2011

Age and education differences in superior-subordinate dyads: Testing relational norms and attraction similarity influences on role ambiguity, affect, and communication satisfaction

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AGE AND EDUCATION DIFFERENCES IN SUPERIOR-SUBORDINATE

DYADS: TESTING RELATIONAL NORMS AND ATTRACTION

SIMILARITY INFLUENCES ON ROLE AMBIGUITY,

AFFECT, AND COMMUNICATION SATISFACTION

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

Psychology:

Industrial/Organizational

by

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March 2011

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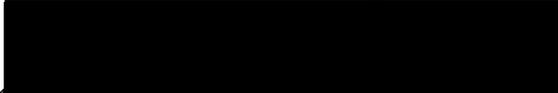
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ABSTRACT

The effects of various demographic attributes in superior-subordinate dyads have been of interest to both leadership and demography researchers. However, a majority of research within this domain has explored supervisor reactions. In this study we tested for subordinates' perceptions of role ambiguity, communication satisfaction, and affect for their superior across dyads that are heterogeneous and homogenous in terms of age and education.

The study used similarity attraction paradigm and relational norm theories as a foundation for the hypotheses. Using the similarity attraction paradigm, which proposes that demographically similar individuals will have more socialization with each other, it was predicted that there would be a negative relationship between subordinates' scores on the measures and their dissimilarity to their supervisor in terms of age and education. It was further postulated that when the dissimilarity is such that the subordinate is older and more educated than the superior, scores on the measures will be lower than other dyads because of a violation of relational norms.

The study's sample was comprised of 190 employees working in a variety of industries and occupations. Hierarchical linear regression was used to test for the effects of superior-subordinate similarity/dissimilarity, while multivariate analysis of covariance was employed to test for the effects of relational norm violations. No hypotheses for age differences were supported; however, significant differences in communication satisfaction were found between dyads with employees that were more educated than their supervisor and dyads where the incumbent was less educated than the superior. Implications for relational demography research and practitioners are presented.

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CHAPTER ONE

INTRODUCTION

Organizations are witnessing a transformation in the
workforce with the overall composition of employees
becoming much more diverse. Organizational diversity
typically focuses on gender and race. While these two
forms of diversity are a large contributor to the current
heterogeneous workforce, researchers have also begun
recognizing that the workforce's composition is
experiencing changes due to varying ages and levels of
education between workers (Tsui, Egan, & O'Reilly, 1992;
Williams & O'Reilly, 1998). The workforce, for example, is
now represented by a broader range of ages, with many
older workers continuing to work past traditional
retirement age. The older age cohorts are expected to
comprise an increasing proportion of the labor force as
the baby-boom generation ages (Toossi, 2002). Eberts and
Hobbie (2008), for example, explain that during 2000-2005,
the labor force activity of older workers (individuals
over the age of 62) rose after an extensive period of
decline. For instance, work participation for men at age
71 increased from 18% to 23.8% between 2000 and 2005,
while participation from women at age 70 went from 19.9%

to 16.7% (Eberts & Hobbie, 2008). Work participation shows a heavy decline after age 62, when early Social Security benefits become available in the United States; however, as the trend of a "graying workforce" (Sue, Parham, & Santiago, 1998) continues, it is expected that individuals will continue to work past the traditional ages of retirement, especially in flexible or part-time work (Alley & Crimmins, 2007). In addition, organizations are also witnessing a change in employees' education as the average education level in the workforce is rising (Alley & Crimmins, 2007). As a result, it is becoming increasingly common for an older worker to be paired with employees who are much younger and for an employee to be paired with other workers who have different levels of education.

In conjunction with the burgeoning trend of heterogeneity in the workplace, research techniques to study diversity are also expanding, enabling scientists and practitioners to use new methods to examine the effects of a heterogeneous workplace on organizational based outcomes such as: absenteeism (Avery, McKay, Wilson, & Tonidandel, 2007), performance (Richard, Murthi, & Ismali, 2007), and organizational commitment (Hu, Herrick, & Hodgin, 2004). Rather than focusing on broader

organizational level outcomes, or even the impact on work teams, researchers are now examining the effects of diversity through dyadic relationships between workers. Whichever approach is taken to study diversity, its influence on work related outcomes has produced mixed results. This has led to an idea that diversity can be a "double edged sword" (Howitz & Hortiwz, 2007).

At one end of the spectrum, diversity can be beneficial for tasks that require decision making and judgment because of the varying values, attitudes, and backgrounds of the employees (Tsui, Egan, & O'Reilly, 1992). On the other hand, these dissimilarities may create biases in relationships which can lead to poorer communication (Williams & O'Reilly, 1998) and result in low cohesion (Hambrick, 1994). As a result, further research on how diversity affects relationships with employees is needed. More specifically, there is a need to examine how workplace diversity affects interpersonal communication and employee relationships.

Therefore, the major purpose of this study was to examine the effects of varied education levels and ages on an area of increasing interest in diversity research: supervisor-subordinate dyads. In the face of growing demographic diversity, more emphasis is being placed on

superiors to build skills to effectively interact with a heterogeneous set of employees (Wesoloswki & Mossholder, 1997). Communication skills are of critical importance as supervisors will need to interact and relate with employees who come from a wide variety of educational backgrounds as well as ages. Although various researchers have examined the effects of a diverse workforce on supervisors, little research has been conducted on the attitudes of the employee as it relates to supervisor-subordinate relationships and interpersonal communication.

In this study we proposed to test whether superior-subordinate dyads which are diverse in terms of age and education, influence employees' attitudes towards their supervisor, the satisfaction with the communication between the dyad members, and employees' perceived clarity of job expectations. However, we first overview the major methods and theories for studying a workforce with diverse ages and education, followed by research relating to superior-subordinate dyads.

Age and Organizational Demography

A primary method for examining workplace diversity is organizational demography. Wesolowisky and Mossholder

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(1997) explain that organizational demography is a technique that examines the demographic distributions across an organization and how it influences organizational phenomena such as: perceptions of performance (Watson, Stewart, & Barnir, 2003), job meaningfulness and satisfaction (Hodson, 2002), pro-social organizational behavior (Pelled, Cummings, & Kizilos, 2000), and turnover (Jackson, Brett, Sessa, Cooper, Julin, & Peyronnin, 1991). Wagner, Pfeffer, and O'Reilly (1984) explain that the demography of an organization examines the linkage between individual characteristics as well as organizational wide attributes. Several researchers have used this approach to examine diverse ages and its effects on various job outcomes.

For example, Wagner et al. (1984) studied turnover intentions in management teams and found that in teams where there was a broad age distribution, managers who were more dissimilar in age were more likely to quit. In another study, Zenger and Lawrence (1989) examined engineering employees on their frequency of technical communication with fellow co-workers and managers. The researchers found age similarity to have a significant relationship on the frequency of technical information on inside project groups, which are individuals who the

employees interact with on a continuous basis. The researchers explain that individuals who have similar demographic characteristics will likely have shared backgrounds which will lead to initial conversations and then increased communication. Those initial conversations, which are started by similar experiences, eventually form into social bonds that employees are hesitant to break.

Within the domain of age, it has been found that different generations place importance on unique values (Smola & Sutton, 2002). Due to these common values, those who are of similar age may find it easier to begin conversations and form relationships. In situations with older cohorts, shared values obtained from previous historical events and similar occurring life experiences (e.g., upcoming retirement, grandchildren, and medical concerns) will typically result in more frequent communication, shared attitudes and beliefs, and the development of a shared language between employees (Rhodes, 1983; Zenger & Lawrence, 1989). Thus, those who are dissimilar in age may find themselves interacting with their co-workers less frequently or establishing fewer meaningful connections with employees making it easier for them to leave the organization.

Attraction Similarity Paradigm

The idea that individuals with similar values and backgrounds will have more interactions with each other stems from the attraction similarity paradigm (Byrne, 1971). The attraction similarity paradigm is a fundamental theory used within demography research. It proposes that individuals who share similar characteristics and interests will be inclined to become close to each other and will choose to have exchanges more frequently with members of a similar social group than those of different groups. When applied to work, the attraction similarity paradigm predicts that employees who share similar demographic characteristics are likely to communicate and spend more time together. In addition, research has shown that group members who spend more time together communicate with each other more openly (Ayoko, 2007). Since demographically similar workers will have a tendency to speak to one another more frequently and have more personal communication, these individuals may report more satisfaction with their communication and have stronger group uniformity.

For example, O'Reilly, Caldwell, and Barnett (1989) examined the social integration of work groups on job tenure and found that employees who were more similar on

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job tenure had the most social integration with the employees and also the lowest turnover. This suggests that workers who share similarity are more likely to form friendship relationships. If generalized to supervisors and subordinates, dyads which share similar demographic attributes may have more personal, social relationships characterized by more frequent interactions and higher satisfaction with their interpersonal communication.

Relational Demography

The similarity attraction paradigm, as well as heterogeneous demographic variables, such as age, are not limited to study under organizational demography. More scholars have begun using relational demography (e.g., Tsui & O'Reilly, 1989) as a framework to examine the effects of varying attributes in the workplace. Relational demography involves individual-level differences and measures employees' reactions based off of their perceived similarity or dissimilarity to other's demographic characteristics (Valenti & Rockett, 2008). Unlike organizational demography, which looks at work outcomes at a macro level, relational demography focuses on individual's outcomes based off interactions with other group members. When applying the principles of the

attraction similarity paradigm, relational demographers propose that individuals undergo a matchmaking process and that similarities will result in more positive outcomes than dissimilarities (Shore, Cleveland, & Goldberg, 2003). For example, Perry, Kulik, and Zhou (1999) demonstrated a link between employee dissimilarity and organizational commitment. Specifically, they found that incumbents with higher similarity were more likely to have higher organizational commitment than those who were dissimilar.

Age related differences have also been explored within relational demography research and have shown that age similarity can be linked to employee engagement (Avery, McKay, & Wilson, 2007) and that dissimilarity in age is positively related to emotional conflict (Pelled, Xin, & Weiss, 2001). Although the use of the similarity attraction paradigm has assisted in demonstrating an association between age congruity and job related outcomes, other researchers have applied different theoretical backgrounds to explore relational demography.

Beyond the attraction similarity paradigm, relational demography utilizes several other theories to frame its research. For example, social identity theory and self categorization theory, which are fairly similar, are often used to explain organizational phenomena within demography

studies. Social identification and self categorization theory explain that individuals tend to classify themselves into groups based on meaningful dimensions (Avery, McKay, & Wilson, 2007; Green, Whitten, & Medlin, 2005). These dimensions are typically demographic characteristics and assist individuals in identifying those who are similar and different, or who belong to an in-group and an out-group.

Chattopadhyay, George, and Lawrence (2004), for example, explain that classifying individuals into in-groups and out-groups assists with uncertainty reductions. It clarifies individuals' perceptions, attitudes, and behaviors that are important for self concept. These categorizations and social group forming provides an important basis for self definition (Deaux, Reid, Mizrahi, & Ethier, 1995), as well as self esteem (Williams & O'Reilly, 1998). A high degree of dissimilarity between an individual and their coworkers can threaten their social identity or self esteem. This may cause questioning of one's social identity, which can then lead to physical or psychological disengagement from the coworkers (Avery, McKay, & Wilson, 2007). Employees who are dissimilar, therefore, would be much more likely to detach themselves from others and have less

communication. Thus, due to demographic differences which threaten identity, supervisor-subordinate dyads may have greater social distance and fewer interpersonal exchanges.

Lastly, relational demography research has been examined using various occupational norms. It is believed that certain occupational norms have a significant influence on workers' attitudes and perceptions of others and their job. Unlike the attraction similarity paradigm or self categorization theory which focuses on interactions and pairings based on demographic comparison, occupational norms place emphasis on work expectations based on demographic attributes. Expectations based specifically on age have been labeled age norms. Lawrence (1996) defines age norms as ages viewed as standard for holding roles or status which exert significant influence on individuals. Employees observe specific titles and job duties with individuals at certain age ranges. These observations then become age norms for the career level a worker should ascertain at a specific age. This was labeled the career time table (Lawrence, 1984). Lashbrook (1996) found that employees in their early career (between the ages of 25-34) and mid career (ages 45-49) had the strongest expectations about age and organizational rank

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and are therefore the most likely to be influenced by age norms.

