CONTRIBUTIONS OF DEEP-LEVEL SIMILARITY AND INFORMAL

INTERACTION FREQUENCY WITH SUPERVISOR ON WORK ENGAGEMENT

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A Thesis

Presented to

The Faculty of the Department

of Psychology

University of Houston

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In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

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By

Jing Zhang

May, 2014

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ABSTRACT

Based on social psychological research involving interpersonal relationships, I hypothesize that deep-level similarity exerts its influence on engagement through its effect on perceived supervisor support. Also the strength of the relationship between deep-level similarity and perceived supervisor support is contingent on the informal interaction frequency with the supervisor. Data from 2,382 employees (Study 1) were used to test the relationships between deep-level similarity and work engagement as well as the moderating role of informal interaction frequency. To alleviate concerns about inferences of causality, longitudinal data from 91 employees (Study 2) were used to replicate the findings. Results showed consistent support for the positive effects of deep-level similarity on engagement and the positive influence of interaction frequency on perceived supervisor support. The mediation hypothesis that deep-level similarity related to engagement through perceived supervisor support was also supported. Informal interaction frequency's effects on deep-level similarity and perceived supervisor support relationship were mixed.

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Work Engagement

Work engagement has been defined as "… a positive, fulfilling, affective motivational state of work-related well-being that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, Gonza´lez-Roma´, & Bakker, 2002, p. 74). Work engagement has been associated with an array of favorable outcomes such as: (a) increased productivity, organizational commitment, organizational citizenship behavior, job satisfaction, and customer satisfaction; (b) reduced turnover intention and accident rates (Harter, Schmidt, & Hayes, 2002; Saks, 2006), and (c) enhanced task and contextual performance (Christian, Garza, & Slaughter, 2011). Subsequently, work engagement has received substantial attention by researchers, consultants and managers alike.

Relative to the considerable research dedicated to the positive outcomes of employee engagement, less attention has been paid to what organizations can do to enhance employee engagement. This has been especially evident in the area of supervisor-related factors. Accordingly, supervisors have the potential to exert considerable influence over employee behaviors and attitudes including factors such as employee engagement. Indeed, Kouzes and Posner (2007) reported that leaders' actions contribute more to such factors as employee commitment, loyalty, motivation, pride, and productivity than does any other single variable. As such, the present study aims to explore why deep-level similarity with one's supervisor fosters employee work engagement. Specifically, I propose that an employee's increased deep-level similarity with their supervisor should facilitate the formation of a high quality dyadic relationship which, in turn, should strengthen the employee's perception that they are supported

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by such supervisor. Subsequently, this perceived supervisor support should carry over to increase the employee's work engagement.

Schneider (1987) argued that examining similarities in personalities and attitudes with other organizational members is important since "we need to know much more about the kinds of people in whole organizations prior to reaching conclusions about a best structure" (p. 447). Indeed, research has shown that being similar to one's supervisor has a favorable influence on work attitudes (Duffy & Ferrier, 2003), supervisors' perceived effectiveness (Tsui & O'Reilly, 1989), and subordinates' job performance (Turban & Jones, 1988). However, most of similarity research has focused on demographics such as age, gender, race, education, organization type, and job tenure (Vecchio & Bullis, 2001). Rather than demographic similarities, Harrison, Price and Bell (1998) found that when group members reported a long history of working together, it was deep-level similarity that had stronger influences. Different from demographic similarity which can be more readily observed, deep-level similarity is based on psychological features of workers that are less obvious such as attitudes, preferences, personality traits, and values (Harrison, Price, Gavin, & Florey, 2002). Specifically, deep-level similarity refers to likeness among individuals' psychological latent or unobservable characteristics that unfold over time. These characteristics evolve via behavior patterns, verbal and non-verbal communications, and exchanges of personal information.

In the following sections I explore the effects of employees' perceived deep-level similarity with their supervisors on employees' perceived supervisor support and employee work engagement. In addition, I propose these effects may be contingent on a situational factor, especially the informal interaction frequency with the supervisor. An overall model is presented in Figure 1.

Insert Figure 1 about here

Work Engagement

Within the movement to conduct more positive psychological research (Turner, Barling, & Zacharatos, 2002), work engagement has become a vital area of interest for organizational researchers. Despite the vast interest that employee engagement has garnered, researchers have used varied definitions to conceptualize the construct. As defined by Kahn (1990), personal engagement is "the harnessing of organization members' selves to work roles" (p. 694). He further explained that "in engagement, people employ and express themselves physically, cognitively, and emotionally during role performance" (p. 694). In this definition, Kahn indicated that work engagement is a psychological connection of the individual with the performance of work tasks and that those individuals also invest personal resources to their work (Christian, et al., 2011).

Another stream of work engagement research has been largely stimulated by investigations related to burnout. Burnout is characterized by individuals who demonstrate high levels of job-related emotional exhaustion, cynicism, and low self-efficacy (Maslach, Schaufeli, & Leiter, 2001). Different from employees who experience burnout, engaged employees are recognized as energetic, regard their job as challenging instead of stressful, and are meaningfully connected with and committed to the organization. Similarly, Schaufeli and colleagues (2002) proposed that employee engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption: (a) vigor is the manifestation of high energy and mental resilience while working; (b) dedication is the strong involvement in the work; and (c)

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absorption is the concentration and immersing into one's work. In the present study, I align with Schaufeli and colleagues' definition (2002) in discussing work engagement.

Perceived Supervisor Support

Based on organizational support theory (Eisenberger, Huntington, Hutchison, & Sowa, 1986), employees develop general perceptions of the extent to which their employer cares about their well-being and values their contributions. Because supervisors are generally regarded as the agents of the organization, employees also "develop general views concerning the degree to which supervisors value their contributions and care about their well-being" (Kottke & Sharafinski, 1988, p. 565).

An additional stream of theory involving supervisor support derives from social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960). According to social exchange theory and the norm of reciprocity, employees who perceive high levels of supervisor support will reciprocate with favorable behaviors toward the organization (Eisenberger & Stinglhamber, 2011). These reciprocations can come in the form of higher performance (Babin, & Boles, 1996), increased innovative behavior (Janssen, 2005), and lower turnover (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Maertz, Griffeth, Campbell, & Allen, 2007). Moreover, evidence has shown that supervisor support also relates to subtle employee psychological perceptions such as lower work stress (Beehr, King, & King, 1990; Cohen, & Wills, 1985) and increased job satisfaction (Babin, & Boles, 1996).

