vision enables the individual as well as the organization to change.

First introduced by Bateman and Organ (1983) and similar in concept to Katz and Kahn's (1978) description of extra-role behaviors, organizational citizenship behaviors (OCBs) are a particular category of individual actions which are beneficial to the organization yet are not mandated or necessarily recognized or rewarded. According to Organ (1988), OCB is typified by "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization" (p.4). OCBs are often described as actions that go "beyond the basic requirements of the job" including task innovation, helping others, volunteerism and other pro-social conduct. (Lambert, 2006, p. 503). Lee and Allen (2002) posited that "OCBs are employee behaviors that, although not critical to the task or job, serve to facilitate organizational functioning" (p. 132).

Transformational leaders utilize behaviors which stimulate and establish genuine bonds between leaders and followers allowing those bonds in turn to promote organizational citizenship behavior (Wang, Law, Hackett, Wang, and Chen, 2005). Tsai, Chen, and Cheng (2005) noted an increase in employee reports of buoyant dispositions when in a transformational environment while Kirkpatrick and Locke (1996), Charbonneau, Barling, and Kelloway (2001), and Pillai, Schriesheim, and Williams (1999) found increased feelings of follower self-worth, motivation

and workplace satisfaction.

This paper pursues a greater understanding of the role that leadership style plays in impacting membership motivation and organizing capability as well as certain constructive behaviors electively exhibited by organization members. Specific to this endeavor is reviewing transformational leadership and its stated potential for possessing greater effectiveness in motivating followers to higher levels of participation and productivity. Through scholarly literature, discretionary citizenship behaviors and organizational commitment is reviewed and a connection established demonstrating the elevation of positive citizenship behavior in the presence of transformational leaders. Furthermore, this relationship is linked to union citizenship behavior, a specific form of organizational citizenship behavior, to serve as a predictor for increased personal commitment to a member's union as well as greater activity within it.

TRANSFORMATIONAL LEADERSHIP

When first describing transformational leadership, Burns (1978) stipulated that transforming leaders are individuals who seem to exemplify selflessness and appear as pillars of morality. They are often idealized as the ultimate team players who are constantly working for the betterment of the organization and through these actions others are motivated to accomplish the same. Burns also stated that transformational leadership is a process between leaders and followers pushing each other to higher levels of morality and motivation. Owing to this progression, leaders possess the opportunity to increase individual and group motivation and productivity through an array of methods. These include establishing a connection between the organizational identity and the follower's sense of self and identity; acting as a role model; encouraging ownership of the organization's goals and the tasks necessary to achieve them. Burns stipulated that transformational leaders are often capable of employing charisma to appeal to followers' sense of higher values. When charisma is coupled to altruism, transformational leaders become highly effective at instituting organizational growth and change.

Expanding on Burns' exposition of transformational leadership, Bass (1985) explored the psychological mechanisms within transformational leadership behavior and detailed how transformational leadership could be measured in addition to describing follower motivation and performance. The degree to which a leader is transformational is related to the influence exerted on followers. Influence is predicated upon mutual trust, the result of which is heightened follower engagement and a greater commitment to work than what would have been initially thought or would have completed under other conditions or leadership techniques. Bass stated that transformational leaders offer followers more than simple reward for work accomplished; they provide an inspirational vision that allows group members something other than themselves to focus on and a meaningful objective to achieve.

Bass identified an explicit group of transformational behaviors termed idealized influence, individualized consideration, and intellectual stimulation and measured them through the multifactor leadership questionnaire (MLQ), most often administered to subordinates who rate their leaders based on frequency and application of these behaviors. Idealized influence describes the trust and respect generated through the leader's high moral fiber as well as the leader's function as role model to followers. Dedication and self-sacrifice to the organization and followers are hallmarks of this behavior and instill pride and loyalty in followers as well. With individualized consideration, the leader demonstrates care and concern for followers as well as providing encouragement and acting as a mentor. Intellectual stimulation is the manner

in which the leader makes followers aware of problems and promotes alternative perspectives and solutions to problem solving. This involves risk taking, creativity and independent thinking where operational impediments are challenges to overcome and not permanent impasses to progress. A fourth dimension, inspirational motivation, was added later and describes the manner in which the optimistic leader communicates an attractive and stirring vision to followers (Bass and Avolio, 1990).

Idealized Influence. This behavior involves placing followers' needs first and acting as a moral role model for followers (Bass, 1985). Bennis and Nanus (1985) stipulated that doing the right thing along with demonstrating high moral standards is imperative along with avoiding power for personal gain. Conger (1999) referred to idealized influence as charisma and described it as "providing vision and a sense of mission, instilling pride in and among the group, and gaining respect and trust" (p.152). Adding to this, Kelloway, Barling, Kelley, Comtois, and Gatien, (2003) added that idealized influence is produced when leaders are seen as dependable through consistent and predictable actions.

Inspirational Motivation. When "leaders motivate and inspire those around them and include practices aimed at creating attractive visions of the future, elevating follower goals, and inspiring enthusiasm and optimism", followers are motivated to achieve the collective vision (Bass and Avolio, 1994, p. 3; Yukl, 1999). Inspiration creates optimism and solidifies commitment to the organization and recognizes that followers' work is meaningful and has an impact on the success of the organization. When a leader uses confident and expressive language to communicate a clear, captivating vision that holds value for followers, inspirational motivation and idealized influence are the result (Conger, 1999; Kelloway et al., 2003).

Intellectual Stimulation. Described by Bass and Avolio (1994) as the intent to elevate followers' abilities to a higher level, intellectual stimulation involves the extent to which a leader challenges assumptions, takes risks and solicits followers' ideas. Transformational leaders encourage creativity, independent thinking, and problem solving among their followers (Bass, 1990; Bass and Avolio, 1994). Citing Deci, Eghrari, Patrick, and Leone (1994), Bono and Judge (2003) stated that when leaders recognize the unique viewpoints of followers, the result is likely an increase in sovereign motivation.

Individualized Consideration. Special attention from the leader focusing on follower development as well as individual needs and particular interests is termed individualized consideration. Tied to intellectual stimulation, it includes coaching, challenging, and mentoring followers in an effort to enhance potential and ability as well as offering empathy and support when necessary (Bass and Avolio, 1994; Tejeda, Scandura and Pillai, 2001; and Bono and Judge, 2003). By paying attention to the differences between followers, the leader is sentient of individual needs and skill level and is therefore able to effective motivate and appropriately assign tasks.

Multiple studies including those conducted by Howell and Avolio (1993), Avolio, Waldman, and Einstein (1988), Bass, Avolio, and Goodheim (1987), and Bass (1990), demonstrated that transformational leadership impacts overall unit performance, including financial growth, in addition to follower satisfaction and organizational commitment.

ORGANIZATIONAL CITIZENSHIP BEHAVIOR

At the same time Bass was interpreting Burns' theory of leadership, Smith, Organ, and Near (1983) were conceptualizing a set of follower actions they labeled as organizational citizenship behavior (OCB). Similar in nature to some of the self-sacrificing, dedication and loyalty aspects of transformational leadership, citizenship behavior is a pivotal component to organizations that is not born of the standard exchange incentives that typically result in adherence to organizational conformity, compliance with rules, or heightened productivity (Bateman and Organ, 1983). Citizenship behaviors are follower actions that contribute directly to an organization's effectiveness and efficiency, but are not tied to specific incentives for engaging in this behavior (Organ, 1988). The two dimensions identified by Smith et al. (1983) as central to this behavior are altruism and generalized compliance. Altruism is a pro-social behavior that describes an individual's unsolicited motivation to help others without expectation for reward. Generalized compliance is acceptance of and conformity with the expectations, norms and rules of the organization. The authors stated that organizations possessing relatively greater prevalence of these behaviors will report higher overall job satisfaction when compared to organizations reporting low occurrence of these behaviors.

Following up on this fundamental work and expanding on the idea that satisfaction increases performance, Organ (1988) reprised the scope of OCB and offered five dimensions of citizenship behavior including altruism, courtesy, civic virtue, conscientiousness and sportsmanship. Adding courtesy as a dimension provided the opportunity to consider the impact of discretionary behavior aimed at getting along with others and preventing personal disruptions within the organization (Deluga, 1998; Graham, 1991). Civic virtue describes an individual's concern about the life and prosperity of the company (Podsakoff, MacKenzie, Paine, and Bachrach, 2000). Conscientiousness builds on generalized compliance in that member behavior exceeds the minimum expectation within the organization for areas such as attendance, neatness, regulatory compliance, etc.; while sportsmanship describes individual willingness to withhold complaint, ignore, or tolerate less than idyllic conditions and simply go along to get along (Organ, 1988; Podsakoff and MacKenzie, 1997).

These activities are tacitly beyond the enforceable minimum or that which is guaranteed by contract or collective bargaining agreement and thus exemplify a conscious decision on the part of the member as whether to engage or not engage in these behaviors (Begum, 2005). Additionally, OCB has been widely studied and been found to positively contribute to organizational effectiveness (Walz and Niehoff, 1996; Podsakoff and Mackenzie, 1997; Castro, Armario, and Ruiz, 2004; Lo and Ramayah, 2009).

TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Podsakoff, MacKenzie, Moorman, and Fetter, (1990) observed that transformational leader behavior influences extra-role activities, i.e. organizational citizenship behaviors, which they pointed out as being optional and rarely included in formal job descriptions. In addition, these behaviors collectively support organizational performance by socially and expressively enhancing work or group environment. Wang, Law, and Hackett (2005) argued that transformational leaders are able to persuade followers that internalizing the organization's goals over individual aspirations is beneficial to the group as a whole. This suggests that individuals who are motivated by a collective vision without expecting immediate personal gains often contribute to attaining a shared goal through contributions not necessarily integral to their

occupation or position. Adding to this dimension, Purvanova, Bono, and Dzieweczynski (2006), argued "that transformational leaders influence the way followers think about their work, leading them to view it as more rewarding, challenging, and meaningful, which affects the extent to which they engage in citizenship performance" (p.3).