Age norm studies have provided clear evidence that there are age expectations for reaching various levels in the hierarchy of organizations (Forner, 1996). Individuals who have not obtained the organizational rank that they believe they should have at their age consider themselves to be "behind time." Research has shown that those employees who perceive themselves as behind time have more negative attitudes towards areas such as: feelings of success, motivation, perceived empowerment, commitment, and work expectations (Lawrence, 1984; 1996). However, it is uncertain whether these negative attitudes effect relationships with others who are considered ahead of time or on time. Research has, however, shown that deviating from the career time table has shown to influence raters. For example, Lawrence (1988) found that managers, in relation to their age, who were considered to be behind schedule on their hierarchical advancement, were judged more harshly than mangers who were perceived to be on time or ahead of schedule. In all instances, managers who were ahead of schedule received the highest ratings and managers behind schedule received the lowest. Therefore, since age norms affect both supervisor, and employee,

judgment, research may benefit from examining how age differences impact the attitudes that the supervisor and subordinate have for each other.

In more recent research, relational demographers have begun using relational norms, a more progressive approach to considering occupational norms (Shore et al., 2003). Developed by Tsui et al. (2002), relational norms are expectations that employees have about others which are based on demographic variables. These beliefs are based on not only age, but take experience, education, and other demographic attributes into consideration as well. Relational norms propose that employees' demographic attributes, as they relate to others, will influence their impression or expectations about other workers. Similarly, Bacharach, Bamberger, and Mundell (1993) suggest that at work, certain demographic characteristics contain certain expectations about organizational hierarchy, pay, or job roles. For example, workers who have earned an advanced degree should be paid more than those who have not earned an advanced degree. When individuals with specific demographic attributes do not receive the expected job outcome, there is status inconsistency. As a result, an individual who is experiencing status inconsistency is likely to perceive this as a threat which can lead to

negative attitudes such as emotional strain, role stress, or role ambiguity.

In addition, an employee with an advanced degree is likely to experience status inconsistency if the incumbent discovers that their pay is equal to those of workers with a bachelor's degree. Erickson, Pugh, and Gunderson (1972) used a "status congruency model" which included four variables: pay grade, job experience, age, and marital status to examine if individuals perceived life situations differently if they were congruent with their peers in their occupational category. It was found that one's status congruency was related to job satisfaction and life stress. While occupational norms and status congruence studies have demonstrated that inconsistencies with role expectations can produce negative feelings, these attitudes may be more salient within a context of formal hierarchy, such as supervisor-subordinate dyads. Therefore, we next discus the literature on relational demography and superior-subordinate dyads.

<div align="center">Superior-Subordinate Dyads and
Relational Demography</div>

Research in relational demography has seen an increased focus on superior-subordinate dyads. This is, in part, due to the increasing workplace diversity where

supervisory positions are held by a broader range of individuals. Therefore, it is becoming increasingly more common to be overseen by someone who is, "in historical terms, an atypical supervisor" (Vecchio & Bullis, 2001, p 884). This may be an individual who is younger or less educated than the incumbent. Since relational demography has shown to influence work perceptions, attitudes, and job outcomes through interpersonal interaction as well as the frequency of those interactions, it is important that researchers assess the effects of varying demographic attributes between supervisor, and subordinates. Relational demographic effects are of particular interest in superior-subordinate dyads not only because these effects may surface from varying demographic characteristics between the supervisors and the employee, but due to the interactions which occur within a domain of hierarchical differentiation and possible relational norms (Wesolowski & Mossholder, 1997).

Of the numerous job outcomes that may be a function of demographic characteristics in superior-subordinate dyads, performance ratings have been the most frequently studied (Tsui & O' Reilly, 1989). The age of the incumbents has been of particular interest to researchers examining supervisor judgments on performance. Perry et

al. (1999) explain that older workers are now more likely to work in jobs that have been traditionally filled by younger workers and may be supervised by individuals who are younger than themselves. As a result, age provides an area to explore within superior-subordinate dyads because of the potential status incongruence and dissimilarity in demographic attributes.

In addition, Liden, Stillwell, and Ferris (1996) explain that in the context of performance ratings, studies have shown that incumbent age and supervisory ratings have been shown to be negatively related, but the similarity between the age of the rater and the ratee may explain additional variance that is not explained by employee age alone. Their study failed to find that age similarity was related to performance measures; however, they did demonstrate a relationship between rater age and performance ratings by finding that employees of older supervisors had higher performance ratings. Although their study did not find a relationship between the dyads' age similarity and employee's performance assessments, Turban and Jones (1988) found that a composite of supervisor-subordinate demographic similarity, which included age, were found to be positively related to employee performance ratings. This indicates that higher

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superior- subordinate similarity resulted in increased
performance ratings. Thus, other similar demographic
attributes may significantly predict work outcomes as
well.

Superior-Subordinate Dyads and Education

Turban and Jones's (1998) analysis included education
as a characteristic in demographic similarity; an
attribute that is being included more frequently in
relational demography studies because it is a relevant
attribute for self-categorization (Tsui et al., 1992). In
addition, the workforce's education level is climbing
producing a workforce which has a much wider distribution
of education levels (Alley & Crimmins, 2007). Education is
often examined in superior – subordinate studies for
numerous reasons. First, education may be considered a
form of status. Individuals, whether they are in
leadership positions or as subordinates, will attach
specific roles, behaviors, and an elevated status to those
who are more educated. Relational norms are in most
congruence when an individual with a high level of
education is also placed in an upper ranking
organizational position. If a supervisor, for instance,
oversees an employee who has more education, the status

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incongruence caused by the norm violation may lead to feelings of unease by both the employee and the supervisor. Tsui and O'Reilly (1989) support this notion in their seminal study which found that supervisors reported higher levels of affect for employees who had less education than themselves and expressed more dislike for subordinates who had a higher degree of education. The authors' reason that the difference in affect was due to the fact that superiors may feel more confident and have increased psychological comfort interacting with subordinates who have less education because they are in alignment with relational norms.

Secondly, it is believed by researchers (e.g., Lau, Lam, & Salamon, 2008) that differing levels of educational attainment between supervisors and subordinates may create language incompatibility. This would result in dyads with poor communication of roles and job expectations and, as a result, affect the quality of the relationship between the superior and the subordinate. Studies which have assessed the effects of varying levels of education between supervisors and subordinates on communication have examined: role ambiguity (Tsui & O'Reilly, 1989), job satisfaction (Wesolowski & Mossholder, 1997), and performance ratings (McNeilly & Russ, 2000). These

researchers expected to find significant results based on the belief that different levels of education would misconstrue communication and therefore affect job outcomes, however; none of the studies produced significant findings.

Although researchers have not been able to fully demonstrate a linkage between education similarity, superior-subordinate communication, and job outcomes, McNeilly and Russ (2000) have shown that education similarity between supervisors and subordinates effects the frequency of communication by demonstrating a significant relationship between education similarity and the amount of interaction between supervisors and subordinates. Specifically, they found that managers communicated more frequently with employees with the same educational level as themselves and less frequently with incumbents who had different educational levels. Further analyses revealed that managers spent the least amount of time with employees when the subordinate was better educated than the manager. This study may give support to similarity attraction theory, since the supervisors interacted more with workers who had similar education, as well as relational norms, since the superiors interacted less with employees who had more education. Yet it may

also be a possibility that the employees with more education required less feedback and supervision. It can be concluded from this study that there is evidence that varying education between superiors and subordinates may influence communication through the frequency of interactions that occur between the dyad members, however; further demography studies need to explore this area and examine how education similarity and dissimilarity between dyads affect the perceived quality of communication.

Leader Member Exchange (LMX)

Relational demography research on superior-subordinate dyads has shown that the demographics of the individuals who comprise the dyad will influence the quality of the relationship and exchange that is formed (McNeilly & Russ, 2000; Tsui & O'Reilley, 1989). Many scholars interested in examining the dyadic relationship between superiors and subordinates use an approach known as Leader-Member Exchange (LMX), which is based on the notion that leaders' form relationships with their direct reports based off of a number of professional and interpersonal attributes (Basu & Green, 1995). Each relationship with a subordinate is unique and contains mutual benefits. Superiors may provide the subordinate

with friendship, challenging and rewarding assignments, and more upward mobility in the organization while the subordinate, in exchange, will offer trust and support the supervisor (Tsui, Xin, & Egan, 1995).

Diensech and Liden (1986) explain that the relationship formed between leaders and subordinates can be categorized into either an in-group or an out-group. Members in the in-group will have considerably more positive interactions characterized by high trust, support, and rewards while out-group members will have many more negative interactions (e.g., low trust, little support, and no rewards). Dienesch and Liden (1986) claim that leaders categorize their employees into groups fairly quickly. For example, Liden, Wayne, and Stilwell (1993) found support for this notion by demonstrating that leaders' perceptions of their subordinates were generally consistent when compared from the initial dyad formation (5 days) and six months later. The reasons as to why leaders may form quick impressions and how LMX develops are still questioned, but many scholars, using the theories underlying relational demography studies believe that demographic attributes, such as age and education, influence initial leader expectations. Furthermore, supervisors and subordinates who are similar to one

another on attributes are believed to be more likely to enjoy more positive exchange relationships than those who differ on the same attributes (Tsui et al., 1995).

For instance, Tsui, Porter, and Egan (2002) found that older employees were rated much higher on citizenship behavior by older supervisors than by younger leaders. Combining the literature from both LMX and relational demography, Tsui et al. (1995) propose that research has demonstrated a pattern where supervisors rate incumbents who are similar in demographic features more positively than others who are dissimilar. Their causal explanation for these findings was that supervisors will view subordinates who are similar to them as more attractive sources of interaction. This will lead the supervisor to evaluate the similar employee more positively than subordinates who are dissimilar to themselves.

Several researchers have begun to adopt LMX measures in relational demography studies; however, the measures are not used as predictors. Instead, LMX is treated as a moderator (Heijden, Epitropaki, Scholarios, Knauth, Scholarios, Marzec, Schoot, Jedrezjowicz, Mikkelsen, Bozionelos, & Heijde, 2010) or examined through interactions (Epitropaki & Martin. 1999). Green et al. (1996) proposed that demographic characteristics can

influence the quality of the relationship between the dyad. The quality of the relationship then influences work related outcomes and attitudes. Van Der Heijde et al. (2010) found support for this by demonstrating that LMX moderated the effects of age incongruence and supervisory ratings.

Thus, LMX may play a vital role in studying relational demography and superior-subordinate dyads. Since previous research has shown its moderating effects on work outcomes, studies may benefit by using LMX as a moderator or control variable when examining criterion related to interpersonal relationships or leadership attitudes.

Employee Perspectives and Directional Differences

Demography research has provided ample evidence that demographic attributes and relational norms contribute to supervisors' perceptions of their employees. However, whether demographic variations between superior-subordinate dyads have an effect on subordinate reactions has been relatively overlooked (Vecchio & Bullis, 2001). Followership research, an area of leadership studies that focuses on the employee's influence on the superior-subordinate dyad relationship,

has suggested that employee attitudes of the supervisor may partially be a function of demographic similarity. Vecchio (2002) explains that subordinates' initial interactions and assessments of supervisors can be in part attributed to the similarity between the dyad members. If these exchanges are favorable, a subordinate is more likely to exhibit higher satisfaction and devotion to the leader (Yukl, 2006).

The very few demography dyad research studies that have placed focus on the subordinate have mainly assessed job related outcomes rather than employees' perceptions of supervisory interactions. For instance, several researchers have demonstrated that supervisor-subordinate age and education similarity can lead to higher levels of subordinate job satisfaction and a higher propensity to remain with the organization (Shore at al., 2003; Turban & Jones, 1988; Vecchio, 1993). While relational demography research has paid little attention to employee reactions, several LMX researchers, who have employed incumbent attitudinal measures, have explored this area and have found mixed results for a relationship between employee-superior age, education, and incumbent assessments of the supervisor. Some have demonstrated that age and education similarity is related to more favorable

attitudes towards the supervisor (Basu & Green, 1995;
Epitropaki & Martin, 1999), while others have found no
support for such linkage (Green et al., 2005; Wesolowski &
Mossholder, 1997; Yrle, Hartman, & Galle, 2002).
Therefore, it is yet unclear whether employee attitudes
towards the supervisor can be explained by similarity in
age and education.

Several researchers (e.g., Perry at al., 1999), in an
attempt to further explore subordinate assessments of
varying demographic characteristics within
superior-subordinate dyads, have argued that age and
education are demographic variables that contain status.
In these instances, they explain that directional
differences are much more appropriate for assessing
subordinate reactions towards their supervisor within
demography research. Rather than testing for effects by
measuring the difference between the supervisor and an
incumbent on demographic variables (where the absolute
distance between the dyad is believed to influence the
dependent variables), subordinate reactions are much more
likely to be salient when the differences are in a
direction that violates relational norms. Within the
context of age differences, employee reactions may be
related to whether the demographic differences with the

supervisor are in alignment or incongruent with relational norms rather than the actual quantitative difference in age. In other words, incumbents may not feel discomfort working for supervisors who are ten years older than them; however, the inverse may not be true for employees who are ten years older than their supervisor (Tsui et al., 2002).