Though evidence is accumulating on favorable outcomes of perceived supportive supervision, less attention has been paid to its antecedents. A couple exceptions include: (a) a sample comprised of supervisors and full-time retail employees who reported that increased supervisor's perceived organizational support positively related to their subordinates'

perceptions of supervisor support (Shanock & Eisenberger, 2006); and (b) a sample of marketing employees' perceptions of increased interactional justice and distributive justice were positively related to employees' perceptions of supervisor support (DeConinck, 2010). Subsequently, I plan to extend the extant literature by proposing a contributing role of employees' perceptions of deep-level similarity with their supervisors on perceived supervisor support.

Deep-level Similarity and Perceived Supervisor Support

Based on Festinger's (1954) social comparison process theory, individuals have a tendency to compare their opinions with those who hold similar opinions and beliefs. Based on this proposition, it is likely that employees who perceive they are highly similar to their supervisor will be more inclined to compare themselves with their supervisor more frequently than employees who have diverging opinions with their supervisor. Consequently, these employees should be more inclined to detect supervisors' supportive behavior.

Employees who are similar to their supervisors not only have a greater inclination to detect their supervisors' supportive behavior, they are also more likely to see the positive characteristics displayed by such supervisors. According to Schneider's (1987) attraction-selection-attrition model, individuals with characteristics similar to the work group are more likely to be attracted to, selected into, and retained by the work group. Likewise, the similarity-attraction paradigm from Byrne (1971) suggested that individuals are more likely to be attracted to those who are similar to them, and the more similar they are the more positive the attitudes and beliefs about such others will prevail. Pragmatically, supervisors having similar values, perspectives, and work outlooks with their employees should be more inclined to understand employees' needs better and be more apt to provide their employees with the emotional support

and job resources they require. This in turn should result in higher perceived supervisor support from such employees.

Finally, Turban and Jones (1988) suggested that "subordinates who perceive their supervisor as similar to themselves perceive the work setting differently from those who see their supervisor as dissimilar" and that "perceived similarity is linked to … a positive relationship with the supervisor" (p. 231). Accordingly, the evidence presented here suggests that the greater the deep-similarity between employees and their supervisors, the greater the probability that employees will like and be attracted to such supervisors and, subsequently, be more inclined to report higher levels of perceived supervisor support. On the basis of this rationale, I propose that:

Hypothesis 1: Employees' perceived deep-similarity with their supervisors will be positively related to perceived supervisor support.

Deep-level Similarity, Perceived Supervisor Support, and Work Engagement

Based on Demerouti, Bakker, Nachreiner, and Schuafeli's (2001) job demand-resource model, working conditions and job attributes can be categorized into job demands and job resources. A job resource such as a supportive supervisor can promote employees' work engagement by increasing employees' intrinsic motivation (Crawford, LePine, & Rich, 2010) as well as providing instrumental support such as autonomy, performance feedback, and learning opportunity (Bakker, Schaufeli, Leiter, & Taris, 2008). Consequently, being similar with the supervisor can be regarded as a valuable job resource because it allows employees to better understand supervisors' instructions and better communicate with such supervisors. Consistent with this view, Turban and Jones (1988) found that similarity perception can increase job resources indirectly by increasing the clarity of job demands. Similarly, Ensher, Grant-Vallone,

and Mareclich (2002) found that perceived attitudinal similarity was positively related to protégés' actual amount of support received from and their satisfaction with their mentors.

In addition, in line with social exchange theory (Blau, 1964) which states that relationships between two parties can evolve into trusting, loyal, and committed relationships when both parties obey the 'rules' of exchange, supervisor support, as a manifestation of exchange relationships in the workplace, is likely to engender positive attitudes and behaviors from employees toward their organizations (Cropanzano & Mitchell, 2005). For employees who feel positive about interactions with and support received from their supervisor (i.e., resulting from being similar with their supervisor), the need to reciprocate through engagement seems likely. Prior studies support this idea by showing that supervisor support stimulates personal growth, learning, and development (e.g., Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Moreover, perceptions of personal growth, learning and development further empower employees to succeed in job roles by increasing self-efficacy, intrinsic motivation, and engagement (Pierce & Gardner, 2004). Thus, employees who are supported by their supervisor are more likely to be dedicated to their work and build emotional bonds with the organization.

Building on this line of reasoning, I not only expect a direct influence of deep-level similarity on engagement, but it is also possible that employees who have similar values and ideas with supervisors will perceive their supervisor as more supportive and more appreciative of their contributions. Accordingly, these perceptions should further allow such employees to devote more energy and effort to their work. Therefore, deep-similarity should exert part of its influence on employees' work engagement through perceived supervisor support.

Hypothesis 2: Employees' perceived deep-level similarity with their supervisors will be positively related to employees' work engagement.

Hypothesis 3: Employees' perceived supervisor support will mediate the relationship

between deep-level similarity and employees' work engagement.

Interaction Frequency with Supervisors and Perceived Supervisor Support

In their seminal review, Baumeister and Leary (1995) posited that fully satisfying

relationships require two essential features: (a) frequent interactions with the same person(s), and

(b) a sense of meaningful connectedness within such interactions. This research is relevant in the

present investigation, as often interactions between employees and their respective supervisors

are measured in the context of work-related interactions (e.g., performance feedback, economic

exchange, and punishment). Empirical research has shown that employees' work-related contact

frequency with their managers is positively related to affect-based trust toward the managers

(McAllister, 1995). However, the contribution of informal interaction on interpersonal

relationship is unclear. As such, the research presented here aims its focus on social or informal

interactions. Andrews and Kacmar (2001) found that supervisors are not only the main source of

work-related feedback for employees, but informal interactions (e.g., social conversation and

guidance) between supervisors and employees can provide employees with emotional support

and other intangibles beyond rudimentary work-related interactions.