In addition to the transformational influence which Boerner, Eisenbeiss, and Griesser, (2007) citing Shamir, House, and Arthur (1993) stated "makes followers identify with the respective goals and problems" of an organization, Wang et al. (2005), and Wayne, Shore, Bommer and Tetrick (2002), also suggested that individuals engaging in extra-role behaviors often do so because their self-worth and self-identity are coupled to the organization's function or reputation (p.17). Therefore, additional contributions indirectly serve to enhance a member's personal status and self-esteem, a concept especially pervasive in organized labor associations (Sayles and Strauss, 1953; Metochi, 2002; Twigg, Fuller, and Hester, 2008).

Bass (1985) stated that transformational leaders "stimulate followers to perform beyond the level of expectations" (p. 32). This insinuates that leaders utilizing transformational behaviors will awaken within followers organizational citizenship behaviors (Podsakoff et al., 1990). A shared organizational identity may stimulate esprit de corps (civic virtue) as well as encouraging cohesiveness and long-term goal orientation (sportsmanship) of which conscientiousness is encompassed (Boerner et al., 2007).

Although only a limited number of studies have measured the effects of transformational leadership on OCB, research by Podsakoff, MacKenzie, Paine, and Bachrach, (2000), Organ, Podsakoff, and MacKenzie (2006), Piccolo and Colquitt (2006), and Asgari, Silong, Ahmed, and Sama (2008) have clearly demonstrated a positive and reciprocal connection between the two.

Union Citizenship Behavior

Capitalizing on the concept of OCB in the study of a unionized workforce, Skarlicki and Latham (1996) demonstrated a direct correlation between leadership training in organizational justice and an increase in the occurrence of union members' citizenship behavior. In a replication of the 1996 study, Skarlicki and Latham (1997), reinforced their initial findings and stated that "fairness-enhancing behavior (e.g., taking time listening to a member's concerns, providing a regular forum to provide explanations and information to union members)" directly corresponded to increased levels of citizenship behavior. Further, Skarlicki and Latham (1997) defined union citizenship as:

> things that members do that are not required but provide a benefit to the union or its members. They are activities by union members that would be considered going above and beyond the call of duty and that are not directly rewarded by the union. Union citizenship includes acts of interpersonal helping, sharing, donating time or other resources, cooperating, volunteering, and promoting the union's interests. (p.623)

These actions are directly related to union commitment, a scale for which was developed by Kelloway, Catano, and Southwell, (1992), based on the original scale by Gordon, Philpot, Burt, Thompson, and Spiller (1980), measuring union allegiance, responsibility to the union, and willingness to work for the union. Thus, a categorical relationship exists between level of commitment and level of union citizenship behavior (Twigg, Fuller, and Hester, 2008; Fullagar, Clark, Gallagher, Gordon, 1994). This was evidenced in a study of Nigerian union leaders by Adegboyega (2010) who demonstrated that leaders exercising transformational behaviors increased member satisfaction and commitment to the union. Furthermore, Fullagar et al., (1994) suggested that transformational leaders stimulate union citizenship behavior through covenantal relationship building.

As a specific form of OCB, union citizenship behavior (UCB) was the focus of a study carried out by Twigg, Fuller, and Hester (2008), to assess the internal relationship between union leader and member and the resultant level of union participation. Twigg et al. (2008), directly measured the impact of transformational leadership on UCB and stipulated that it can be evaluated through the lens of a covenantal relationship, a construct established by Van Dyne, Graham, and Dienesch (1994). Building on the foundation of organizational citizenship and social exchange theory forwarded by Aryee and Chay (2001), Skarlicki and Latham (1996), Snape and Redman (2004) and Fullagar, Gallagher, Clark, and Carroll (2004), Twigg et al. (2008), suggested that transformational leadership encourages active and positive UCB by recognizing mutual obligation and developing a relationship based on shared values and trust between union leadership and the individual union member. For this covenantal relationship to subsist, members must believe that the organization is loyal to them and is concerned about their interests and well-being. Addressing this point, the authors stated that transformational leadership is value centered, promotes shared vision, is capable of aligning individuals with organizational goals and found that it was strongly linked to perceived union support. The authors' findings also reinforced the idea that union participation is predicated on more than mere instrumentality as transformational leaders are able to motivate union members through covenantal relationships to make self-sacrifices for the benefit as well as the long-term viability of the organization.

Implications for Research and Practice

To date, only a handful of studies have examined the effects of transformational leadership on OCB and only one study has specifically considered transformational leadership and UCB. Although the original study by Skarlicki and Latham (1996) on transformational leadership and citizenship behavior utilized a white collar union, the majority of research in this area has commonly focused on blue collar occupations, i.e. industrial trade unions. Although some studies have reported on teachers' and nurses' unions, future research should evaluate the white collar sector more closely to determine if blue collar findings may be generalized to non-industrial trade associations. Regarding generalizability and as suggested by Adegboyega (2010), another area for prospective investigation is considering whether the antecedents and mediators of UCB differ across cultures as well as any differences between organized labor groups working for public versus privately held companies.

Longitudinal studies should also be incorporated into future research designs in order to assess the career-spanning implications of membership dynamics and union leadership. Some researchers have indicated that union members are only committed to the organization based on union instrumentality, while others have stipulated that union leader commitment to member welfare is paramount, yet others have suggested a combination of both care and concern and instrumentality. A meta-analysis may be appropriate to flesh out these realities and determine if the importance of transformational behaviors are more significant during particular periods in union membership with instrumentality playing a more central role during other periods.

As indicated by Twigg et al. (2008), the nature of covenantal relationships and their importance on union member commitment should also be further explored. Factors that influence covenantal relationships, such as union prestige and the social value of membership should be probed and evaluated in conjunction with the supportive nature of transformational behaviors.

Based on both the proven as well as the perceived benefits of transformational leadership on organizations and the implications it holds for citizenship behaviors and their constructive

impact on an organization, it should be considered a best practice for union leaders to employ transformational behaviors and encourage positive citizenship behaviors. Additionally, a potentially advantageous practice is developing covenantal relationships through open communication, mutual obligation, shared values and trust. Both practices possess the ability to enhance feelings of connectedness and ownership of the union, bolster commitment and loyalty, and ultimately result in union strength through solidarity.

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THE CONFIGURATION AND CAPABILITIES OF PRIVATE VIRTUAL WORLDS IN ORGANIZATIONAL SETTINGS

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ABSTRACT

Despite the growing interest of business executives, there is limited management research on virtual worlds (VWs). This is particularly true of private VWs that are designed to enhance cooperative interactions within organizations. We address this limitation by using a management lens to explore the configuration and capabilities of VWs in organizations. Our research contributes to the existing literature by providing a foundation for management researchers to complement and support the growing interest of business executives in VWs. We propose a 4-cell taxonomy of open-objective VWs, identify four configuration characteristics of private VWs, present a typology of VW capabilities and offer an agenda for future research.

INTRODUCTION

Virtual worlds (VWs) have the potential to impact organizational activity. In his recent testimony to the U.S. House of Representatives, Laurence Johnson (Johnson, 2008), the CEO of New Media Consortium, stated that "just as the WWW has unfolded over the last 15 years to erase boundaries between us and become part of the very fabric of our lives, over the next 15 years, VWs will rapidly evolve into a rich three-dimensional extension of ourselves that will have profound impacts on the way we interact, communicate, learn, work, shop, and conduct business." One estimate (Fetscherin & Latterman, 2008) places the number of users of VWs on a trajectory that will double every year for the next few years. Others have argued that VWs will soon become essential tools for organizations (Richards, 2008). If such growth in VWs is realized, the way we conduct business (and business research) can be expected to change dramatically in the next few years (Wyld, 2010).

We believe that as the economic model for monetizing VW activity becomes clearer, the space will become more competitive and the push to commoditize VW-enhanced processes will intensify. Gartner Inc. (2007) predicts that market pressures will eventually lead to private, open-sourced virtual environments that support the free transfer of assets and avatars from one environment to another with the use of a single, universal client. Perhaps it already has. For example, in May 2008, MPEG, a working group in ISO/IEC, initiated efforts to standardize intermediate formats and protocols, called MPEG-V, for the interface between VWs and across virtual- and real-worlds (Dusanwriter, 2008).

A significant portion of current research on VWs lies in the public domain (e.g., firm-customer interaction in areas like sales and development). However, interest in the use of VWs for organizational activity in the private domain (e.g., R&D, strategic planning, interdepartmental cooperative activity, competitive bidding, reverse auctions etc.) is less forthcoming. In addition, there is limited research on the managerial implications of private VWs. Recognizing the trend in the industry on the one hand, and the limited amount of management research on the other, we chose to focus our efforts on this under-investigated domain.

Because management research on private VWs is in its infancy, the direction taken today by researchers will dictate the future trajectory of the field. We believe that such early developments should begin at the grass-roots level. Two constructs that are central to future

development are the "configuration" and "capabilities" of VWs. In this paper we inform the discussion by operationalizing these two constructs using a management lens (as opposed to a technology lens that has typically been used in the past). First, we propose a 4-cell taxonomy of open-objective VWs, then we identify four configurational dimensions and finally we offer a typology of VW capabilities.

