

Telementoring in Global Organizations: Computer Mediated Communication Technologies and Mentoring Networks

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Abstract

Computer-mediated communication (CMC) technologies, such as Instant Messaging (IM), the cell phone, and e-mail have exploded, thus, creating fertile ground for innovative methods of communication. In this global environment, it is evident that innovative techniques must be employed to foster and sustain the mentor/protégé relationship. Using PLS as the analysis technique, we investigate the impact of e-mail-delivered mentoring messages on protégé' perceptions of the relationship, trust in the mentor, and social influence on commitment to the profession. We extend and integrate multiple threads of mentoring and CMC research, resulting in a theoretical model that positions CMC as a mediator between social and career support. The hypothesized model was confirmed, thus demonstrating the important role that CMC plays in effecting expectations and relationship sustainability. These results are important as global organizations promote the development and research of systems that enhance the telementoring relationship through CMC methods.

Keywords: Computer mediated communication, Expectation-confirmation theory, Distributed teams, Mentoring, Relationships, Relational communication, Telementoring, Virtual teams

1. Introduction

Distance or necessity can change our expected mode of communication. In this age of computer-mediated communication (CMC) technologies, such as Instant Messaging (IM), the Blackberry, cell phone, iPhone, smartphone, e-mail, facsimile and video conferencing, we have discovered effective and efficient ways to choose a CMC medium that will address a given situation. The explosion of CMC technologies, over the last decade, has created fertile ground for innovative methods of communication, especially in regards to organizational mentoring programs. We investigate the important role of CMC as a mentoring relationship technology and report its impact on perceived satisfaction of telementoring; specifically, email-based telementoring. Telementoring relationships occur between a mentor and protégé and can be initially established in a face-to-face, CMC, or a mixed-media setting. Once established they are sustained with information technology. Establishing and sustaining or allowing relationships to lapse can occur in all media environments; therefore, it is important to understand how and when technology effects the expectations, satisfactions, and outcomes of relationship engagements.

The foundations of telementoring derive from expectation-confirmation theory (ECT) in which relationships are continually evaluated by the parties in terms of expectations, performance, and satisfaction (Nevo and Wade, 2007). The expectations create a reference framework such that “outcomes poorer than expected (a negative disconfirmation) are rated below this reference point, whereas those better than expected (a positive disconfirmation) are evaluated above this base” (Oliver, 1980 p.461). The relevance and importance of these theories to the current work concerns measures of expectancy and satisfaction. Similar to a job search, purchasing a product, or preparing to use a new information system, expectations regarding a relationship shape perceptions of the relationship before, during, and throughout interactions. If the relationship meets or exceeds expectations, it will continue, but if the relationship falls below expectations, it will lapse.

2. Theoretical Development

Mentoring relationship development and continuance occurs within a developmental network framework (Higgins and Kram, 2001). Within this framework, the mentor, protégé, and possibly others, interact using various media types, but often in a face-to-face setting. Generally, the larger the developmental framework, and the more consistent the messages within the network, the more benefits to the individuals and organization from the mentoring relationship (Higgins and Kram, 2001). In fact, the mentoring relationship can be so powerful that it can shape the very identity of the individual to more align with that of an organization or career profession (Covaleski, Dirsmith, Heian, and Samuel, 1998), and it can nurture organizational knowledge resulting in the establishment and building of core capabilities (Swap, Leonard, Shields, and Abrams, 2001).

These relational communication exchanges affect the protégé's perceptions regarding the expectations and benefits of the relationship (Young and Perrewe, 2000). Additionally, these communications, and the reciprocal exchanges or responses from the protégé, affect the perceptions of the individuals within the relationship, resulting in increased or decreased role-modeling, trust, liking, closeness, and identification. Thus, social and career support impact one's perceptions and expectations of the relationship (Allen, Russell, and Maetzke, 1997), which in turn affect the relationship outcomes (Young and Perrewe, 2000).

Hegstad (1999) was the first to argue and propose that communication would impact the mentoring relationship in a CMC setting. She hypothesized that communication would affect the relationship such that positive communications would result in enhanced outcomes, while negative communications would result in decreased outcomes. This hypothesis is consistent with perspectives from the field of computer supported cooperative work (CSCW) in which relationships are perceived as "multivalent with and mix elements of cooperation, conflict, conviviality, competition, collaboration, commitment, caution, control, coercion, coordination, and combat" (Kling, 1991). To date, however, no work has empirically investigated the direct affects of computer-mediated communications on mentoring outcome variables or the mentoring relationship.