Present Study and Hypotheses

The primary purpose of this study was to examine superior-subordinate dyads which violate relational norms and produce status inconsistency. Specifically, within the context of supervisor age and education, occupational norms suggest that employees expect the supervisor to be older and have a higher level of education (Tsui & Gutek, 1999, p. 65). However, it is becoming increasingly common for older employees to report to younger superiors (Shore et al., 2003). Additionally, workers of older generations will traditionally have less education than workers of newer generations. However, with the average education level in the U.S. rising and a growing trend for older individuals to enroll in continuing education (Alley & Crimmins 2007; Eberts et al., 2008), there are increasing pairings where subordinates may not only be older than their supervisor, but they may also have obtained a higher

level of education. Little research has examined how violation of these norms affects employees' attitudes about their supervisors.

There is evidence that supervisors in accordance with relational norms are better received by their employees, while incumbents who work under a less traditional supervisor feel less comfortable receiving orders. For instance, employees who are more educated than their supervisor report trusting their superior less and also have lower organizational commitment (Green, Anderson, & Shivers, 1996; Lau et al., 2008). In addition, Perry et al. (1999) found that employees who were older than their supervisors engaged in behaviors that redressed status incongruence by assuming additional tasks and responsibilities, some which are assumed by supervisors. This includes initiating needed changes and learning new tasks and skills in order to transfer to another position.

It is unclear whether the behaviors and negative attitudes exhibited by the employees are due to feelings of personal dissatisfaction for being supervised by someone who is younger or less educated, or because of actual discontent with the supervisory pairing. Affect is believed to be a principle construct related to the similarity attraction theory because it directly measures

if an individual is attracted to another. Affect was used

by Tsui and O' Reilly (1989) to assess supervisors'

favorability towards employees with similar demographic

features. However, their study did not measure the

employees' perspectives. The similarity attraction theory

suggests that an employee who is dissimilar in age and

education with their supervisor would more likely report

disliking their superior. In addition, if the subordinate

is paired with a supervisor who violates relational norms,

they may feel uncomfortable following orders from the

younger supervisor. This sense of displeasure for the dyad

may be expressed through their levels of affect for the

superior. Therefore, the following hypotheses were

proposed:

Hypothesis 1a: Supervisory affect, as reported by the

subordinate, will be lower when the age difference

violates relational norms (i.e., the subordinate is older

than the superior) than when the dissimilarity is in

accordance with relational norms.

Hypothesis 1b: The larger the dissimilarity of the

subordinate-superior dyad in terms of age, the lower the

level of supervisor affect reported by the subordinate.

Hypothesis 2a: Supervisory affect, as reported by the

subordinate, will be lower when the education difference

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violates relational norms (i.e., the subordinate is more educated than the superior) than when the dissimilarity is in accordance with relational norms.

Hypothesis 2b: The larger the dissimilarity of the subordinate- superior dyad in terms of education, the lower the level of supervisor affect reported by the subordinate.

Many scholars have stressed the importance of supervisor communication on employee attitudes and job outcomes (Mayfield & Mayfield, 2007; Pincus, 1986). Yet whether demographic differences effect the communication between supervisor-subordinate dyads has been empirically overlooked. Research has shown that discrepancies naturally exist between how a subordinate and supervisor perceive the quality of the communication between the dyad such that employees have a proclivity towards reporting lower quality communication (Schnake, Dumler, Cochran, & Barnett, 1990). Whether subordinates attribute the poorer communication to potential language incompatibility caused by demographic differences (Somech, 2003) has received minor attention and has produced mixed results, therefore meriting further investigation.

For instance, Tsui and O' Reilly (1989) demonstrated a linkage between age similarity and employee's role

ambiguity. They found that higher dissimilarity led to higher role ambiguity and attributed their findings to infrequent interactions due to language and value barriers between the dyad. However, Green et al. (2005) did not find any relationship between demographic similarity and role ambiguity; although, they claim that the profession utilized for the study (HR associates) may be less susceptible to the effects of a heterogeneous workforce due to exposure to diversity trainings.

Neither of these studies examined directional differences or employees' attitudes towards the communication that occurs within the dyad. The greater social distance between the dyads caused by differentiation in demographic characteristics may lead to fewer exchanges from the supervisor where roles, tasks, and responsibilities are communicated to the employee. Research has shown that decreased communication from the supervisor is related to higher role ambiguity (Johlke & Duhan, 2001) and subordinates report higher quality of communication with superiors who speak to them more frequently (Callan, 1993). Therefore, the following hypotheses were proposed:

Hypothesis 3a: Communication satisfaction, as reported by the subordinate, will be lower when the age

dissimilarity is in a direction that violates relational norms than when the dissimilarity is in accordance with relational norms.

Hypothesis 3b: The larger the dissimilarity of the subordinate-superior dyad in terms of age, the lower the communication satisfaction reported by the subordinate.

Hypothesis 4a: Communication satisfaction, as reported by the subordinate, will be lower when the education dissimilarity is in a direction that violates relational norms than when the dissimilarity is in accordance with relational norms.

Hypothesis 4b: The larger the dissimilarity of the subordinate-superior dyad in terms of education, the lower the communication satisfaction reported by the subordinate.

Hypothesis 5a: Role ambiguity, as reported by the subordinate, will be lower when the age dissimilarity is in a direction that violates relational norms than when the dissimilarity is in accordance with relational norms.

Hypothesis 5b: The larger the dissimilarity of the subordinate-superior dyad in terms of age, the greater the role ambiguity reported by the subordinate.

Hypothesis 6a: Role ambiguity, as reported by the subordinate, will be lower when the education

dissimilarity is in a direction that violates relational norms than when the dissimilarity is in accordance with relational norms.

Hypothesis 6b: The larger the dissimilarity of the subordinate-superior dyad in terms of education, the greater then role ambiguity as reported by the subordinate.

CHAPTER TWO

METHOD

Participants

A total of three hundred and twenty five surveys were collected; however, after removal of outliers and missing data, the final sample was 190. Although there was a reduction in the sample size, we felt that there was sufficient statistical power to test the hypotheses. Participants responded to a paper based or online survey. Seventy four percent (N = 240) of the surveys were completed online through SurveyMonkey while twenty six percent (N = 85) were paper based. In order to volunteer in the study, individuals were required to be at least eighteen years of age, work at least twenty-five hours weekly, and currently hold a subordinate level position. In terms of gender, twenty six percent (N = 50) of the respondents were men, while seventy four percent (N = 140) were women. Forty three percent (N = 82) of the supervisors within the sample were men while fifty seven percent (N = 108) were women. In terms of ethnicity, respondents were primarily white (forty percent, N = 75) followed by Hispanic or Latino (thirty eight percent, N = 73). Nine percent (N = 17) of the respondents were

African American while eight percent (N = 15) were Asian. Four percent (N = 8) of the respondents reported "Other" as their ethnicity, while one percent (N = 2) of the sample of employees was Pacific Islander. In terms of supervisor ethnicity, sixty percent (N = 114) were white while eighteen percent (N = 34) were Hispanic or Latino. Ten percent (N = 18) of the supervisors were Asian and seven percent (N = 15) were African American. Four percent (N = 8) were reported as "Other" and one percent (N = 1) were Pacific Islander (see Tables 1 and 2 in Appendix E for a complete list of demographics).

Measures

A demographic questionnaire was administered to each respondent. This questionnaire included information regarding the participants' age, ethnicity, organizational tenure, gender, and education. Organizational tenure was measured by the number of years working in the organization as well as in their current position. In addition, the questionnaire contained demographic items pertaining to respondents' supervisor which included age, gender, ethnicity, and education. Age and education, the predictor variables of the study, were measured in years (see Appendix A for the demographic questionnaire).

Dissimilarities between age and education within a dyad were calculated by subtracting either age or education levels between the subordinate and the supervisor. Non-directional differences between the dyads were recoded into a new variable by taking the squared absolute value of the differential distance between the subordinate and the supervisor (Tsui & O'Reilly, 1989). Thus, larger squared values indicate greater differences in age or education between the dyad. Directional differences were derived by subtracting the subordinate's age or education by the superior's age or education. Negative scores on these continuous measures indicated that the employee was older and more educated than the subordinate while positive scores signified that the subordinate was the younger or less educated individual in the dyad (Perry et al, 1999). The continuous directional differences were then recoded into a new categorical variable that contained three groups: a) dyads where the subordinate is older (or more educated) than the supervisor, b) dyads where the subordinate is younger (or has less education) than the supervisor, and c) dyads where the subordinate is similar in age (or education) to the supervisor. Dyads where the subordinate was older or more educated than their superior were considered to be

"non traditional" or a violation of relational norms while dyads with employees who were younger or less educated than their supervisor were considered to be "traditional' and in accordance with relational norms. Tsui et al. (2002) explain that there is no theoretical guidance for determining when a directional difference will become noticeable and meaningful. Therefore, there is no standardized form for creating a "norm violation" group. Per their recommendation, the distribution of the difference scores was examined in order to cluster the dyads into their corresponding groups (dyads which violate relational norms, dyads with similar demographics, and dyads who are in accordance with relational norms).

Subordinate's affect for their supervisor was measured using a three-item scale (α = .91) developed by Greguras and Ford (2006). The scale has been used to develop a multi-dimensional model of LMX and has been found to be significantly correlated with supervisor satisfaction. The response for the items are scaled from strongly disagree (1) to strongly agree (5). Higher scores connote a higher degree of liking of the superior as reported by the subordinate (see Appendix A for the Affect scale).

Satisfaction with supervisor communication was measured using the supervisory communication portion of Downs and Hazen's (1977) Communication Satisfaction Questionnaire ($\alpha = .91$). The five-item scale assesses various aspects of interpersonal communication between the supervisor and the subordinate, and has been used to examine the relationship between LMX and communication satisfaction in past research (Mueller & Lee, 2002). Respondents rate their level of satisfaction which ranges from very dissatisfied (1) to very satisfied (7) on items regarding supervisors' listening skills and guidance (see Appendix A the Communication Satisfaction scale).

Role ambiguity was assessed by a nine item scale ($\alpha = .92$) developed by Breaugh and Colihan (1994). They defined role ambiguity as employee uncertainty about the procedures used to perform a job including the sequence in which tasks should be performed. It also includes employee uncertainty concerning the standards that are used for measuring and evaluating satisfactory job performance. Items were scored using a seven point Likert scale which ranges from strongly agree (1) to strongly disagree (7). In order to maintain consistency with the other measures, the scores were reverse coded. Thus, lower scores

signified higher role ambiguity (see Appendix A for Role Ambiguity scale items).

In addition, LMX was entered as a covariate. Leader Member Exchange (LMX) was measured using a six-item scale utilized in Basu and Green's (1995) research which was developed by Graen and his colleagues (Graen, Novak, & Somerkamp, 1982; Seers & Graen, 1984). The LMX scale (α = .65) is intended to contain eight items; however, due to an error when entering the scale items in the online survey, two of the items were duplicated. As a result, a total of six items represented the LMX measure. The scale instructs incumbents to rate their level of agreement on eight items regarding their supervisor. The scale anchors range from strongly disagree (1) to strongly agree (5). These items measure subordinates' perceptions of the quality of the exchanges between the supervisor and the subordinate. Higher scores on this scale indicate that the subordinates perceive stronger, higher quality relationships with the supervisor (see Appendix A for specific items).

Both attitude similarity and leadership effectiveness were measured for the purposes of additional analyses. Attitude similarity was assessed by a five-item scale (α = .91) developed by Turban and Jones (1988) and Liden

et al (1993). The responses for this scale ranged from strongly disagree (1) to strongly agree (5) and contained items related to similarity in values and work styles. Higher scores indicated higher perceived similar with the leader. Leadership effectiveness was measured through a nine item scale (α = .91) used by Kerr, Garvin, Heaton, and Boyle (2006). The responses for this scale ranged from (1) strongly agree to (7) strongly disagree and addressed the perceived performance effectiveness of the supervisor. Higher sum scores indicated that subordinates perceived their supervisor's leadership performance to be more effective (see Appendix A for scale items).

<div align="center">Procedure</div>

Participants were recruited for the study through four methods. First, a sample of Psychology and Business students from California State University San Bernardino (CSUSB) were asked to participate in the study for extra credit. A posting describing an extra credit opportunity were placed in CSUSB's Research Management System, Sona-Systems (http://csusb.sona-systems.com), where individuals were directed to a SurveyMonkey link that contained the survey. Secondly, students from several CSUSB Business courses were asked to participate in the study and were

given extra credit as well. These students received paper based copies of the survey. The completed surveys were placed into envelopes and were handed directly to the researcher after completion. Thirdly, a mass e-mail was sent to Human Resource professionals in an electric utility company requesting their assistance in completing a study related to superior-subordinate demographic differences and its impact on subordinate perceptions. The e-mail contained a direct link to the online survey (see Appendix B for the email message). Lastly, respondents were recruited through various internet chat forums where they were asked to participate in an anonymous survey. The chat forums pertained to aging in the workforce and retirement issues. A structured script was used to request for participation in the study. A direct link to the online survey was placed into the script (see Appendix C and D for a list of the visited websites and the script used to request for volunteers).