VIRTUAL WORLDS

A Historical Perspective

VWs emerged from the logical progression of 2-D to 3-D multiple-user virtual environments that are familiar today. Although VWs are in an early stage of development and display all the characteristics of an emerging technology, they are beginning to proliferate. This is especially in organizational contexts. For example, in a survey conducted in 2007, researchers found that almost 15% of business executives felt that their organizations had an interest in VWs such as Second Life (Melcrum Publishing, 2008). Forester Research predicts that business-oriented VWs will soon become useful value-creation tools for organizations (Owens, Davis, Murphy, Khazanchi & Zigurs, 2009).

The increasing numbers of opportunities to use VWs in organizational contexts is another positive signal (Linden Research, 2009). According to recent estimates, there are more than 200 commercial entities that offer VW platforms. Large organizations (IBM, Sears, BP, BMW, and Dell), non-profits, universities, and government agencies are all actively involved in exploiting VWs to enhance, support or substitute their value-creating activities (Ringo, 2007; Mahaley, 2009; Shen & Eder, 2009). An example of the rapid pace of expansion in this area is Second Life, the dominant player in this space. Second Life was created in 2003 and as of August 21, 2010, reported 1,365,570 worldwide visitors within the prior 60 days. It logged 108 million total user hours and has facilitated Linden$ 27,999,748 (US$ 106,180) in total user-to-user transactions in Q2, 2010 (Linden, 2010; Second Life, 2010).

In conclusion, we note that VWs are quickly becoming attractive options for organizations. Because commercial applications of VWs have taken off, there is a need for academic research that can lead the charge to discover, design, and use VW capabilities VWs in organizational settings. We now begin our development with a working definition of a VW.

A Working Definition of Virtual Worlds

Rooted in the concept of Multiple User Virtual Environments (MUVE), VWs are designed to provide virtual environments that have 3-D capabilities. VWs have been discussed and studied by researchers in several contexts, including business, education, and information sciences (Dede, Ketelhut, & Ruess, 2002; Noam, 2007; Davis et al., 2009; Messinger et al., 2009). Some researchers have viewed VWs through a social interaction lens. For example, Messinger, et al. (2009) defined VWs as environments where "thousands of individuals can interact simultaneously within the same simulated three-dimensional space" (p. 204). Others view VWs as computer-generated spaces where 3-D avatars roam (Castroniva, 2005; Kohler, Matzler, & Füller, 2009). An avatar can take human or non-human form, and can be used by the individual behind the avatar to interact and communicate with others (Erdman, 2007). Still others recognize that VWs can deliver both vividness and interaction in a 3-D environment and view VWs as technology-mediated communication channels that offer existentialistic experiences, allowing individuals to experience a heightened presence in virtual space (Steuer, 1992).

Table 1 provides some of the recent definitions of VWs that have emanated from these diverse perspectives. As highlighted in the table, when viewed together, these definitions generally address four characteristics of VWs. We have chosen to adopt the Dede, Ketelhut and Ruess (2002) process/activity oriented definition because it best reflects these four characteristics of VWs in an organizational context. Hence, for the purposes of this study,

Virtual worlds are virtual environments that enable multiple users to simultaneously access virtual contexts, interact with digital artifacts, represent themselves through avatars, communicate with other individuals and computer-based agents, and engage in collaborative learning activities (Dede, et al., 2002).

Table 1: Definitions of virtual worlds

AUTHOR	DEFINITION	DIMENSIONALITY EVIDENCED IN THE LITERATURE[20]				
		Purpose	Place	Platform	Population	"Others"
Steuer, 1992	(Virtual reality is) a real or simulated environment in which a perceiver experiences telepresence. Telepresence is determined by vividness and interactivity.	√				VW experience
Lombard & Ditton, 1997	…One that seems truly "natural," "immediate," "direct," and "real," a mediated experience that seems very much like it is not mediated; a mediated experience that creates for the user a strong sense of presence.	√		√		VW experience
Blascovich. et al., 2002	(Virtual environment) as synthetic sensory information that leads to perceptions of environments and their contents as if they were not synthetic.	√				Synthetic experience
Dede et al., 2002	Virtual environments that enable multiple users to simultaneously access virtual contexts, interact with digital artifacts, represent themselves through "avatars," communicate with other individuals and computer-based agents, and engage in collaborative learning activities	√	√	√	√	Learning
Porter, 2004	An aggregation of individuals or business partners who interact around a shared interest, where the interaction is at least partially supported and/or mediated by technology and guided by some protocols or norms.	√	√	√	√	

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[20] Labels used to characterize the four dimensions from Porter (2004) and Messinger et al. (2009).

McArthur, 2008	User-driven online virtual world, where individuals in real physical spaces create and maintain avatars for the purpose of interacting with one another in 3D virtual environments.	√	√	√	√	
Varvello et al., 2008	Digital representations of real-world where human-controlled avatars evolve and interact through social activities.	√	√	√	√	
Davis et al., 2009	Systems that incorporate a variety of extra-peripheral devices, such as goggles, sensor gloves, and other haptic devices that enhance the sense of immersion inside the portrayed environment.	√	√	√		Experience
Messinger et al., 2009	(A place where) thousands of individuals can interact simultaneously within the same simulated three-dimensional space	√	√		√	Profit

A TAXONOMY OF OPEN-OBJECTIVE VIRTUAL WORLDS

Based on the definition provided above, a VW may be viewed as a mechanism that translates events and activities from the real world to a virtual one. At the broadest level, Messinger, et al. (2009) propose a user-centered classification scheme for VWs that includes education-focused VWs, theme-based VWs, community-specific VWs, children-focused VWs, and self-determined (open-objective) VWs. Our study addresses one of the four types of VW in their classification: the self determined (open-objective) VWs. In particular, we will address open-objective VWs in an organizational context. In the following paragraphs we will us a managerial lens to address our first objective, i.e., to develop a taxonomy of open-objective virtual worlds in an organizational context, since, to the best of our knowledge, no such taxonomy currently exists.

Our research suggests that open-objective VWs may be classified on two dimensions that are commonly employed to classify organizational activities. The first dimension relates to the "domain of operation." In the context of VWs, researchers have classified the domain of operation as being either public or private. Sales-oriented VWs installed on platforms like Second Life typically operate in the public domain. Virtual worlds used by organizations for internal purposes, like research and development (R&D) and HRD, are often private.

The second dimension of VW classification is the "nature of the interaction" that occurs within the virtual environment. IO economic and strategic management literature suggests that the interaction, at the organizational level, can be competitive or cooperative (Nielsen, 1988; Hill, Hitt & Hoskisson, 1992; Ring, & Van de Ven, 1994). By way of example, the gaming industry is a significant component of the competitive VW environment. In 2007 alone it accounted $12.5 billion in sales in the United States and $19.0 billion in sales worldwide (Messinger, et al., 2009). Examples of cooperative environments include social networking spaces, learning environments (academic or commercial), and knowledge migration environments such as strategic alliances and joint ventures.

The two-by-two matrix that results from our classification scheme is presented in Table 2. It provides a pictorial representation of our taxonomy of open-objective VWs. Examples of organizational activities in cell 1 of the taxonomy include sales, advertising, branding, purchasing, supply-chain management and the acquisition of technology. Cell 2 includes organizational activities such as customer service, market research, viral marketing and logistic alliances. Activities that occur in competitive bidding environments, reverse auctions, competitive product/process development environments would be classified in cell 3 of the taxonomy. Finally, HRD, R&D, strategic planning, problem solving, and interdepartmental cooperative activity are examples of organizational activities that would fall into cell 4 of the taxonomy.

Table 2: Taxonomy of open-objective virtual worlds

		NATURE OF INTERACTION	
		Competitive	**Cooperative**
DOMAIN	**Public**	**Cell-1** (e.g., sales, advertising, branding, purchasing, supply-chain management, technology acquisition, etc.)	**Cell-2** (e.g., customer service, market research, viral marketing, logistic alliances, etc.)
	Private	**Cell-3** (e.g., competitive bidding environments, reverse auctions, competitive product/process development,	**Cell-4** (e.g., R&D, strategic planning, problem solving, inter-departmental cooperative activity, HRD,

		etc.)	etc.)

In the context of this classification of open-objective VWs, our study addresses VWs that are private (Cell 3 & Cell 4 in Table 2). It focuses on VWs that are, to a large extent, controlled by the organization. In our conceptualization, such private VWs are part of the "augmented reality" of the firm. That is, they are extensions of the existing activities of the organization and are used to complement/supplement the real-world value-creating capabilities of the organization. Social networking applications, such as blogs, wikis, listservs and public VWs (e.g., multiple-user gaming) are not represented in our definition neither are they the focus of this study.

PRIVATE VIRTUAL WORLD CONFIGURATIONS

Now that we have identified the type of VW that will be studied (i.e., private open-objective VWs), we can move on to address the second objective of this study – The configurational characteristics of such private VWs. Using typological research techniques (Hunt, 1991), and focusing on the interactions that occur within a VW, Porter (2004) synthesized five global configuration dimensions of a virtual environments: purpose, place, platform, population, and profit model. Messinger et al. (2009) extended this development by confirming that Porter's generalized the typology is applicable to virtual worlds.

