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The Dual Basis for Subordinate's Perception of Change

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The Dual Basis for Subordinate's Perception of Change

By

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the Degree of Master in Leadership Studies, Engineering Track

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ABSTRACT
THE DUAL BASIS FOR SUBORDINATE'S PERCEPTION OF CHANGE

Anthony Senger, B.S.M.E.

Marquette University, 2012

Psychological research has shown that perception often works in a dual-basis in which a person examines a subject and weighs the subject against an ideal and non-ideal scale, independently. There have been few studies though, that have tried to apply this mechanism as a component of the dynamics involved in Leadership Studies, Organizational Behavior, or Change Management. If the mechanism is active in subordinates, then leaders can make better-informed decisions regarding their organizations, based on an understanding that reaction to both their actions and to changes that they enact are based not only on perceived ideal characteristics, but also non-ideal characteristics.

This study ($n = 114$) sought to identify whether subordinates who have recently experienced a change within their organization were affected by the change and their leaders' behavior through a dual-basis of perception mechanism. Results confirm that the perception on ideal and non-ideal scales for a change and for leader behavior does account for some of the variance seen in an organization's members' engagement. The strength of the perception mechanism and the positive or negative influence that the perceptions have on the subordinates were not as expected. In the body of Leadership Studies, these findings add value to the understanding that leadership is founded in the leader-follower relationship and that this relationship is affected by perceptions of both ideals and non-ideals.

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The Dual Basis for Subordinate's Perception of Change

Change is a constant cycle within our world at both an individual and an organizational level. Leaders within organizations must enact change initiatives or react to external changes that are affecting their organizations. Research has shown that perception of policies has been shown to be as important as the actual policy (Boon, Hartog, Boselie, & Paauwe, 2011 and Wright & Nishii, 2007). A logical progression of these two points would state that an organization's members' perceptions of a change event can have a moderating effect on the members. This will manifest itself in the members' acceptance of the change, their social reaction to the event, and ultimately their performance in their role (Boon et al., 2011, and Lowe, Schellenguer, & Shannon, 2003). Additionally, alignment between the member and the leader or organization or policy also has been shown to have a moderating effect on the member (Gretz, 2000, Hacker & Doolen, 2007, O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010, and Pololi, Kern, Carr, Conrad, & Knight, 2009).

Psychological research, summarized by Carver, Sutton, and Scheier (2000), has shown that human perception does not occur on a single scale; rather, it occurs on two independent pathways based on attractive or repulsive forces. From a leadership studies perspective, it is of interest to align a change initiative with the perceptions of the members in order to maximize the effectiveness of the change initiative. When leaders understand that their members' perceptions happen on a dual-basis, they have an opportunity to formulate a more effective change initiative.

There have been few studies that have sought to link the dual-path nature of human perception to leadership studies or other organizational theories. The current study aims to expand on the application of the dual-basis theory of perception, as suggested by van Quaquebeke, Kerschreiter, Buxton, & van Dick (2010), and demonstrate that the mechanism

applies to change management and leadership actions. By identifying that the dual pathways model of perception exists and affects a subordinate's responses, leaders will be able to consider both the positive (attractive) and negative (repulsive) aspects of the change initiative and tune the change and their actions according to their members and the desired reaction.

Literature Review

Leadership Perspective on Change

The German poet Bertolt Brecht (1976) stated, "Because things are the way they are, things will not stay the way they are." Megginson (1963) famously paraphrased Charles Darwin's work on evolution, "it is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself." Even in one of society's most stable institutions, the library, change must occur to address the external influences of the economy and the changing needs and behaviors of its patrons (Stoffle & Cuillier, 2011). Inevitably, then, in every aspect of our lives we experience and must react to change. The same truths hold true for organizations as they pursue their collective goals.

In recent years entire schools of research and theory about change management have been developed. Kotter (1999) identified that within organizations there are different yet complementary aspects of leadership, "Management is about coping with complexity. Leadership, by contrast, is about coping with change." Leaders within an organization must act as both managers, to formulate policy or physical changes brought on by a change, and as leaders, to recruit a desired response from the organization's members in response to the change. Graetz (2000) verbalized this twofold aspect of change management as leaders working in either an instrumental role or a charismatic role.

A key aspect of this study is to extend these two areas of leadership function, management and leadership, into the follower's realm of experience within the organization. If an organization's leader's work toward change occurs in two realms, then the members' experience of the change event will also occur in a twofold manifestation. The first manifestation will be the instrumental change, such as a new structure or procedure. The second manifestation will be through the charismatic execution of the change by the organization's leaders. Oakland and Tanner (2007) observed that, as managers work toward organizational changes, it is important to consider the attitudes of the people involved and to understand where these attitudes stem from, because it is the people's attitudes that ultimately make the change work or not. Similarly, Prasad and Omer (2006) found that there is a significant positive effect on the successful implementation of change if organizational changes are designed with the organization's members' concerns for their daily roles and their internal relationships in mind.

Alignment between Leaders, Followers, and Organizations

To be fully effective, leaders' actions must be tuned to the organizational environment in order to positively motivate the desired response from the members. (Unless the desire is to dismantle the organizational environment, in which case the actions may be counter to the environment). Greatz (2000) observed, "All three cases illustrate how, if key stakeholders are not onsite, particularly at the middle and lower levels of management (e.g. Pilkington), they act as roadblocks to change, impeding the passage of the change process to those within their span of control." Studies that examined alignment within levels of leadership and effectiveness of change initiatives found that there is a significant correlation between leaders' alignment to the change initiative and the effectiveness of the change initiative (Hacker & Doolen, 2007 and O'Reilly et al., 2010). The issue of alignment and change initiatives was also applied to

alignment between leaders and subordinates by one of the American auto industry's great leaders, former Chrysler CEO Lee Iacocca. In his autobiography, Iacocca and Novak (1984) observed:

It's important to talk to people in their own language. If you do it well, they'll say, "God, he said exactly what I was thinking." And when they begin to respect you, they'll follow you to the death. The reason they're following you is not because you're providing some mysterious leadership. It's because you're following them. (p. 55)

In their study of alignment within academic medicine, Pololi et al. (2009) identified that alignment between a student or faculty member's values and interests with their actual research matter had significant impact on the quality of research and vigor with which the research would be pursued.

For leaders, it is important to be able to understand details of their organization and their subordinates beyond the formal public structure that makes up the organization. This tacit knowledge of an organization has recently been identified in studies as practical intelligence and has been shown to be a key factor in the success of individuals as they operate within organizations (Sternberg, 2002 and Colonia-Willner, 1999). Sternberg (2002) further links practical intelligence to leadership success, stating that, "Practical intelligence, therefore, is important not only for adaptation to existing environments, but also for shaping of such environments to transform them." Furthermore, "successful leadership" is defined as leadership that effects the changes a group or organization needs in order to better itself (Sternberg, 2008).

From these broad bodies of work, it is clear that there is a positive relationship that occurs when people find common ground between themselves, their organization, and the initiative. To be successful, leaders should apply their practical intelligence to identify areas of

alignment or misalignment within both their organization and initiatives and take appropriate actions.

Member's Perception as a Component of Organization

A common definition of Work Organization (WO) is the set of social customs and norms, management and labor policies, and laws that shape the physical and social organization of workplaces (MacDermid et al., 2008). MacDermid et al. (2008) identified Work Environment as the dynamic interactions at all of the various levels within a WO in response to internal or external factors. In his book *Leadership Theory and Practice*, Northouse (2007) defined leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p.12). Northouse (2007) also observed that leaders and followers are inherent to the process and, as a result, when considering issues of leadership, it is important to examine matters that affect the leader, the follower and their relationship.

Bowen and Ostroff (2004) noted that Human Resource policies, an element within a WO, present a constant stream of information that is interpreted by each individual within the WO. The individual interpretation or perception of the policies, rather than the actual policy, has been identified as the key effect on the member (Boon et al., 2011 and Wright & Nishii, 2007). Boon et al. (2011) further concluded, "Managing employee perceptions of HRM [Human Resource Management] may be beneficial for firms, as employee attitudes and behaviors can affect firm performance."

Again, focusing on the leadership perspective, the key point of interest is the perception of an aspect of an organization that produces an effect on the members. Evidence of the effects of perception on other aspects of an organization was observed by Lowe, Schellenbuerg, and Shannon (2003). In their study of healthy work places, they found positive correlations between

workers who perceived that their work place was healthy and job satisfaction, commitment, absenteeism, and intent to find another job. Based on these studies, the positive or negative effect that results from a member's perception will be evident in his/her acceptance of or reaction to the policy or the aspect of the organization being considered. Managing perceptions is a valuable tool within a leader's establishment of policies, direction, or change initiatives within the organization.

The Dual Scale Basis for Perception

Within psychological theory there is documented evidence that people respond to both appetitive forces, identities that they are attracted to, and aversive forces, identities that repel them (Carver et al., 2000). Van Quaquebeke et al. (2010) noted that this dual nature of human psychology has seen very little utilization in other fields of research. They identified an independent response to both an ideal association and a counter-ideal association to value match between leaders and followers. This model of a dual-basis for alignment between leaders' and followers' values was further explored by Graf, van Quaquebeke, and van Dick (2011), where it was concluded that "both positive and negative value orientations exhibit largely independent effects on follower's responses to their leaders" (p.192). Additionally, they found that the strength of the response correlated to the degree of separation between the ideal and non-ideal value scales.

Identification with an organization has been shown to also operate in two dimensions based on either similarities or dissimilarities. As a member's identification with the organization is increased, the member increasingly adopts the goals of the organization as his/her own (Bergami & Bagozzi, 2000). The Graf et al. (2011) and the Bergami & Bagozzi (2000) studies

both show a positive effect for alignment on an ideal characteristic and an independent negative effect for alignment on non-ideal characteristics for employee reaction.

This study sought to identify whether this dual-basis mechanism exists when members evaluate change activities within the organization. If the mechanism holds true, the effect of change events on the members of an organization would be dependent upon how the members perceived the change event with regard to their assessment of ideal and non-ideal changes for the organization.

One implication of potential interactions of the ideal and non-ideal scales is that they are not entirely independent and there can be some interactions between the two scales for any individual (Graf et al., 2011). Graf et al. (2011) also point out the potential that the scales reduce to a single-measure scale at the extreme, but research has not shown this to be a highly likely occurrence. It is also possible that the two scales have a zero-sum effect, meaning that the degree of attractive forces from alignment with the ideal are offset by the degree of repulsive forces from alignment with the non-ideal. All of the studies cited here that examined the dual-scale constructs were able to demonstrate unique effects from the ideal and non-ideal scales despite the zero-sum risk (van Quaquebeke et. al., 2010 and Graf et. al., 2011).

Engagement as an Effect of Leadership and Change

In his research regarding the relationship between intelligence and leadership, Sternberg (2002) concluded:

leaders need not only analyze existing situations, but also need to have a vision of where to lead people (creative intelligence) and of how to get them there to convince them that this is indeed where they need to go (practical intelligence). Our theory and research

suggest that practical and creative aspects of intelligence indeed can play an important role in understanding leadership and in predicting who will be an effective leader.