2.1 The CMC Difference

CMC can complement face-to-face, telephone, and other non-CMC technologies to support the development of business relationships (Kraut, Steinfield, Chan, Butler, and Hoag, 1999). In some environments CMC-based mentoring can be more beneficial to the organization than face-to-face relationships, provided that the communicating parties can use the CMC technologies effectively. “E-mail and similar text-based communication can blend the informality of conversation with the benefits of written correspondence, encouraging reflection and providing an enduring record of the exchange” (Bonnett, Wildemuth, and Sonnenwald, 2006, p.22). Critical to the success of a mentoring relationship is how frequently participants transmit messages, and through what medium the messages are exchanged (Ensher, Heun, and Blanchard, 2003). Feedback is an important element in a mentoring relationship and CMC can contribute to clearer feedback if messages are crafted appropriately (Herbert and Vorauer, 2003). Hence, parties must be constantly aware of what is being sent, why it is being sent, and the effects of the exchanges on the relationship in order to incur the most benefit from telementoring.

In a face-to-face setting for example, some individuals may communicate verbal and non-verbal negative information cues, intentionally or unintentionally, that may not have been perceived in a technology-driven medium (Sproull and Kiesler, 1986). Negative or unsupportive messages and cues can break down the communications dialog causing the intent of messages to be misinterpreted, even to the point where task focus deteriorates (Walther, 1995). Hence, parties must be constantly aware of what is being sent, why it is being sent, and the effects of the exchanges on the relationship in order to incur the most benefit from telementoring.

Scholarly research supports the intuitive wisdom that mentors and protégés who communicate more frequently are much happier and productive than those who communicate sporadically (Murphy and Ensher, 2006). Although the mentoring relationship may exist for the sole purpose of advancing the career of the protégé, both parties must be constantly aware of the messages being sent in order to keep the quality of the relationship at an acceptable level (Dindia, 2003). Indeed, some relationships may exist exclusively within a CMC (e.g., Internet) environment; while others may be initiated in a face-to-face setting, but due to a relocation of one or more parties, the relationship must be sustained with information technology (IT) (Rabby and Walther, 2003). Thus, it is important to understand when and how technology affects the expectations, satisfactions, and outcomes of relationship engagements.

CMC-based technologies offer advantages over face-to-face methods in that it takes longer to form a message. However, when alternating between face-to-face and CMC, parties must be aware of the different dynamics and potentially negative consequences of cue transmissions (Rice, 1994) as compared to relationship interactions that depend solely on a single mode of communication. Dysfunctional relationships can occur resulting in marginal, or even negative effects, on the protégé and mentor (Scandura, 1998). The focus of this research: “what impact does CMC have on the mentoring relationship in regards to career performance and social interest”? This question is best addressed by adopting the Young and Perrew (2000) and Hegstad (1999) models, along with positioning communication as a driver for CMC, while linking it to career and social support, as well as relationship expectations and trust, as shown in Figure 1. Additional aspects being considered in the model focus on a protégé’s knowledge and commitment to their profession.

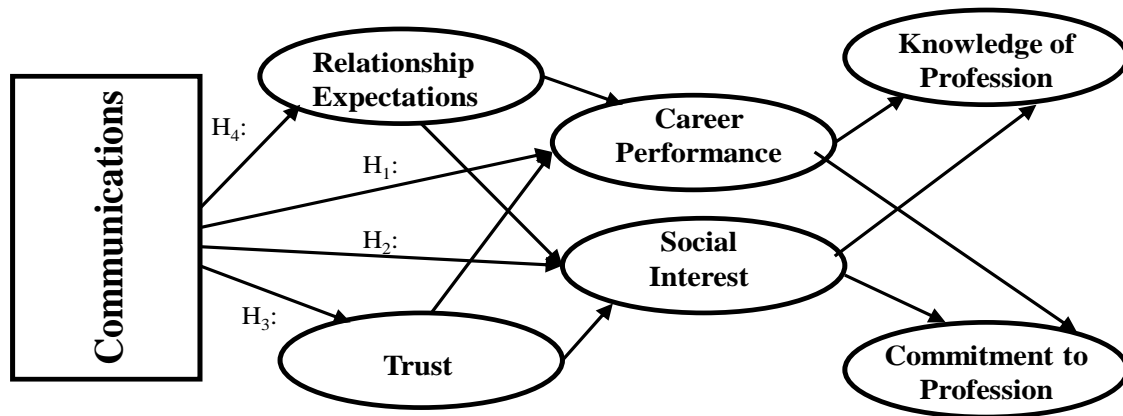


Figure 1 – Telementoring Conceptual Model

The model extends previous research by placing CMC within the core of the mentoring relationship models, and further by predicting that CMC will have a direct affect on met expectations. In other words, one's satisfaction and use of CMC will impact one's perceptions of whether or not the relationship lives up to its expectations. Satisfaction with CMC will subsequently influence one's perceptions of the effectiveness of the relationship, and the perception of trust that the protégé has in the mentor.

2.2 CMC and Mentoring

Users of CMC reported greater attributional confidence resulting in enhanced self-presentation and partner idealization (Tidwell and Walther, 2002).

This improved the relationship perceptions among senders and receivers. From an organizational perspective, CMC has been shown to enhance interpersonal relationships within an organization, resulting in a more positive work environment (Compton, White, and DeWine, 1991). Furthermore, CMC-based mentoring increases the pool of potential mentors thus allowing a single individual to nurture the career and social development of multiple protégés within a single organization (Hamilton and Scandura, 2003).