We offer an extension of the currently accepted dimensionality of VW configurations by proposing two modifications to the existing conceptualization to better align it with activities that occur in a private VW. First, we propose that four of the five elements identified in prior research be accepted in the context of private VWs in an organizational setting. The exception is "profit model." Taking a technological rather than an organizational perspective, Porter (2004) defines the profit model in terms of "return on interaction." We believe that in organizational research, the inclusion of return on interaction (normally viewed to be an "outcome" variable) as a dimension of the configuration of private VWs is premature. This is because the return on interaction of a private VW will depend on the use to which it is put. While a VW used to enhance one organizational activity can be used to enhance another organizational activity, the "return on interaction" in each instance could be different. Clearly, the context in which the VW is employed is relevant. Attempting to define the profit model of a VW independent of its context is analogous to undertaking a SWOT (Strength weakness, opportunities and threats) analysis for a firm without placing it in the context of the firm's strategy. The results would, in many instances, be spurious. Hence, we submit that a four-element classification of VWs is adequate for the organizational purpose that it is designed to serve.

Our second modification addresses the definitions of one of the four retained elements. Porter (2004) defined the platform in terms of "the technical design for interaction." We posit that in an organizational context this definition of platform should be extended to include design

and process elements that define engagement in a private VW. Hence, we propose a broader definition that conceptualizes the platform as a regulated space that is governed by rules of engagement approved by the organization. With this modification we provide below brief descriptions of each of the elements to help us frame the discussion that follows:

Purpose: A defined organizational or learning purpose.

Platform: A regulated space for interaction that is governed by well defined organizational rules.

Place: The space that provides the option to blend real and virtual worlds.

Populations: Membership characteristics of the VW.

Purpose

VWs offer the opportunity for interactive relationships between individuals through their avatars (Davis, et al., 2009) and can be used for several different purposes in an organizational setting. Papagiannidis, Bourlakis, and Li (2008) proposed the use of VWs in an organizational setting to enable complex, multiplayer, online role-playing games (MMORPGs). In a more comprehensive review, Noam (2007) proposed nine uses (purposes) of VWs in organizations of which six are relevant to private VWs: education, meeting, recruiting, internal customer service, media-content distribution, and community creation. Because of the diversity of potential uses, one of the first and most crucial decisions that a manager has to make when designing and operating a private VW is to define its purpose. In addition, decisions on the purpose of a VW have short-term and long-term ramifications for how interactive relationships within the VW can and should occur. Clearly, the design and use of private a VW would benefit from a better delineation of the VW's purpose.

Platform

Virtual worlds are communication platforms that emphasize avatar-enhanced telepresence. The platform can offer verbal or non-verbal communications, or both (Blascovich, Loomis, Beall, Swinth, Hoyt, & Bailenson, 2002; Polack-Wahl, 2008). The level of anonymity and vividness offered by the VW platform can lead to undesirable ethical, moral, and legal consequences, such as online violence and predatory behavior (Jeffers, 2008). However, VWs can also provide convenient platforms for managers seeking innovative and creative solutions to organizational problems (Kohler, Matzler, & Fuller, 2008). For example, a VW can provide a platform that allows organizations to test new concepts quickly, inexpensively, and confidentially with more direct product experiences than that offered by traditional 2-D, web-based interfaces. Hence, the decision to choose a VW platform and to configure the rules of engagement can have a significant impact on the value of the VW to the organization.

Place

Scholars have hypothesized that VWs will usher in the next phase of the Internet, where individuals from across the globe can interact with one another in 3-D rather than 2-D environments (Bell, Pope, Peters, & Galik, 2007; Erdman, 2007; Humphrys, 2008). A VW's unique ability to replicate real-world space alters the "place" where interaction between individuals can occur. Organizations that were early adopters of this technology have treated VWs as seamless extensions of real-world operations, extending their strategic thinking and decision-making processes to encompass the new blended reality of real and virtual worlds.

Population

The population of a VW consists of individuals who are represented by their 3-D avatars. Because the manager of the private virtual world controls the population by selecting who can and cannot enter, populate, or exist in the VW, they can configure a wide mix of populations that could range from tightly controlled, carefully selected private populations, like the ones that can be found in some intra-company communities, to the large public VWs like an organizational store-front that is designed to serve a sales function.

A TYPOLOGY OF PRIVATE VIRTUAL WORLD CAPABILITIES

The third objective of this study is to develop a typology of VW capabilities. Identifying and understanding the capabilities of a VW is an important step in the process of making critical managerial decisions on what, how, where, and when VWs can be embedded in the business model of the organization. Hence, we reviewed the existing literature on the capabilities of VWs that set them apart from other virtual environments (e.g., e-mails, listservs, chat, discussion rooms, blogs, social-networking environments, etc.). Our review spanned several fields, including decision-making, human resource development, marketing, information technology, virtual environments, and learning. Our own experiences with virtual environments in academic settings (i.e., use of VWs, wikis, and online learning systems such as Blackboard™ to enhance cooperative learning in private workspaces) provided us with multiple opportunities to observe and decipher the capabilities of VWs.

Our review of the literature supports Shen & Eder'd (2009) finding that there is a growing body of scholarly research on the VWs in organizational setting. However, we did note that research on VW capabilities remains fragmented. We do not know of any published work that has used a management lens to develop a typology of VW capabilities. To help move the field forward, we first reviewed past research and identified several VW capabilities. We then clustered them based on common underlying criteria and found that the VW capabilities identified in scholarly research fell into three broad domains: (i) operational capabilities, (ii) technological capabilities, and (iii) spatial capabilities. Of the domains identified above, operational capabilities attracted the most attention in the research, followed by technological capabilities, and then spatial capabilities. In the following paragraphs we present sub-elements in each of the three domains in private VWs. A synopsis of our findings is presented in Table 3.

Table 3: Typology of virtual world capabilities

CAPABILITY TYPES	SUB-CATEGORIES
Operational Capabilities	1. Immersion 2. Engagement 3. Collaboration 4. Creativity 5. Knowledge Migration 6. Risk Management

Technological Capabilities	1. System Characteristics 2. Real-time Interactivity 3. Avatar Mediated Communication 4. Electronically Enriched Interaction
Spatial Capabilities	1. Spatial Transformation 2. Spatial Convergence

Operational capabilities

   Scholars have identified six areas where VWs enhance operational capabilities of the organization: immersion, engagement, collaboration, creativity, knowledge migration, and risk management. We discuss each of these operational capabilities below.

   Immersion: A unique characteristic of a VW is its ability to garner an individual's rapt attention. The 3-D structure of the VW nurtures this immersive behavior (Hemp, 2008). In addition, the use of avatars in the 3-D environment provides richness and realism, and leads to heightened levels of telepresence – an existentialistic sense of being (Steuer, 1992; Ijsselsteijn, Rider, Freeman, & Avons, 2000; Kohler, et al., 2009). Indeed, evidence from studies conducted in academic environments suggests that such immersion does occur (Eschenbrenner, et al., 2008).   Scholars predict that once designers and users learn to harness the immersive characteristics of VWs, it will transform the way VWs are used in organizational applications.

   Engagement: Private VW interactions can be collaborative or competitive. In either case, the level of engagement is believed to be higher in VWs than in other virtual environments. One explanation is the ease of peer-to-peer communication and learning in the VW (Howarth, 2008). Another explanation is that the 3-D structure nurtures engagement by providing an opportunity for self-expression and a choice of methods for self-expression (Kohler, et al., 2007; Owens, et al., 2009). This seems to be especially true in private cooperative environments. For example, in an academic setting, individual engagement has been found to be higher in VWs than in the real world (Mason, 2007). However, Cohen (2008) cautions that engagement in an organizational setting is not guaranteed; companies have to work to make it happen. Google's struggles with "Lively" (Anonymous, 2008) exemplifies the need for managers to ensure that organizational VWs engage their participants.

   Collaboration: VWs, like other virtual environments, have been found to (i) enhance iterative and/or interactive collaboration, (ii) offer individuals the satisfaction of sharing the outcome of collaboration with others, and (iii) support altruistic behavior of individuals. However, VWs seem to do it better than competing virtual environments, as exemplified in a recent study where VWs were found to have the ability to create more

powerful personal connections (Melcrum Publishing, 2008). In addition, VWs exhibit stigmergy; that is, they provide mechanisms for unfettered coordination and action (within predetermined bounds) among individuals that can be monitored by everyone. This capability stimulates instantaneous subsequent action by others present in the environment, thereby providing a better replication of real-world collaborative activities than other virtual environments.

Creativity: Drawing a parallel from theoretical developments on open innovation (Chesbrough, 2003; Von Hippel, 2005), Kohler, et al. (2009) argue that VWs provide conducive environments for innovation much like in the real world because VWs can be set up (especially in the private domain) to provide the freedom to experiment and be creative. This freedom is complemented by the ability to select avatars that represent the demeanor of the individual in the VW.

The VW's ability to enhance creativity, per se, is not an adequate reason to claim that it is a valuable tool for managers. Fortunately, there is some evidence that creativity in the VW can lead to innovation and that this innovation can be transferred to the real world or can be leveraged in the VW (Hemp, 2006). For example, Kohler, et al. (2009) contended that avatar-based innovation can be used to support new product development at all stages of the development process.

Knowledge migration: As noted in the section on creativity, and evidenced in the results obtained from organizations that have invested in VWs, knowledge created in VWs can be transferred to the real world or to other VWs. However, the efficacy of such transfers has not been investigated rigorously. In one of the few studies that addressed this issue, Mikropoulos (2001) analyzed brain activity present in research subjects while they performed tasks in the real world and in VWs, and found that cross-over effects are possible.

Despite limited empirical evidence, there is considerable optimism that the ability to integrate real and virtual worlds will allow us to harness the traits of both worlds (Howarth, 2008), and transform organizational processes (Shen & Eder, 2009). As an extension of this line of thinking, the migration of business concepts (e.g., brand) between the real world and the VW can be expected to become more efficient as design and technological characteristics become more sophisticated. This has important ramifications for decision-making in organizations. Mangers must careful scrutinize decisions taken to optimize future investments in VWs.