The leader has three activities in this model of leadership: 1) analyze a situation, 2) create a vision for a future state, and 3) convince the organization that their future state vision is where they need to be. There are two noteworthy points to examine from this version of the leader-follower relationship. First, there is an implied assumption that the status quo is unacceptable because, by definition, the leader is analyzing the existing situation and providing a vision of a future state. The leader is assessing internal and/or external factors for the organization and putting forward a change initiative based on his/her judgment. The second point is that two of the three aspects that define a leader's actions require interactions with his/her subordinates. To provide a vision of the future state the leader must know his/her organization and its strengths and weaknesses and he/she must convince the organization that the future state vision is where the organization needs to be. The success of the leader depends on the members of the organization working toward the leader's vision and being able to achieve it.

Sternberg (2002) suggests that intelligence could be a good measure of predicting leader ability, but the question arises, how should one measure the actual performance of a leader? If two-thirds of leaders' functions affect the follower, then it is logical that measuring the response of the followers and the success of the organization would be good indicators of the leaders' performance. Northouse's (2007) model of leadership as a relationship supports the concept of measuring the follower to learn about the leader, as he cited Rost (1991) "They are in the leadership relationship together – two sides of the same coin" (p .4).

Many studies in the past have tried to quantify the relationship between the member's work and the achievement of the organization's goals. Recent studies have focused on the

concept of engagement as good measure of how well a member is involved with and contributing to the organization (Mendes & Stander, 2011, Vecina, Chacon, Sueiro & Barron, 2011, and Ravichandran, Arasu & Kumar, 2011). The acceptance and importance of the concept of engagement is also bolstered by the fact that two major research corporations, Gallup and Towers Watson, have developed and promote services focused on measuring and managing employee engagement (Gallup, 2012, and Towers Watson, 2012).

From the academic perspective, Schaufeli, Salanova, González-romá, and Bakker (2002) define work engagement as a positive, fulfilling, work-related state of mind that is characterized in three areas; vigor, dedication, and absorption. If an organization's member is engaged he/she will be contributing at a high level with positive connotations to the achievement of the organization's goals; thus engagement acts as a third pole balancing against workaholism or burnout within an employee's state of being (Schaufeli, Taris, & van Rhenen, 2008). The measure of engagement would work as a measure of the effect of the Sternberg (2002) and Northouse (2007) models of leadership, a relationship between a leader and follower where the leader provides vision for a change toward a future state and then motivates the follower to act toward that vision.

Hypothesis

This study hypothesizes that: An organization's members will evaluate leadership's enactment of change against both an ideal change scale and a non-ideal change scale. Members simultaneously rank the change actions, both the leader's actions and the actual change, against both scales to create a resulting perception. This resulting perception then determines the effectiveness of the change actions on the member's engagement.

H1: The higher a change action ranks on the ideal change scale, the more it will positively affect the organization's members' engagement.

H2: The higher a change action ranks on the non-ideal change scale, the more it will negatively affect the organization's members' engagement.

H3: The effects of the rank on ideal change and the rank on non-ideal change on an organization's member's engagement will be independent.

H4: The higher the leader's actions with respect to a change event rank on the ideal leader behavior scale, the more it will positively affect the organization's members' engagement.

H5: The higher the leader's actions with respect to a change event rank on the non-ideal leader behavior scale, the more it will negatively affect the organization's members' engagement.

H6: The effects of the rank on ideal leader's actions and the rank on non-ideal leader's actions on an organization's member's engagement will be independent.

Methodology

Study Design and Population

The goal of the study was to explore the existence of the dual-basis mechanism of perception during change events; therefore obtaining a population across differing types of organizations was deemed to be beneficial. The snowball method of sample selection was chosen for this study based on the simplicity of the method and the resulting diversity in the sample. To initiate the snowball, social networking, on-line and in person, were used. A LinkedIn.com group was created and the Primary Investigator's (PI) personal contacts were asked to consider volunteering and to spread the word to their contacts regarding the opportunity

to participate in the study. Additionally, an open notice requesting volunteers was posted on the PI's Facebook.com profile and the PI queried co-workers with an invitation to volunteer.

The survey was created and reviewed for compliance to the Marquette University IRB protocol for protecting human subjects (see Appendix A: IRB Protocol). SurveyMonkey.com was selected as the host site for the on-line survey. Age verification and consent were built into the survey with mandatory affirmative responses needed to be able to take the survey. SurveyMonkey.com's security features were used to collect survey responses without recording e-mail addresses or IP addresses in order to ensure the anonymity of the respondents. The final survey can be seen in Appendix B: On-Line Survey.

The on-line survey was opened on April 16th, 2012 and all volunteers were notified with the link to the survey and were encouraged to continue the snowball effect to build a population. The survey remained open for thirty-one days and on May 16th, 2012 it was closed. The resulting data set was downloaded to the PI's personal computer.

Dependent Variable - Engagement

Member engagement was used as the dependent variable for this study. The Utrecht Work Engagement Scale was selected as the measure for the dependent variable, engagement, and the long form of the scale, UWES-17, was built in to the survey. Dr. W. B. Schaufeli was contacted for approval to use the UWES with an understanding that the data from this study would be shared for future work on the scale. The UWES-17 scale used in this study has an internal reliability, Chronbach's α , of 0.93 and has demonstrated a test-retest reliability, stability coefficient r_t , ranging from 0.63 to 0.72 (Schaufeli and Baker, 2004).

Independent Variables – Alignment to Ideal and Non-Ideal Change and Leader's Actions

A challenge in this study was to measure a respondent's perceived alignment with ideal and non-ideal constructs for change and leaders' actions. Because the population was heterogeneous, measuring alignment to either a single change event or a leader's actions could not be done at a detailed level. Bergami and Bergozi (2000) and Shamir and Kark (2004) found that a Venn diagram scale was effective at measuring personal identification with a target concept. Bergami and Bergozi (2000) identified that such single-item scales include a risk for circular reasoning or capturing overlapping measures because the scale simplifies and includes all factors of identification including causes, effects, and correlates. Additionally, Shamir and Kark (2004) observed that quantifying the validity and reliability of these single-item scales would require specific future work that would correlate each scale to each population.

Despite these risks, the single-item scale was selected as a good means of meeting this study's needs of identifying whether the dual-basis mechanism of perception was present and affecting the subordinate when evaluating change events. Van Quaquebeke et al. (2010) demonstrated in a preliminary study that this single-item graphical scale is effective at measuring alignment between the values of leaders and followers and that the single-item scale was able to produce statistically independent measures for ideal and non-ideal alignment.

For this study, four single-item scales were used to measure alignment to ideal and non-ideal changes for the organization and ideal and non-ideal leaders' actions during the change event. The scale was built with a Venn diagram with various degrees of overlap between two circles, where one circle represented the respondent and the second circle represented the target (ideal change, non-ideal change, ideal leader action, or non-ideal leader action).

Several steps were taken to clarify the usage of the Venn diagram scale and to focus the respondent on the desired independent variable being measured. First, an example with two scenarios was given for using the Venn diagram scale to demonstrate alignment between an individual and a concept. Second, the respondents were provided brief definitions of the concepts of ideal and non-ideal categorizations and were given a caution with regard to the reversal of meaning that occurs when considering a “non-ideal change.” Finally, the respondents were asked to qualitatively describe their personal top three items in each category immediately before using the Venn diagram scale. The intent was to instigate some reflection on the concept before asking them to rank their alignment between themselves and the variable being measured.

Although not specifically used in this analysis, the qualitative data may be useful in future studies. Trends or themes within the categories may be identified and examined for effect on engagement. The data may also become the basis for future research in developing validity and reliability for the single-item scale method of measure and the dual basis of perception of change and leaders' actions.

Moderating Variables

The survey asked the volunteers to consider a recent change event within an organization that they belonged and to consider that organization's leadership during the change event. Beside the Venn diagram alignment questions and the UWES-17 Engagement questions, several moderating variables were included in the study. Volunteers were asked to define the type of organization and its size. They were also asked their tenure at the organization, their tenure before the change event occurred, and how long ago the change event occurred. Finally, with regard to the organization, they were asked whether they acted as supervisors within the organization, how many layers there were in the organization between themselves and the

leadership responsible for the change, and how many subordinates reported to the leadership responsible for the change. These variables were considered as structural aspects of the organization that may have an influence on the respondents' acceptance of change initiatives or of their leadership's behavior.

Key demographic details were also considered as potential influencing factors on the respondents. The demographic details requested of participants were gender, age, marital status, number of dependants, country of residence, cultural association with country of residence, and level of education.

Analysis

The data set was loaded into Excel for initial evaluation. Survey responses were removed from the data set if the respondents were under age 18, if the respondent failed to mark "submit" on the final consent, if the respondent indicated that there were zero layers between themselves and the leader orchestrating the change, and if the time since the change event occurred was greater than 24 months. The final population that was used for the study was $n = 114$. Initial demographic examination of the data was performed in Microsoft Excel. Text responses were numerically coded in order to facilitate statistical data analysis using IBM SPSS Statistics version 20 (SPSS).

Correlation for relationships between the four independent variables, two alignments for each Change and Leader, and the dependant variable were sought via general regression models within SPSS. Simple linear regression analyses were performed for each independent variable, for a simple block regression model for both independent variables, and finally for a simple block regression model for both independent variables with the centered interaction term included. The confidence interval for the regression was held at 95% and in cases with multiple

terms, the stepwise method was the primary method used for variable inclusion. Covariance matrices, model fit, R squared change statistics, co-linearity diagnostics, and the Durbin-Watson statistics for residuals were also requested from the analysis. Tables for the correlation matrices and the regression models, as well as plots for the studentized residuals versus predicted values, were examined for understanding of the relationships within the predicted models.

Dummy-coded variables for the categorical demographic variables were created in SPSS. General linear model (GLM) univariate analysis was performed for each demographic variable with a baseline model set for each alignment variable. The baseline model consisted of match to ideal, non-ideal, and interaction term. The general model was built considering only main effects for all of the variables. Between subjects factors was selected to examine analysis of variance and linear regression parameter estimates were calculated to examine each dummy variable's significance and role in the linear model. Tables for the analysis of variance and parameter estimates were examined to understand whether any demographic details had a significant effect on the predicted models.