I argue that informal interactions with supervisors is positively related to higher levels of

perceived supervisor support for two reasons. First, studies about newcomer socialization and

adjustment showed that "interaction frequency is the primary mechanism through which

newcomers are transformed into insiders" (Reichers, 1987, p. 286). That is, as the interaction

frequency of newcomers and insiders increases, the socialization process speeds up. Moreover,

the mere-repeated-exposure-paradigm (Zajonc, 1968, 2001) also supports this idea by proposing

that "repeated exposure to a stimulus increases the positive affect or reduces the negative affect

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toward the stimulus" (Harmon-Jones & Allen, 2001, p. 889). Using this rationale, it is reasonable to expect that the more frequently employees interact informally with their supervisors, the more employees will report a positive evaluation of supervisors. Consequently, increased frequency of informal interactions with supervisors should be positively related to enhanced positive views of such supervisors which, in turn, should be positively related to a higher rating of supportive supervision.

Hypothesis 4: Employees' frequency of informal interactions with supervisors will be positively related to employees' perceived supervisor support.

Enhancing Effect of Informal Interaction Frequency with Supervisors on the Deep-level Similarity-Perceived Supervisor Support Relationship

To extend the research of Baumeister and Leary (1995) in the context of work, I expect that the joint effect of deep-level similarity and informal interaction frequency will enhance employees' perceived supervisor support. That is, when employees have meaningfulness (here deep-level similarity) with their supervisor combined with frequent socially-driven interactions, they will be more inclined to view that their supervisor cares for their well-being and socioemotional needs. Consequently, employees are more apt to perceive that such supervisors provide both social and work-related support to their respective employees. My argument is that albeit basic work-related interactions are crucial in yielding favorable outcomes, frequency of informal interactions adds uniqueness to that equation. When informal interactions are coupled with meaningful connectedness (measured as deep-level similarity here) increased levels of favorable outcomes are likely to occur. Thus, it is reasonable to expect that:

Hypothesis 5: Informal interaction frequency will strengthen the relationship between deep-level similarity with supervisor and perceived supervisor support.

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General Method

The primary aim of the present study is to investigate the influence of supervisor-related factors (deep-level similarity, informal interaction frequency, and perceived supervisor support) on employee work engagement. To test all hypotheses, I collected data from two distinct organizations. In the first organization, a large number of employees (n = 2,382) responded to an online survey during work time. Because I was not able to survey the first organization a second time which limits the ability to infer causality, I assessed an additional sample of employees (reported in Study 2) using a longitudinal framework. In the following sections I briefly describe the study methods, the data analysis, and findings for each study. An overall discussion is offered following the results section.

Study 1

Method

Participants and Procedures

Electronic surveys were sent out to employees in a large international engineering company. A total of 2,382 out of 3,900 possible participants finished the survey (response rate = 61%). Sample characteristics showed that the majority of participants were male (79.3%) and the average age was 48.1 years (*SD* = 13.2). The average organizational tenure was 8.3 years (*SD* = 10.4). Employees' tenure with their supervisor ranged from less than 3 months to more than 25 years, with 41.8% of the participant-reported tenure with supervisor being less than 2 years. Most participants (76.9%) possessed at minimum a college degree.

Measures

Perceived deep-level similarity. Employees' perceived deep-level similarity with their supervisors was assessed using three items from the perceived deep-level similarity scale

developed by Turban and Jones (1988). Sample items included: "My supervisor is a lot like me in outlook, perspectives, values, and work habits" and "My supervisor and I are alike in a number of areas". Employees rated these items using a five-point Likert-type rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's α for the scale was .93.

Frequency of informal interactions. Individuals' frequency of informal interactions with their supervisors was assessed using two items developed for this study: "How often, on average, do you see your supervisor?" and "How often, on average, do you engage in informal conversations with your supervisor?" Participants rated these items on a five-point scale ranging from 1 (*once in three weeks or less*), 2 (*once in two weeks or less*), 3 (*Once a week*), 4 (*Few times a week*), to 5 (*everyday*). Cronbach's α for the scale was .67.

Perceived supervisor support. Employees' perceived supervisor support was assessed using five items adapted from Eisenberger and colleagues (2002) measure of perceived organizational support. "Organization" was substituted with "supervisor". Sample items included: "My supervisor really cares about my well-being" and "My supervisor is willing to extend him/herself to help me perform my job to the best of my abilities". Participants rated these items using a five-point Likert-type rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's α was .88.

Work engagement. Work engagement was assessed using the Utrecht Work Engagement scale (Schaufeli, Bakker, & Salanova, 2006). Participants rated nine items selected to represent each dimension of engagement (3 items per dimension). Sample items included: *vigor*, "At my job, I feel strong and vigorous"; *dedication*, "I'm enthusiastic about my job"; and *absorption*, "I am immersed in my work". I used the average score of all nine items to indicate the level of work engagement because, according to Schaufeli et al., (2006), the one-factor model

was a good fit with the data. Participants rated these items using a five-point Likert-type rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's α for the scale was .90.

Control variables. For all subsequent analyses, I controlled for employees' age, gender, education, tenure with the organization, and tenure with their supervisor. I controlled for these factors because researchers have shown and argued that these factors are related to employees' work engagement. For instance, evidence has shown that women are more engaged in their work than men (e.g., Avery, McKay, & Wilson, 2007). In addition, Avery et al. also suggested that employees who have obtained higher educational degrees are more inclined to pursue positions that are more meaningful which allow them to be more engaged in their work. Moreover, employees who are older are more likely to have reached a plateau when compared to workers who are younger, and thus may be less engaged in their job (Allen, Poteet, & Russell, 1998). Using this same line of reasoning, it is practical to expect that similar effects may happen to workers who have had a long tenure with their respective organization and/or supervisor.

Results

Deep-level Similarity, Perceived Supervisor Support, and Engagement

For all subsequent analyses SPSS version 21 (IBM SPSS Inc., Chicago IL) was used. For descriptive results of the variables measured in the present study, see Table 1.

Insert Table 1 about here

Hypothesis 1 and 2 predicted that employees' deep-level similarity would be positively related to employees' perceived supervisor support and work engagement. Using hierarchical multiple regression, I found that deep-level similarity was significantly and positively related to

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perceived supervisor support and work engagement (β = .69 and .35, respectively, $p < .01$). For more detailed information, please look at Table 2 These results provided support for Hypotheses 1 and 2.