Researchers have discovered that even in a medium that is regarded as lacking richness - email - message exchanges effect the impressions of participants. Since protégés can significantly influence the amount of mentoring they receive simply by altering the quantity and quality of exchanges with their mentor (Turban and Dougherty, 1994), protégés have the ability to maintain and effect the overall stability of the relationship (Tepper, 1995). Similar to findings for users of other types of MIS systems, individual characteristics and attitudes impact successful use of a technology (Zmud, 1979). The same is true of mentoring relationships. In fact, a primary determinant to the quality of a mentoring relationship is the personality of the participants, particularly the protégé (Turban and Dougherty, 1994).

We believe the mentoring relationship is much more interpersonal and fluid, seeking to effect the development of an individual along a variety of dimensions, and external to the domain of a single task. Moreover, in most mentoring relationships, participants must agree to work together. Thus, they have acknowledged an initial attraction to one another and have set the groundwork for a relationship.

From a social exchange perspective, mentoring relationships are based on a series of exchanges with each exchange carrying some cost or benefit (Homans, 1958). In mentoring relationships, costs include time, energy, and the risk of conflict while benefits include learning, sharing information and career progress, particularly for the protégé (Kram, 1983). Mentoring relationships are likely to continue when participants feel that benefits outweigh the costs and when expectations of the relationship are being met (Young & Perrewe, 2000). When a participant ceases to perceive a benefit, especially a positive benefit from the relationship, the relationship is likely to lapse.

Two types of mentoring relationships affect relationship quality and the interactions that occur within the relationship. In a formal mentoring relationship, the mentor and protégé are paired based on some type of organizational policy. For example, the mentor might be the protégé's direct supervisor or the mentor may be the designated mentor for a given area within the company (Kram, 1983). How the relationship is formed has a direct consequence on the perceptions and exchanges that are likely to occur throughout the relationship. Research has shown that protégés perceive more career related support from their mentors in informal relationships (Chao, Walz, and Gardner, 1992).

These findings support the use of CMC within a mentoring relationship. If the protégé does not perceive sufficient support and benefit from the mentor, communications initiated by the protégé will be reduced (Dindia, 2003). We predict that message content, particularly message clarity, can have a significant impact on the mentoring relationship. Since CMC inherently carries fewer cues than other types of media, such as face-to-face (Sproull and Kiesler, 1986), individuals must adapt to the medium to the extent that they must be cognizant of managing and effecting personal impressions (Tidwell and Walther, 2002).

Utilizing CMC for mentoring has an added benefit in that CMC has the potential to reduce certain negative effects, such as status differences (Sproull and Kiesler, 1986). Reducing status differences results in "leveling the playing field," producing a relationship that is more peer-oriented (horizontal) than supervisor/subordinate (vertical). In fact, CMC can be as effective, and sometimes even more so, than face-to-face relationships, provided that the protégé, and especially the mentor, adhere to a few simple guidelines. This implies that mentors need to be positive/supportive and prompt in their interactions with the protégé.

Our theoretical model (Figure 1) not only considers the traditional aspects of the mentoring relationship, but also takes into consideration the influence of computer-mediated communications on the effectiveness outcomes of the relationship, as well as expectations and satisfaction with the communications medium itself. An important goal for any mentoring relationship is for the mentor and protégé to perceive the relationship as mutually beneficial. Career advancement and job satisfaction are frequently investigated (Applebaum, Ritchie, and Shapiro, 1994), but since our study is focused on the communications medium, our primary outcomes of interest concern relationship attributes.

Protégés who receive positive career and social support have reported higher overall satisfaction with the mentoring relationship (Allen, Russell, and Maetzke, 1997). We extend this perspective by investigating relationship satisfaction at two levels. First, we study the traditional effects of social and career support on the protégé’s perceptions of whether the relationship met the protégé’s expectations, and how the protégé perceives the effectiveness of the relationship and trust in the mentor (Young and Perrew, 2000). Second, we investigate the impact of CMC on the relationship, using CMC as a mediator for the social and career support elements to the expectations of the relationship. Since communication satisfaction has been shown to influence job satisfaction and productivity (Walther, 1995), and facilitates the expression of interpersonal communications (Hiltz and Johnson, 1990), we predict that those protégés reporting higher satisfaction with CMC will also perceive increased satisfaction with the expectations and outcomes of the mentoring relationship.