Findings

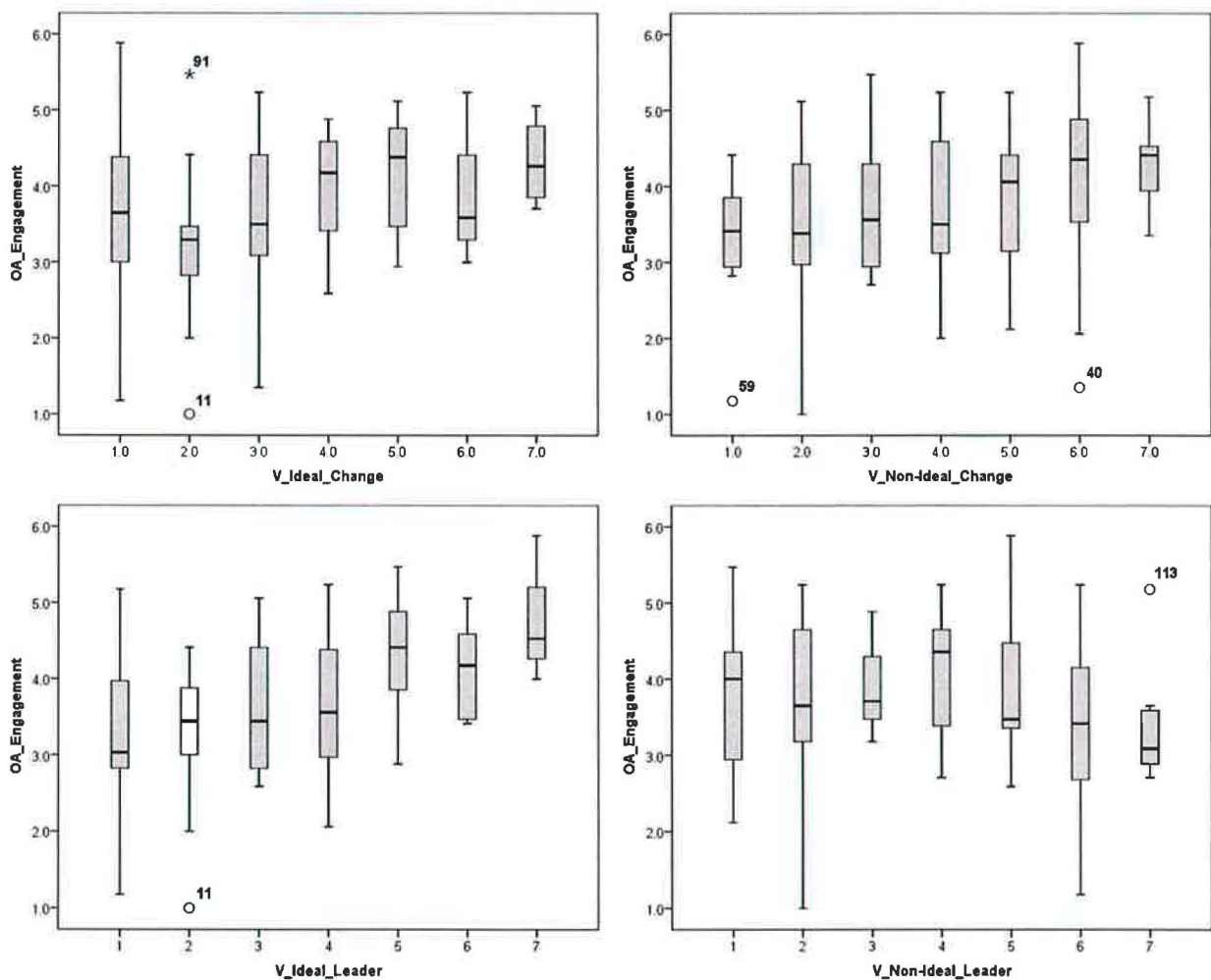
Demographic Summary

The final population used for analysis in this study was $n = 114$. The population contained seventy-two male and forty-two females. Respondents varied in age groups from 26-30 to 66-70 years old. The largest age groups were 36-40 with thirty-seven respondents and 41-45 with twenty-two respondents. Ninety-six respondents were married, eleven were never married and seven were divorced or separated. Thirty-four percent of respondents had no dependents; the remaining population was relatively evenly spread between one, two, or three or more dependents. The United States of America was reported as the residence of one hundred

thirteen of the respondents and six respondents reported not associating culturally with their country of residence. Only four respondents had less than a four-year college degree while thirty-one had a four-year degree, twenty-one reported having some graduate studies, forty-four had a graduate degree and fourteen respondents had an advanced degree or Ph.D.

Results

Overall Data and Potential Outliers. To test the integrity of the data set, the raw data via box plots for each independent variable, Venn match to *Ideal Change* and Venn match to *Non-Ideal Change* versus the dependent variable *Overall Engagement*, were examined. There were a few potential outlier data points identified.



There were five data points suggested by SPSS as potential outliers based on the frequency analysis and bar charts. Record numbers 11, 40, 59, and 91 were identified in the match on *Ideal* and *Non-Ideal Change* and record numbers 11, 113 were identified on the match on *Ideal* and *Non-Ideal Leader*. Each point was examined in the raw data form to search for any visible anomalies and to read the qualitative answers recorded for each of the Venn diagram match questions. In all cases, the qualitative answers appeared to be reasonable and did not show any clear indications of misunderstanding of the questions or of any reversals in the target direction or intent of the questions.

Table 1 describes the key measures that were examined for each of these points to determine if the record was suspect.

Table 1 - Pertinent data for potential outlier records

Record #	Match to Change		Match to Leader		Overall	Org	Tenure	Time since	Org	Super-	Layers to	Gender	Age	Marital	Depend's	Education
	Ideal	Non-Ideal	Ideal	Non-Ideal	Engmnt	Type		Change	Size	visor	Leader		Group	Status		Lvl
11	2	2	2	2	1.0	Business	30	20	1001-5000	Yes	3	Male	51-55	Married	0	4 Yr. College
40	3	6	1	6	1.4	Business	12	8	101-500	No	4	Male	31-35	Married	3 or more	Grad Degree
59	1	1	1	6	1.2	Pol/Gvmt	4	6	101-500	No	4	Female	36-40	Married	3 or more	Some Grad
91	2	3	5	1	5.5	Other	18	1	1001-5000	Yes	4	Female	36-40	Married	3 or more	Some Grad
113	1	7	1	7	5.2	Business	8	4	101-500	No	2	Female	56-60	Married	3 or more	Grad Degree
Mean	3.25	3.95	3.46	3.94	3.74		9.85	9.35			2.75					
Std Dev	1.48	1.75	1.71	1.82	0.94		6.93	6.96			1.49					

Record numbers 40, 59, and 91 do not have any indications of being suspect. Record 11, though, is suspect in that it has a perfect 1.0 score for *Overall Engagement*. Because *Overall Engagement* is a composite variable, an average of 17 Likert scale questions, it indicates that the respondent scored "1" on all 17 questions. This does not appear to be a legitimate scoring of the engagement portion of the survey, for unknown reasons. Record 113 shows highly negative match combination for both change, *Ideal Change* = 1 and *Non-Ideal Change* = 7, and leader, *Ideal Leader* = 1 and *Non-Ideal Leader* = 7. Despite this negative trending, the respondent scored relatively high on the *Overall Engagement* scale, 5.2, where the mean is 3.7 with a

standard deviation of 0.94. Although this record appears to be normal based on all of the other variables, it is significantly different than the overall population and different from expectations. The scores show that the respondent thinks her organization is not changing any of what she believes should change and that it is changing exactly what should not be changed. Likewise for leader behaviors, this respondent believes that her leaders are behaving nothing like her ideal and exactly like her non-ideal leader. With these two strongly negative perspectives it is surprising to have an engagement score that is almost two standard deviations higher than the mean.

As a result of examining these potential outliers, record numbers 11 and 113 are deemed suspect. The regression analysis will be run with the full data set, but also with the two suspect data points removed to investigate whether these responses have significant influence on the analysis and the testing of the hypotheses.

Perception of Change. Table 2 is the correlation matrix included in the regression analysis and Table 3 is the summary of the regression models for perception of change variables.

Table 2 - Correlation matrix for perceived match to change to overall engagement

		OA_Engagement	V_Ideal_Change	V_Non-Ideal_Change	Interact_IC-NC
Pearson Correlation	OA_Engagement	1.000	.258	.246	-.144
	V_Ideal_Change	.258	1.000	.036	-.139
	V_Non-Ideal_Change	.246	.036	1.000	.045
	Interact_IC-NC	-.144	-.139	.045	1.000
Sig. (1-tailed)	OA_Engagement		.003	.004	.064
	V_Ideal_Change	.003		.352	.070
	V_Non-Ideal_Change	.004	.352		.316
	Interact_IC-NC	.064	.070	.316	
n	OA_Engagement	114	114	114	114
	V_Ideal_Change	114	114	114	114
	V_Non-Ideal_Change	114	114	114	114
	Interact_IC-NC	114	114	114	114

Table 3 - Linear regression models for perceived match to change to overall engagement

Model (n = 114)	r	Sig. ^❶	R	R ²	Coeff. (β_n)	Sig.
= β_1 * V_Ideal_Chng	.258	.003	.258	.067	.163	.006
= β_2 * V_Non-Ideal_Chng	.246	.004	.246	.061	.132	.008
= β_1 * V_Ideal_Chng +	.258	.003	.351	.123	.158	.006
β_2 * V_Non-Ideal_Chng	.246	.004			.127	.009
= β_1 * V_Ideal_Chng +	.258	.003	.351	.123	.158	.006
β_2 * V_Non-Ideal_Chng +	.246	.004			.127	.009
β_3 * Interact_IC_to_NC ^❷	-.144	.064			*excluded var.	-.122	.174

^❶ Pearson Correlation to Overall Engagement with Sig. (1-tailed)

^❷ Interaction term is the multiplication of centered (initial - mean) terms

The regression findings indicate that both perceived matches to the *Ideal Change* and *Non-Ideal Change*, correlate with *Overall Engagement* with $r = .258$ and $r = .246$, respectively, with statistical significance ($p < .01$). It can also be seen that the interaction term between the two perception measures is not statistically significant. The coefficient for match to *Ideal Change* is .158 and the coefficient for match to *Non-Ideal Change* is .127 and both were statistically significant ($p < .01$).

These results indicate that the two measures positively account for the overall engagement of the subordinate and that they do so independently. Hypothesis 1 is supported because there is a positive influence of perceived match to *Ideal Change* and the level of *Overall Engagement*. It should be noted, though, that with an R^2 value of .067, the influence of match to *Ideal Change* appears to be small. Hypothesis 2 is unsupported because there is a positive influence of perceived match to *Non-Ideal Change* and the level of *Overall Engagement*, where it was expected to be a negative effect. Again, the R^2 value of .061 indicates that the influence of match to *Non-Ideal Change* appears to be small. Hypothesis 3, the construct of a dual basis of perception on a change, is supported in two ways. First, from the correlation matrix, there is a lack of significance ($p > .05$) for correlation between match on *Non-Ideal Change* to *Ideal*

Change and there is a lack of significance ($p > .05$) for the interaction term and *Overall Engagement*. Second, the increase of the R^2 value to .123 for the combined model indicates that there is a significant increase in the ability of the model to predict overall engagement. Despite this support for the dual basis of perception, the R^2 values for all of the regression analysis are small and at their best can only account for 12% of the variance in *Overall Engagement*.

Perception of Leader. Table 4 is the correlation matrix included in the regression analysis and Table 5 is the summary of the regression models for perception of leader variables.