CHAPTER THREE

RESULTS

Data Screening

Prior to running the analyses, the data was screened by removing cases which were missing information on the independent variables (employee/supervisor age and/or education). A total of forty cases were identified and removed from further analysis due to missing data on the independent variables. The data was further screened by examining participants' confidence on their reports of their supervisors' age and education. The descriptive statistics indicated that eighty eight percent of the sample was at least moderately confident that they gave accurate ratings of their supervisors' age while eighty four percent of the sample was at least moderately confident that they gave accurate ratings of their supervisors' education. In order to ensure that the hypotheses were analyzed using accurate years of age and education, participants who indicated that they were somewhat or not at all confident in their ratings were removed from the study. A total of fifty-eight cases were identified and removed, resulting in a sample size of 227.

Subsequently, the remaining data was inspected for missing cases. A missing values analysis was conducted for employee/supervisor sex, ethnicity, years in the organization, years in the position, and whether one socializes with their supervisor. Each variable contained less than five percent missing values and the analysis revealed no significant differences between respondents who were missing data and those who were not. Furthermore, there was no indication of a pattern of missing data which provided evidence that the data was missing completely at random. As a result, respondents with missing data were deleted from further analysis (thirty one cases total). This reduced the total sample size of the study to 196.

In order to detect univariate outliers, z-scores for the continuous variables were calculated. Using a criterion of $p < .001$ (as recommended by Tabachnick & Fidell, 2006), a total of nineteen outliers were detected in the following variables: employee's age, education, squared educational difference between employee/supervisor, years in organization, years in position, supervisor's education, and role ambiguity. The employee education variable contained two outliers, with raw scores of six and two years of education (z-scores = 5.53 and 3.79, respectively). Supervisor's

education contained one outlier with a raw score of two years of education (z-score = 3.63). The squared difference between employee and supervisor education contained three outliers. For two cases, the raw scores were 49 (7 years difference) and contained a z-score of 3.82. In the third case, the raw score was 100 (z-score = 8.50). These six outliers were removed from the analysis resulting in 190 complete cases.

For role ambiguity, two outliers were found with a raw score of 2.67 and 3.56 (z-scores = 5.19 and 3.91, respectively). Within these two cases, the role ambiguity scale items were verified to ensure accuracy in data entry. Since all data was entered correctly, both cases remained in the analysis. All other outliers were chosen to stay in the study because they resulted from participants who were much older than the sample mean and as a result yielded higher years of work experience in their organization and position. Multivariate outliers were examined using a criteria of p < .001 through Mahalanobis distance. There were no values that exceeded the χ^2 = 13.816 critical value (Tabachnick & Fidell, 2006). Therefore, no multivariate outliers were detected.

After the data was screened, the independent and dependent variables were examined for the appropriate

statistical assumptions. Since two forms of analyses were
conducted for this study, the statistical assumptions for
hierarchical regression and multivariate analysis of
covariance (MANCOVA) were conducted separately. For the
hierarchical regression analyses, normality, linearity,
and homoscedasticity were inspected. Normality was
reviewed by dividing the skewness statistic by the
skewness standard error. A similar procedure was followed
for calculating kurtosis. Using a criteria of $p < .001$, a
score of $-3.33 \leq z \geq 3.33$ indicated a violation of
normality. As a result, all variables did not meet the
assumption of normality. The squared age and education
differences were found to be positively skewed. Squared
education differences were also found to be significantly
leptokurtic. All three dependent variables were
significantly negatively skewed, which indicated that most
participants were highly satisfied with their supervisor's
communication, had high affect for their supervisor, and
low role ambiguity. In addition, role ambiguity was found
to be significantly leptokurtic.

Scatterplots were generated in order to examine the
residuals for the independent and dependent variables and
determine linearity and homoscedasticity. The residual
plots did not demonstrate variance of errors equally

across the independent variables. Furthermore, the relationships between independent and dependent variables were curvilinear. Therefore, the data did not meet the assumptions of linearity and homoscedasticity. In order to meet these statistical assumptions, data transformations were conducted. All variables underwent a logarithmic transformation due the moderate skewness. Table 1 in Appendix F provides descriptive statistics for the variables, including skewness and kurtosis for the normal and transformed variables. After the transformations, all variables were no longer significantly skewed or kurtotic. A review of the histograms demonstrated that logarithmic supervisory communication satisfaction, role ambiguity, and affect were normally distributed, but the logarithmic age education differences were not.

The MANCOVA statistical assumptions were assessed through SPSS General Linear Model and MANOVA. Separate assumptions testing were conducted for the directional age and education difference variables. The order of entry of the dependent variables was: affect, role ambiguity, and supervisory communication satisfaction. Initially, the variables did not meet the statistical assumptions when the dependent variables were untransformed. Consequently, the logarithmically transformed variables were re-run for

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assumptions testing. The order of entry was: (log) affect, (log) role ambiguity, and (log) communication satisfaction.

For directional age and education differences, equality of variance was tested with Levene's test for equality of error variances. All tests failed to reject the null indicating that there was approximately equal variance across the sample. Thus, the data met the assumption of homogeneity of variance. The assumption of sphericity was examined using Bartlett-Box's test. All variables were found to be greater than .001 indicating that correlations among the dependent variables were not zero. These results imply that a stepdown F test is appropriate for the analysis.

After the transformation of the variables, the descriptive statistics were once again examined to inspect for normality. The transformations adjusted the skewness of the variables. The hypotheses were then tested with both the original variables as well as the transformed variables and effect sizes were compared. For the hierarchical regression tests, a comparison of the effect sizes for both the transformed and non transformed variables was conducted by examining the R^2 Δ on the last model of each regression (Trusty, Thompson, & Petrocelli,

2004). For the multivariate testing, the R^2 of each variable was evaluated for differences. The regression tests produced no differences in effect sizes between the transformed and non-transformed variables. Furthermore, there were no differences in terms of supported hypotheses. In contrast, the R^2 between the variables were unequal in the multivariate tests. Therefore, results of the regression hypotheses are explained with the non-transformed variables, while the logarithmic variables are discussed during the multivariate hypotheses.

Descriptive Statistics

A review of the descriptive statistics indicated that 66% of the dyads were the same sex, while 50% were the same ethnicity. In general, the dyads were in accordance with occupational norms, in that supervisors were significantly older (40.53 years) than their subordinates (30.17 years); t (189) = 11.21; $p < .05$, $\eta^2 = .399$. Furthermore, the supervisors were more educated (15.35 years) than their employees (14.94); t (189) = 2.237, $p < .05$, $\eta^2 = .029$. When comparing employees who took the survey online and those who participated in the study through paper and pencil, individuals who took the survey online were slightly older (mean age = 31.37 years) in

comparison to paper and pencil (mean age = 27.82 years).

Additionally, the average reported supervisor age from

participants in the paper-based survey was slightly

younger (38.84 years) than supervisors in online surveys

(42.95 years). The slight difference in age between the

two data collections methods was expected since the paper

based surveys were mainly administered to undergraduate

college students. As a result, we felt it was appropriate

to analyze the combined paper and pencil, and Internet

based surveys together. In terms of the dyads socializing

outside of work, 40% of the respondents indicated that

they socialized with their supervisor outside of work,

while 60% did not. Table 2 in Appendix F provides further

descriptive information on the dyads.

Age Differences Testing

Directional Differences Testing

MANCOVA was performed to examine the effects of the

dependent variables across the categorical directional

difference variable. Specifically, traditional and non

traditional dyads were compared for significant mean

differences. The directional age difference variable was

entered as the independent variable while employee age,

tenure, LMX, gender similarity, and ethnic similarity were

entered as covariates. Prior to analyzing the hypotheses

using MANCOVA, the multivariate test was examined to

evaluate the linear combination of (log) affect, (log)

communication satisfaction, and (log) role ambiguity

between the directional age variable. A test for equality

of the homogeneity of covariance matrices was done using

Box's M. The homogeneity of the covariance matrices was

not statistically significant, Box's M,

$F(12, 15397) = .972$, $p > .001$. A review of the

multivariate tests for directional age differences,

specifically, Wilk's Lambda, Pillai's Trace, Hotelling's

Trace, and Roy's Largest Root were not statistically

significant ($p > .05$). This signifies that there are no

significant mean differences in the linear combinations of

(log) affect, (log) communication satisfaction, (log) role

ambiguity between directional age differences in

superior-subordinate dyads. Since the overall multivariate

test for directional age differences was not statistically

significant, there were no significant differences in

(log) affect, (log) role ambiguity, and (log) supervisory

communication satisfaction between dyads that contained

employees who are older than their supervisor and dyads

with employees that are younger than their supervisor. As

a result, there was no empirical support for hypotheses 1a, 3a, and 5a.

Non-Directional Differences Testing

In order to examine the effects of non-directional differences, hierarchical regression analyses were performed on each of the criterion variables (supervisory affect, communication satisfaction, and role ambiguity). This method has been commonly used in dyadic demography studies. It allows the effects of any demographic variables of the subordinate and the supervisor to be entered as control variables prior to examining the variance attributed by the independent variables (Perry et al, 1999; Vecchio, 1993). Following Tsui et al.'s (1992) research, the following variables were entered sequentially into the regression model: employee age, tenure, and employee/supervisor ethnic and gender similarity. The first model contained employee age and tenure (years in position and years in organization). The second model added employee/supervisor gender and ethnic similarity. The third model added the LMX measure. Lastly, the fourth model added the independent variable.

Supervisory Affect. The results of the hierarchical regression revealed that there was not a significant relationship between age dissimilarity and affect in a

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model that already contains employee age, tenure, ethnic and gender similarity, and LMX. The fourth model, which contained the age similarity variable, did not contribute a significant amount of variance to the overall regression model ($R^2 \Delta$ = .005). The third model, which introduced LMX, was significant R = .546, R^2 = .299, adjusted R^2 = .274, $R^2 \Delta$ = .279, F change (1,173) = 68.72, p < .05. The regression was re-run without LMX in the model and age difference still did not predict affect. Therefore, hypothesis 1b was not supported. See Table 3 in Appendix F for full results of the regression model for supervisory affect.

Supervisory Communication Satisfaction

No significant relationship was found between age dissimilarity and communication satisfaction as reported by the employee in a model that already contains employee age, tenure, ethnic and gender similarity, and LMX. Only an additional .02% of variance was added to the model when including the age difference variable. Once again, the third model which included the addition of LMX was significant (R = .670, R^2 = .449, adjusted R^2 = .430, $R^2 \Delta$ = .414, F change (1,169) = 126.90 p < .05). Since LMX accounted for such a high amount of variance in supervisory communication satisfaction (41.4% of the

variance in supervisory communication satisfaction was associated with LMX), the regression was re-run without the LMX variable; however, age differences still did not predict supervisory communication satisfaction in the model. As a result, hypothesis 3b was not supported. Table 5 in Appendix F illustrates the full results of the regression model for supervisory communication satisfaction.

Role Ambiguity

There were no significant findings for the hierarchical regression with age similarity and role ambiguity. Specifically, non-directional age differences did not improve the prediction of role ambiguity (R^2 Δ = .000, F change (1,165) = .04, p = .835). The regression was run without LMX in the model to see if non-directional age differences could explain any variance without LMX; however, the R^2 Δ was still not significant. As a result, hypothesis 5b was not supported. See Table 7 in Appendix F for full results for role ambiguity.

Education Differences Testing

Directional Differences Testing

Following a similar procedure to the directional age differences variable, MANCOVA was performed using the

categorical directional education differences variable as the independent variable. Employee age, tenure, employee/supervisor ethnic and gender similarity, and LMX were entered as covariates. Multivariate testing was conducted in order to determine if there were significant differences in the linear combination between the variables. Prior to testing the MANCOVA hypotheses, the multivariate tests were examined to evaluate the linear combination of (log) affect, (log) communication satisfaction, and (log) role ambiguity between directional age and education differences. First, a test for equality of the homogeneity of covariance matrices was done using Box's M. The homogeneity of the covariance matrices was not statistically significant, Box's M (Box's M, $F (12, 20442) = 1.594$, $p > .001$). A review of the findings illustrated that Roy's Largest Root was significant, $F (3, 159) = 2.948$, $p < .05$, partial $\eta^2 = .053$, indicating significant mean differences in the linear combination. The between subjects testing resulted in only (log) affect producing significant mean differences. Consequently, no empirical support was found for hypotheses 2a and 6a.