The mentor contributes to the telementoring relationship by providing social and career support e-mail messages, which are characterized by communication related to coaching or teaching as well as protecting a protégé from situations that could harm career progress. The mentor may also suggest challenging assignments to improve the skills and enhance the protégé’s experiences. Examples of social support messages include communication related to counseling, and showing friendship and acceptance; thus, developing a trusting relationship. One expected outcome of the relationship, by the protégé, is the direct professional benefit gained from the mentor’s career advice such as learning new skills and visibility opportunities. These electronic counseling exchanges will aid the protégé in becoming more knowledgeable about their specific profession; with the potential to increase their commitment to their profession. As protégés learn how they can impact their profession, they will acknowledge the important role of their mentor’s guidance. What becomes evident is how the mentor and protégé nurture and build upon the mentoring relationship through these new dimensions of trust, expectations, knowledge and commitment. CMC provides the necessary tools to sustain and nurture the relationship. Communication satisfaction has been shown to influence job satisfaction and productivity, while facilitating the expression of interpersonal communications. Indeed, protégés reporting higher satisfaction with CMC also reported increased satisfaction with the expectations and outcomes of the mentoring relationship. Successful mentoring relationships center on how frequently participants transmit *supportive* messages, and through what medium the messages are exchanged. The mentoring constructs and the satisfaction assessment criteria used for this study are detailed in Figure 2.

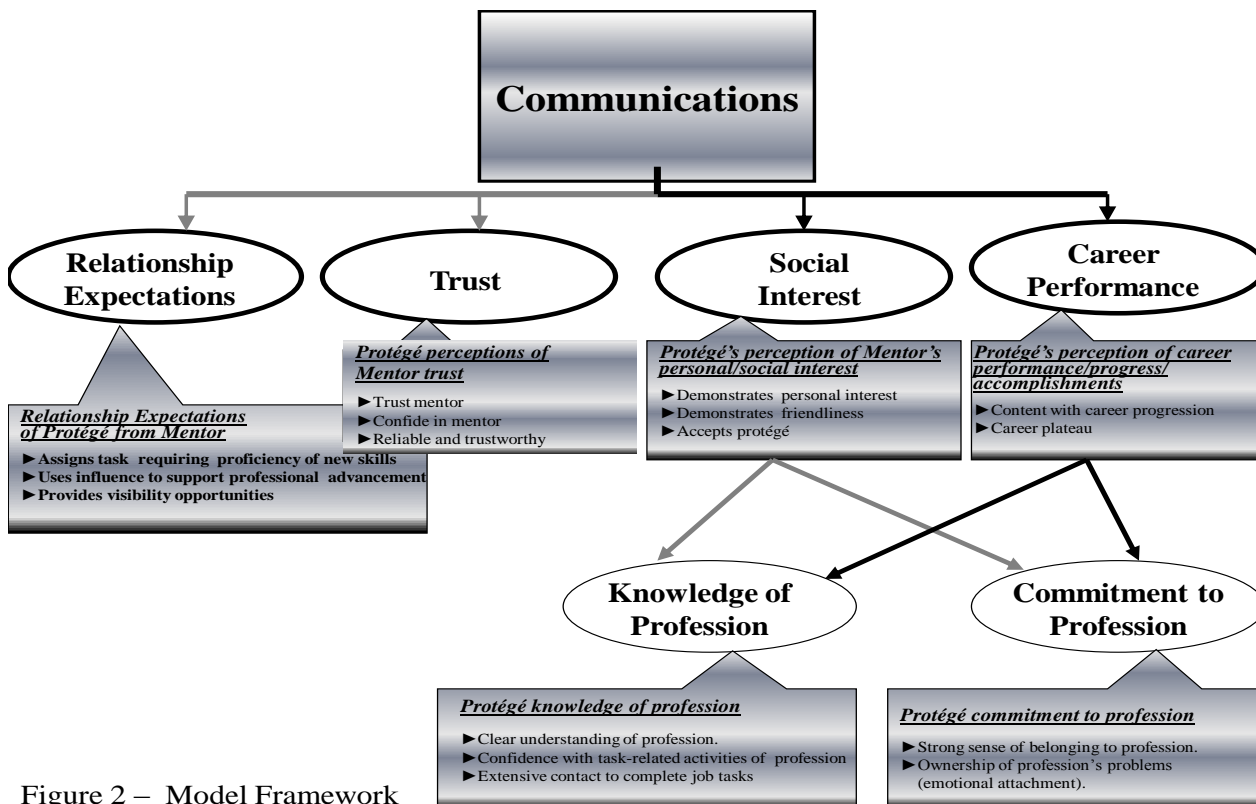


Figure 2 – Model Framework

The research model serves as the foundation for the study objectives, which are defined as:

- Mentoring messages delivered by electronic communication (e-mail based exchanges) will impact relationship expectations (H_{1a}), trust (H_{1b}), social interest (H_{2a}), and career support (H_{2b}) of the protégé.
- Protégé's knowledge of the profession ($H_{3a,b}$) and commitment to the profession ($H_{4a,b}$) will impact the mentoring experience in regards to social interest and career support.

3. Methods

3.1 CMC Data Sample

Utilizing a web-based questionnaire, our study includes 77 mentors/protégés that were fluent in the use of CMC technologies. These individuals used CMC for relationship exchanges as well as interactions within their respective professional communities. With a response rate of 31%, we assessed response bias by using the procedure recommended by Armstrong and Overton (1977). This involves comparing the first and last 25% of the respondents on demographic variables. No significant differences were found; hence, we concluded that there was no evidence of response bias. Subject demographics were collected using self-reported items. Results indicated that 54 subjects were male (70%), 22 female (28%), and 1 missing. Gender of the subject's mentor was reported as 67 male (87%), 8 female (10%), and 2 missing. Average tenure in the profession was 2.7 years ($sd=1.9$ years) and the average length of the mentor/protégé relationship was 6.6 years ($sd=2.2$ years).