Table 4 - Correlation matrix for perceived match to leader to overall engagement

		OA_Engagement	V_Ideal_Leader	Venn_Non-Ideal_Leader	Interact_IL-NL
Pearson Correlation	OA_Engagement	1.000	.454	-.168	.060
	V_Ideal_Leader	.454	1.000	-.292	.113
	Venn_Non-Ideal_Leader	-.168	-.292	1.000	-.380
	Interact_IL-NL	.060	.113	-.380	1.000
Sig. (1-tailed)	OA_Engagement		.000	.037	.263
	V_Ideal_Leader	.000		.001	.116
	Venn_Non-Ideal_Leader	.037	.001		.000
	Interact_IL-NL	.263	.116	.000	
n	OA_Engagement	114	114	114	114
	V_Ideal_Leader	114	114	114	114
	Venn_Non-Ideal_Leader	114	114	114	114
	Interact_IL-NL	114	114	114	114

Table 5 - Linear regression models for perceived match to leader to overall engagement

Model (n = 114)	r	Sig. ^❶	R	R ²	Coeff. (β_n)	Sig.
= β_1 * V_Ideal_Ldr	.454	.000	.454	.206	.249	.000
= β_2 * V_Non-Ideal_Ldr	-.168	.037	.168	.028	-.086	.074
= β_1 * V_Ideal_Ldr + β_2 * V_Non-Ideal_Ldr ^❷	.454	.000	.456	.208	.242	.000
= β_1 * V_Ideal_Ldr + β_2 * V_Non-Ideal_Ldr	.454	.000	.454	.206	.249	.000
	-.168	.037		*excluded var.	-.038	.666
= β_1 * V_Ideal_Ldr + β_2 * V_Non-Ideal_Ldr + β_3 * Interact_IL_to_NL ^❸	.454	.000	.454	.206	.249	.000
	-.168	.037		*excluded var.	-.038	.666
	.060	.263		*excluded var.	.009	.918

❶ Pearson Correlation to Overall Engagement with Sig. (1-tailed)

❷ Model shown using "Enter" method of independent variable inclusion

❸ Interaction term is the multiplication of centered (initial - mean) terms

The second regression analysis reveals that the perceived match to *Ideal Leader* correlates positively with *Overall Engagement*, $r = .454$, with statistical significance ($p < .01$). Also, the perceived match to *Non-Ideal Leader* correlates negatively with engagement, $r = -.168$, with statistical significance ($p < .05$). The interaction term between the two variables is not statistically significant ($p > .05$). The linear regression terms show that the match to *Ideal Leader* is the only significant term with $R^2 = .206$.

The correlation results show that both Hypotheses 4 and 5 can be supported because there is a positive effect on engagement for match on *Ideal Leader* and a negative effect for match on *Non-Ideal Leader*. But Hypothesis 6, the dual-basis mechanism for perception of leader, cannot be fully supported because of the strong negative correlation between the match on *Ideal Leader* and the match on *Non-Ideal Leader* with $r = -.292$ ($p < .01$). The negative correlation implies that the measures of perception of *Ideal* and *Non-Ideal Leader* contain some interactions and cannot be considered fully independent. This interaction between the perceptions of leader

scales can also be seen in the linear regression terms. The strength of match on *Ideal Leader* is significantly strong and contains some of the match on *Non-Ideal Leader*; thus it becomes the only statistically significant term needed to describe the model.

Regression Models without Outliers. Table 6 is the correlation matrix included in the regression analysis and Table 7 is the summary of the regression models for the perception of change variables with the two suspect respondent entries removed.

Table 6 - Correlation matrix for perceived match to change to overall engagement

		OA_Engagement	V_Ideal_Change	V_Non-Ideal_Change	Interact_IC-NC
Pearson Correlation	OA_Engagement	1.000	.274	.208	-.102
	V_Ideal_Change	.274	1.000	.053	-.170
	V_Non-Ideal_Change	.208	.053	1.000	.091
	Interact_IC-NC	-.102	-.170	.091	1.000
Sig. (1-tailed)	OA_Engagement		.002	.014	.143
	V_Ideal_Change	.002		.289	.037
	V_Non-Ideal_Change	.014	.289		.170
	Interact_IC-NC	.143	.037	.170	
n	OA_Engagement	112	112	112	112
	V_Ideal_Change	112	112	112	112
	V_Non-Ideal_Change	112	112	112	112
	Interact_IC-NC	112	112	112	112

Table 7 - Linear regression models for perceived match to change to overall engagement

Model (n = 112)	r	Sig. [ⓐ]	R	R ²	Coeff. (β _n)	Sig.
= β ₁ * V_Ideal_Chng	.274	.002	.274	.075	.167	.003
= β ₂ * V_Non-Ideal_Chng	.208	.014	.208	.043	.108	.028
= β ₁ * V_Ideal_Chng +	.274	.002	.336	.113	.161	.004
β ₂ * V_Non-Ideal_Chng	.208	.014			.101	.034
= β ₁ * V_Ideal_Chng +	.274	.002	.336	.113	.161	.004
β ₂ * V_Non-Ideal_Chng +	.208	.014			.101	.034
β ₃ * Interact_IC_to_NC [ⓑ]	-.102	.143			*excluded var.	-.078	.402

[ⓐ] Pearson Correlation to Overall Engagement with Sig. (1-tailed)

[ⓑ] Interaction term is the multiplication of centered (initial - mean) terms

From the regression without outliers, findings indicate that both perceived matches to *Ideal Change* and *Non-Ideal Change* correlate with *Overall Engagement* with $r = .274$ and $r = .208$, respectively, with statistical significance ($p < .01$ and $p < .05$, respectively). It can also be seen that the interaction term between the two perception measures is not statistically significant ($p > .05$). The coefficient for match to *Ideal Change* is .161 and the coefficient for match to *Non-Ideal Change* is .101 and both were statistically significant ($p < .01$ and $p < .05$, respectively).

The initial support for Hypothesis 1 remains after removing the outliers and Hypothesis 2 remains unsupported. From the correlation matrix, the lack of significance ($p < .05$) in the correlation between the match on *Ideal Change* and *Non-Ideal Change* and the lack of significance ($p > .05$) of the interaction term supports Hypothesis 3. Despite this, the weakness of the linear regression, $R^2 = .113$, indicates that the dual basis for perception on change events, although present, can only be responsible for 11% of the variance in *Overall Engagement*.

Table 8 is the correlation matrix included in the regression analysis and Table 9 is the summary of the regression models for the perception of leader variables.

Table 8 - Correlation matrix for perceived match to leader to overall engagement

		OA_Engagement	V_Ideal_Leader	Venn_Non-Ideal_Leader	Interact_IL-NL
Pearson Correlation	OA_Engagement	1.000	.481	-.234	.128
	V_Ideal_Leader	.481	1.000	-.287	.099
	Venn_Non-Ideal_Leader	-.234	-.287	1.000	-.353
	Interact_IL-NL	.128	.099	-.353	1.000
Sig. (1- tailed)	OA_Engagement		.000	.007	.090
	V_Ideal_Leader	.000		.001	.150
	Venn_Non-Ideal_Leader	.007	.001		.000
	Interact_IL-NL	.090	.150	.000	
n	OA_Engagement	112	112	112	112
	V_Ideal_Leader	112	112	112	112
	Venn_Non-Ideal_Leader	112	112	112	112
	Interact_IL-NL	112	112	112	112

Table 9 - Linear regression models for perceived match to leader to overall engagement

Model (n = 112)	r	Sig. ^❶	R	R ²	Coeff. (β_n)	Sig.
= $\beta_1 * V_Ideal_Ldr$	.481	.000	.481	.231	.253	.000
= $\beta_2 * V_Non-Ideal_Ldr$	-.234	.007	.234	.055	-.116	.013
= $\beta_1 * V_Ideal_Ldr +$ $\beta_2 * V_Non-Ideal_Ldr$ ^❷	.481	.000	.491	.241	.238	.000
					-.052	.235
= $\beta_1 * V_Ideal_Ldr +$ $\beta_2 * V_Non-Ideal_Ldr$	.481	.000	.481	.231	.253	.000
				*excluded var.	-.104	.235
= $\beta_1 * V_Ideal_Ldr +$ $\beta_2 * V_Non-Ideal_Ldr +$ $\beta_3 * Interact_IL_to_NL$ ^❸	.481	.000	.481	.231	.253	.000
				*excluded var.	-.104	.235
				*excluded var.	.081	.338

❶ Pearson Correlation to Overall Engagement with Sig. (1-tailed)

❷ Model shown using "Enter" method of independent variable inclusion

❸ Interaction term is the multiplication of centered (initial - mean) terms

This regression without outliers reveals that the perceived match to *Ideal Leader* correlates positively to *Overall Engagement* with $r = .481$ and the perceived match to *Non-Ideal Leader* correlates negatively with *Overall Engagement* with $r = -.234$, both with statistical significance ($p < .01$). The interaction term between the two variables is not statistically significant ($p > .05$). The coefficient for match to *Ideal Leader* is .253 and the coefficient for match to *Non-Ideal Change* is -.116 and again both were statistically significant ($p < .01$ and $p < .05$, respectively). The linear regression block models, though, show that the match to *Ideal Leader* is the only significant term with a coefficient of .253 and an $R^2 = .231$ ($p < .01$) when the variables are considered together and with their interaction term.

The regression models and correlation results show that both Hypotheses 4 and 5 can be supported because there is a positive effect on engagement for match on *Ideal Leader* and a negative effect for match on *Non-Ideal Leader*. But Hypothesis 6, the dual-basis mechanism for perception of leader, cannot be fully supported because of the strong negative correlation between the match on *Ideal Leader* and the match on *Non-Ideal Leader* with $r = -.287$ ($p < .01$).

The negative correlation implies that the measures of perception of *Ideal* and *Non-Ideal Leader* contain some interactions and cannot be considered fully independent. Again, the lack of independence between the variables can be seen in the regression models due to the exclusion of the *Non-Ideal Leader* and the interaction term.

From the regression without outlier analyses, it can be seen that removing the two suspect records had very little effect on the perception of change aspects of the study. The removal did have a small effect on the perception of leader models, though, creating slightly stronger regression terms and strengthening the directional relations for the correlation terms that support Hypothesis 4 and 5.

Variance and Regression Estimates for Dummy Variables. For both match to change and match to leader, only one dummy variable, *Layers between Leader and Subject*, was found to have a statistically significant ($p < .05$) effect on the predicted regression models. Tables 10 and 11 are the reduced results for the GLM Univariate analysis for perceived change and leader, respectively. See Appendices C and D for the full tables of results for the GLM Univariate analyses on perceived change and leader, respectively.