Communication Satisfaction

An examination of the univariate F-test within the MANCOVA demonstrated significant mean differences in (log)

affect between dyads that contained employees who are more educated than their supervisor and dyads with employees who are less educated than their supervisor $F(2, 160) = 4.00$, $p < .05$, partial $\eta^2 = .05$. Employees who were more educated than their supervisor reported less affect (mean = 3.57) than subordinates who were less educated in the dyad (mean = 4.08) resulting in support for hypothesis 3a.

Non-Directional Education Difference

Much like the hypothesis testing for non-directional age differences, non-directional education differences were tested through hierarchical regression. Employee age, tenure, employee/supervisor sex and ethnic similarity, and LMX were entered into the regression model and the unique variance attributed to non-directional education differences was evaluated.

Affect

No relationship between education dissimilarity and affect was found in a model that already contains employee age, tenure, ethnic and gender similarity, and LMX. The $R^2 \Delta$ for the fourth model was only .003. Therefore, there was no empirical support for hypothesis 2b. See Table 4 in Appendix F for full regression results for affect.

Supervisory Communication Satisfaction

Similar results were produced when testing for the effects of education dissimilarity and supervisory communication satisfaction. Adding the education similarity variable to the regression model did not significantly improve prediction (no additional variances could be accounted for by adding education similarity). Therefore, no support for hypotheses 4b was found. See Table 6 in Appendix F for full regression results for supervisory communication satisfaction.

Role Ambiguity

A significant relationship was found for education dissimilarity. Prediction of role ambiguity could be significantly improved by adding education similarity to a model that already includes employee age, tenure, ethnic and gender similarity, and LMX (R = .386, R^2 = .149, adjusted R^2 = .113, R^2 Δ = .033, F change (1, 165) = 6.409 p < .05). Specifically, prediction of role ambiguity is improved by 3.3%. When reviewing the fourth model, an examination of the beta coefficient revealed that an increase in education dissimilarity results in lower role ambiguity as reported by the employee (b = .017, ß = .187, t (172) = 2.532, p < .05). Although the overall regression model was significant, the results were not in alignment

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with the proposed hypothesis. Therefore, no support was found for hypothesis 6b. See Table 8 in Appendix F for full regression results role ambiguity.

Additional Analyses

Because of the high correlations between the dependent variables, a Roy-Bargman test was done for directional education differences to investigate the effects of the individual dependent variables as the others are adjusted out. Since affect was entered first in the MANOVA, and was already found to be significant, communication satisfaction and role ambiguity were examined. The stepdown test was not statistically significant, indicating that there were no differences in communication satisfaction or role ambiguity after adjusting for the other variables. Table 9 in Appendix F displays the full results of the stepdown testing.

After the stepdown testing, the multivariate test was re-run without LMX as a covariate. This was done because of the high shared variance between LMX and the other dependent variables. Directional education differences was significant with Wilks' Lambda F (6, 336) = 3.587 partial η^2 = .060. In addition to (log) affect, (log) supervisory communication satisfaction was found to be significant, F (2, 178) = 7.86, $p < .05$ partial η^2 = .085 Univariate

testing between traditional and non-traditional dyads was significant, $F = (2,175) = 5.70$, $p < .05$, partial $\eta^2 = .07$. Specifically, employees who were more educated than their supervisor had lower communication satisfaction scores (5.04) than incumbents who were less educated than their superior (5.53).

In addition to the independent, dependent, and control variables, several other measures were administered to the participants in the research study. These measures were: whether an employee socializes outside of work with their supervisor, employees' perception on attitude similarities with their supervisor, and a leadership effectiveness scale. Whether an employee socializes with their supervisor was measured by a one-item question which asked if the employee socializes with the supervisor outside of their job (this was coded as 0 = yes, 1 = no). These measures were taken in order to further understand the relationships between the independent and dependent variables.

In order to examine the relationship between age/education differences, attitude similarity, and whether an employee socializes outside of work with their supervisor, several analyses were conducted (see Tables 10-13 for correlations). First, correlations between the

various variables were run. Afterwards, t-tests and ANOVAs were conducted to explore significant differences. Although no significant relationships were found between the age difference variables, employee age was positively correlated with interacting outside of work (r = .15; p < .05). This indicates that as employees become older, they are less likely to socialize with their supervisor outside of the job. This suggests that age can impact the frequency of interpersonal interactions with a supervisor, but it is due to the incumbent's age rather than supervisor age similarities/differences.

When examining the variables and education differences, several significant correlations as well as significant differences were found between education differences. A positive correlation was found with non-directional education differences and whether an employee socializes outside of work with their leader (r = .20, p < .01). This relationship indicates that dyads with larger differences in education (regardless of the direction) were less likely to interact outside of work. In contrast, dyads that were more similar in terms of their education socialized outside of the job. Dyads that socialized outside of work were also found to have similar attitudes as reported by the employee. This is illustrated

both by a significant negative correlation between attitude similarity and socializing outside of work ($r = -.25$) as well as a t-test showing significant differences in attitude similarity scores between dyads that socialized outside of work and those that did not ($t (184) = 3.47$; $p < .05$, $\eta^2 = .04$). Specifically, employees who interacted with their supervisor outside of their job had significantly higher attitude similarity scores (mean scores = 3.81) than employees who did not socialize with their supervisor outside of their job (mean score = 3.32), however the effect size was relatively small.

The analysis was carried one step further by examining the relationship between non-directional education differences and attitude similarity. Although non-directional education differences could not predict attitude similarity, it is interesting to note that there were significant differences in attitude similarity scores between dyads with traditional and non-traditional occupation norms ($F (2, 183) = 6.42$; $p < .05$, $\eta^2 = .06$). Of particular interest is that dyads with traditional occupation norms (in terms of education) had high higher attitude similarity scores than dyads that violated occupation norms. Dyads with traditional occupational

norms had a mean attitude similarity score of 3.75 while dyads with non-traditional norms had a mean score of 3.27.

Similar analyses were conducted to explore leadership effectiveness and the additional variables. Once again, age differences did not produce any significant findings. However, several relationships were found which support the notion that better exchanges occur between subordinates who have less education than the supervisor. A significant positive correlation was found between leadership effectiveness and the continuous directional education differences variable($r = .24$, $p < .05$). Since this correlation is positive, it indicates a relationship such that perceived leadership effectiveness is higher as the supervisors' education increases in the dyad. This was further supported by an ANOVA which found that employees who were less educated than their supervisor reported higher leadership effectiveness scores (5.78) than employees in dyads with higher levels of education (5.33) (F $(2, 176) = 5.14$, $p < .05$, $\eta^2 = .06$).

CHAPTER FOUR

DISCUSSION

The present study examined the effects of age and education differences between members in superior-subordinate dyads on affect, communication satisfaction, and role ambiguity as perceived by the subordinate. This study integrated two bodies of research: relational demography and relational norms, to examine age and education differences. Due to the pervasive demographic changes in the workforce, people of various ages, gender, races, and cultures are increasingly working together (Chan & Wu, 2009; Toosi, 2002). These changes can have large impacts on traditional work norms (Lawrence, 1988). Many scholars have discussed the significance of these changes on superior-subordinate dyads. For example, due to an increasing trend for older individuals to remain active in the workforce, the pairing of a young supervisor with an older employee has become increasingly common (Kooji et al., 2008; Vecchio & Bullis, 2001). Furthermore, with more individuals furthering their education or continuing to go to school while working (Alley & Crimmins, 2007), dyads are more likely to be comprised of

subordinates who may have more education than their supervisor.

This study also examined age and education differences from two perspectives: directional and non-directional differences. Directional differences involved examining whether a subordinate contained more or less age/education than the supervisor. Non-directional dissimilarities examined the absolute value of the overall difference in age/education between the superior and subordinate. Applying research from relational demography and relational norms, it was hypothesized that an increased difference in age or education would result in lowered affect, communication satisfaction, and higher role ambiguity. Additionally, these measures would be lower for dyads which violated traditional relational norms. The current study provided support for one hypothesis. A discussion of the overall findings is presented below. Afterwards, we discuss the findings of the independent and dependent variables as it relates to the hypotheses and the study's two underlying theories (relational norms and similarity attraction theory).

Overall, the hypotheses within the study were not supported. The overall findings from the study may be attributed to several factors. First, unlike most

demography research, this study's sample was heavily
comprised of working students instead of working
professionals. Consequently, there may be differences in
supervisory expectations between working students and
professionals who have already completed their degree.
Employed students, who are mainly working to maintain
finances while completing their degree, may have much
lower expectations for their supervisor. Consequently,
students may not be concerned with dyadic differences. In
contrast, working professionals will be more focused on
career growth. As a result, they may be more influenced by
the career time table and be more impacted by dyadic
differences. Thus, there may have been more variance
between the dependent measures if the study's population
was not as heavily represented by working college
students.

Secondly, many of the dependent measures were skewed,
suggesting that the population was generally satisfied
with their supervisors. This may suggest that only
individuals who were satisfied with their supervisor were
comfortable with providing ratings regarding their
superior. This may have resulted in a biased sample which
would lead to less variation within the dependent
measures. As a result, it is more difficult to obtain

statistical significance. Lastly, several of the scales utilized in the study may have contributed to the statistically insignificant findings. Although previous research has demonstrated a significant relationship between demographic differences, role ambiguity, and affect (e.g., McNeilly & Russ, 2000; Tsui & O'Reilly, 1989), these previous studies utilized different scales. Consequently, statistically significant findings may have been found if the measures used in previous studies were administered in this research.

Age Differences

Relational Norms (Directional Differences)

<u>Affect</u>. It was hypothesized that due to relational norms, incumbents would feel less comfortable reporting to someone who was younger. This discomfort would lead to less interaction and an overall poorer relationship, resulting in lowered affect on the part of the subordinate. Since the comparison between dyads with older and younger employees was not statistically significant, no support was found for this hypothesis and the relational norms research. In fact, a correlation between the continuous directional age differences variable and affect was found which contradicts the theory. Directional

age differences were found to be negatively correlated with affect ($r = -.15$, $p < .05$). This indicates that when superior age decreases (and the employee becomes older) supervisory affect increases. This finding may be explained by research demonstrating that younger supervisors engage in more interpersonal oriented activities than older supervisors (Gilbert, Collins, & Brenner, 1990) and that incumbents who are older than their superior describe having more favorable relationships (Vecchio, 1993). It is suggested that older supervisors may not have as strong of a desire to build relationships with their subordinates because they may already have families and an established social network. In contrast, younger superiors may be more interested in socializing outside of work and developing relationships. As a result, younger supervisors may engage in more sociable discussions, resulting in positive attitudes from the subordinate.

Communication Satisfaction. There were no significant differences in supervisory communication satisfaction between traditional and non-traditional dyads in terms of age. This result was inconsistent with the proposed hypothesis. This finding, in conjunction with the statistically nonsignificant correlation between the

continuous directional age differences variable and socializing outside of work with the supervisor, suggest that relational norms regarding age may not influence interpersonal communication between superior-subordinate dyads. A possible explanation for this finding could relate to the research by Yrle et al. (2002) who found that subordinates who perceive high quality relationships also report more satisfaction with their supervisor's communication practices. The relatively high mean score in LMX suggests that a majority of the relationships between the dyads within the study were perceived as high quality. Consequently, the high quality relationship, as perceived by the employee, may have nullified any effects of relational norms in regards to age.

Role Ambiguity. The hypothesis for directional age differences and role ambiguity was not supported. No differences in the dependent variable were found between dyads that had supervisors who were younger than their employees and dyads where the employee was youngest in the pair. Of the numerous demography studies which focused on superior-subordinate dyads, role ambiguity has been a frequent variable of interest and has produced mixed results (McNeilly & Russ, 2000; Tsui & O' Reilly, 1989). These scholars speculated that minimized interactions

between the pairs caused by the demographic differences

would lead to role conflict. Since the age dissimilarity

variables did not relate to socializing with the

supervisor outside of work, it is inferred that age

differences did not impact the frequency of interaction

between a subordinate and leader. Thus, regardless of

dissimilarities in age, subordinates appear to have had

equal amounts of interaction with their superior which,

resulted in everyone having a sufficient understanding of

their job duties.