3.2 Procedure and Measures

The instrument specifically instructed subjects to consider only electronic communication methods when responding to items. We further provided the following definition and guidelines within the questionnaire, and immediately above the first item: "When an item refers to "electronic communication" methods, electronic mail (email), the Internet, World Wide Web, and chatrooms are being referenced. Electronic communications do not include telephone, fax, video conference, or in-person interactions." In addition, a Likert 5-point scales with anchors of "Strongly Disagree" (1) to "Strongly Agree" (5) were used for all items.

Computer-mediated communications (CMC). A seven-item scale with items such as "Using electronic communication methods has worked as expected." and "I am satisfied with the way electronic communication methods have worked." was developed to assess satisfaction with the effectiveness of CMC as it affects the relationship. Items were measured using a Likert scale with anchors of strongly disagree (1) to strongly agree (5). The Cronbach alpha for this construct was .91.

Mentoring constructs. The mentoring constructs used in this study were adopted and adapted from Young and Perrewe (2000). To ensure adequate psychometric properties at the scale level, some scales required the development of an additional item to bring the total number of items in the scale to the recommended minimum of three (Fabrigar, Wegener, MacCallum, and Strahan, 1999). Analysis of the resulting scales was performed at the measurement level using PLS.

Mentor/Protégés support items included social support, career support and role model. The social support scale measured the subject's perceived level of mentor support from a social perspective, with an ICR of .95. The career support item assessed a subject's satisfaction with the career support provided by the mentor, with an ICR .81. Furthermore, the *role model* item assessed the subject's perceptions of the mentor as a role model, with an ICR of .95.

4. Results

4.1 CMC scale

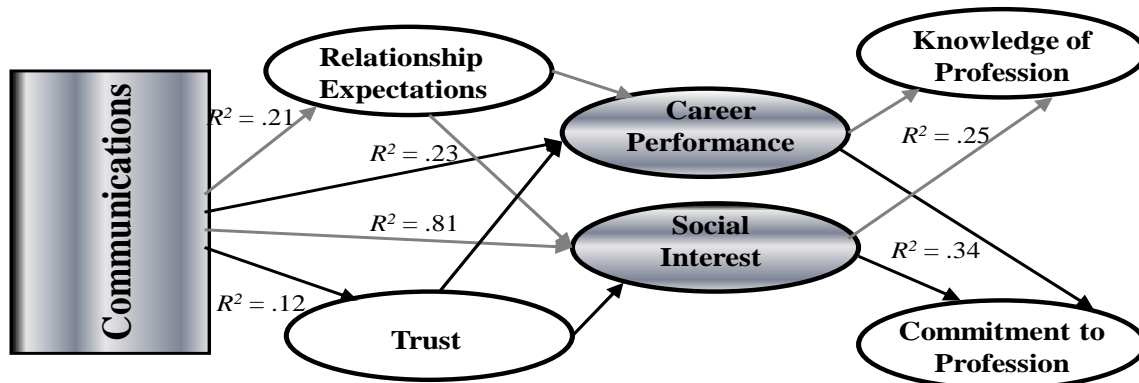
Seven items were developed to assess satisfaction with the expectations of computer-mediated communications within a mentoring relationship. A principle components analysis with a varimax rotation was used to determine the validity of the scale. Two eigenvalues greater than 1 resulted. A review of the loadings and eigenvalues indicated that the two reverse-coded items "Using electronic communication methods has made communication more difficult." and "Working through electronic communication methods makes the work more confusing." loaded together. Reviewing the wording of the items indicated that these items had a negative tone, possibly explaining the divergence from the other items. Both items were removed from further analyses. All remaining items loaded onto a single construct. The loading for each item was above the recommended .40 cutoff (Nunnally, 1978). The Cronbach alpha was .91.

4.2 Expectations

Since we wanted to investigate the chain of predicted relationships, we used path analysis to explore the telementoring connections between the mentor and protégé. Historically, the core of a mentoring relationship has been based upon the perceived importance of career and social support. There was a significant relationship between CMC and relationship expectations, i.e.; Mentoring messages delivered by electronic communication (e-mail based exchanges) will impact relationship expectations (H_{1a}), trust (H_{1b}), social interest (H_{2a}), and career support (H_{2b}) of the protégé. This theory was tested in PLS by creating a structural model with paths from CMC to each mentoring variable. All paths were significant, thus, supporting this theory. The loadings and significance from CMC to each mentoring variable is shown in Figure 3. As we evaluated our initial question concerning the impact of CMC on career performance and social support, we discovered that when you add other facets such as trust and relationship expectations, as well as knowledge of the profession and commitment to the profession, the importance of career and social support diminish.