Table 10 - Variance and regression estimates for perceived change with layers between leader and subject

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Base Model	4.834	.003	.118	Intercept	2.843	.000	
				Venn_Ideal_Change	.152	.008	
				Venn_NonIdeal_Change	.105	.029	
				Interact_IC_to_NC	-.023	.402	
Layers_Leader_2_Subj	5.025	.001	.158	Intercept	3.176	.000	
				Venn_Ideal_Change	.149	.008	
				Venn_NonIdeal_Change	.106	.024	
				Interact_IC_to_NC	-.021	.431	
				Layers_Leader_2_Subject	-.119	.027	112

Table 11 - Variance and regression estimates for perceived leader with layers between leader and subject

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²		B	Sig.	n
Base Model	11.608	.000	.244	Intercept	3.102	.000	
				Venn_Ideal_Leader	.238	.000	
				Venn_NonIdeal_Leader	-.042	.361	
				Interact_IL_to_NL	.015	.555	
Layers_Leader_2_Subj	10.458	.000	.281	Intercept	3.418	.000	
				Venn_Ideal_Leader	.237	.000	
				Venn_NonIdeal_Leader	-.042	.352	
				Interact_IL_to_NL	.010	.705	
				Layers_Leader_2_Subject	-.116	.020	112

In both cases the inclusion of *Layers between Leader and Subject* increased the R² value by approximately .04. This indicates that this particular demographic characteristic accounts for approximately 4% of the variance seen in *Overall Engagement*. In both cases the *Layers between Leader and Subject* predicted regression coefficient was approximately -.120, with statistical significance ($p < .05$). This shows that, as the number of layers between a subordinate and the leader executing a change increases, the subordinate's overall engagement will decrease. It is also noteworthy that, the addition of the *Layers between Leader and Subject* variable did not affect the previous regression results in either model. In the case of perceived change, both match to *Ideal* and *Non-Ideal Change* continue to be positive and significant ($p < .01$ and $p < .05$, respectively) and in the case of perceived leader, match to *Ideal Leader* remains the only significant ($p < .01$) variable.

Discussion

The results of the study show that the dual-basis perception mechanism is present when considering subordinates' response to change events. The directionality of the factors was not expected, though, because the engagement response was high even in instances where the match on *Non-Ideal Change* was high. Several factors may be at play in this regard; the primary may

be a normal human response for people who were already previously engaged at an organization: a change in the perceived non-ideal direction may actually instill a motivation factor to get involved and work to either counteract the change or effect the change back to the perceived ideal. This is an organizational "Fight or Flight" response because some subordinates actually are motivated to fight, increasing their engagement, if the change event is strongly related to either scale. Another potential factor is a limitation in the study, specifically the concept of a *Non-Ideal Change* is a reversal type of data point. Unfortunately, this study did not include a secondary measure to verify that the respondents in the population understood the concept of a *Non-Ideal Change* and answered appropriately. When the actual data for match to Non-Ideal Change was reversed and then run through the regression analysis, it showed that both the directionality of the hypothesis for effect on engagement held true and the dual-basis mechanism was true (see Appendix E).

The analysis on perceived leader showed that the directionality of response to match on ideal and non-ideal moved as hypothesized, but the scales did not show independence. Unfortunately, as a result, the dual-basis mechanism of perception does not seem to apply. The primary concern with this finding is the potential that some respondents misunderstood the concept of the dual-basis scale for rating matches to *Ideal* and *Non-Ideal Leader*. The concepts of *Ideal* and *Non-Ideal Leader* are not confirmed with a second set of questions or with a standardized scale, which is a weakness of the study. Again, the primary concern with this is the potential that a limitation in the study is interfering with the ability to measure the dual-basis of perception. The concepts of *Ideal* and *Non-Ideal Leader* are not confirmed with a second set of questions or with a standardized scale. One possible scale to use would be the 6-item Mael and

Ashforth Organizational Identification scale adapted to target the leader, similar to the methodology used by van Quaquebeke et al. (2010).

Conclusion

Although this study was ambitious in scope, the analysis has shown that the dual basis of perceived match to Ideal and Non-Ideal does play a role in an organization's members' behaviors and reactions. The models from this data set have relatively small power for predicting engagement, but several key limitations to the design of this study may be affecting this portion of the analysis. The primary intent of the research was to be a preliminary study of the link between the psychological concepts of the dual-basis mechanism of perception with actual Leadership practices. In this regard, the research was successful.

Research Limitation

There are two key limitations in this study. The first is that the concept of perceived match to *Ideal* and *Non-Ideal Change* and *Leader* are not vetted concepts within current research. The Venn diagram questions used in this study are statistically suspect as good measures for the concepts because they have not had work done to develop internal or test-to-test reliability. As a result, confidence in the validity of this study is lower because there is always a doubt whether the respondents are actually answering the question as intended. Evidence of this can be seen in both of the outliers that were examined and in the experimental examination of reversing the match on *Non-Ideal Change*. Both instances showed that the models are sensitive to the input of these variables and that having a secondary check for the concepts would have made the study more robust.

The second limitation of the study was having a limited size and relatively diverse population through use of the snowball method for population gathering. Although the

population was a good size for statistical calculations and although a diverse population is often sought in order to gain external validity, in this instance, these traits led to difficulty in discerning key differences or influences on the dual-basis mechanism of perception. One example of this effect in the population size is the relatively small number of respondents in the *Organization Type* variable other than business, $n < 12$. This reduced the ability of the sub-populations with low n 's to have statistical significance in the regression models. The diversity of the population prevented the study from focusing on a single change event, a particular layer of leadership, or a specific set of leadership behaviors. This randomness in respondents selecting their own change and leader to target may have had an averaging effect on the strength of the ability of the dual-basis of perception mechanism within the models.

Future Studies

A key area of future research would be to examine the qualitative statements associated with the Venn alignment questions and analyze them for potential themes. These themes may shed further insight to the effect of alignment with the theme and subordinate's engagement. Additionally, if themes are shown to be present and acting on engagement, this may lead to an organized approach of key ideal and non-ideal changes or behaviors that leaders within organizations should be aware of as they work toward their organization's goals.

A second area of future research on the dual-basis mechanism of perception of subordinates during change events would be to initiate a longitudinal study on a defined or relatively homogeneous population. If a single source population was examined during a single change event with a defined leader(s), then the effect of the change event and leaders' actions on the subordinates' engagement could be examined across time. This study could possibly show the permanence of the effect on the subordinates and could give an indication to future

leadership initiatives about the severity of the impact that change initiatives and their actions could have on their subordinates.

A third possible study that could be performed to better understand the dual-basis mechanism of perception with regard to change events and leaders' actions would be to run an experimental study similar to van Quaquebeke et al.'s (2010) study 3. Fictitious case studies could be written to establish scenarios that would support a 2x2 between subjects factorial design. The factorial design would be based on match to ideal change, high and low and match to non-ideal change, high and low. A second 2x2 factorial design could be executed for match to ideal and non-ideal leaders' actions. These experimental scenarios can then be assigned within a volunteer population with a final survey. This approach would allow an isolated examination of the dual-basis mechanism of perception within the leader follower relationship.

Concluding Remarks

The primary reason for pursuing this study was to add to the understanding of the leader-follower relationship. In this regard, the study clearly points to a relatively new facet of thinking that leaders should consider in their pursuit of creative and practical intelligence. This new facet is the understanding that the human psychology of perception involves a dual-basis mechanism that considers both ideal and non-ideal evaluations simultaneously. These perceptions will occur whether a leader proactively addresses them or not and both evaluations have been shown to have an effect on the reaction of the subordinate. Therefore, it can be a distinct advantage for leaders if both sides of the perception mechanism are addressed when working within an organization.

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Appendix A: IRB Protocol



Office of Research Compliance
Schroeder Complex, 102
P.O. Box 1881
Milwaukee, Wisconsin 53201-1881
P 414.288.7570
F 414.288.6281
W www.marquette.edu/researchcompliance

February 7, 2012

Mr. Anthony Senger
Professional Studies

Dear Mr. Senger:

Thank you for submitting your protocol number HR-2342 titled, "*The Dual Basis for Subordinate's Perception of Change.*" On February 6, 2012, the Marquette University Institutional Review Board granted exempt status for this protocol under Exemption Category #2: Anonymous Educational Tests, Surveys, Interviews, or Observations.

You may proceed with your research. Your protocol has been granted exempt status as submitted. Any changes to your protocol affecting participant risk must be requested in writing by submitting an IRB Protocol Amendment Form which can be found here: <http://www.marquette.edu/researchcompliance/research/irbforms.shtml>. These changes must be reviewed and approved by the IRB before being initiated, except when necessary to eliminate apparent immediate hazards to the human subjects. If there are any adverse events, please notify the Marquette University IRB immediately.

Please submit a Protocol Completion/Termination Report once this research project is complete. Submitting this form allows the Office of Research Compliance to close your file.

If you have any questions or concerns, please do not hesitate to contact me. Thank you for your time and cooperation.

Sincerely,

Amanda J. Ahrndt, RN, MS, MSN, CIM
IRB Manager

cc: Dr. Christopher Okunseri, IRB Chair
Dr. Jay Caulfield, Professional Studies
Mr. Carl Wainscott, Graduate School

AA/rr

Appendix B: On-Line Survey

V2 - The Dual Basis for Subordinate's Perception of Change

Are you currently eighteen [18] years of age or older?

Yes

No

V2 - The Dual Basis for Subordinate's Perception of Change

MARQUETTE UNIVERSITY
AGREEMENT OF CONSENT FOR RESEARCH PARTICIPANTS
The Dual Basis for Subordinate's Perception of Change
Anthony Senger
Marquette University, College of Professional Studies

You have been invited to participate in this research study. Before you agree to participate, it is important that you read and understand the following information. Participation is completely voluntary. Please ask questions about anything you do not understand before deciding whether or not to participate.

PURPOSE: The purpose of this research study is to gain an understanding of how change activities are perceived within an organization and how these perceptions affect the organization's performance. You will be one of approximately 100 – 200 participants in this research study.

PROCEDURES: This research is based on data that will be collected during this on-line survey. The on-line tools used here have been designed to ensure the maximum potential security and anonymity for you. SSL encryption will be used, no IP addresses will be collected, and no e-mail addresses will be stored.

The survey can be taken in incremental steps as is convenient for you. Each survey will use a browser cookie that is stored on your computer that records your individual survey until you complete and submit it (cookies must be enabled in your browser for this feature of the survey to function, otherwise if you exit the survey early you will have to start over). You will be able edit your survey at any time up until you submit it or up to the data collection closure date, May 15, 2012. Upon completion of the survey you will be asked to confirm that the survey is complete and submit it. Once submitted, the survey cannot be edited or removed from the database.

During the survey, you will be asked to think of a particular organization that you belong to and of a change event that has occurred or is ongoing in that organization. You may wish to collect your thoughts on this change event and jot down some notes for reference during the remainder of the survey. Additionally, you will be asked about the leadership of the organization that was responsible for the change event and their actions at that time. A series of Venn diagram questions will be used to gauge your perceptions of the change event and the organization's leadership. You will be asked a series of scale questions that will examine your engagement within the organization. Finally you will be asked a

V2 - The Dual Basis for Subordinate's Perception of Change

series of demographic questions and you will be asked to provide brief descriptions of the organization, the organization's leadership, and the particular change event that you used for answering scale and Venn diagram questions. You are encouraged to avoid any specific descriptions in your answers that may identify you or your particular organization.