Insert Table 2 about here

The Mediating Role of Perceived Supervisor Support

To test Hypothesis 3 in which I argued that perceived supervisor support would mediate the relationship between deep-level similarity and employee engagement, I used bootstrapping procedures (Shrout & Bolger, 2002; MacKinnon, Lockwood, & Williams, 2004) to test the significance of indirect effects instead of the Baron and Kenny procedure (1986).

Baron and Kenny's (1986) four-step approach requires researchers to estimate the paths between the independent variable and mediator (path a), the mediator and outcome after controlling for the independent variable (path b), the independent variable and outcome (path c), and finally the independent variable and outcome after controlling for mediator (path c′). For a significant mediation, paths a, b, and c need to be significant, and c′ needs to be non-significant. The indirect effect is expressed as the product of paths a and b (i.e., ab). Although Baron and Kenny's method has been a common method used to test mediation, it has been shown to have low power. For instance, to achieve .8 power with Baron and Kenny's method, the sample may need to be as big as 20,886 under certain conditions (Fritz, & MacKinnon, 2007). Another criticism about their method is that it does not directly test the indirect effect that it intends to test (MacKinnon, Lockwood, Hoffman, West, & Sheet, 2002). Instead, "the existence of an indirect effect is inferred logically by the outcome of a set of hypothesis tests" (Hayes, 2009, p. 410).

Another commonly used approach, the Sobel test, focuses directly on the product term (ab). However, this method has a major flaw in its requirement that the sampling distribution of the indirect effect needs to be normal which is generally not satisfied (Hayes, 2009; Stone & Sobel, 1990). For example, in testing the robustness of maximum likelihood estimates of indirect effects, Stone and Sobel (1990) found that a sample of 400 or more is necessary for nonrecursive models that included endogenous latent variables.

In comparison to these methods, bootstrapping is a resampling procedure that directly estimates the indirect effect and has most recently seen more frequent use in regard to mediation testing (Hayes, 2009; MacKinnon, Fairchild, & Fritz, 2007; Preacher & Hayes, 2004). Bootstrapping does not require the assumption of normality for the distribution of the indirect effect and, thus, eradicates this limitation of the Sobel test. "By repeating this process thousands of times, an empirical approximation of the sampling distribution of ab is built and used to construct confidence intervals for the indirect effect" (Preacher & Hayes, 2008, p. 880). By examining the confidence limits using estimation, researchers have found that the resampling method performs better than the method based on a normal distribution (e.g., MacKinnon, et al., 2004). As such, I followed the practice of researchers who used bootstrapping to report results that include the estimate of indirect effects as well as the 95% confidence intervals (e.g., van Jaarsveld, Walker, & Skarlicki, 2010).

The unstandardized indirect effect estimate obtained from 1000 bootstrapping samples for the model including both the independent variable and mediator was .26 and the 95% confidence interval ranged from .21 to .31. Because the 95% confidence interval range did not include zero, the indirect effect showed to be statistically significant providing support for Hypothesis 3.

Informal Interaction Frequency and Perceived Supervisor Support

Hypothesis 4 predicted that employees' informal interaction frequency with supervisors would be positively related to employees' perceived supervisor support. To test Hypothesis 4, I used regression. By regressing perceived supervisor support on informal interaction frequency, I found that informal interaction frequency was significantly and positively related to employees' perceived supervisor support ($\beta = .31$, $p < .01$). Thus, Hypothesis 4 was supported.

The Moderating Role of Informal Interaction Frequency

Hypothesis 5 predicted that the relationship between employees' deep-level similarity with their supervisors and perceived supervisor support would be moderated by informal interaction frequency. I conducted hierarchical linear regression to test this hypothesis. Specifically, perceived supervisor support was entered as the dependent variable. Next, I entered all control variables into the equation in the first model, the main effects of deep-level similarity and informal interaction frequency into the second model, and the interaction term between deep-level similarity and informal interaction frequency in the final model (the interaction term was generated by multiplying the deep-level similarity and informal interaction frequency variables). The examination revealed that informal interaction frequency significantly moderated the deep-level similarity-perceived supervisor support relationship ($\beta = -.07$, $p < .01$). The interaction term explained a statistically significant increase in variance in perceived supervisor support, $\Delta R^2 = .005$, $F (1, 2,315) = 24.30$, $p < .001$. The stepwise coefficients and model indicators are reported in Table 3.

Insert Table 3 about here

Furthermore, the plot of the interaction (see Figure 2) showed that when informal interaction frequency was low, the relationship between deep-level similarity and perceived supervisor support was stronger than when informal interaction frequency was high. Simple slopes for the association between deep-level similarity and perceived supervisor support were calculated at low (1 SD below the mean) and high (1 SD above the mean) levels of informal interaction frequency. Simple slope tests for both the high and low informal interaction frequencies revealed a positive relationship between deep-level similarity and perceived supervisor support, but the relationship was stronger for employees with low informal interaction frequency ($\beta = .72$, $p < .01$) when compared to that with high interaction frequency ($\beta = .58$, $p < .01$).

Insert Figure 2 about here

Study 2

Method

Participants and Procedures

Study 1 was aimed at investigating effects of employees' deep-level similarity and informal interactions with their supervisors related to perceived supervisor support and employee work engagement. Subsequently, study 2 was designed to replicate those findings using a longitudinal framework. A benefit of longitudinal studies is that they can ameliorate "the biased estimates of the relation between the cause and effect" of cross-sectional studies (Edwards, 2008, p. 472).

Study 2 data were collected from employees in an international oil and gas service

organization at two time points (T1 and T2) with three years between data collections. Data were

collected as part of a company-wide survey to assess employees' work attitudes and behaviors.

At T1, 887 employees completed an electronic survey online, and at T2, 1,416 employees

completed a second electronic survey. Spanning the three years, the organization went thought

dramatic changes that resulted in significant reduction in force, as well as in a large number of

employees being relocated to various departments. Following these efforts and the integration of

a new subsidiary, the organization also recruited and hired hundreds of new employees. These

changes resulted in a subset of 219 employees who completed the surveys at both T1 and T2.