4.3 Profession

A unique perspective of this study was to investigate an individual’s relationship exchanges within their professional communities, i.e., Protégé’s knowledge of the profession ($H_{3a,b}$) and commitment to the profession ($H_{4a,b}$) will impact the mentoring experience in regards to social interest and career support. We used path analysis to determine how facets such as trust and relationship expectations might impact knowledge of the profession and commitment to the profession when mentor-based career and social support messages diminish. We hypothesize that career and social support will become secondary to a more informal personal relationship that is based upon mutually perceived competence and interpersonal comfort (Mezias and Scandura, 2005) (see Figure 3 for a summary of model results).



p<.05

Figure 3 – Telementoring Model Results

Discussion

The results offer promising evidence that computer-mediated communications can be used to support the continuance and effectiveness of a mentoring relationship. As discussed, CMC was significantly and positively related to each of the mentoring relationship variables. Consistent with the work of Walther (1992), we found that CMC is a predictor of relational communication attributes. Reduced career and social support resulted in a reduction in the perceptions of effectiveness and satisfaction with CMC.

Whereas previous work has emphasized the contributions and personality of the protégé in effecting the mentoring relationship (Turban and Dougherty, 1994), this study extends the research of Young and Perrewe (2000), Hegstad (1999), and Allen, Russell, and Maetzke (1997) to show that social support provided by the mentor is a direct contributor to relationship quality.

A common argument is that communication, regardless of medium, is taken for granted, and the key to successful mentoring is nurturing the relationship. The nurturing process builds upon trust and relationship expectation. We acknowledge that a key element of mentoring is communication concerning a protégé's career performance and social interest, however, we believe that CMC technologies can extend the protégé's knowledge and commitment to their profession; thus, telementoring will have a positive and significant impact on the success of this relationship. There is yet another benefit to using CMC for mentoring, and that is that CMC can reduce the effects of status differences since fewer social cues, and hence less face-to-face social interaction occurs, resulting in increased focus on organizational tasks. This is due in part to the fact that people take longer to construct messages in a CMC environment, resulting in a longer delay between message exchanges and more time to think about each message before it is sent. The result is messages that are more organizationally focused, career supportive, and professional.

How and what is communicated affects perceptions of social presence (Short, Williams and Christie, 1976). If, for example, we choose a medium that carries few cues, such as text-based email, we will probably be viewed as being more socially distant than if we had used a medium such as the telephone. On the other hand, the use of a particular media are factors of our experience; thus, inexperienced participants in a mentoring relationship might benefit from face-to-face interactions, while they become familiar with technology-based communication facilities. Prior studies have shown that humans have great resilience and ability to adapt to the limitations of a medium, for example. Walther's (1992 and Walther and Bunz, 2005) social information processing (SIP) theory purports that cues can be effectively communicated in all types of media, including text (e.g., e-mail), however, in the absence of sufficient cues, protégés form impressions of mentors based upon other factors, particularly social categories (e.g., social status). This can result in perceptions based on social identity that are not consistent with perceptions of the individual that might be formed using a different medium.

Communication Clarity. Message content, specifically perceived clarity, effects the satisfaction and use of a communications medium. Feedback is an important element in a mentoring relationship and CMC can contribute to clearer feedback if messages are crafted appropriately (Herbert and Vorauer, 2003). On the other hand, messages containing blatant criticisms, or messages that are perceived as being critical, have a negative impact on relationship quality. Clarity of communications certainly has a positive influence on the relationship. Traditional aspects of the mentoring relationship, as well as the CMC influence on the communications medium, are important to sustaining effective communication and the relationship.

Since CMC has been shown to reduce status and cultural differences, the use of CMC within a mentoring relationship may be one of those "more favorable communications environments" (Gefen and Straub, 1997, p. 389). CMC may lead to more positive perceptions of the relationship, resulting in increased career advancement and job satisfaction. Related to mentoring, women were found to utilize time spent with a mentor (electronically or face-to-face) more effectively than were men (Young, Cady and Foxon, 2006), which corroborate research concerning gender differences in the use of CMC technologies (Gefen and Straub, 1997; Hiltz and Johnson, 1990; Rabby and Walther, 2003). These benefits tend to increase communications, thus leading to an overall increase in communication satisfaction and relationship effectiveness.

We have shown that CMC-based interaction methods contribute to the satisfaction, expectations, and effectiveness of a mentoring relationship. More importantly, we have integrated, extended, and confirmed the work of Young and Perrewe (2000) and Hegstad (1999) to show that CMC mediates the relationship, particularly when the relationship is career focused. In addition to confirming the benefits of CMC on relational communications, this work highlights the fact that CMC can be used to continue and maintain relationship quality. However, additional work is warranted to determine if satisfaction and effectiveness of CMC within the mentoring relationship has an impact on job satisfaction and turnover. Expanding the sample to include a larger dataset of mentoring relationships and to determine if CMC plays as important a role in various business settings would enhance the findings. Also, it would be valuable to study the importance of CMC on the mentoring relationship for distributed workers and virtual team environments.