Risk management: An important concern is the individual's vulnerability and level of risk inherent in the VW. Individuals can evaluate some of the risk prior to entering the VW, but other forms of risk might not be easily discernable at the onset, or might arise during an interaction in the VW. There have been reports of avatars being intentionally designed to misrepresent the individuals behind the avatars, as well as even more serious allegations about activities that have crossed legal, social or ethical boundaries. Cox (2009) provided an example of the misuse of power that resulted in the use of a corporate VW for personal gains. However, in private VWs there is the potential to conduct activity in an environment that is, for all practical purposes, risk-free. Eschenbrenner, et al. (2008) provided one example of how a minimal-risk activity can occur in an academic setting. From a manager's perspective, the ability to control risk can be a very desirable capability that needs to be embedded in the private VW.

Technological capabilities

The literature highlights four types of technological capabilities of VWs: system characteristics, real-time interactivity, avatar mediated communication, and electronically enriched interaction. We discuss each of these technological capabilities below.

System characteristics: There is evidence to suggest that building and maintaining a VW are resource intensive endeavors. For example, IBM has invested millions of dollars building and sustaining presence in their VW (Pollitt, 2007). The return on investment (ROI) on these large investments is not necessarily guaranteed. Cohen (2008) illustrated the point when he notes how Dell initially chose to discontinue its VW efforts because the ROI was not adequate. Managers need to pay careful attention to costs when designing and evaluating the system. Davis, et al. (2009) identified four important system characteristics that need to be addressed by managers when conducting such an exercise: communication, visualization/rendering, interaction, and team processes.

Real-time interactivity: One of the highlights of a VW is its ability to offer synchronous communication. However, communicators need to be present in the VW for communication to occur. This limits the ability to rehearse because the interaction occurs in real-time, so individuals do not have the opportunity to craft and vet their messages before sending them. On the other hand, such communication can enhance the spontaneity of the dialog. Hence, they mimic real-world encounters more precisely than other forms of electronic interactions (Kahai, Carroll & Jestice, 2007; Kohler, et al., 2009). That being said, researchers warn that management's desire to over-control the level of interactivity within the VW can have serious consequences. For example, commercial VWs might not survive if they do not provide individuals with adequate interactive options (Cohen, 2008). Clearly, the level of interactivity built into the design should be carefully vetted by the VW manager.

Avatar-mediated communication: The use of avatar-mediated communication is a distinguishing characteristic of a VW. The fact that these avatars are created in 3-D adds attractiveness and mystique to a VW. We believe that avatar-mediated communication will continue to gain an ardent following as technology ramps up to create life-like avatars. In addition, the use of avatars facilitates face-to-face communication and enhances telepresence. Finally, avatars provide a level of anonymity that can be controlled. Clearly, higher levels of anonymity could lead to deceptive behavior (Howarth, 2008), and the decision-maker needs to carefully balance the pros and cons when designing the VW.

Electronically enriched interaction: A VW provides richer interactions compared to other virtual environments. In particular, a VW heightens the quality of existing electronic interaction by offering "visual, aural, and spatial dimensions lacking in lean channels that are commonly used today" (Kahai, et al., 2007, p. 61). Coyle and Thorson (2001) found that VWs provide media-richness (Daft & Lengel, 1986) and interactivity at levels not achieved with other online tools. Owens, et al. (2009) note that a VW offers a rich environment because "technology provides purposeful non-verbal communication with deliberate body language, gestures, and non-verbal expression including touch . . . . In VWs the ability to deliberately control cues that are near-automatic reactions in the real-world is a new concept in virtual-team collaboration and interaction" (p. 36). These are capabilities that managers must account for when they address VW issues.

Spatial capabilities

The literature highlights two types of spatial capabilities offered by VWs: spatial transformation capabilities and spatial convergence capabilities.

Spatial transformation: Virtual worlds provide a convenient instrument for the replication of, extension of, or escape from reality (Hemp, 2008). A VW can be transformed to serve any of these varied needs. Managers of VWs have the ability to control the level of transformation to serve the purpose for which the VW was created. To varying degrees VWs will allow individuals to configure their profile (i.e., define themselves and their extent of participation), define the boundaries of private and public information, and make the choice of whom to interact with and when to interact. More importantly, VWs allow for enhanced real-time interaction at a level not possible earlier. Virtual World News has documented how IBM saved $320,000 when it conducted a meeting on Second Life's platform by leveraging the spatial transformative capabilities of VWs (Anonymous, 2009).

Spatial convergence: Individual engagement is influenced by social, cultural, and geographic differences among individuals. This can get challenging when group members are from communities that are socially, culturally and geographical diverse. The ability of the virtual world to "shrink" geographic distances and span social and cultural divides makes them attractive tool for managers. We believe organizations will increasingly turn to VWs to conduct collaborative organizational activities in an increasingly global marketplace. These could be intrafirm activities where departments or personnel are spread across different continents, or interfirm activities across the supply chain (Owens, et al., 2009). Virtual worlds provide managers with unique options to address cross-cultural challenges faced by firms that operate globally.

DISCUSSION

Contributions of the Study

This study investigates the configuration and capabilities of private VWs in organizational environments. We propose a taxonomy of open-objective VWs, map the configuration to an organizational setting, and synthesize a typology of VW capabilities. In the following paragraphs, we will elaborate on the value and implications of these contributions to research and practice.

The open-objective VW taxonomy

Building on existing literature we offer a four-cell taxonomy of open-objective VWs that will allow managers to make strategic decisions based on a parsimonious set of four options: public competitive environment, private competitive environment, public cooperative environment, or a private cooperative environment. Clearly, positioning the firm within the VW typology will also influence downstream decisions relating to VW configuration and capabilities. In our study we chose to focus on private VWs that could be cooperative or competitive in nature.

VW configuration

As noted earlier, VWs can display various configurations (Noam, 2007). This paper offers four dimensions on which to assess a private VW: purpose, platform, place and populations. The *purpose* of a VW can vary based on the goals of the organization, whether short-term or long-term, strategic or tactical, learning or developmental. Our theoretical developments suggest that alignment of purpose with VWs applications will often be the first decision that management has to make. It also helps managers decide on the type of *platform* that will best support the purpose. We note that managers must consider several things when choosing a platform; should it be (i) public or private, (ii) avatar-enhanced or basic, and (iii) anonymous or distinctive avatar representation. These managerial decisions will influence the behaviors of individuals in the virtual worlds and can be altered to produce different results. Our development also suggests that managers must recognize that VWs can extend the boundary of the *place* wherein employees, through their avatars, can learn simultaneously as consumers and builders of knowledge and information. Management will need to make decisions on how to treat this new extension of reality, how much to rely on it, and how much proprietary information should be shared in the VW. Finally, our configuration framework suggests that managers must make choices that define the *population* that participates in the VW, the extent to which they will exercise control, and their involvement in the population selection process. Setting these parameters can significantly impact VW operations and can alter organizational outcomes.

VW capabilities

By aggregating and analyzing fragmented research on VW capabilities, we are able to offer what we believe is a robust typology of VW capabilities. We posit that that researchers and practitioners should closely examine the operational dimensions (i.e., immersion, engagement, collaboration, creativity, knowledge migration, and risk management) before they make choices that involve substantial investments in time and money. They should also examine the system characteristics, real-time interactivity, avatar mediated communication, and electronically enriched interaction that make up the technological dimension of VW capabilities. Finally, they need to recognize the special dimension (transformation and convergence) of the VWs. Our development provides a simplifying framework for researchers to scope-out their activities and to plan their investigation. For managers, our framework will assist in understanding VW capabilities, the absence of which has been shown to lead to incorrect VW configurational choices that have resulted in inefficient utilization of the VW (Varvello, M., Picconi, F., Diot, C., & Biersack, E., 2009).

AN AGENDA FOR FUTURE RESEARCH

Immediate Needs

Organizational research on VWs in the private domain (cell 3 and cell 4 in Table 2) seems to be lower than in the public domain (cell 1 and cell 2 in Table 2). Perhaps this is because, by their very nature, the value-creating ability of these activities (e.g., R&D, HRD, and interdepartmental cooperative activities) is not easily demonstrable in the short term. If this is true, then there is a need for research that demonstrates the true value of VWs in the private domain. Scholars need to assist business executives in making informed decisions on building, maintaining, and using VWs in private environments. Research questions that need immediate attention include:

1. If the hypothesized relationship between VW capabilities and organizational outcomes are substantiated, what are the pay-offs? How do these pay-offs compare with those from other virtual alternatives?
2. Does the evidence suggest that private VWs are economically sustainable and operationally attractive?
3. If private VWs are found to be economically viable relative to other current offerings, should investments be targeted at "dedicated" VWs or at "general purpose" ones?
4. What are some of the challenges to designing, building, and maintaining private VWs?
5. What best practices should managers consider when employing private VWs to complement or supplement current organizational activities?
6. What are the key success factors that managers should be aware of when venturing into VW environments?
7. What lessons have been learned from past failures of private VWs?

Mid-term Needs

If research indicates that developing VW capabilities offers new and economically attractive options for organizations then, in the mid-term, researchers need to consolidate and extend theoretical developments offered in our study to move the field forward. We offer a short list of areas that should be addressed with a mid-term timeframe.