Among these participants, 128 had switched supervisors before the second data collection, so I

ran analyses using data from the remaining 91 participants who had the same dyadic relationship

with their respective supervisors at both T1 and T2. Independent sample t-test on the employees

who have same supervisors and switched supervisors showed that there aren't any significant

differences between these two groups on all interested variables. As shown in Table 4,

employees who stayed with their supervisors reported higher levels of informal interaction

frequency than employees who switched supervisor.

Insert Table 4 about here

These participants were on average 48.4 years of age ($SD = 12.1$), employed with the

company for 8.8 years ($SD = 7.7$), and worked with the same supervisor for an average of 6.4

years ($SD = 3.2$). In regard to gender and ethnicity, 75.8% of participants were male and 80.2%

of the participants reported being Caucasian with small percentages of Asian, African American,

and American Indian/Alaskan Native. Regarding education levels, 11.7% of the participants reported having a high school diploma/GED, 27.9% some college experience, 48.8% an associate's degree or a bachelor's degree, and 11.6 % a graduate degree or higher.

Variables measured at T1 included: age, gender, education, tenure with the organization, tenure with the supervisor, deep-level similarity, and informal interaction frequency with the supervisor. T2 variables included perceived supervisor support and employee work engagement.

Measures

Deep-level similarity with supervisor, informal interaction frequency with supervisor, perceived supervisor support, and work engagement were assessed with the same measures used in Study 1 (see the Measures section of Study 1 for detailed descriptions of the measures). The Cronbach's coefficient alpha reliabilities for the present study were .94 for deep-level similarity, .71 for informal interaction frequency, .88 for perceived supervisor support, and .88 for work engagement.

To test the hypotheses, I again used hierarchical multiple regression with the control variables (age, gender, education, tenure with organization and supervisor) entered into the first step of each model.

Results

For descriptive results of the variables measured in the present study, see Table 5.

Insert Table 5 about here

I tested Hypothesis 1 which proposed a positive relationship between deep-level similarity and perceived supervisor support by regressing T2 employees' perceived supervisor

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support on T1 employees' deep-level similarity with their supervisors after entering all control

variables at step 1. Results showed that deep-level similarity with their supervisor was not

significantly related to perceived supervisor support (β = .11, *ns*). Consequently, Hypothesis 1

was not supported. Hypothesis 2 predicted that employees' deep-level similarity with their

supervisor at T1 would be positively related to T2 employee work engagement. I found

employees' deep-level similarity with their supervisors was significantly and positively related to

employee work engagement (β = .26, *p* < .05). This result provided support for Hypothesis 2.

To test Hypothesis 3, which proposed that perceived supervisor support would mediate

the relationship between deep-level similarity and employee work engagement, I regressed T2

employee work engagement on T1 deep-level similarity, T2 perceived supervisor support, and

control variables. A bootstrapping test showed that with 1000 samples the unstandardized

coefficient was .14 with a 95% confidence interval ranging from .03 to .26. Thus, hypothesis 3

was supported.

Hypothesis 4 predicted that employees' informal interaction with supervisor at Time 1

would be positively related to T2 employee perceived supervisor support. Results showed that

informal interaction frequency was significantly and positively related to employee work

engagement (β = .24, *p* < .05). This result provided support for Hypothesis 4. More detailed

information about regression results for Hypotheses 1, 2, and 4 can be found in Table 6.

Insert Table 6 about here

Hypothesis 5 predicted that the relationship between T1 employees' deep-level similarity

with their supervisors and T2 perceived supervisor support would be moderated by T1 informal

interaction frequency. I regressed T2 perceived supervisor support on the interaction terms between T1 deep-level similarity and T1 informal interaction frequency. As shown in Table 7, results revealed that informal interaction frequency significantly moderated the deep-level similarity-perceived supervisor support relationship ($\beta = .35$, $p < .01$). The interaction term explained a significant increase in variance in perceived supervisor support, $\Delta R^2 = .11$, $F(1, 77) = 10.38$, $p < .001$.

Insert Table 7 about here

The interaction effect is plotted in Figure 3. Simple slopes for the association between deep-level similarity and engagement were tested for low (1 SD below the mean) and high (1 SD above the mean) levels of interaction frequency. A simple slope test for high informal interaction frequency showed a positive influence of deep-level similarity on work engagement ($\beta = .38$, $p < .01$). However, a simple slope test for low informal interaction frequency showed a non-significant result ($\beta = -.12$, ns).

Insert Figure 3 about here

Overall Discussion

Though a number of studies have shown the positive contributions of the subordinate-supervisor similarity relationship related to work outcomes, there is a dearth of research that has explored the mechanisms of the relationship. This study contributed to similarity research and organizational support literature by integrating both lines of research and found the positive

effect of deep-similarity on work engagement through its effect on perceived supervisor support. This study also responded to the call by Glomb and Welsh (2005) for more studies about similarities and specific outcomes (e.g., perceived supervisor support and work engagement). Moreover, the investigation highlighted the positive influence of a largely neglected influential factor in regard to informal interaction frequency and the effects it has on employee attitudes (for exceptions see Antonakis, & Atwater, 2002; Balser, & Stern, 1999; Roy, 1959). In the following sections, I will first discuss each finding in light of its theoretical implications, followed by practical implications, and end with directions for future research that can aid our understanding of supervisor-employee similarities and its impact on organizationally relevant outcomes.

Theoretical Implications

Consistent with prior findings, this study showed that deep-level similarity was positively related to perceived supervisor support. For instance, empirical studies have found notable relationships between supervisor-employee attitude similarity and work-related outcomes, such as leader member exchange (Engle & Lord, 1997; Deluga, 1998), cooperative behaviors (Kaufmann, 1967), and group cohesiveness (Good & Nelson, 1973). Even though I found support for the positive effect of deep-level similarity on employees' perceived supervisor support using cross-sectional data, I was not able to replicate the findings with the longitudinal data. The reasons for non-significance in the longitudinal study may include that similarity with one's supervisor may facilitate relationship building at the early stage of relationship building, but over time, actual observed behaviors have more influence on employees' perceptions (Jackson, Stone, & Alvarez, 1993). Statistically, the limited sample size (n = 91) in the longitudinal study also made it more difficult to detect significant effects.