Although we suspect the results to be similar, it might be the case that since protégés are likely to return more frequently to corporate locations where the mentor is located, face-to-face interactions may overpower the effects of CMC on relationship continuance.

6. Implications

What are the implications from the current study? From a practitioner perspective, the results are as important for mentors as they are for protégés. Mentors need to understand that they are responsible for creating and fostering a nurturing environment, which will provide benefits to them as well. Organizations have established mentoring programs in an effort to enhance the professional development of their employees. There is clear evidence that mentoring leads to benefits such as faster career advancement and greater career success. As Yeats so eloquently stated, "think like a wise man but communicate in the language of the people" applies to a mentor/protégé environment. Mentors must advise and assist their protégés with career development and planning, while projecting future growth and opportunities. Specifically, women perceive mentoring as important for career attainment and for building longitudinal social and career relationship networks (Single, Muller, Cunningham, and Single, 2000). These benefits not only enhance career and professional development, but also increase the likelihood that the mentoring relationship will result in positive perceptions and outcomes, thereby increasing the chances that the woman would be willing to serve as a mentor in the future. MentorNet, an international online community that focuses on all aspects of social and career support for women in the sciences, illustrates the potential successes and benefits that can be achieved through online mentoring programs.

Mentoring relationships are important and organizations recognize the long term value of guiding junior employees to successful career advancement. How to develop and sustain their success in this global arena becomes the point of contention. The key contribution of this study is that CMC methods provide a vehicle for supporting mentoring relationships that might otherwise fail in a face-to-face setting. The reduction of status effects and the increased potential for building social and career networks, especially for women, are noteworthy. Bottom line, CMC can be used to continue and maintain relationship quality. Given the traditionally high turnover rates in the IT profession, job transfers within business units, and the lackluster attempts to attract and retain females in the sciences and computing professions, it is hoped that these results will foster the development and research of systems that enhance telementoring relationships through computer-mediated communication methods.

7. Conclusion

One specific type of relationship that can exist in a face-to-face, CMC, or a mixed-mode setting is that between a mentor and protégé. Organizations implement and depend upon mentoring programs for the primary purpose of enhancing the professional development of the protégé. Research has shown that mentoring benefits the protégé in many ways, leading to benefits such as faster career advancement and greater career success, increased awareness of corporate policies and procedures, more acceptance and success during job transfers, increases in personal learning, greater job involvement, increased commitment, and improved job and career satisfaction. Mentoring can increase one's visibility and organizational power thus leading to increased identity within the organization, greater professional identity, decreased job turnover and a rejuvenation of their career.

The implications of these findings on the responsibility of the mentor are significant. Not only can the protégé influence the amount of mentoring received, but also the personality of the protégé provides a mechanism for determining the protégé's potential career strategy. In fact, if either party determines that relationship quality has reduced, measures must be taken immediately to increase the quality since difficulties are more likely to continue and grow over time. The mentor must understand that they can have a significant effect on the quality of the relationship and have significant influence on the protégé's chances for career attainment and satisfaction. Immediate action, to bolster the quality of the relationship, can best be achieved through CMC technologies. In this dynamic global environment, it is evident that innovative techniques must be employed to foster and sustain the mentor/protégé relationship. CMC technologies provide the innovative tools necessary to achieve this goal.