Your personal identification information will not be recorded anywhere within this data, and the research will seek to preserve anonymity within the data. The data will be stored for approximately five years beyond the date of this study and then it will be destroyed. As part of the working agreement of the measures used in this study, a portion of your survey will be shared with the original researcher. Specifically, only the engagement data and demographic information for gender, age, and location will be shared with Dr. W. B. Shaufeli of Utrecht University, Netherlands.

DURATION: Your participation will consist of accessing an on-line survey that will require approximately 30 minutes to complete. The survey will have options to pause and continue as needed for your convenience through the use of a browser cookie that will be stored on your computer.

V2 - The Dual Basis for Subordinate's Perception of Change

RISKS: The risks associated with participation in this study include nothing more than what may occur during normal conversation regarding your organization in everyday life. Participants are encouraged to respect all confidentiality agreements that they may have with their organization and only should answer to the degree that they feel will preserve their and their organization's anonymity.

BENEFITS: There are no direct benefits associated with participation in this study. The purpose of this study is to increase the knowledge of how organization's members evaluate and respond to change activities that are being led by their organization's leadership.

CONFIDENTIALITY: All information you reveal in this study will be kept confidential. All your data will be assigned a survey number rather than using your name or other information that could identify you as an individual. When the results of the study are published, you will not be identified by name. The database created from this survey will be kept at the Principle Investigator's home on his personal computer in a password protected file. Any paper documents associated with this study will be stored in a locked cabinet at the Principle Investigator's home. The data will be destroyed by shredding paper documents and deleting electronic files 5 years after the completion of the study. The use of a browser cookie will allow you to edit your survey until either you submit the survey or the data collection closure date passes. After the data collection closure date, May 15, 2012 the on-line survey will be closed and no further surveys will be collected. No personal identification data will be asked for in the course of the survey beyond normal demographic information. Please be aware that these research records may be inspected by the Marquette University Institutional Review Board or its designees, and (as allowable by law) state and federal agencies.

VOLUNTARY NATURE OF PARTICIPATION: Participating in this study is completely voluntary and you may withdraw from the study and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled. If at any point during the survey you no longer wish to proceed, you may simply exit the browser and not return to the survey. Your survey and answers will not be recorded in the studies database until you complete and submit it. If you complete the survey and submit it, the survey will be recorded and locked into the database. Because of the anonymous nature of the survey, you will not be able to retrieve, edit or delete your survey after you have submitted it. Additionally, after that data collection closure date, the survey will be closed and all submissions to the database will be locked with no means to

V2 - The Dual Basis for Subordinate's Perception of Change

edit or remove individual records from the database.

CONTACT INFORMATION: If you have any questions about this research project, you can contact Anthony Senger at 1645 S Berlin Ave, New Berlin, WI 53151 or by phone during the day (414)465-6172 or evening (262)938-9528 or via e-mail at anthony.senger@mu.edu. If you have questions or concerns about your rights as a research participant, you can contact Marquette University's Office of Research Compliance at (414) 288-7570.

YOU HAVE BEEN GIVEN THE OPPORTUNITY TO READ THIS CONSENT FORM AND ASK QUESTIONS ABOUT THE RESEARCH PROJECT. BY PROCEEDING THROUGH THE REMAINDER OF THE SURVEY AND SUBMITTING IT TO THE DATABASE, YOU ARE GIVING YOUR CONSENT AND ARE PREPARED TO PARTICIPATE IN THIS PROJECT.

Are you willing to consent and proceed to the survey?

- Yes, proceed to Survey. No, I'd like to exit.

V2 - The Dual Basis for Subordinate's Perception of Change

During this questionnaire we will be asking questions regarding an organization that you belong(ed) to and a particular change event that occurred at that organization. It can be any organization, be it social, religious, work, political or any other. We'd prefer that the Change Event that you choose be something that was not within your sphere of influence (under your leadership) within the organization.

Ideally, the change event that you are thinking of should have occurred within the last year (12 months). Please do your best to answer the questions in the context of that organization and that change event throughout the survey.

For this first section of the questionnaire we want to ask you about some of the details of the organization that you are thinking about for this survey.

1. What category does this Organization fall into?

- Business Religious Charitable / Non-Profit
 Political / Government Social / Recreational Other

2. How long have you been or were you a part of this Organization?

Years

3. How long had you been with the organization before the change event occurred?

Years

4. How long ago did the change event occur at the organization? (in months)

Months

5. How big was your organization, overall, at the time of the Change Event? (members)

6. At the time of the Change Event, were you working as a Supervisor to other members of the organization?

- Yes
 No

7. How many layers were there between you and the leadership level that was in charge of the change event? (i.e. you led the change = 0, your boss' boss led the change = 2)

V2 - The Dual Basis for Subordinate's Perception of Change















8. How many members of the organization reported to the leaders that were in charge of the Change Event?

V2 - The Dual Basis for Subordinate's Perception of Change

The next area of the survey uses a Venn diagram form of questioning. Because you may not be familiar with how this type of questioning works please consider the following example:

Question: What you would call a good night's sleep?

Using the Venn diagram below consider these two scenarios:

	1	2	3	4	5	6	7
A good night of sleep for me							
The Scenario's night of sleep							

Scenario 1:

Your 7 month old baby is teething, has a cold, and woke up 5 times screaming and crying during the night. Additionally your neighbor's dog has been barking since 5:30 AM, and you have a very important meeting to attend at 8:00 AM.

This scenario compared with your idea of a good night's sleep would probably be a 1 on the above scale.

Scenario 2:

You are on vacation and still have several days of relaxation ahead of you. Yesterday's entertainment was the experience of a lifetime, and you ended the day with an enjoyable meal. You have nothing scheduled for this morning and woke up on your own with no alarms.

This scenario compared with your idea of a good night's sleep would probably be a 7 on the above scale.

V2 - The Dual Basis for Subordinate's Perception of Change

Another area that may need clarification during the Venn diagram questions, is the use of "Ideal" and "Non-Ideal" as categories for our survey.

For this survey "Ideal" groups are things that you agree with or think highly of and "Non-Ideal" groups are things that you don't like, would avoid or would like to see changed.

A word of caution: for Change Events the concepts of "Ideal" and "Non-Ideal" actually take on a reversal of meaning. For instance, things that you really like or would not want changed become "Non-Ideal" changes for you because if they did change you would be losing things that you think are good.

Finally, to help you think about these "Ideal" and "Non-Ideal" categories we will be asking you to list your top three things in a given category. This is done to help get you thinking about a particular category in general. The top three items you list are not intended to limit your comparisons. Most of us will have more than three things we like or don't like in a category. For this survey we're interested in making the comparison against your whole category, not just the top three items.

V2 - The Dual Basis for Subordinate's Perception of Change

Now that you understand how a Venn diagram works, take a moment to consider the overall environment and activities within the organization around the time of the Change Event you have in mind.

To help protect your confidentiality, please avoid using any specific names or details about the organization that could lead to a connection.

The names and details are not needed for the purposes of the study and the following questions are intended only to help you focus your thoughts on this particular event and period of time.

Around the time of the Change Event that you have in mind, list out the top three things you believe your organization did NOT do very well and that really needed to change.

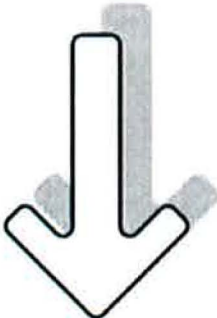
These three things are your "Ideal" Changes for the organization. In other words, these are the things that you felt that your organization really needed to change or if you were "in charge" these are the things you would have focused on.

1.

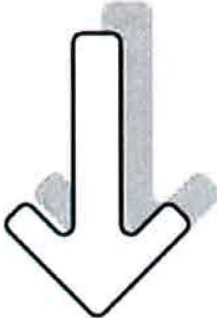
2.

3.

V2 - The Dual Basis for Subordinate's Perception of Change



While using the Venn diagram below, focus on your whole category of "Ideal" Changes and the actual Change Event.



V2 - The Dual Basis for Subordinate's Perception of Change

Please rank the actual Change Event compared to your "Ideal" Changes for the organization.

We're trying to understand how well the actual Change Event that you are thinking of matches the things you thought needed to change in the organization.

Remember the word of caution from earlier, "Ideal" Changes in this instance takes on the following meaning: It would be an "Ideal" change to have the things you didn't like about your organization actually be what was changed during your change event.

	1	2	3	4	5	6	7
My Ideal Change for the Organization							
My Actual Change Event							

- 1
 2
 3
 4
 5
 6
 7

V2 - The Dual Basis for Subordinate's Perception of Change

As we continue, please keep in mind to protect your confidentiality you should avoid using any specific names or details from your organization.

The details are not needed for the purposes of the study and the following questions are intended only to help you focus your thoughts on this particular event and period of time.

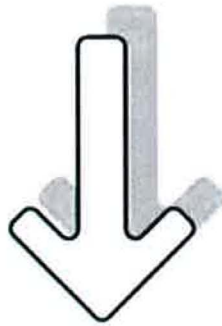
Now, please take a moment to consider the top three things that your organization did/does really well and that should NOT be changed.

These three things are your "Non-Ideal" Changes for the organization. In other words, these are the things you felt your organization should continue doing or if the organization changed these things it would be a "Non-Ideal" situation in your opinion.

1.

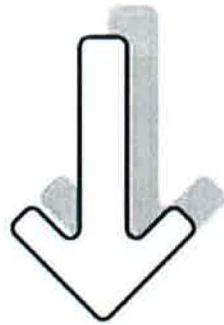
2.

3.



While using the Venn diagram below, focus on the whole category of "Non-Ideal" Changes for your organization and the actual Change Event.

V2 - The Dual Basis for Subordinate's Perception of Change



Please rank the Change Event compared to your "Non-Ideal" Changes for the organization.

For this question we're trying to identify how the actual Change Event you are thinking of compares to things you thought should NOT have changed at your organization.

Remember the word of caution from earlier, "Non-Ideal" Changes in this instance takes on the following meaning: It would be a "Non-Ideal" change if the things that you liked about your organization were what was changed during your change event.

	1	2	3	4	5	6	7
My Non-Ideal Change for the Organization							
My Actual Change Event							

- 1
 2
 3
 4
 5
 6
 7

V2 - The Dual Basis for Subordinate's Perception of Change

Now that we understand a little more about your organization, we'd like to ask you about your organization's Leadership at the time of the Change Event. Specifically, we'd like you to think of the leaders that were directly involved with the Change Event and their actions.

As a reminder of confidentiality, please avoid using any specific names or details about the leader or organization that could lead to a connection.

The names or details are not needed for the purposes of the study and the following questions are intended only to help you focus your thoughts on this particular event and period of time.

Please list out the top three behaviors or actions you believe the leaders in organizations like yours should do or be able to do really well.

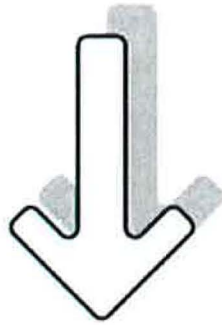
These three things are your "Ideal" Leader's Actions for an organization like yours. In other words these are the skills and actions that good leaders should be able to perform in order to be a good leader.