Contributing to the organizational support and engagement literature, I found deep-level similarity was positively related to employee work engagement both directly and through its effect on perceived supervisor support. Consistent with these results, prior research has shown that similarity positively related to positive outcomes such as higher performance rating (Strauss, Barrick, & Connerley, 2001) and functioning evaluation (Lankau, Riordan, & Thomas, 2005) through its effects on liking. My results showed that employees' perceived supervisor support resulted from perceptions of deep-level similarity with such supervisors is another valuable mechanism through which similarity exerts its influence.

I found consistent and robust support for the positive main effects of employees' informal interaction frequency with their supervisors on employees' perceived supervisor support in both Studies 1 and 2. These findings are in line with the mere exposure effects (Zajonc, 2001) which posit that the more frequently individuals share a common space or interaction, the more positive attitude one has about the other. These results imply that informal interactions with supervisors are essential for employees to build supportive perceptions of such supervisors. These findings, along with other communication frequency studies (e.g., Gajendran & Joshi, 2012; Kacmar, Witt, Zivnuska, & Gully, 2003) draw attention to the integration of personal interaction patterns and leadership research.

In regard to the effects of informal interaction frequency on the relationship between deep-level similarity and perceived supervisor support, even though I found significant moderating effects in both studies, the relationship direction and strength were mixed. Specifically, in the cross-sectional study (Study 1), I found that the consolidation effect of informal interaction frequency on the deep-level similarity-perceived supervisor support relationship was stronger when employees interacted *less* with their supervisor than when they

did more. However, results of the longitudinal data (Study 2) supported that the positive

relationship between deep-level similarity and perceived supervisor support was significant only

when informal interaction frequency was high. This inconsistency may be due to the large

number of participants in Study 1 (n = 2,382). As such, the .5 % of variance accounted for by the

interaction which was statistically significant under most circumstances would considered to be

not practical applicable.

Practical Implications

Though it is reasonable to expect that not all employee-supervisor relationships can

accommodate informal interpersonal interactions on a frequent basis, the present findings show

that informal interpersonal interactions play a role in perceived supervisor support and employee

work engagement. In work settings that are becoming increasingly limited in regard to

interpersonal interactions due to technological developments, having a clearer picture of how

such interactions increase levels of employee work engagement could prove highly beneficial.

The present research showed that when employees perceived lower levels of deep-level

similarity with their supervisors, they required a higher frequency of informal interactions to

enhance levels of perceived supervisor support. Consequently, these results suggest that

employees and organizations stand to benefit when adequate levels of informal interpersonal

interactions occur between employees and their supervisors.

With the understanding that organizations will not always have the opportunity to match

subordinates and supervisors in regard to deep-level similarity, my research shows that when

possible organizations could benefit by assessing and matching subordinates and supervisors in

regard to aspects such as beliefs, outlooks, and values in placement process. As a result,

organizations may not only see increased work engagement as I found here, but may also benefit

from other favorable outcomes such as increased organizational commitment and reduced turnover.

Limitations and Future Research

My present research has some limitations that could be addressed in subsequent studies. First, the data from Study 1 were collected at one time point which limits my opportunity for answering questions in regard to causality. However, most of my hypotheses received support from Study 2 which should considerably compensate for this limitation. The importance of looking at (dis)similarity using a longitudinal framework to better understand influential patterns has long been emphasized (e.g., Harrison, et al., 1998). In addition, my longitudinal study had a time interval of three years between data collections. Future studies could test the relationship between deep-level similarity and perceived supervisor support with data collected at multiple time points using a relatively shorter period of time between data collections to explore other potential outcomes.

Second, only employee responses were collected at both data collections which could result in common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, the focus of this study was to examine employees' perceptions and attitudes, and these factors are generally best captured by self-report measures rather than by observer ratings (e.g., Bledow, Schmitt, Frese, & Kühnel, 2011; Shanock & Eisenberger, 2006). With that said, future researchers could replicate and extend these findings using objective ratings or multiple raters on interaction frequency. In addition, the focus of the present research was to investigate the influence of employees' perception of similarity with supervisor on important work outcomes. As such, the similarity perceptions from supervisor and objective similarity, that is the actual amount of similarity between both involved parties on certain characteristics such as the Big Five

personality factors, were not considered. Other studies (e.g., Deluga, 1998) that have focused on objective similarity from both involved parties have yielded significant results and are also worthwhile for extending this present research.

Third, I tested the moderating role of only one situational variable (i.e., informal interaction frequency) without considering other environmental and psychological characteristics (e.g., task independence and supervisors' personality). As noted in Vecchio and Bullis' (2001) study, some degree of dissimilarity between employee and supervisor is plausible but too much dissimilarity "is also likely to adversely affect social processes; therefore, there is a continuing need to study the conditions that produce positive versus negative consequences" (p. 884). Consequently, it is meaningful to replicate and extend the present model by including other contextual variables.

Moreover, there are limited numbers of studies related to informal interaction frequency, especially in work settings. As a result, I used an informal interaction frequency scale that was specifically generated for this study. Future researchers may pursue other means of detecting interaction frequency, such as through diary studies or qualitative research to examine content and characteristics of interaction frequency that drive some of the outcomes.

Finally, limited by the number of items that could be used, I did not include behavioral outcomes in the present model. According to social exchange theory (Blau, 1964) and findings involving work engagement and performance (e.g., Bakker, 2009; Bakker, et. al., 2008), it is reasonable to expect that higher employee work engagement resulting from being similar with one's supervisor could carry over to influence other important work outcomes (e.g., in-role and extra-role performance).

Conclusion

Perceptions of deep-level similarity and frequency of informal interactions between employees and their supervisors appear to matter. With the understanding that most interactions in the organization are formal and work related, this study emphasized the contributing role of the informal aspect of interaction. Moreover, with increased technology in organizational settings and with the expectation that these increases will be more in the future rather than less, emphasizing both types of interpersonal interactions, formal and informal, may be more relevant today and the future than ever before.