Similarity Attraction (Non-Directional
Differences)

Affect. The findings from the hierarchical regression

suggest that there is no relationship between

non-directional differences in superior/subordinate age

and affect. This result does not support relational

demography research which postulates that differences in

age (regardless of the direction) lead to less attraction

and poorer relationships, ultimately resulting in negative

attitudes (Tsui et al., 2002). Tsui and O'Reilly (1989)

found significant relationships between affect and age in

their relational demography study. However, affect was

measured through the perspective of the supervisor. In

addition, employee age, not dyadic age differences, was

found to be a significant predictor of supervisor affect. More recent scholars have begun utilizing work behaviors to assess the effects of leader-subordinate dyads with incongruent demographics. Work behaviors have been studied with the understanding that negative affect can be expressed through specific work activities. For instance, Perry et al. (1999) demonstrated a significant relationship between dyadic differences and subordinate's absenteeism. It was argued that any negative feelings caused by the differences were represented by poor work behaviors. As a result, age differences may in fact influence subordinate's level of affect for their supervisor; however, this attitude may be more strongly conveyed through work behaviors than a survey scale.

The nonsignificant finding between dyadic age differences and affect, along with the nonsignificant correlation between age differences[2] and socializing with your supervisor suggest that large dissimilarities in age may not impact subordinates' interpersonal relationships with their supervisor. Instead, attitude similarity was positively correlated with supervisory affect ($r = .78$, $p < .001$). This finding coincides with the attraction similarity paradigm, except that subordinates' affect for their supervisor was influenced by mutual personal traits

rather than age. Laio, Joshi, and Chuang (2004) explain
that demography research can include surface level traits,
such as age, gender, ethnicity, and also deep-level
traits, such as personality. Their studies have
demonstrated that personality based similarities between
employees can have a stronger relationship on
interpersonal measures than age incongruence. With the
increasing exposure to diversity in the workforce,
supervisors and employees may be becoming more comfortable
working with varied ages. Consequently, similarities might
be less frequently based off of surface level
characteristics. Rather, dyads may base their assessments
of similarity based off of more interpersonal traits. This
would result in subordinates' affect for their supervisor
being more strongly influenced by common interests and
values instead of physical features.

Communication Satisfaction. No support was found for
non-directional age dissimilarity and communication
satisfaction. Several researchers have demonstrated that
age dissimilarities result in lowered communication with
the subordinate (Somech, 2003; Tsui & O'Reilly, 1989)
while other studies failed to produce significant findings
(Epitropaki & Martin, 1999). Several scholars have
proposed that the tenure of the dyad is crucial in

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predicting communication patterns (Bauer & Green, 1996).

As the duration of pairing in the dyad increases,

demographic dissimilarity becomes significantly less

important in influencing the superior-subordinate

relationship. For example, Somech (2003) found that

communication between the leader and subordinate was

negatively moderated by the duration of the acquaintance

between the dyad. The present study was limited in that it

did not assess the longevity of the superior-subordinate

dyad; however, since the average tenure in the current

position was 3.44 years with a standard deviation of 3.52,

it could be postulated that most dyads had not been

recently paired. Consequently, the statistically

nonsignificant findings of age dissimilarity and

communication satisfaction may be attributed to seasoned

pairings that now place less emphasis on demographic

dissimilarities.

Role Ambiguity. Non-directional age differences were

not found to be significantly related to role ambiguity.

This could possibly stem from the high mean role ambiguity

score, indicating that the overall sample was generally

not experiencing role conflict within their current

position. Research has demonstrated that leadership

behaviors are instrumental in employee's perceptions of

role ambiguity (Cicero, Pierro, & Van Knippenberg, 2010; O'Driscoll & Beehr, 1994). The leaders within this study appear to be consistently providing clear and effective communication of responsibilities. This is apparent through the high mean score for leadership effectiveness. Thus, due to the strong leadership within the sample of this study, subordinates may have clear and established roles regardless of the dissimilarity in ages (directional and non-directional). It could also be a function of the nature of the jobs in this study. Unfortunately, we did not collect information on the actual position held, but given a large percentage of the sample was working students, the nature of their jobs may be more straightforward with less potential for role ambiguity than higher level professional jobs.

Education Differences

Relational Norms (Directional Differences)

Affect. The hypothesis related to directional education differences was supported. An explanation for this finding may be provided by several researchers (e.g., Lau et al., 2003; Perry et al., 1999) who explain that education is considered a status variable which only holds influence in certain directions rather than through

absolute difference. Affect was significantly lower among dyads where the employee contained the higher level of education. This is likely caused by feelings of status incongruence between both the employee and the supervisor. Researchers have suggested that incumbents expect their supervisor to be highly educated and that leaders may feel uncomfortable interacting with incumbents who have more years of schooling (Tsui & Gutek, 1999, p. 65; Tsui & O'Reilly, 1989). Therefore, the overall difference in education is not the concern. Rather, the direction in which the difference occurs is significant. Incumbents may have negative attitudes in receiving work instructions from someone who has less of an education while the supervisor may simultaneously feel discomfort in giving direction. This may result in less positive attitudes by the subordinate which is reflected in the lower affect score. In contrast, subordinates who expect their supervisor to be more educated would not be troubled by the difference in education if it was in accordance with expectations. Therefore, due to relational norms, non-traditional dyads experienced lowered affect.

Communication Satisfaction. Communication satisfaction was not found to waver between traditional and non-traditional dyads when examining directional

education differences. Thus, no support was found for the hypothesis. However, when the multivariate testing was done without the LMX measure as a covariate, differences between the dyads were found to be significant. Employees with more education than their superior were found to be less satisfied with the supervisor's communication than employees who had less education in the dyad. Therefore, there are differences in communication satisfaction between traditional and non- traditional dyads when adjusting for the variance in LMX. Additionally, supervisor education was positively correlated with communication satisfaction ($r = .24$, $p < .001$). These findings may provide relational norms by suggesting that incumbents expect their supervisors to have a higher education and are more comfortable interacting with superiors who meet this standard. Moreover, supervisors with higher education are more likely to have received training on the management of personnel and may be more effective in building positive relationships with their staff. Consequently, incumbents in traditional dyads may be more satisfied with their supervisor's communication because it not only meets status standards, but also because the superior may have more effective communication skills due to higher education.

Role Ambiguity. Role ambiguity was not found to vary between the traditional and nontraditional dyads. Role ambiguity was the only dependent variable that was not correlated with directional education differences. The other variables, which relate to qualities within interpersonal relationships, were found to increase as the supervisors became more prominently educated. Unlike these two variables, role ambiguity is concerned with uncertainties within the position (Rizzo, House, & Lirtzman, 1970) and relies more heavily on the standards communicated by the supervisor than attitudes formed by the incumbent. The results of the study suggest that the violation of relational norms regarding education may manipulate the interpersonal characteristics of the relationship between a superior and subordinate, but might not influence the manner that supervisors communicate roles and positional responsibilities.

Similarity Attraction Theory (Non-Directional Education Differences)

Affect. Non-directional differences were not significantly related to affect. Under the postulation that greater increases in education dissimilarity would lead to less attraction, it was hypothesized the affect would decrease as education difference increases. Since

there was no significant relationship, no support was found for the hypothesis or the similarity attraction theory. Tsui et al. (1995) explain that with specific variables, differences may only be observed in one direction. Since affect was found to be statistically significant with directional differences, it is likely that education only exerts influence when differences do not meet relational norms.

Although education differences did not influence the degree to which employees liked their superior, it did impact the likelihood of interaction outside of work. Dyads with larger dissimilarities in education were found to be less likely to interact outside of the job ($r = .20$, $p < .05$). This is likely due to the language incongruence which can hinder the level of communication between the pair (Tsui & O'Reilly, 1989). Language incongruence may occur when one individual has more education and speaks at a differing level of vocabulary than the other. This difference may cause enough unease between the dyad to influence the amount of interaction that occurs outside of the job. Thus, education differences between a dyad may impact the frequency of interpersonal interactions through social distancing rather than influencing attitudes related to the interpersonal relationship.

Communication Satisfaction. The hypothesis for non-directional education differences and communication satisfaction was not supported. The statistically nonsignificant findings may be attributed to the communication satisfaction scale that was utilized in the study, which assessed communication at an interpersonal level rather than the quality or similarity of communication style. It has been argued that differing education levels will lead to barriers caused by incongruent language or incompatible communication styles (Lau, 2008). Significant relationships may have been demonstrated if a scale that measured language similarity/incompatibility was utilized. Consequently, differences in education may not influence subordinates' perceptions of their superiors' interpersonal communication, but may be significantly related to language incompatibility.

Role Ambiguity. Non-directional differences were surprisingly found to reduce role ambiguity. That is, as the difference in education between a subordinate and superior increased, role ambiguity was lowered. This was contradictory to the proposed hypothesis and the similarity attraction theory, but mirrored Tsui and O'Reilly's (1989) research. The difference in education

between the dyad may act as a manner to establish more clear roles and responsibilities. In instances where a supervisor and subordinate may have equal training or education, both individuals may subsequently perform similar tasks and be equally capable of making impactful decisions. This could potentially result in the subordinate feeling uncertainties about their role. On the other hand, dyads that differ in education may have more distinct responsibilities resulting in employees having a much firmer grasp on their role.

Implications

The findings from this study contain implications for both research and practice. For example, this study illustrates that viable information may be obtained by examining employee perceptions in demography and relational norms research. It provides further support that subordinate reactions should be further examined in relational demography studies (Vecchio & Bullis, 2001). Lawrence (1984) has demonstrated that being perceived as behind time on a career time table can affect employees' attitudes on the job. The age differences variables within this study were not found to be statistically significant. Instead, education differences were more likely to have an impact on employees' attitudes. This study suggests that

the career time table may not be limited to age. Instead, level of education may also be a trait that individuals use to determine positional ranks within the organization. Consequently, scholars may benefit from expanding the career time table theory to include other demographic characteristics.

The study also shows that differences in education between superior-subordinate dyad members can have impacts on the development of interpersonal relationships. As a result, researchers should continue to consider utilizing education as a demographic variable in demography research. Lastly, the results of the research indicate that some differences may result in positive work outcomes. For instance, differences in education were found to reduce role ambiguity. While many relational norm and demography theories predict negative outcomes associated with dissimilarities, this study has assisted in further promoting the notion that diversity can benefit the workplace. In fact, Deal (2007) notes that individuals from various generations may actually be more similar than different in terms of their work related behaviors and motivations.

The results of this study have numerous practical implications for manager and industrial and organizational

psychology practitioners. For instance, organizations may benefit from implementing programs which encourage supervisors and subordinates to interact outside of the job. These may range from company sponsored events to clubs that specialize in different hobbies. Having company sponsored gatherings outside of the workplace may help dyads interact on a more frequent basis and find commonalities despite the challenges that demographic differences provide.

Additionally, the research findings also suggest that relational norms regarding education may have impacts on subordinates' perception of their supervisor. This is evident through the relationships found between directional education differences, affect, and communication satisfaction. As a result of these findings, organizations may gain from developing diversity training and placing emphasis on demographics that are not as recognized as gender and ethnicity (i.e., education). If this type of diversity training is given to both subordinates and supervisors, it may assist in minimizing the negative attitudes associated with non- traditional relational norms for both individuals within the dyad.

Furthermore, the research has shown that leaders can still be effective at building relationships and setting

direction despite demographic differences and being paired with an employee who violates norms. Practitioners may want to consider the importance of training leaders to communicate effectively with their employees on not only their job responsibilities and duties, but also to build rapport and improve workplace relationships.

Limitations

There were several factors within the study that may have impacted the generalizability of the findings. First, all of the variables did not meet the appropriate statistical assumptions. In general, the data was highly skewed suggesting that the overall population was satisfied with their leadership. These findings may indicate that only individuals who had a positive relationship with their supervisor were willing to participate in the study. In addition, not only was the data skewed, several variables did not meet the appropriate assumptions without undergoing data transformations. This impacted the overall interpretation of the directional differences variables.

Secondly, the effect sizes and variance attributed to the demographic variables was fairly small. However, Tsui and O'Reilly (1989) explain that this should not

completely undermine these studies findings because variables such as role ambiguity are affected by factors unrelated to demographics. Third, this study relied on measures of supervisors demographics as reported by the incumbent. To ensure that all demographic information is correct, some previous studies have gathered information from both the employee and the supervisor (Tsui et al, 1992). A measure was put in place to increase the likelihood of accurate reporting. But there is no insurance that all data captured with the study is completely precise.

Also, the nature of the scales should be considered when interpreting the findings of this study. For instance, the communication satisfaction scale contained an item pertaining to satisfaction with the overall amount of supervision given and satisfaction with the supervisor's openness to ideas. Although the scale was found to be reliable, the study may have benefited from using a measure which focused on the perceptions of the quality of communication between the dyad. Furthermore, the one item scale used to assess socializing outside of work could be limiting. All employees who socialize with their supervisor outside of work, whether it is once a year at a company dinner party or every weekend for

drinks, were categorized together. This variable may have provided more meaningful results if an interval scale had been utilized.