1.

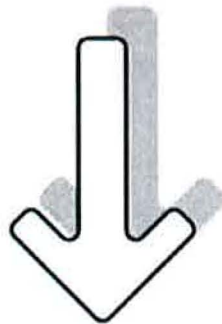
2.

3.

V2 - The Dual Basis for Subordinate's Perception of Change



While using the Venn diagram below, focus on your opinion of what are "Ideal" Leader's Actions and the actual Change Event.



V2 - The Dual Basis for Subordinate's Perception of Change

Please rank your leader's actions as they implemented the Change Event compared to your "Ideal" Leader's Actions.

In this third Venn diagram, we're trying to understand how well the actual actions of your leaders compare with the actions that you feel good leaders normally perform.

	1	2	3	4	5	6	7
My Ideal Leaders' Actions							
My Leader's Actual Actions							

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

V2 - The Dual Basis for Subordinate's Perception of Change

As we finish with the Venn Diagrams, please keep in mind to protect your confidentiality you should avoid using any specific names or details from your organization.

The details are not needed for the purposes of the study and the following questions are intended only to help you focus your thoughts on this particular event and period of time.

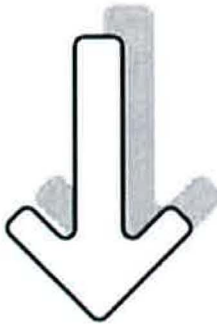
Please list out the top three behaviors or actions you believe the leaders of organizations like yours do NOT do well and that they should change.

These three things are your "Non-Ideal" Leader's Actions. In other words, these are the types of actions or behaviors that you believe would define poor leadership and that people in leadership positions should not do.

1.

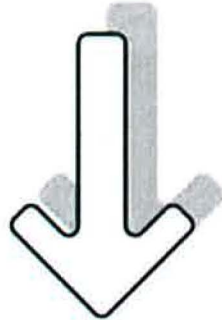
2.

3.



While using the Venn diagram below, focus your opinion of what are "Non-Ideal" Leader's Actions and the actual Change Event.

V2 - The Dual Basis for Subordinate's Perception of Change



Please rank your leader's actions as they implemented the change event compared to your "Non-Ideal" Leader's Actions.

In this final diagram we are trying to identify how your leader's behaviors compare with the things you think leaders should NOT do.

	1	2	3	4	5	6	7
My Non-Ideal Leaders' Actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My Leader's Actual Actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 1
- 2
- 3
- 4
- 5
- 6
- 7

V2 - The Dual Basis for Subordinate's Perception of Change

The following 17 questions are about how you felt regarding your "work" and role in your organization during or immediately following the change event.

Please read each statement carefully and decide how you felt about your "work" and role in the organization just after the change occurred. If you did not have the described feeling, mark "0" (zero) - never. If you have had this feeling, indicate how often according to the scale from "1 - Almost Never" to "6 - Always".

Please answer these questions with how you felt at the time of the change event that you have chosen to focus on.

	0 - Never	1 - Almost Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Very Often	6 - Always
9. At my work, I feel bursting with energy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I find the work that I do full of meaning and purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Time flies when I am working.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. At my job, I feel strong and vigorous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I am enthusiastic about my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. When I'm working, I forget everything else around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. My job inspires me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. When I get up in the morning, I feel like going to work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

V2 - The Dual Basis for Subordinate's Perception of Change							
	0 - Never	1 - Almost Never	2 - Rarely	3 - Sometimes	4 - Often	5 - Very Often	6 - Always
17. I feel happy when I'm working intensely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I am proud of the work I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I am immersed in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I can continue working for very long periods at a time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. To me, my job is challenging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I get carried away when I'm working.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. At my job, I am very resilient, mentally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. It is difficult to detach myself from my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. At my work I always persevere, even when things do not go well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

V2 - The Dual Basis for Subordinate's Perception of Change

Finally it is important for this study to understand a little bit about you. Please answer the following demographic and background questions.

25. Are you Male or Female?

- Male
 Female

26. Which category includes your age?

27. At the time of the Change Event were you married, widowed, divorced, separated, or never married?

- Married Widowed Divorced Separated Never married

28. At the time of the Change Event, how many dependents were you fully or partially supporting?

- 0 1 2 3 or more

29. At the time of the Change Event, in which country were living?

30. Do you primarily associate with the culture of the country that you were living in at the time of the Change Event?

- Yes
 No

31. What is the highest level of education you have completed?

- | | |
|---|--|
| <input type="radio"/> Some high school | <input type="radio"/> Four-year college degree |
| <input type="radio"/> High school | <input type="radio"/> Some graduate studies |
| <input type="radio"/> Some college | <input type="radio"/> Graduate degree |
| <input type="radio"/> Two-year college degree | <input type="radio"/> Advanced graduate or PHD |

V2 - The Dual Basis for Subordinate's Perception of Change

Thank you VERY much for your time and consideration in volunteering for this research survey!

Please keep in mind you can contact Anthony Senger with any questions regarding this work or if you would like any notification regarding the research completion and findings. (anthony.senger@mu.edu)

Also it is important to keep in mind once you have selected "Complete --> Submit" below, your data will be logged into the data base in an anonymous manner and consequently can not be withdrawn from the research.

Once again, Thank you!

Have you answered all of the questions? and are you ready to submit your survey to the research database?

Complete --> Submit

Appendix C: GLM Univariate Analysis of Match to Change with Dummy Variables

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Base Model	4.834	.003	.118	Intercept	2.843	.000	
				Venn_Ideal_Change	.152	.008	
				Venn_NonIdeal_Change	.105	.029	
				Interact_IC_to_NC	-.023	.402	
Org_Type	2.451	.018	.160	Intercept	3.352	.000	
				Venn_Ideal_Change	.144	.014	
				Venn_NonIdeal_Change	.087	.077	
				Interact_IC_to_NC	-.034	.225	
				Org_Type_Business	-.506	.097	79
				Org_Type_Gvmt	-.285	.520	6
				Org_Type_Religious	.108	.850	3
				Org_Type_Social	.174	.795	2
				Org_Type_NonProfit	-.407	.275	12
				Org_Type_Other	0 ^o		10
Tenure_yrs	3.759	.007	.123	Intercept	2.734	.000	
				Venn_Ideal_Change	.157	.006	
				Venn_NonIdeal_Change	.105	.028	
				Interact_IC_to_NC	-.025	.363	
				Tenure_yrs	.009	.444	112
Tenure_B4_Change	3.947	.005	.129	Intercept	2.690	.000	
				Venn_Ideal_Change	.161	.005	
				Venn_NonIdeal_Change	.107	.025	
				Interact_IC_to_NC	-.026	.343	
				Tenure_B4_Change	.014	.266	112
Months_Since_Change	3.630	.008	.119	Intercept	2.799	.000	
				Venn_Ideal_Change	.154	.007	
				Venn_NonIdeal_Change	.104	.030	
				Interact_IC_to_NC	-.023	.400	
				Months_since_change	.004	.714	112
Org_Size_n	3.788	.006	.124	Intercept	3.055	.000	
				Venn_Ideal_Change	.142	.014	
				Venn_NonIdeal_Change	.099	.042	
				Interact_IC_to_NC	-.021	.445	
				Org_Size_n	-.043	.407	112
Org_Size	2.118	.041	.141	Intercept	2.712	.000	
				Venn_Ideal_Change	.147	.013	
				Venn_NonIdeal_Change	.107	.035	
				Interact_IC_to_NC	-.016	.561	
				Org_Size_1to50	.122	.686	16
				Org_Size_51to100	.464	.147	12
				Org_Size_101to500	.068	.801	26
				Org_Size_501to1000	.224	.403	24
				Org_Size_1001to5000	.037	.902	14
				Org_Size_5000plus	0 ^o		20

^oThis parameter is set to zero because it is redundant.

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Supervisory_Role	4.386	.003	.141	Intercept	2.761	.000	
				Venn_Ideal_Change	.146	.010	
				Venn_NonIdeal_Change	.103	.030	
				Interact_IC_to_NC	-.018	.496	
				Supervisory_Role_Yes	.276	.097	45
				Supervisory_Role_No	0 ^o		67
Layers_Leader_2_Subj	5.025	.001	.158	Intercept	3.176	.000	
				Venn_Ideal_Change	.149	.008	
				Venn_NonIdeal_Change	.106	.024	
				Interact_IC_to_NC	-.021	.431	
				Layers_Leader_2_Subject	-.119	.027	112
Leaders_Subords_n	3.598	.009	.119	Intercept	2.863	.000	
				Venn_Ideal_Change	.153	.008	
				Venn_NonIdeal_Change	.104	.031	
				Interact_IC_to_NC	-.023	.398	
				Leaders_Subords_n	-.008	.881	112
Leaders_Subordinates	2.720	.009	.174	Intercept	2.535	.000	
				Venn_Ideal_Change	.165	.004	
				Venn_NonIdeal_Change	.104	.029	
				Interact_IC_to_NC	-.021	.430	
				Leaders_Subords_1to50	.287	.436	58
				Leaders_Subords_51to100	.107	.807	11
				Leaders_Subords_101to500	.319	.423	20
				Leaders_Subords_501to1000	.215	.599	16
				Leaders_Subords_1001to5000	2.319	.013	1
				Leaders_Subords_5000plus	0 ^o		6
Gender	3.985	.005	.130	Intercept	2.739	.000	
				Venn_Ideal_Change	.153	.007	
				Venn_NonIdeal_Change	.112	.020	
				Interact_IC_to_NC	-.026	.341	
				Gender_Female	.200	.241	41
				Gender_Male	0 ^o		71
Marital_Status	3.191	.010	.131	Intercept	2.574	.000	
				Venn_Ideal_Change	.153	.008	
				Venn_NonIdeal_Change	.113	.021	
				Interact_IC_to_NC	-.023	.389	
				Married	.243	.376	94
				Divorced_or_Seperated	.507	.229	7
				Never_Married	0 ^o		11
Num_Dependants	3.665	.008	.120	Intercept	2.910	.000	
				Venn_Ideal_Change	.150	.009	
				Venn_NonIdeal_Change	.102	.034	
				Interact_IC_to_NC	-.023	.387	
				Num_Dependants	-.035	.613	112

^oThis parameter is set to zero because it is redundant.