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Appendix A

Table 1

Descriptive and Correlations of Variables of Study 1

	M	*SD*	1	2	3	4	5	6	7	8	9
1. Age	48.12	13.16									
2. Gender	1.79	.41	.20**								
3. Education	4.62	1.49	-.01	.17**							
4. Tenure with Organization	8.16	10.19	.40**	.15**	-.11**						
5. Tenure with Supervisor	6.36	4.71	.20**	.07**	-.10**	.35**					
6. Deep-Level Similarity	3.45	.80	.09**	.01	-.02	-.01	.05*				
7. Informal Interaction Frequency	3.23	1.22	-.04	-.01	-.08**	-.05*	.01	.25**			
8. Perceived Supervisor Support	3.72	.71	.01	-.02	-.02	-.05*	.03	.69**	.31**		
9. Employee Engagement	3.74	.63	.15**	-.01	-.04	-.01	.01	.37**	.10**	.40**	

Note. N =2,382. * $p < .05$ ** $p < .01$

Table 2

Results of Regression Analyses of Perceived Supervisor Support and Engagement (Study 1)

Variables	Perceived Supervisor Support				Engagement	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Control						
Age	.03	-.05**	.03	.04	.19**	.15**
Gender	-.01	-.01	-.01	-.01	-.01	-.01
Education	-.03	-.01	-.03	.00	-.04*	-.03
Tenure with Organization	-.07**	-.02	-.07**	-.05*	-.09**	-.07**
Tenure with Supervisor	.04	.01	.04	.03	.00	.00
Independent						
Deep-level Similarity		.69**				.35**
Interaction Frequency				.31**		
R^2	.01*	.48**	.01*	.10**	.03**	.16**
ΔR^2		.47**		.09**		.12**
Adjusted R^2	.00*	.48**	.00*	.10**	.03**	.15**

Note. Two-tailed tests. *$p < .05$ **$p < .01$

Table 3

Moderation Effects of Informal Interaction Frequency on Perceived Supervisor Support (Study 1)

Variables	Model 1 β	Model 2 β	Model 3 β
Control			
Age	.03	-.04	-.04[*]
Gender	-.01	-.01	-.02
Education	-.03	.00	-.00
Tenure with Organization	-.07[*]	-.02	-.02
Tenure with Supervisor	.04	.01	.01
Independent			
Deep-level Similarity		.66[**]	.65[**]
Interaction Frequency		.14[**]	.14[**]
Interaction			
Deep-level Similarity × Interaction Frequency			-.07[**]
R^2	.01[*]	.50[**]	.50[**]
ΔR^2		.49[**]	.01[**]
Adjusted R^2	.00[*]	.50[**]	.50[**]

Note. Two-tailed tests. [*] $p < .05$ [**] $p < .01$

Table 4

Independent sample t-test for employees who switched supervisors and stayed with the same supervisor (Study 2)

Variables	Switched supervisors			Stay with the same supervisor				
	N	*M*	*SD*	N	*M*	*SD*	*t*	*p*
1. Age	128	48.96	10.77	91	48.37	12.11	.38	.71
2. Gender	128	1.28	.45	91	1.24	.43	.65	.52
3. Education	125	4.47	1.74	86	4.06	1.47	1.81	.07
4. Tenure with Organization	126	7.79	6.74	86	8.80	7.73	-1.01	.32
5. Tenure with Supervisor	126	5.98	3.96	87	6.38	3.16	-.78	.44
6. Deep-Level Similarity (T1)	126	3.65	.91	91	3.58	.87	.62	.54
7. Informal Interaction Frequency (T1)	127	3.29	1.31	91	3.56	1.16	-1.57	.12
8. Perceived Supervisor Support (T2)	126	3.90	.75	91	3.98	.72	-.73	.47
9. Employee Engagement (T2)	120	3.84	.59	87	3.73	.57	1.40	.16

Table 5

Descriptive and Correlations of Variables of Study 2

	M	SD	1	2	3	4	5	6	7	8	9
1. Age	48.37	12.11									
2. Gender	1.24	.43	-.01								
3. Education	4.06	1.47	-.10	-.19							
4. Tenure with Organization	8.80	7.73	.48**	-.12	.05						
5. Tenure with Supervisor	6.38	3.16	.02	-.15	-.15	.07					
6. Deep-Level Similarity (Time 1)	3.58	.87	.19	-.16	-.07	.15	.01				
7. Informal Interaction Frequency (Time 1)	3.56	1.16	-.05	-.10	-.17	.05	.17	.27**			
8. Perceived Supervisor Support (Time 2)	3.98	.72	.13	-.07	-.01	-.11	.06	.15	.22**		
9. Employee Engagement (Time 2)	3.73	.57	.18	-.12	-.05	-.03	-.30**	.28**	.05	.43**	

Note. n = 91. * $p < .05$ ** $p < .01$

Table 6

Results of Regression Analyses of Perceived Supervisor Support and Engagement (Study 2)

Variables	Perceived Supervisor Support				Engagement	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Control						
Age	.23	.21	.23	.25[*]	.19	.14
Gender	-.10	-.08	-.10	-.12	.03	.08
Education	-.01	.01	-.01	.03	-.06	-.04
Tenure with Organization	-.24	-.24	-.24	-.23	-.04	-.05
Tenure with Supervisor	.08	.08	.08	.03	-.28[*]	-.28[*]
Independent						
Deep-level Similarity		.11				.26[*]
Interaction Frequency				.24[*]		
R^2	.07	.08	.07	.12[*]	.12	.18[*]
ΔR^2		.01		.05[**]		.06[**]
Adjusted R^2	.01	.01	.01	.05[*]	.06	.11[*]

Note. Two-tailed tests. [*] $p < .05$ [**] $p < .01$

Table 7

Moderation Effects of Informal Interaction Frequency on Perceived Supervisor Support (Study 2)

Variables	Model 1 β	Model 2 β	Model 3 β
Control			
Age	.23	.24	.24[*]
Gender	-.10	-.12	-.16
Education	-.01	.03	.03
Tenure with Organization	-.24	-.23	-.24[*]
Tenure with Supervisor	.08	.04	.02
Independent			
Deep-level Similarity		.23	.34[**]
Interaction Frequency		.04	.07
Interaction			
Deep-level Similarity × Interaction Frequency			.35[**]
R^2	.07	.12	.22[**]
ΔR^2		.05	.11[**]
Adjusted R^2	.01	.04	.14[**]