Additionally, several variables (e.g., supervisor age and education), were not entered as covariates in the study. Placing these variables within the initial regression model would have provided further confidence that the age/education differences variables were accounting for the variance in the measures. Lastly, the sample size for directional age differences was heavily skewed. Although the proportions of individuals within the two groups were sufficient to run the analysis per the recommendations of Tabachnick and Fidel (2006), the study may have benefited from having a more equally distributed sample.

Future Research

Cleveland and Shore (1992) suggest that chronological age may not be the only age construct to study in demography research. They explain that subjective age may account for variances in outcomes that may not be captured by chronological age. In addition, Perry et al (1977) explain that differences in chronological age may be less predictive when the differences are minute. In these

instances, subjective age measures may be more appropriate. Since none of the age differences variables were found to be statistically significant, future researchers should consider examining these measure using subjective age difference variables.

Furthermore, future scholars may benefit from capturing the perspectives from both the subordinate and the superior across the same measures. Many researchers (e.g., Perry et al, 1997; Tsui & O'Reilly, 1989) have assessed both individuals within the dyad; however, unique scales were provided for the subordinate and the superior (attitudes are measured by the incumbent while the supervisor provides subject performance ratings). Future research may benefit from comparing attitudes for both individuals within the dyad. As a result, scholars could examine whether age differences affect both individuals equally or if inconsistencies may have more impact on the subordinate or superior.

Future researchers may extend the findings from this study to include measures on the frequency of interactions between the dyads. This study made inferences that socializing outside of work indicated a higher amount of interaction between the dyad. These measures would provide further detail on the relationship between the demographic

differences and communication frequency. Researchers may also extend the findings of the study to examine the effects of the attitude similarity and relational demography. Attitudes similarity was found to be significantly related to several measures. This is congruent with the similarity attraction paradigm. In order to determine the nature of the relationship between similar demographic characteristics, attitude similarity, and work outcomes, researchers may benefit from examining attitude similarity as a mediator or moderator. Consequently, scholars could determine if demographic similarities influence or result in shared attitudes and how that affects work outcomes.

Several researchers (e.g., Perry et al., 2002; Vecchio, 1993) have suggested that demographic variables with status may have more prominent effects on specific industries. For instance, in specific trades of work, a higher education may not be necessary. Consequently, age may be more of a salient status indicator. Future researchers who recruit for volunteers through multiple methods may benefit from capturing the respondents' field of employment in order to understand which demographic characteristics contain status in specific industries.

Conclusion

The present study focused on assessing the effects
that age and education differences have on
superior-subordinate dyads. The research explored whether
differences in age and education can influence incumbents'
attitudes towards their supervisors. Although many of the
hypotheses were not supported, the findings suggest that
varying demographic traits may influence subordinates
attitudes and social behaviors. Some of the findings from
this study are in alignment with researchers postulations
about the effects of directional differences. Several
researchers (e.g., Tsui et al., 2002) have stressed the
importance of measuring directional differences in order
to account for demographic variables associated with
status. The findings of this study provide some evidence
that work outcomes may be influenced by *both* directional
and non-directional differences. Therefore, researchers
should continue to examine these two methods of measuring
demographic dissimilarities to further understand when one
exerts influence over the other.

This study suggests that education may be more
salient in influencing subordinate perception than age
differences. This was surprising given the amount of
research that has focused on the impacts of age in the

workforce. However, several more recent works (e.g., Deal, 2007) have downplayed age and generational differences in the workplace. In addition, several correlations in the present study indicate that age differences can still be associated with work related outcomes. Overall, the findings of the present study suggest that a violation of relational norms in terms of education will be associated with more negative attitudes than will violations of relational norms for age. Due to an increasing trend in individuals continuing their education, it may be that education is viewed as a more prominent indicator of status and job expectations than age. Also, as more older workers, particularly those in the large baby boom cohort, continue working past traditional retirement ages, it may be that the traditional violation of relational norms of older workers working for a younger supervisor are not seen as violations of relational norms, but in fact may be seen as more normative.

As the workforce continues to diversify, it is crucial that scholars and practitioners continue to monitor its impact in the workplace. Given the complex nature of the relationship between a superior and subordinate, researchers may benefit from continuing to study diversity and its impact on leaders and

subordinates, especially when the differences are atypical. This study illustrates that relational norms may exist in the workforce and demonstrates the further research need to examine the perceptions of the subordinate in demography research.

APPENDIX A

SURVEY CONTAINING DEMOGRAPHIC QUESTIONNAIRE,

DEPENDENT MEASURES, AND SCALES FOR

ADDITIONAL ANALYSES

Demographic questionnaire:

What is your gender? _____ Male   _____ Female

What is your ethnicity?
_____ White   _____ African American   _____ Pacific/Islander
_____ Hispanic/Latino _____ Asian   _____ Other

Please write your age: _____

How many years of education (including high school and grade school) have you completed? _____ (e.g., high school = 12, AA/AS degree = 14, BA/BS degree = 16, MA/MS degree = 18)

How many years have you worked in your current organization? _____

How many years have you worked in your current position? _____

The following questions are in regards to your <u>*immediate supervisor (if you have more than one immediate supervisor please choose the one you interact with most closely)*</u>:

What is your supervisor's gender? _____ Male   _____ Female

What is your supervisor's ethnicity?
_____ White   _____ African American   _____ Pacific/Islander
_____ Hispanic/Latino _____ Asian   _____ Other

Please write your supervisor's age _____

How confident are you that this in fact your supervisor's age?
    1   2   3   4

How many years of education (including high school and grade school) did your supervisor complete? _____ (e.g., high school = 12, AA/AS degree = 14, BA/BS degree = 16, MA/MS degree = 18)

How confident are you that this in fact your supervisor's years of education?
    1   2   3   4   5
Not at all Confident   Moderately Confident   Extremely Confident

Do you ever socialize with your supervisor outside of work?
_____ Yes   _____ No

Leader Member Exchange Scale:

1. **I usually know where I stand with my supervisor**.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

2. I usually know how satisfied my supervisor is with me.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

3. **My supervisor understands my problems and needs extremely well**.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

4. My supervisor recognizes my potential extremely well.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

5. I would characterize my working relationship with my supervisor to be extremely effective.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

6. Regardless of his/her formal authority, my supervisor will be personally inclined to use his/her power to help solve problems at work.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

7. Regardless of his/her formal authority, I can count on my supervisor to "bail me out" at his/her expense when I really need it.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

8. I have enough confidence in my supervisor that I would defend or justify his/her decisions if she/he were not present to do so.

1	2	3	4	5
Strongly Disagree	Disagree		Agree	Strongly Agree

These items were not included in the study

Basu, R., & Green, S. G. (1995). Subordinate performance, leader-subordinate compatibility, and exchange quality in leader-member dyads: A field study. *Journal of Applied Psychology, 25,* 77-92.

Supervisory Communication Satisfaction Scale:

For each item statement, indicate your level of satisfaction regarding each statement

1. Extent to which my supervisor listens and pays attention to me

1	2	3	4	5	6	7
Very dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Very Satisfied

2. Extent to which my supervisor offers guidance for solving job related problems

1	2	3	4	5	6	7
Very dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Very Satisfied

3. Extent to which my supervisor is open to ideas

1	2	3	4	5	6	7
Very dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Very Satisfied

4. Extent to which the amount of supervision given to me is about right.

1	2	3	4	5	6	7
Very dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Very Satisfied

5. Extent to which my supervisor trusts me.

1	2	3	4	5	6	7
Very dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Very Satisfied

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Downs, C., & Hazen, M. (1977). A factor analytic study of communication satisfaction. *Journal of Business Communication*, 14, 63-73.

Affect:

Please indicate your level of agreement with the following statements:

1. I like my supervisor very much as a person

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

2. My supervisor is the kind of person one would like to have as a friend

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

3. My supervisor is a lot of fun to work with

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

Greguras, G. J. & Ford, J. M. (2006). An examination of the multidimensionality of supervisor and subordinate perceptions of leader member exchange. *Journal of Occupational and Organizational Psychology, 79*, 433-465.

Role Ambiguity Scale:

Please indicate your level of agreement with the following statements

1. I am certain how to go about getting my job done (the methods to use)

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

2. I know what is the best way (approach) to go about getting my work done.

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

3. I know how to get my work done (what procedures to use)

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

4. I know when I should be doing a particular aspect (part) of my job.

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

5. I am certain about the sequencing of my work activities (when to do what).

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

6. My job is such that I know when I should be doing a given work

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

7. I know what my supervisor considers satisfactory work

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

8. It is clear to me what is considered acceptable performance by my supervisor.

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

9. I know what level of performance is considered acceptable by my supervisor.

1	2	3	4	5	6	7
Strongly Disagree	Slightly Disagree	Disagree		Slightly Agree	Agree	Strongly Agree

Breaugh, J. A., & Colihan, J. P. (1994). Measuring facets of job ambiguity: Construct validity evidence. *Journal of Applied Psychology, 79,* 191-203.

Leadership Effectiveness Scale:

Please indicate your level of agreement with the following statements

1. I feel at ease with my supervisor when asking questions.

1	2	3	'4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

2. My supervisor asks me how I am doing on a regular basis.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

3. I feel I am treated in a fair manner.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

4. My supervisor supports me when I need help.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

5. Keeping my supervisor informed, I can take initiatives.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

6. We are involved as a team in solving problems related to our work.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

7. We are involved as a team in decisions made that affect our work.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

8. I am involved as an individual in solving problems related to our work.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

9. I am involved as an individual in decisions made that affect my work.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree		Slightly Agree	Agree	Strongly Agree

Kerr, R., Garvin, J., Heaton, N., & Boyle, E. (2006). Emotional intelligence and leadership effectiveness. *Leadership and Organization Development Journal,* 27, 265-279.

Attitude Similarity Scale:

1. My supervisor and I see things in much the same way.

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

2. My supervisor and I are similar in terms of our outlook, perspective, and values.

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

3. My supervisor and I are alike in a number of areas.

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

4. My supervisor and I think alike in terms of coming up with similar solutions for problems at work.

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

5. My supervisor and I handle problems in a similar way.

1	2	3	4	5
Strongly Disagree	Slightly Disagree		Partially Agree	Strongly Agree

Turban, D. B., & Jones, A. P. (1988). Supervisor-subordinate similarity: types, effects, and mechanisms. *Journal of Applied Psychology, 73,* 228-234.

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APPENDIX B

STUDY INVITATION E-MAIL

Hello HR Associate. I am requesting your assistance in helping me complete my research thesis which is being conducted by myself under the supervision of Dr. Kenneth Shultz, Professor of Psychology. This study has been approved by the Department of Psychology Institutional Review Board Sub-Committee of the California State University, San Bernardino. I am researching the effects of varying demographic characteristics between employees and supervisor and am looking for employees who are older than their supervisor to complete my research. If you happen to meet this criterion, I would sincerely appreciate your participation in the study.

In this study, you will be taking a survey which should take no longer than seven minutes to complete. Because there is no identifying information in this survey, all data is completely anonymous and confidential. This survey involves no risks but you are free to withdrawal from the survey at any time. Once you have finished the survey, you will be brought to a debriefing screen which will provide further details on the study. In order to obtain the most accurate and valid results, we ask that you answer each question truthfully and to the best of your ability.

I have supplied a link below which will take you to a website where you can take my survey. When you begin the survey, you will notice a similar message to this one along with a copy of the official Psychology IRB stamp of approval indicating the study's authenticity.

If you have any questions pertaining to the survey, feel free to e-mail me at anedilskyj@yahoo.com or my thesis advisor at kshultz@csusb.edu. If you would like to obtain a brief summary of the results when the study is completed, please provide an e-mail address where we may contact you. Again, the survey is completely anonymous and confidential, so your e-mail address will not be linked with your responses in any way. It will be only to provide you with a summary of the results when the study is completed. Thank you for your time.

APPENDIX C

STUDY INVITATION SCRIPT FOR ONLINE CHAT FORUMS

Hello chat forum users. My name is Alexander Nedilskyj and I am a graduate student currently conducting a research thesis that pertains to aging in the workplace and supervisory ratings. You are invited to participate in this study which is being conducted by myself under the supervision of Dr. Kenneth Shultz, Professor of Psychology. This study has been approved by the Department of Psychology Institutional Review Board Sub-Committee of the California State University, San Bernardino. I have supplied a link below which will take you to a website where you can take my survey. When you begin the survey, you will notice a similar message to this one along with a copy of the official Psychology IRB stamp of approval indicating the study's authenticity.

In this study, you will be taking a survey which should take no longer than seven minutes to complete. Because there is no identifying information in this survey, all data is completely anonymous and confidential. This survey involves no risks but you are free to withdrawal from the survey at any time. Once you have finished the survey, you will be brought to a debriefing screen which will provide further details on the study. In order to obtain the most accurate and valid results, we ask that you answer each question truthfully and to the best of your ability.