References

- Allen, T., Russell, J., and Maetzke, S. (1997). Formal peer mentoring: Factors related to protégés satisfaction and willingness to mentor others. *Group & Organization Management*, 22(4), pp. 488-507.
- Applebaum, S., Ritchie, S., and Shapiro, B. (1994). Mentoring revisited: An organizational behaviour construct. *International Journal of Career Management*, 6(3), pp. 3-10.
- Armstrong, J. and Overton, T. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14, pp. 396-402.
- Bonnett, C. Wildemuth, B., and Sonnenwald, D. (2006). Interactivity between protégés and scientists in an electronic mentoring program. *Instructional Science*, 34 (1), pp. 21-61.
- Chao, G., Walz, P., and Gardner, P. (1992). Formal and informal mentorships: A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology*, 45(3), pp. 619-636.
- Compton, D., White, K., and DeWine, S. (1991). Techno-sense: Making sense of computer-mediated communication systems. *Journal of Business Communication*, 28(1), pp. 23-43.
- Covaleski, M., Dirsmith, M., Heian, J., and Samuel, S. (1998). The calculated and the avowed: Techniques of discipline and struggles over identity in Big Six public accounting firms. *Administrative Science Quarterly*, 43(2), pp. 293-327.
- Dindia, K. (2003). Definitions and perspectives on relational maintenance communication. In *Maintaining Relationships Through Communication* (Canary, D., and Dainton, M. (eds)), Lawrence Erlbaum Associates, Mahwah: NJ, pp. 1-28.
- Ensher, E., Heun, C., and Blanchard, A. (2003). Online mentoring and computer-mediated communication: New directions in research. *Journal of Vocational Behavior*, 63 (2), pp. 264-288.
- Fabrigar, L., Wegener, D., MacCallum, R., and Strahan, E. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4, pp. 272-299.
- Gefen, D., and Straub, D. (1997). Gender differences in the perception and use of E-mail: An extension to the technology acceptance model. *MIS Quarterly*, 21(4), pp. 389-400.
- Hamilton, B., and Scandura, T. (2003). Implications for organizational learning and development in a wired world. *Organizational Dynamics*, 31(4), pp. 388-402.
- Hebert, B., and Vorauer, J. (2003). Seeing through the screen: Is evaluative feedback communicated more effectively in face-to-face or computer-mediated exchanges? *Computers in Human Behavior*, 19 (1), pp. 25-38.
- Hegstad, C. (2001). Formal mentoring as a strategy for human resource development: A review of research. *Human Resource Development Quarterly*, 10(4), 1999, 383-390.
- Higgins, M., and Kram, K. Reconceptualizing mentoring at work: A developmental work perspective. *Academy of Management Review*, 26(2), pp. 264-288.
- Hiltz, S., and Johnson, K. (1990). User satisfaction with computer-mediated communication systems. *Management Science*, 36(6), pp. 739-764.
- Homans, G. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), pp. 597-606.
- Kling, R. (1991). Cooperation, coordination and control in computer-supported work. *Communications of the ACM*, 34(12), pp. 83-88.
- Kram, K. (1983). Phases of the mentor relationship. *Administrative Science Quarterly*, 26, pp. 608-625.
- Kraut, R., Steinfield, C., Chan, A., Butler, B., and Hoag, A. (1999). Coordination and virtualization: The role of electronic networks and personal relationships. *Organization Science*, 10(6), pp. 722-740.
- Mezias, J., and Scandura, T. (2005). A needs-driven approach to expatriate adjustment and career development: a multiple mentoring perspective. *Journal of International Business Studies*, 36 (5), pp. 519-538.
- Murphy, S., and Ensher, E. (2006). Establish a great mentoring relationship, *T + D*, 60 (7), pp. 27-28.
- Nevo, D. and Wade, M. (2007). How to avoid disappointment by design. *Communications of the ACM*, 50 (4), pp. 43-48.
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

- Oliver, R. L.(1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), pp. 460-469.
- Rabby, M., and Walther, J. (2003). Computer-mediated communication effects on relationship formation and maintenance. In *Maintaining Relationships Through Communication* (Canary, D., and Dainton, M. (eds)), Lawrence Erlbaum Associates, Mahwah: NJ, pp. 141-162.
- Rice, R. (1994). Relating electronic mail use and network structure to R&D work networks and performance. *Journal of Management Information Systems*, 11(1), pp. 9-29.
- Scandura, T. (1998). Dysfunctional mentoring relationships and outcomes. *Journal of Management*, 24(3), pp. 449-467.
- Short, J., Williams, E., and Christie, B. (1976). *The Social Psychology of Telecommunications*. New York: Wiley.
- Single, P., Muller, C., Cunningham, C., and Single, R. (2000). Electronic communities: A forum for supporting women professionals and students in technical and scientific fields. *Journal of Women and Minorities in Science and Engineering*, 6(2), pp. 115-129.
- Sproull, L., and Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science*, 32(11), pp. 1492-1512.
- Swap, W., Leonard, D., Shields, M., and Abrams, L. (2001). Using mentoring and storytelling to transfer knowledge in the workplace. *Journal of Management Information Systems*, 18(1), pp. 95-114.
- Tepper, B. (1995). Upward maintenance tactics in supervisory mentoring and nonmentoring relationships. *Academy of Management Journal*, 38(4), pp. 1191-1205.
- Tidwell, L., and Walther, J. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations. *Human Communication Research*, 28(3), pp. 317-348.
- Turban, D., and Dougherty, T. (1994). Role of protégé personality in receipt of mentoring and career success. *Academy of Management Journal*, 37(3), pp. 688-702.
- Walther, J. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, 19(1), pp. 52-90.
- Walther, J. (1995). Relational aspects of computer-mediated communication: Experimental observations over time. *Organization Science*, 6(2), pp. 186-203.
- Walther, J., and Bunz, U. (2005). The rules of virtual groups: Trust, liking, and performance in computer-mediated communication. *Journal of Communication*, 55 (4), pp. 828–846.
- Young, A. and Perrewe, P. (2000). What did you expect? An examination of career-related support and social support among mentors and protégés. *Journal of Management*, 26, pp. 611-632.
- Young, A.M., Cady, S., and Foxon, M. (2006). Demystifying gender differences in mentoring: Theoretical perspectives and challenges for further research on gender and mentoring. *Human Resource Development Review*, 5 (2), pp. 148-175.
- Zmud, R. (1979). Individual differences and MIS success: A review of the empirical literature. *Management Science*, 25(10), pp. 966-979.