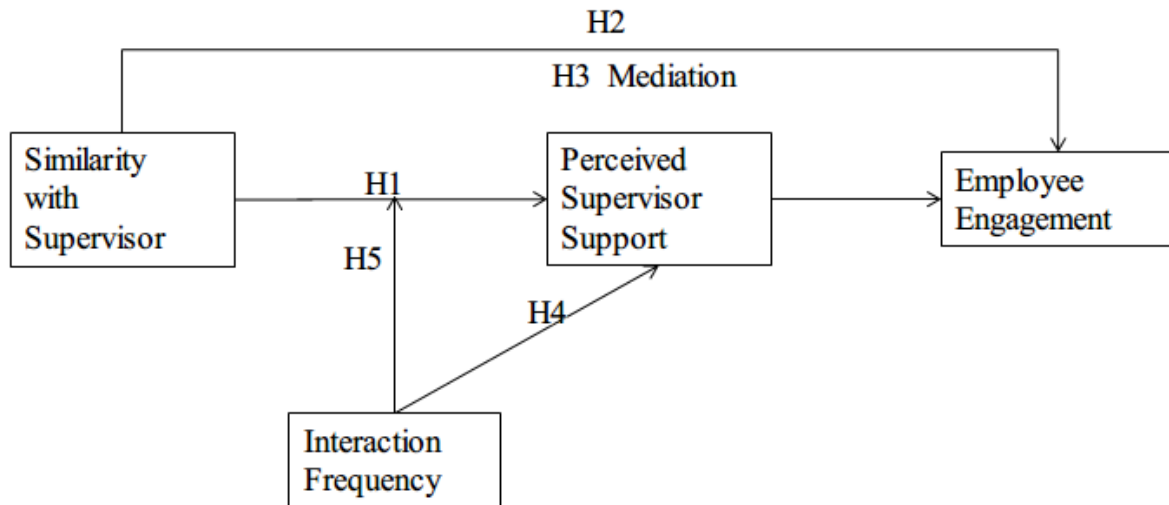*Note.* Two-tailed tests. [*] $p < .05$ [**] $p < .01$
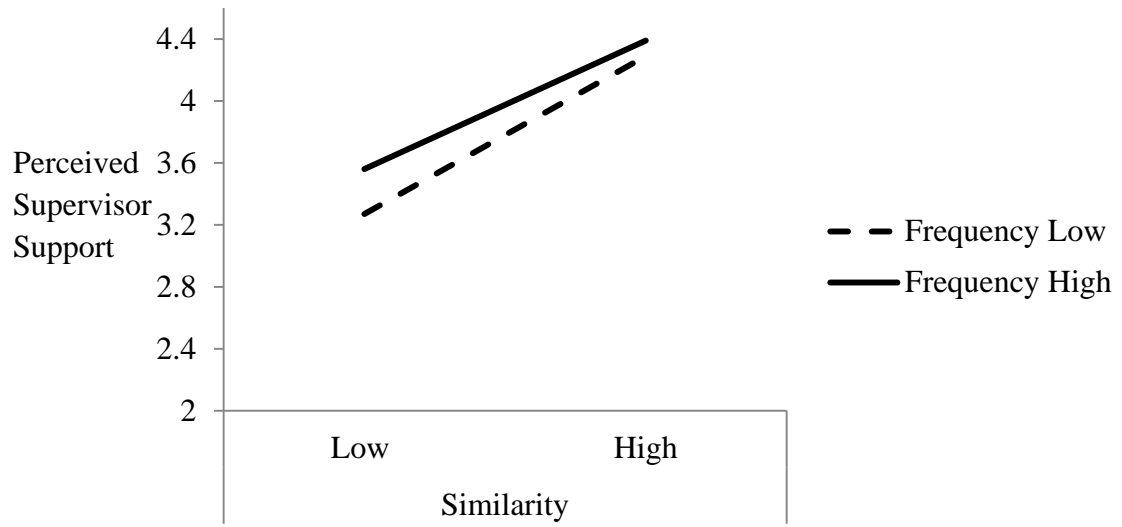
Figure 1 The proposed model

Figure 2 Moderation effect of interaction frequency on similarity and perceived supervisor support for study 1
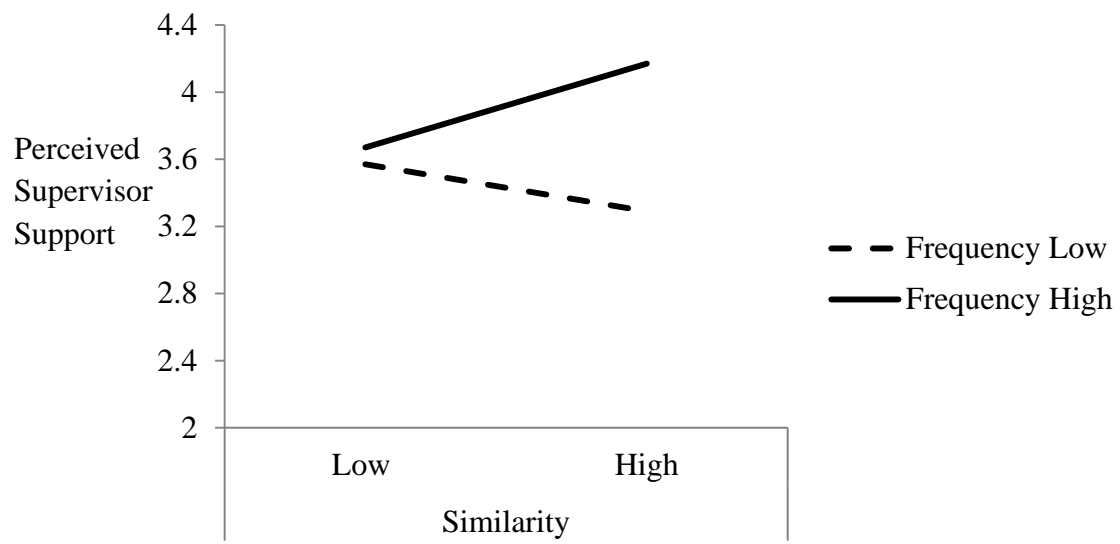
Figure 3 Moderation effect of interaction frequency on similarity and perceived supervisor support for study 2