If you have any questions pertaining to the survey, feel free to e-mail me at anedilskyj@yahoo.com or my thesis advisor at kshultz@csusb.edu. If you would like to obtain a brief summary of the results when the study is completed in June 2009, please provide an e-mail address where we may contact you. Again, the survey is completely anonymous and confidential, so your e-mail address will not be linked with your responses in any way. It will be only to provide you with a summary of the results when the study is completed. Thank you for your time.

APPENDIX D

DISCUSSION BOARDS WHERE WERE SOLICITED

Discussion Boards Where were Solicited

1. Tackling Age Hang Ups
   - http://www.aarp.org/community/groups/TacklingAgeHangUps

2. Age Discrimination
   - http://www.aarp.org/community/groups/AgeDiscrimination

3. Baby Boomer Bistro
   - http://www.ageconcern.org.uk/discuss/chat/

4. Baby Boom Generation
   - http://groups.yahoo.com/phrase/baby-boom-generation

5. Over 40 Baby Boomers
   - http://groups.myspace.com/30869816

6. 45-65 Forum
   - http://45-65.com/

7. Boomers forum
   - http://boomersint.org/

8. Aging and Retirement
   - http://www.aginghipsters.com/phpBB2/

APPENDIX E

CONTINUOUS AND CATEGORICAL

DESCRIPTIVE STATISTICS

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Table 1

Descriptive Statistics for Employees and Supervisors – Continuous Variables
(N = 190)

Variable	Employee				Supervisor			
	Mean	Std. Deviation	Min.	Max.	Mean	Std. Deviation	Min.	Max.
Age	30.17	11.49	18	70	40.53	10.4	20	75
Education	14.94	1.69	12	21	15.35	2.34	10	22
Years in organization	4.86	5.95	.3	34	--	--	--	--
Years in position	3.44	3.52	.2	22	--	--	--	--
Confidence in supervisor age	4.1	.85	3	5	--	--	--	--
Confidence in supervisor education	4.25	.85	3	5	--	--	--	--

Table 2

Descriptive Statistics for Employees and Supervisors –Categorical Variables
(N = 190)

Variable		Employee		Supervisor	
		Freq.	%	Freq.	%
Gender	Male	50	26%	82	43%
	Female	140	74%	108	57%
Ethnicity	White	75	40%	114	60%
	African American	17	9%	15	7%
	Pacific Islander	2	1%	1	1%
	Hispanic or Latino	73	38%	34	18%
	Asian	15	8%	18	10%
	Other	8	4%	8	4%

APPENDIX F

RESULTS OF STATISTICAL ANALYSES FOR HYPOTHESIS

TESTING AND ADDITIONAL ANALYSES

Table 1

Descriptive Statistics for Non-Directional Age and Education Differences, Role Ambiguity, Supervisory Communication Satisfaction, and Affect

	N	Mean	Std. Deviation	Skewness	Kurtosis	Skewness after transformation	Kurtosis after transformation
Age differences^2	190	268.52	304.06	*7.20	2.34	-2.98	-2.12
Education differences^2	190	6.49	7.47	*9.68	*8.43	0.14	-2.66
Supervisory communication satisfaction	185	5.46	1.21	*6.37	-1.58	0.54	-1.26
Affect	189	3.97	1.08	*6.13	1.35	1.95	-2.96
Role ambiguity	182	2.67	0.69	*8.73	*13.13	1.59	-0.85

*significant at p < .001

Table 2

Descriptive Statistics on the Age and Education Differences between Superior/Subordinate Dyads

	Age Differences (years)			Education Differences (years)		
	Older than supervisor	Same age	Younger than supervisor	Less educated than supervisor	Same education	More educated than supervisor
N	25	30	135	63	30	97
Mean	11.4	1.13	16.15	2.54	.03	2.73
Standard Deviation	7.15	1.93	8.65	.90	.13	1.73

Table 3

Summary of Hierarchical Regression for Age Differences Predicting Affect (N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.01	.01	.09	.01	.01	.09	.01	.01	.13	.01	.01	.13
Years in org.	.00	.02	.01	.00	.02	.00	.00	.02	-.01	.00	.02	.01
Years in pos.	-.04	.04	-.13	-.43	.04	-.13	-.04	.03	.-13	-.04	.03	-.13
Gender similarity				-.01	.17	.00	-.04	.15	-.02	-.01	.15	.00
Ethnic similarity				-.20	.16	-.09	-.05	.14	-.03	-.06	.14	-.03
LMX							*.95	.12	.53	*.95	.12	.53
Age similarity										.00	.00	-.07
R^2		.01			.02			.29			.30	
F for change in R^2					.71			*68.72			1.15	

*$p < .05$

Table 4

Summary of Hierarchical Regression for Education Differences Predicting Affect (N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.01	.01	.09	.01	.01	.09	.01	.01	.13	.01	.01	.13
Years in org.	.00	.02	.01	.00	.02	.00	.00	.02	-.01	.00	.02	.01
Years in pos.	-.04	.04	-.13	-.43	.04	-.13	-.04	.03	-.13	-.04	.03	-.13
Gender similarity				-.01	.17	.00	-.04	.15	-.02	-.01	.15	.00
Ethnic similarity				-.20	.16	-.09	-.05	.14	-.03	-.03	.14	-.03
LMX							*.95	.12	.53	*.97	.12	.54
Education similarity										.00	.01	-.05
R^2		.01			.02			.29			.03	
F for change in R^2					.71			*68.72			.64	

*$p < .05$

Table 5

Summary of Hierarchical Regression for Age Differences Predicting Supervisory Communication Satisfaction (N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.00	.01	.01	.01	.01	.00	.01	.01	.04	.00	.01	.03
Years in org.	.01	.03	.04	.01	.03	.03	.00	.02	.02	.00	.02	.02
Years in pos.	-.03	.04	-.07	-.43	-.03	.04	-.03	.03	-.08	-.03	.03	-.01
Gender similarity				-.05	.20	-.02	-.08	.15	-.03	-.07	.15	-.03
Ethnic similarity				-.44	.18	-.18	-.26	.14	-.03	-.26	.14	-.03
LMX							*1.30	.12	.65	*1.30	.12	.65
Age similarity										.00	.00	-.04
R^2		.00			.04			.45			.45	
F for change in R^2					2.9			*126.90			.51	

*$p < .05$

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Table 6

Summary of Hierarchical Regression for Education Differences Predicting Supervisory Communication Satisfaction (N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.00	.01	.01	.01	.01	.00	.01	.01	.04	.00	.01	.03
Years in org.	.01	.03	.04	.01	.03	0.3	.00	.02	.02	.00	.02	.02
Years in pos.	-.03	.04	-.07	-.43	-.03	.04	-.03	.03	-.08	-.08	.03	-.01
Gender similarity				-.05	.20	-.02	-.08	.15	-.03	-.07	.15	-.03
Ethnic similarity				*.44	.18	-.18	-.26	.14	-.03	-.26	.14	-.03
LMX							*1.30	.12	.65	*1.30	.12	.65
Education similarity										.00	.01	.02
R^2		.00			.04			.45			.45	
F for change in R^2					2.9			*126.90			.13	

*$p < .05$

Table 7

Summary of Hierarchical Regression for Age Differences Predicting Role Ambiguity
(N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.00	.01	-.05	.00	.01	-.05	.00	.01	-.03	.00	.01	-.04
Years in org.	.00	.02	.04	.00	.02	.05	.00	.02	.04	.00	.02	.06
Years in pos.	.03	.02	-.13	-.02	.03	.11	.02	.02	.11	.02	.02	.06
Gender similarity				-.10	.11	-.07	-.12	.11	-.87	-.13	.10	-.08
Ethnic similarity				-.09	.10	-.07	-.03	.10	-.03	-.09	.10	-.07
LMX							*.33	.08	.30	*.30	.08	.27
Age similarity										.00	.00	.02
R^2		.01			.03			.12			.12	
F for change in R^2					.94			*16.16			.04	

*$p < .05$

Table 8

Summary of Hierarchical Regression for Education Differences Predicting Role Ambiguity (N = 190)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age	.00	.01	-.05	.00	.01	-.05	.00	.01	-.03	.00	.01	-.04
Years in org.	.00	.02	.04	.00	.02	.05	.00	.02	.04	.00	.02	.06
Years in pos.	.03	.02	-.13	-.02	.03	.11	.02	.02	.11	.02	.02	.06
Gender similarity				-.10	.11	-.07	-.12	.11	-.87	-.13	.10	-.08
Ethnic similarity				-.09	.10	-.07	-.03	.10	-.03	-.09	.10	-.07
LMX							*.33	.08	.30	*.30	.08	.27
Education similarity										*.02	.01	.19
R²		.01			.03			.12			.15	
F for change in R²					.94			*16.16			*6.41	

*p < .05

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Table 9

Tests of Directional Education Differences on (Log) Affect, (Log) Role Ambiguity, and (Log) Communication Satisfaction

DV	Univariate F	df	Partial eta	Stepdown F	df
Affect	*4.00	2/160	.047	4.00	2/160
Role ambiguity	.99	2/160	.012	.89	2/159
Communication Satisfaction	2.73	2/160	.033	.36	2/158

* significant at p < .05

Table 10

Correlations for Employee/Supervisor Age, Directional/Non-Directional Age Differences, Role Ambiguity, Communication Satisfaction, and Affect

	Employee age	Supervisor age	Age difference^2	Continuous directional age difference	Role Ambiguity	Communication Satisfaction	Affect
Emp. age	—	*.33	*-.64	*-.24	.06	.00	.05
Sup. age	—	—	*.52	*.57	.01	-.07	-.12
Age difference^2	—	—	—	*.69	-.04	-.05	-.09
Continuous directional age difference	—	—	—	—	-.05	-.06	*-.15
Role ambiguity	—	—	—	—	—	*.30	*.24
Communication satisfaction	—	—	—	—	—	—	*.71

* correlation is significant at p < .01 level (2-tailed)

Table 11

Correlations for Employee/Supervisor Education, Directional/Non-Directional Education Differences, Role Ambiguity, Supervisory Communication Satisfaction, and Affect

	Employee education	Supervisor education	Education difference^2	Continuous directional education differences	Role Ambiguity	Communication Satisfaction	Affect
Employee education	—	*.27	-.42	-.04	-.06	-.06	-.11
Supervisor education	—	—	.07	*.76	-.03	*.24	*.25
Education difference^2	—	—	—	.09	*.20	.07	.01
Continuous directional education differences	—	—	—	—	.02	*.26	*.31
Role ambiguity	—	—	—	—	—	*.30	*.24
Communication satisfaction	—	—	—	—	—	—	*.71

* correlation is significant at $p < .01$ level (2- tailed)

Table 12

Correlations for Employee/Supervisor Age, Directional/Non-Directional Age Differences, LMX, Attitude Similarity, Leadership Effectiveness, and Socialize Outside of Work

	Emp. age	Sup. age	Age difference^2	Continuous directional age difference	LMX	Attitude similarity	Leadership effectiveness	Socialize outside of work
Emp. age	—	*.33	*-.64	*-.24	-.04	-.03	.03	*.15
Sup. age	—	—	*.52	*.57	-.04	-.08	-.01	.13
Age difference^2	—	—	—	*.69	.00	-.06	-.02	.08
Continuous directional age difference	—	—	—	—	.00	-.04	-.03	-.02
LMX	—	—	—	—	—	**.57	**.63	**-.20
Attitude similarity	—	—	—	—	—	—	**.74	**-.25
Leadership effectiveness	—	—	—	—	—	—	—	**-.14

** correlation is significant at p < .01 level (2- tailed) *
* correlation is significant at p < .05 level (1- tailed)

Table 13

Correlations for Employee/Supervisor Education, Directional/Non-Directional Education Differences, LMX, Attitude Similarity, Leadership Effectiveness, and Socialize Outside of Work

	Emp. education	Supervisor education	Education difference^2	Continuous directional education difference	LMX	Attitude similarity	Leadership effect.	Socialize outside of work
Emp. education	–	*.27	-.42	-.04	.03	-.07	.01	.08
Sup. Education	–	–	.07	*.76	**.26	**.27	**.26	.00
Education difference^2	–	–	–	.09	.12	-.02	.12	*.20
Continuous Directional education difference	–	–	–	–	*.23	*.30	*.24	-.05
LMX	–	–	–	–	–	**.57	**.63	**-.20
Attitude Similarity	–	–	–	–	–	–	**.74	**-.25
Leadership effect.	–	–	–	–	–	–	–	**-.14

** correlation is significant at p < .01 level (2- tailed)
* correlation is significant at p < .05 level (1- tailed)

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