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²		B	Sig.	n
Age_Group_n	3.644	.008	.120	Intercept	2.748	.000	
				Venn_Ideal_Change	.152	.008	
				Venn_NonIdeal_Change	.103	.031	
				Interact_IC_to_NC	-.022	.423	
				Age_Group_n	.020	.670	112
Age_Group	1.922	.045	.175	Intercept	1.982	.038	
				Venn_Ideal_Change	.164	.007	
				Venn_NonIdeal_Change	.136	.008	
				Interact_IC_to_NC	-.024	.405	
				Age_Group_18_to_25	0 ^o		0
				Age_Group_26_to_30	.936	.327	7
				Age_Group_31_to_35	.116	.900	10
				Age_Group_36_to_40	.814	.369	37
				Age_Group_41_to_45	.593	.518	22
				Age_Group_46_to_50	.767	.402	14
				Age_Group_51_to_55	.748	.420	11
				Age_Group_56_to_60	.784	.416	7
				Age_Group_61_to_65	.973	.338	3
				Age_Group_66_to_70	0 ^o		1
				Age_Group_70_plus	0 ^o		0
Education_Lvl_n	4.753	.001	.151	Intercept	1.842	.001	
				Venn_Ideal_Change	.171	.003	
				Venn_NonIdeal_Change	.110	.020	
				Interact_IC_to_NC	-.023	.392	
				Education_Lvl_n	.146	.046	112
Education_Lvl	2.833	.007	.180	Intercept	2.861	.000	
				Venn_Ideal_Change	.173	.003	
				Venn_NonIdeal_Change	.110	.022	
				Interact_IC_to_NC	-.016	.547	
				Ed_Lvl_Some_High	0 ^o		0
				Ed_Lvl_High_School	0 ^o		0
				Ed_Lvl_Some_College	.634	.471	1
				Ed_Lvl_2yr_College	-.581	.282	3
				Ed_Lvl_4yr_College	-.420	.136	30
				Ed_Lvl_Some_Grad	-.063	.833	21
				Ed_Lvl_Grad_degree	.067	.801	43
				Ed_Lvl_Adv_Grad	0 ^o		14

^oThis parameter is set to zero because it is redundant.

Appendix D: GLM Univariate Analysis of Match to Leader with Dummy Variables

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Base Model	11.608	.000	.244	Intercept	3.102	.000	
				Venn_Ideal_Leader	.238	.000	
				Venn_NonIdeal_Leader	-.042	.361	
				Interact_IL_to_NL	.015	.555	
Org_Type	4.966	.000	.278	Intercept	3.413	.000	
				Venn_Ideal_Leader	.234	.000	
				Venn_NonIdeal_Leader	-.031	.519	
				Interact_IL_to_NL	.016	.545	
				Org_Type_Business	-.436	.106	79
				Org_Type_Gvmt	-.201	.626	6
				Org_Type_Religious	.160	.760	3
				Org_Type_Social	.095	.878	2
				Org_Type_NonProfit	-.295	.387	12
Org_Type_Other	0 ^o		10				
Tenure_yrs	8.687	.000	.245	Intercept	3.037	.000	
				Venn_Ideal_Leader	.240	.000	
				Venn_NonIdeal_Leader	-.040	.386	
				Interact_IL_to_NL	.013	.608	
				Tenure_yrs	.005	.667	112
Tenure_B4_Change	8.828	.000	.248	Intercept	2.996	.000	
				Venn_Ideal_Leader	.242	.000	
				Venn_NonIdeal_Leader	-.039	.401	
				Interact_IL_to_NL	.012	.632	
				Tenure_B4_Change	.009	.436	112
Months_Since_Change	8.635	.000	.244	Intercept	3.079	.000	
				Venn_Ideal_Leader	.238	.000	
				Venn_NonIdeal_Leader	-.041	.378	
				Interact_IL_to_NL	.015	.562	
				Months_since_change	.002	.867	112
Org_Size_n	8.709	.000	.246	Intercept	3.202	.000	
				Venn_Ideal_Leader	.232	.000	
				Venn_NonIdeal_Leader	-.040	.387	
				Interact_IL_to_NL	.016	.531	
				Org_Size_n	-.024	.617	112
Org_Size	4.850	.000	.274	Intercept	3.009	.000	
				Venn_Ideal_Leader	.247	.000	
				Venn_NonIdeal_Leader	-.038	.413	
				Interact_IL_to_NL	.021	.438	
				Org_Size_1to50	-.075	.790	16
				Org_Size_51to100	.479	.103	12
				Org_Size_101to500	-.011	.964	26
				Org_Size_501to1000	.068	.784	24
				Org_Size_1001to5000	-.038	.893	14
Org_Size_5000plus	0 ^o		20				

^oThis parameter is set to zero because it is redundant.

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Supervisory_Role	9.179	.000	.255	Intercept	3.084	.000	
				Venn_Ideal_Leader	.226	.000	
				Venn_NonIdeal_Leader	-.049	.294	
				Interact_IL_to_NL	.012	.626	
				Supervisory_Role_Yes	.201	.199	45
				Supervisory_Role_No	0 ^o		67
Layers_Leader_2_Subj	10.458	.000	.281	Intercept	3.418	.000	
				Venn_Ideal_Leader	.237	.000	
				Venn_NonIdeal_Leader	-.042	.352	
				Interact_IL_to_NL	.010	.705	
				Layers_Leader_2_Subject	-.116	.020	112
Leaders_Subords_n	8.644	.000	.244	Intercept	3.084	.000	
				Venn_Ideal_Leader	.237	.000	
				Venn_NonIdeal_Leader	-.044	.350	
				Interact_IL_to_NL	.016	.546	
				Leaders_Subords_n	.012	.816	112
Leaders_Subordinates	4.822	.000	.272	Intercept	2.893	.000	
				Venn_Ideal_Leader	.231	.000	
				Venn_NonIdeal_Leader	-.022	.658	
				Interact_IL_to_NL	.029	.287	
				Leaders_Subords_1to50	.160	.644	58
				Leaders_Subords_51to100	-.053	.897	11
				Leaders_Subords_101to500	.252	.502	20
				Leaders_Subords_501to1000	.171	.654	16
				Leaders_Subords_1001to5000	1.572	.080	1
				Leaders_Subords_5000plus	0 ^o		6
Gender	8.926	.000	.250	Intercept	3.054	.000	
				Venn_Ideal_Leader	.238	.000	
				Venn_NonIdeal_Leader	-.044	.339	
				Interact_IL_to_NL	.015	.564	
				Gender_Female	.148	.343	41
				Gender_Male	0 ^o	71	
Marital_Status	7.569	.000	.263	Intercept	2.822	.000	
				Venn_Ideal_Leader	.249	.000	
				Venn_NonIdeal_Leader	-.036	.438	
				Interact_IL_to_NL	.022	.399	
				Married	.216	.397	94
				Divorced_or_Seperated	.646	.100	7
				Never_Married	0 ^o	11	
Num_Dependants	8.856	.000	.249	Intercept	3.201	.000	
				Venn_Ideal_Leader	.235	.000	
				Venn_NonIdeal_Leader	-.047	.317	
				Interact_IL_to_NL	.013	.608	
				Num_Dependants	-.053	.406	112

^oThis parameter is set to zero because it is redundant.

Dummy Variable	Between Subjects Effects			Parameter Estimates			
	F	Sig.	R ²	B	Sig.	n	
Age_Group_n	8.712	.000	.246	Intercept	2.993	.000	
				Venn_Ideal_Leader	.237	.000	
				Venn_NonIdeal_Leader	-.044	.348	
				Interact_IL_to_NL	.012	.636	
				Age_Group_n	.023	.611	112
Age_Group	3.343	.001	.269	Intercept	2.749	.002	
				Venn_Ideal_Leader	.252	.000	
				Venn_NonIdeal_Leader	-.038	.433	
				Interact_IL_to_NL	.013	.647	
				Age_Group_18_to_25	0 ^o		0
				Age_Group_26_to_30	.244	.779	7
				Age_Group_31_to_35	.130	.879	10
				Age_Group_36_to_40	.316	.701	37
				Age_Group_41_to_45	.105	.900	22
				Age_Group_46_to_50	.577	.492	14
				Age_Group_51_to_55	.297	.726	11
				Age_Group_56_to_60	.334	.700	7
				Age_Group_61_to_65	.347	.712	3
				Age_Group_66_to_70	0 ^o		1
				Age_Group_70_plus	0 ^o		0
Education_Lvl_n	9.748	.000	.267	Intercept	2.354	.000	
				Venn_Ideal_Leader	.239	.000	
				Venn_NonIdeal_Leader	-.048	.298	
				Interact_IL_to_NL	.019	.466	
				Education_Lvl_n	.122	.068	112
Education_Lvl	4.951	.000	.278	Intercept	3.280	.000	
				Venn_Ideal_Leader	.229	.000	
				Venn_NonIdeal_Leader	-.049	.301	
				Interact_IL_to_NL	.020	.443	
				Ed_Lvl_Some_High	0 ^o		0
				Ed_Lvl_High_School	0 ^o		0
				Ed_Lvl_Some_College	.071	.932	1
				Ed_Lvl_2yr_College	-.653	.217	3
				Ed_Lvl_4yr_College	-.329	.206	30
				Ed_Lvl_Some_Grad	-.056	.840	21
				Ed_Lvl_Grad_degree	-.001	.997	43
				Ed_Lvl_Adv_Grad	0 ^o		14

^oThis parameter is set to zero because it is redundant.

Appendix E: Linear Regression Analysis with Reversed *Non-Ideal Change*

The reversed Non-Ideal Change term was created by transforming the order of the original *Non-Ideal Change* variable such that a “7” became a “1”, a “6” became a “2”, and so on for the scale. A new interaction term was then calculated. Table A is the resulting correlation matrix for the regression analysis and Table B is the linear regression model parameters.

Table A - Correlation matrix for perceived match to change to overall engagement, with reversed *Non-Ideal Change*

		OA_Engagement	V_Ideal_Change	R_Venn_NonIdeal_Chng	Interact_IC_R_NC
Pearson Correlation	OA_Engagement	1.000	.274	-.208	.101
	V_Ideal_Change	.274	1.000	-.053	.165
	R_Venn_NonIdeal_Chng	-.208	-.053	1.000	.091
	Interact_IC_R_NC	.101	.165	.091	1.000
Sig. (1-tailed)	OA_Engagement		.002	.014	.146
	V_Ideal_Change	.002		.289	.041
	R_Venn_NonIdeal_Chng	.014	.289		.169
	Interact_IC_R_NC	.146	.041	.169	
n	OA_Engagement	112	112	112	112
	V_Ideal_Change	112	112	112	112
	R_Venn_NonIdeal_Chng	112	112	112	112
	Interact_IC_R_NC	112	112	112	112

Table B - Linear regression models for perceived match to leader to overall engagement, with reversed *Non-Ideal Change*

Model (n = 114)	r	Sig. ^❶	R	R ²	Coeff. (β _n)	Sig.
= β ₁ * V_Ideal_Chng	.274	.002	.274	.075	.167	.003
= β ₂ * V_Non-Ideal_Chng	-.208	.014	.208	.043	-.108	.028
= β ₁ * V_Ideal_Chng + β ₂ * V_Non-Ideal_Chng	.274	.002	.336	.113	.161	.004
= β ₁ * V_Ideal_Chng + β ₂ * V_Non-Ideal_Chng + β ₃ * Interact_IC_to_NC ^❷	.274	.002	.336	.113	.161	.004
	-.208	.014			-.101	.034
	.101	.146			*excluded var.	.402

❶ Pearson Correlation to Overall Engagement with Sig. (1-tailed)

❷ Interaction term is the multiplication of centered (initial - mean) terms