1. Are the three categories of VW capabilities reasonably orthogonal? As a logical extension, researchers should then investigate the existence of discernable patterns in the way managers can and should combine the three VW capabilities to enhance firm performance?
2. Are the three VW capabilities equally important contributors to the success of VWs in HRD interactions? We do not believe that to be necessarily true. Based on current research, we posit that that the operational capability of VW may be most valuable for HRD interventions. However, further development and empirical testing (experimental, case-based, or survey research) is needed to confirm such a hypothesized prioritization. In a competitive, resource-constrained, organizational environment, such information would be extremely valuable to support resource allocation decisions of the HR manager.
3. There have been repeated references in the literature (albeit anecdotal) to the high cost of developing and maintain a commercial VW. This could be because the technology is still new, inefficient and expensive; because we might not have mastered the art of developing and leveraging VWs capabilities; or for some other reasons. The high costs could discourage managers from adopting VWs. More research is called for to explore resource constraints and provide factual evidence to support such investment decisions.
4.

Long-term Needs

The need to efficiently leverage the capabilities of VWs raises an important research question: Are there certain organizational outcomes for which certain VW configurations are better than others? Ongoing investigations that provide an answer to this research question will be valuable to managers when they make strategic choices.

Published research on the implementation of VWs is virtually nonexistent. If VWs are to offer important capability options, issues related to their implementation must be addressed.

There is ample evidence in the research on strategic management, project management, and mergers and acquisition to suggest that success or failure of the investment is more a function of the success of the implementation phase than it is the success of the design phase. One needs only to review the research on another closely related technology-driven system -- the enterprise resource planning system -- to recognize the importance of project roll-out patterns, top management support and change-management challenges to the success of the project. We believe that a dedicated stream of ongoing research that investigates VW implementation issues would serve the field well.

There will always be the threat of technological advancement in VW, as well as the threat of technological obsolescence brought about by newer technology that could make an organization's VW "yesterday's news." Fortunately, VWs themselves have leap-frogged 2-D interfaces and offer a significant advancement that might be sustainable in the near future. That being said, there is a need for forward-looking research that can help managers who are already vested in VWs to dynamically alter their firm's long-term trajectory.

Finally, reports in academic publications and the popular press suggest that a significant portion of organizational efforts to leverage VW capabilities is aimed at complementing or supplementing activities that lie at the interface of the firm and its customers/suppliers. Such activities often fall in the public domain and can be competitive (cell 1 in Table 2), or cooperative (cell 2 in Table 2) in nature. Sales, advertising, branding and supply-chain management are examples of competitive activity. Although we chose not to address VWs in the public domain in our study, we would be remiss if we did not recognize the need for research that can provide new perspectives on VW activities in cell 1 and cell 2 of our taxonomy (Table-2) of open-objective VWs.

CONCLUSIONS

The acceptance of VWs as viable options to build or augment organizational activities is expected to grow exponentially and is predicted to impact organizations significantly. However, to date there is limited organizational research on cooperative, private-domain organizational activity in VWs. We believe that the taxonomy of open-objective VWs, four VW configuration dimensions and the synthesis of three VW capabilities offered in this study fill critical gaps in the literature and help prepare a stronger foundation for future developments in the area.

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CORPORATE ILLEGAL BEHAVIOR AS AN UNANTICIPATED CONSEQUENCE OF PHILANTHROPY

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ABSTRACT

We investigate "how" organizations engage in illegal behavior. We draw on institutional and signaling theory to suggest that corporate philanthropy creates legitimacy by signaling a positive organizational image. Additionally, we draw on key resources theories to suggest that individual resources create a positive reputation and create legitimacy by signaling a positive individual image. Based on these positive organizational and individual images, there may be an unanticipated consequence, whereby legitimacy becomes a catalyst to a process that could be potentially detrimental. Specifically, actors within the organization who engaged in corporate philanthropy may have done so with good intentions; however, other actors within the organization may capitalize on this increased legitimacy fueled by their individual and the organization's positive social engagements and take advantage of the opportunity to engage in corporate illegal behavior. Implications of the proposed relationship and their limitation are discussed, as well as a discussion of future research opportunities.

INTRODUCTION

Corporate scandals from companies such as Enron, WorldCom, and Tyco have drawn attention to the prevalence of corporate illegal behavior. We define illegal behavior as behavior that occurs within the context of an organization with the intent to financially benefit either the organization or the individuals within the organization while breaking existing laws. When individuals or organizations engage in corporate illegal behavior, the negative consequences of the illegal acts can be detrimental to society by affecting groups (economy, local communities) or individuals (shareholders, debtholders, employees, managers) (Zahra et al, 2005). The significant economic cost of corporate illegal behavior negatively affects local communities via, for example, increased community unemployment rate, loss of tax revenue to the community, loss of endowments to non profit organizations, and less demand for secondary businesses (hotels, restaurants, gas stations) (Zahra et al, 2005). Researchers estimate that in 2002 alone $600 billion was lost due to managerial fraud (Thomas & Gibson, 2003; Schnatterly, 2003).

As significant the negative consequences of corporate illegal behavior is on society however, individuals that have a vested interest in the organization are often hit the hardest (Zahra et al, 2005). For example, when news of a corporation's fraud becomes public, shareholders may be affected by a decrease of the corporation's share value. Those holding debt of the corporation may also be affected as the corporation's credit rating could decrease, leading to a decrease in the demand of the corporation's bonds and therefore to a decrease in price for the bonds. Employees face the potential loss of jobs, pensions, and their reputation (e.g. the stigma

former Arthur Anderson employees carry) (Hamilton, 2006). Even though individuals who are directly involved in the illegal behavior may face fines or even jail time (Zahra et al, 2005), especially after the Sarbanes-Oxley Act became law in 2002, families and stakeholders of these individuals which were often not involved in the illegal behavior, face negative consequences.

The government has attempted to regulate corporate illegal behavior. For example, one mechanism that was developed in order to monitor the effectiveness of combating global commercial bribery is the Foreign Corrupt Practices Act (FCPA). This act, as well as other codes of conduct, emerged as a means to protect the public and to ensure responsible management (Hansen, McDonald, Messier, & Bell, 1996). Although there has been a sustained effort to minimize corporate illegal behavior, it has continued (Berenson, 2003; Zahra, Priem & Rasheed, 2005). In light of the numerous corporate debacles, such as Enron, WorldCom, and Tyco, Weismann (2009) argues that political, legal, and economic forces may have contributed to the government's inability to minimize corporate power. Thus, a recent research interest has emerged to understand factors that contribute to this type of behavior (e.g. Baucus & Near, 1991; Daboub, Rasheed, Priem, & Gray, 1995; Dalton & Kesner, 1987; Hill, Kelley, Agle, Hitt & Hoskisson, 1992; Zahra, Priem & Rasheed, 2005).

As a result, several scholars have attempted to identify antecedents of corporate illegal activity including: organizational size (Baucus & Near, 1991; Clinard, Yeager, Brisette, Petrashek, & Harries, 1979; Dalton & Kesner, 1987), top management team characteristics (Daboub, Rasheed, Priem, & Gray, 1995), and industry (Baucus & Near, 1991; Cressey, 1976; Simpson, 1986).

Although scholars have made significant advances in identifying antecedents of corporate illegal behavior, they have primarily focused on identifying firm characteristics rather than identifying "how" these corporations (or the individuals within them) engage in corporate illegal behavior. Institutional theory (Selznick, 1948), signaling theory (Spence, 1973; Cohen & Dean, 2005; Sanders & Boivie, 2004) and key resources theory (e.g., Bandura, 1982; Hobfoll, 1989; Scheier & Carver, 1992) may provide a useful view that can enlighten corporate illegal behavior models. Institutional theorists have suggested that organizations can maintain legitimacy by engaging in corporate philanthropy (Galaskiewicz & Burt, 1991), defined as, "a discretionary responsibility of a firm that involves choosing how it will voluntarily allocate resources to charitable or social services activities in order to reach the market and other business related objectives for which there are no clear social expectations as to how the firm should perform" (Ricks, 2005: 122).

It has been suggested that corporate philanthropic contributions by organizations generally generate positive results. For example, Haley (1991) suggests that an organization's philanthropic contribution and its degree of embeddedness have a positive relationship. Corporate philanthropy allows organizations the opportunity to engage in their community and have a vested interest in the social welfare of society (Eikenberry, 2006).

However, while corporate philanthropy has the intended consequence to benefit society and corporate image, thereby increasing legitimacy, this may not always the case. We suggest that there may be an unintended consequence in that organizations and individuals within organizations that are trusted and highly regarded within a society may abuse that trust. The legitimacy that was created by engaging in organizational philanthropy may in fact aide the organization or individuals within the organization to take advantage of opportunities for illegal behavior.

When organizational legitimacy is enhanced by engaging in philanthropy, or when individual legitimacy is enhanced by displaying high levels of social resources, the increased legitimacy likely leads to a relaxation of external supervision and control by elements in the environment, which may create a context in which it aides illegal behavior. The actors in the organization who contribute to corporate philanthropy may intend to benefit society or the company's corporate image; however, the actors in the organization who engage in illegal behavior may have individualistic intentions such as obtaining job security, gaining a promotion, or embezzling funds (Aguilera & Vadera, 2008). Thus, corporate illegal behavior may be an unanticipated consequence of corporate philanthropy and individual social resources, which are social capabilities that facilitate the achievement of goals (Bakker & Demerouti, 2007).

To sum, unanticipated consequences result even when the actor does not expect them to (or intend them to) in advance (Merton, 1936). These types of consequences differ from intended consequences in that intended consequences are the objectives of the action, the targets toward which the action oriented, and the motives that stimulated the action (Merton, 1936). Although scholarly research that explores intended consequences is important, Merton (1936) urged scholars to investigate the unanticipated consequences of social action. As a result, several scholars have explored unanticipated consequences. For example, McKinley and Scherer (2000) studied unanticipated consequences of organizational restructuring. Additionally, Tenner (1996) investigated the unanticipated consequences of various types of technology. Finally, Winkel, Wyland, Shaffer and Clason (2010) studied unanticipated consequences of individual social resources. Similarly, in this paper, we suggest that forms of corporate illegal behavior may be unanticipated consequences of high levels of individual social resources as well as one purposive managerial action that is becoming increasingly common in organizations today: corporate philanthropy. We argue that although corporate philanthropy may be directed toward intended consequences of social welfare, corporate philanthropy may also have some unanticipated consequences. Thus, the logic follows that corporations may engage in corporate philanthropic activities with ethical intentions, but in doing so; they increase legitimacy, which becomes an opportunity, whereby some actors within the organization, specifically those who have gained individual legitimacy by displaying high levels of social resources, can capitalize on the increased legitimacy and engage in the unanticipated consequence of corporate illegal behavior. Therefore, we believe that our focus in this paper represents a unique contribution and adds a novel dimension to corporate philanthropy and corporate illegal behavior. We suggest that enhanced legitimacy lowers monitoring and surveillance, thus facilitating illegal behavior.

In this paper, we first review existing literature from two streams; corporate illegal behavior and corporate philanthropy. Although we acknowledge that other antecedents exist for social resources, corporate philanthropy and corporate illegal behavior, the scope of this paper is to examine the relationship between the three. Second, we propose a model and draw on institutional theory (Selznick, 1948) signaling theory (Spence, 1973; Cohen & Dean, 2005; Sanders & Boivie, 2004) and key resources theory (e.g., Bandura, 1982; Hobfoll, 1989; Scheier & Carver, 1992) as a theoretical foundation for our proposed propositions. Finally, we provide a discussion of implications and future research possibilities.

HISTORY AND DEFINITIONS OF CORPORATE ILLEGAL BEHAVIOR AND CORPORATE PHILANTHROPY

Corporate Illegal Behavior. Early studies focused on crimes that individuals committed for personal gain. These scholars used the term, "white collar crime" to describe behavior in which individuals bribed, manipulated stock exchanges, embezzled, or misappropriated funds (Sutherland, 1939). Researchers then began to focus on illegal acts that were committed for corporate gain instead of individual gain (Sutherland, 1956). Recently, scholars have begun to distinguish between corporate illegality by determining whether the beneficiary is the organization, referred to as corporate crimes, the individual, referred to as occupational crimes, or both (Baucus, 1994; Clinard & Quinney, 1973; O'Connor, Priem, Coombs, Gilley, 2006; Daboub, Rasheed, Priem, & Gray, 1995; McKendall & Wagner, 1997; Schrager & Short, 1978). Occupational crimes include acts like padding expense accounts and kickbacks whereas corporate crimes include pollution control violations, bribery, and any other act that is encompassed by the definition, "conduct of the employees acting on behalf of a company, which is proscribed and punishable by law" (Braithwaite, 1984: 6), while crimes that benefit both the individual and corporation include acts like embezzlement and pilferage (Szwajkowski, 1985). For the purpose of this paper, we use the term corporate illegal behavior as an overarching label to include behavior that is committed for both company and individual gains. Individuals who engage in corporate illegality typically have a self-interested motive in order to increase personal financial gains (Andreoli & Lefkowitz, 2009; Szwajkowski, 1985). According to Monks and Minow (1991) the acts of corporate illegal behavior are often, although not exclusively, committed by members of upper management such as the CEO or another member of the top management team (Monks & Minow, 1991; Zahra et al., 2005). Often these actors have access to or use the marketing, finance, engineering, and accounting departments (Daboub et al., 1995). As Zahra, Priem and Rasheed (2005) suggest, corporate illegal behavior committed by members of the top management team is appalling to many people because it represents an extreme betrayal of trust by the individuals who were thought to possess leadership ability and character.

Corporate Philanthropy. Organizations have a social responsibility to display ethical management and enhance goodwill to society (Lee, Park, Moon, Yang, & Kim, 2009). Hence, organizations participate in corporate philanthropy in order to establish and develop a favorable relationship with stakeholders (Campbell & Slack, 2007). Examples of corporate philanthropy include organizations donating money, goods, time, or training to a charity in order to address a societal cause (Leisinger, 2007), to name a few. For instance, in the 1990s, Avon donated $22 million to breast cancer awareness (Ricks, 2005) and DreamWorks SKG created a program to improve the working skills of low-income students in Los Angeles (Porter & Kramer, 2002). Researchers suggested that organizations engaged in corporate philanthropy not only because it benefits society, but also because it improves corporate image (Forehand & Grier, 2003; Lee et al, 2009; O'Keefe & Partners, 2002). Thus, the motives of corporate philanthropy may be grouped into two categories: intrinsic (an organization's motive for the enhancement of individuals outside the organization) and extrinsic (an organization's motive that focuses on improving the corporate image) (Lee et al, 2009; Forehand & Grier, 2003).

When an organization engages in corporate philanthropy, the task of charitable giving is typically initiated by upper management (Siegfried, McElroy, & Bientot-Fawkes, 1983). However, the action of corporate philanthropic activities itself can reside with a broad range of actors within the organization (Brammer, Millington, & Pavelin, 2006). Because organizations

place a different emphasis on the importance of corporate philanthropy, different companies may place the responsibility of corporate philanthropy at different levels within the organization. Thus, corporate philanthropic activities can be initiated by the CEO, individuals from the top management team, or individuals within any department (level) (Brammer, Millington, & Pavelin, 2006).

In the next section, we draw on three theoretical foundations (institutional theory, signaling theory and key resources theory) to develop the model, which suggests that corporate philanthropy strategies can signal a positive image to the general public and consequently may increase legitimacy. Additionally, individuals who have levels of specific resources such as emotional intelligence may signal a positive image to the organization which, in combination with the organization's legitimacy may provide an opportunity whereby unanticipated consequence (here: corporate illegal behavior) may result.

THEORETICAL PERSPECTIVES

One of institutional theory's central tenets suggests that legitimacy is critical for organizational survival and is achieved through isomorphism, whereby organizations become similar to other organizations within their field (DiMaggio & Powell, 1983; Kostova, Roth & Dacin, 2008; Selznick, 1948). Kostova, Roth and Dacin (2008) challenged institutional theory's applicability to multinational corporations by suggesting that these firms gain legitimacy through a process of political interaction, which creates a perception about the organization without having to implement certain practices and conform to industry expectations and norms. This perspective views legitimacy as a social construction rather than a process of isomorphism. According to Kostova et al., (2008) this socially constructed reputation can be used to gain exemption status from regulatory expectations and decrease the need for compliance. Elsbach and Sutton (1992) suggested that organizations can maintain legitimacy by adopting designs that distract attention from the controversial activities that an organization may engage in. For example, by adopting structures that are visible to the public that confirm to social norms, organizations may enhance legitimacy bestowed by individuals, even when their activities conflict with others (Meyer & Rowen, 1997). Scott (1987) also suggested that organizations can maintain the impression that they are rational and legitimate by using acceptable procedures even when they participate in activities that clash with social norms.

Signaling theory has been applied by management scholars to suggest that investors' rely on observable and credible signals from the firm (Cohen & Dean, 2005; Sanders & Boivie, 2004). We apply this theory to suggest that one reason that firms engage in corporate philanthropy is to signal a favorable image to investors and the general public. This signaling process could build a positive reputation and image of the organization and could consequently be used by some as a means for illegal behavior. In conjunction, we apply the underpinnings of institutional theory and signaling theory to suggest that corporations are able to build a positive reputation and gain legitimacy through corporate philanthropic strategies. However, this increased legitimacy may result in a decreased need for compliance with regulatory bodies. For example, if an organization has gained legitimacy, they may not need to conform to regulatory expectations.

Additionally, we draw from key resources theories to suggest that there are individual social resources (such as emotional intelligence or the ability to manage emotions in one's self and in others; Mayor & Salovey, 1997) that when displayed, may signal a positive reputation or

individual image. This positive image may allow for decreased surveillance and monitoring by other individuals within the organization. Consequently, individuals who have gained legitimacy within the organization and who benefit from the created organizational legitimacy may engage in illegal behavior. Thus, the increased legitimacy may serve as a catalyst in the process whereby philanthropy and individual social resources can create an unanticipated consequence of corporate illegal behavior.

Additionally, we draw from key resources theories to suggest that there are some individual-level psychological resources that individuals may use to achieve desired outcomes (e.g., Bandura, 1982, Hobfoll, 1989; Scheier & Carver, 1992). Winkel et al., (2010) applied these theories to suggest that social resources, such as emotional intelligence, may lead to deviant behaviors. We build upon this foundation and suggest that these types of social resources may lead to illegal behavior because employees, colleagues, and the board of directors are less likely to monitor individuals who have positive reputations or have gained legitimacy.

Figure 1
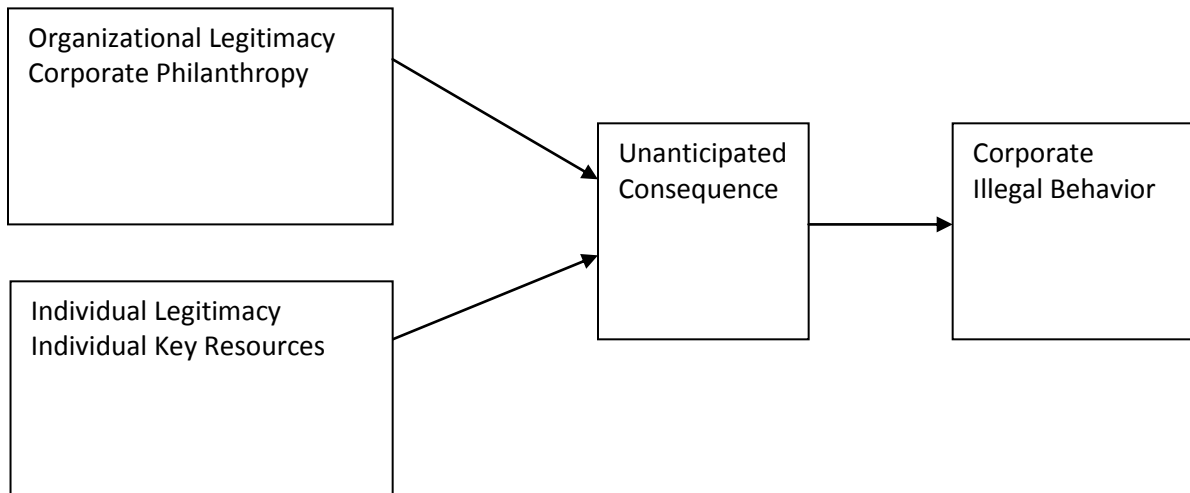
MODEL DEVELOPMENT AND PROPOSITIONS

Reputation and legitimacy are perceptions of approval from an organization's practices based on stakeholders' evaluations (Rao, 1994; Ruef & Scott 1998; Elsbach, 2006). Deephouse and Carter (2005) argue that organizations are seen as having legitimacy when they comply and conform to the minimum social expectations in society. Reputation is a desirable and difficult to attain attribute in which organizations are "viewed favorably relative to the ideal standard for a particular societal identity" (King & Whetten, 2008).

Again, organizations participate in corporate philanthropy in order to establish and develop a favorable relationship with stakeholders (Campbell & Slack, 2007). Thus, an organization's anticipated consequence of engaging in corporate philanthropy is to enhance society (gain legitimacy) and improve corporate image (improve reputation). When organizations engage in corporate philanthropy, they do so with good intentions. However, there

could be unanticipated consequences of corporate philanthropy, such that increased legitimacy and reputation can be by other actors in the organization to engage in corporate illegal behavior.

For example, Ashforth and Anand (2003) suggest that when members of the top management team (such as the CEO) are charismatic, which is a quality that increases trust and obedience by subordinates, they may be able to develop coalitions of followers who do not question the leader's actions. Berenson (2003) argues that charismatic leaders are able to use their personal charisma to engage in fraudulent schemes while misleading others in and outside of the company. Thus, the organization is able to "signal" a positive image, which intentionally or unintentionally, serves as a distraction while certain actors within the organization attempt to get away with an illegal act. In addition to using their own personal image as a distraction to engage in illegal behavior, these individuals may also draw on the positive corporate image and reputation that was signaled by corporate philanthropic activities as a distraction for illegal behavior. Thus, although corporate philanthropy is intended to promote a positive corporate image, it can create an opportunity whereby an individual can take advantage of the positive corporate image and engage in the unanticipated consequence of corporate illegal behavior.

P1: There is a direct positive relationship between corporate philanthropy and corporate illegal behavior that is intended to benefit the individual

Schweitzer, Ordonez, and Douma (2004) conducted an experiment and found that individuals are more likely to intentionally overstate performance when goals are not met if the goals are specific hard goals rather than goals such as, "do your best." Zahra et al., (2005) argue that the experiment represents an approximation of the decisions that senior managers face when choosing to inflate the firms' earnings, an illegal action that is intended to benefit the organization. We argue that these actors can use the legitimacy that was increased by engagement in corporate philanthropic activities to distract shareholders, board of directors, employees and the general public in an attempt to maintain legitimacy. If legitimacy is not maintained, stock price could decrease, jobs could be lost and ultimately, organizational survival could be jeopardized, thus, managers may be motivated to do whatever is necessary to maintain legitimacy, regardless of the legal nature of the action. Thus, although organizations engage in corporate philanthropy to benefit stakeholders, the legitimacy that it creates may be later used to hurt these stakeholders.

P2: There is a direct relationship between corporate philanthropy and corporate illegal behavior that is intended to benefit the organization

Although we have suggested that corporate philanthropy may lead to legitimacy, which may provide opportunities for actors within the organization to engage in corporate illegal behavior, it is important to understand which actors may engage in these types of behavior. When individuals within the organization obtain legitimacy or a positive reputation, they are likely to have less surveillance and monitoring by stakeholders. One way to signal a positive reputation is by displaying high levels of social resources such as emotional intelligence (EI). Although most scholars study the positive outcomes of emotional intelligence, some scholars have suggested that EI has a "dark side," which could increase negative outcomes and behaviors (e.g., Austin, Farrelly, Black & Moore, 2007). This perspective suggests that possessing too

high of a level of a given resource may result in negative behavior or outcome (e.g., Ryan & Deci, 2000). For example, Winkel et al., (2010) found a positive relationship between emotional intelligence and deviant behavior. Individuals with high EI are able to adjust to their surroundings and their environment to achieve valued outcomes (e.g., Bovatzis, 1982). Winkel et al., (2010) suggest that being able to understand situations and develop networks through high levels of social awareness and influence may manifest itself in deviant behavior, or in this context, corporate illegal behavior.

P3: There is a direct positive relationship between top management individual social resources and corporate illegal behavior that is intended to benefit the individual and the organization

DISCUSSION

This paper has discussed corporate philanthropy and its association with corporate illegal behavior. Organizations engage in corporate philanthropy because it benefits society and improves corporate image (Forehand & Grier, 2003; Lee et al, 2009; O'Keefe & Partners, 2002). When organizations participate in corporate philanthropic activities, it shows that they are responding to the public's desire to have an active involvement towards enhancing society (Lee et al, 2009), thus, improving corporate image. Enhancing society and improving corporate image are not the only benefits corporations receive from engaging in corporate philanthropy. Brammer, Millington, and Pavelin (2006) indicate that corporate philanthropy also enhances (worker) productivity and goodwill among consumers (Navarro, 1988; Saiia, Carroll, & Buchholtz, 2003).

Although actors who engage in corporate philanthropy have the anticipated intention to enhance the welfare of society and increase legitimacy (Eikenberry, 2006), this is not always the case. We speculate that there may be an unanticipated consequence of corporate philanthropy, whereby legitimacy becomes a means to a process that could be detrimental. Specifically, other actors within the organization may capitalize on this increased organizational legitimacy and take advantage of it by engaging in corporate illegal behavior. The actors in the organization who take advantage of the opportunity may have individualistic intentions such as obtaining job security, promotion, or embezzle funds (Aguilera & Vadera, 2008). Additionally, these actors may have high levels of social resources, which signal a positive reputation and decreased surveillance and monitoring. These actors may use their individual legitimacy as well as the organization's legitimacy which is gained from philanthropy as a distraction or a signal that diverts attention from their illegal intentions and/or actions. However, if legitimacy is not maintained in the organization, organizational survival could be jeopardized. Managers may be motivated to do whatever is necessary to maintain legitimacy, regardless of the possible unintended consequences. Although corporate philanthropy is intended to enhance society and corporate image, the legitimacy that it creates may later be used as a catalyst for future illegal behavior. Thus, corporate illegal behavior may be an unanticipated consequence of corporate philanthropy.

As we have outlined earlier, the unanticipated consequences of corporate illegal behavior from corporate philanthropy can have negative consequences of illegal acts that can be detrimental to both individuals and society (Zahra et al, 2005).

We suggest that organizations that engage in corporate philanthropy to motivate and enhance society and gain legitimacy must be aware of the unanticipated consequences. The purpose of our propositions is to give scholars and practitioners insights into how individual legitimacy and the legitimacy gained from corporate philanthropy could be later used by some to facilitate illegal behavior. Organizations should be aware that individuals may use their own personal image and/or the legitimacy that was increased by participating in corporate philanthropic activities as a distraction to engage in corporate illegal behavior. Individuals intentions vary, whether the beneficiary is the organization (corporate crimes), or the individual (occupational crimes). Thus, organizations should monitor more closely corporate and occupational crimes when an organization has reached a state of legitimacy from engaging in corporate philanthropy.

CONCLUSION AND FUTURE RESEARCH

Scandals like Enron, WorldCom and Tyco have drawn a lot of public and academic attention recently, yet our understanding of corporate illegal behavior is underdeveloped. The literature reviewed suggests that researchers have made substantial progress in understanding this phenomenon. Yet it appears as though, there are still several opportunities for scholars to make significant contributions to knowledge.

Thus, in this paper, we drew on previous scholars' findings as well as institutional theory and signaling theory to introduce a model whereby, corporate illegal behavior is an unanticipated consequence of corporate philanthropy. The logic follows that corporation engage in corporate philanthropy with the intention of benefiting society and increasing corporate image, thereby increasing legitimacy and reputation. This increased legitimacy and improved reputation however, can lead to an unanticipated consequence of corporate illegal behavior.

Similar to previous scholars (Daboub, Rasheed, Priem, & Gray, 1995), we suggest that the decision to engage in corporate illegal behaviors is not an isolated incident but rather, a sequence of events that leads to an eventual outcome. Thus, we argue that such behavior is an unanticipated consequence of legitimacy. In conclusion, we suggest that positive behaviors (corporate philanthropy) can be used as a strategy to increase legitimacy, thereby unintentionally creating opportunities to engage in corporate illegal behavior.

For future research, we suggest that tests of the Figure 1 model focus first on the links between corporate philanthropy, social resources and corporate illegal behavior. We also suggest that more theoretical development is needed to identify antecedents of corporate philanthropy. We also recommend that future research focus on a typology of corporate philanthropy as a framework to determine consequences of these types of behaviors.

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