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**The Impact of Prior Mentoring and Computer-Mediated Communications Experiences on Willingness to Participate in E-Mentoring**

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**Abstract**

E-mentoring is growing exponentially; as a practice however there is a dearth of research related to this important type of mentoring. This study addresses the impact that participants' prior experiences with mentoring and computer-mediated communications have on their willingness to participate in e-mentoring programs. Those participants with a higher comfort level in using certain forms of computer-mediated communications such as chat rooms were more willing to participate in e-mentoring relationships than those with a lower comfort level. Implications for future research and practice are discussed.

**Keywords**

E-mentoring, computer-mediated communications, prior experiences

**Introduction**

Mentoring has morphed in recent years. The practice of mentoring has come a long way since it was first introduced to readers in Homer's epic, *The Odyssey*, in which Odysseus invites his friend Mentor to look after and guide his son, Telemachus, in his absence. Since then, even social networking guru, Mark Zuckerberg, founder of Facebook, has seen the value of mentoring as he recently reached out to Donald Graham, CEO of the Washington Post, for mentoring advice on being a CEO (Huspeni, 2012). Today's mentoring is a complex process with multiple permutations that depart from the traditional dyad in which a senior wise elder provides guidance to a novice (Clutterbuck, 2007). We now find that there is an array of different types of mentoring, such as peer mentoring (McManus & Russell, 2007), group mentoring (Ensher & Murphy, 2005), reverse mentoring and e-mentoring (Ensher & Murphy, 2007). Mentoring can now be found in a wide variety of settings including business (Gibson, 2004), K-12 (Sanchez & Harris, 1996), postsecondary education (Peyton et al., 2001) and gerontology (Vo-Thanh-Xuan & Rice, 2000).

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The advent of Internet technology offers exciting new possibilities beyond traditional face-to-face mentoring relationships such as e-mentoring. E-mentoring is defined as “a mutually beneficial relationship between a mentor and a [mentee] which provides new learning as well as career and emotional support, primarily through e-mail and other electronic methods” (Ensher & Murphy, 2007). With computer-mediated communication (CMC) including forms such as e-mail, instant messaging, chat rooms, social networking such as Facebook and LinkedIn, as well as video teleconferencing, mentors and mentees can easily communicate with one another from a distance. Although there are many sophisticated forms of CMC, one of the most commonly used is e-mail. E-mentoring relationships are advantageous as they allow mentors and mentees to enjoy maximum flexibility as they communicate without the constraints of physical proximity or time (Ensher et al., 2003). Moreover, e-mentoring opens up avenues of mentoring for demographic groups such as for women and people of color that may be under-represented in certain careers and echelons and who may find it difficult to find face-to-face mentors (Single et al., 2005). Past research by Ragins (2002) found that demographic similarity between mentors and mentees is one important consideration in mentoring relationships as it creates the initial impression that mentors and mentees may have common shared interests. E-mentoring decreases preconceived notions or expectations based on demographics due to the lack of visual cues, thus providing a more level playing field (deJanasz et al, 2008). Of course, the lack of visual cues can have negative ramifications as well.

Overall, e-mentoring is advantageous for all professionals as it provides an additional context that enables mentees to leverage the positive effects of multiple mentors that are crucial to career success (Higgins & Kram, 2001). Due to the advantages of e-mentoring, there has been a rapid growth in these types of programs with businesses such as Triple Creek and Mentium providing platforms and support to companies such as KPMG who sponsor e-mentoring (An & Lipscomb, 2010; Frances, 2007). While e-mentoring as a practice is proliferating, the body of research providing a theoretical understanding of these types of relationships is sparse (albeit with a few notable recent exceptions). One of the greatest challenges that mentoring program administrators face is the need to effectively recruit and match mentors and mentees (Headlam-Wells et al., 2005). The purpose of this research is to better understand the importance of the impact of CMC on individuals’ ‘willingness’ to engage in mentoring, which has implications for matching and recruiting mentors and mentees. Moreover, this research also contributes to our body of knowledge by providing an empirical examination of conceptual propositions posed by previous authors (Ensher & Murphy, 2007; Hamilton & Scandura, 2003).

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### Theoretical Frameworks

Two theoretical frameworks are used to provide a framework for this study: social exchange and social presence. The paper will first provide a description of each of the theoretical frameworks followed by an explanation of how these frameworks provide a basis for assessing the research hypotheses. Social exchange theory provides a lens for reviewing the degree of reciprocity of benefits that exist between e-mentors and mentees. Social presence evaluates the impact that the lack of visual cues from CMC pose on relationships.

### Social Exchange Theory

One common misconception of mentoring is that the benefits of the relationship accrue mainly to the mentee. Social exchange theory contradicts this one-sided view. Social exchange theory claims that the benefits of mentoring are reciprocal to the mentor as well (Ensher et al., 2003; Ugrin et al., 2008; Eby, 2007). Interestingly, the idea of reciprocity in mentoring extends to other cultures and contexts in mentoring. For example Vo-Thanh-Xuan & Rice (2000) observed social exchange theory at work with grandparents mentoring their grandchildren. They stated that “Grandparents tend to have an inferiority complex due to the perception that their knowledge and wisdom is regarded as old-fashioned”. Through the process of mentoring their grandchildren, the grandparents’ psychological and physical health as well as their overall happiness were promoted. Schrum et al. (2002) noted the reciprocity present between pre- and in-service teachers. In their study, the pre-service teachers acted as mentors in helping in-service teachers learn how to integrate technology into the classroom. At the same time, the pre-service teachers learned about practical implications of using technology in the classroom. Similarly, other studies have found that both mentors and mentees gain experience and mutual rewards as a result of their relationship (George & Mampilly, 2012; Schmidt et al., 2004). In sum, these studies indicate the importance of reciprocity in mentoring as suggested by social exchange theory.

Eby (2007) extends the application of social exchange theory in mentoring and suggests the investment model of mentoring. The investment model emphasizes the importance of both mentees and mentors determining whether their investment into their relationship in terms of time and effort is worth the benefits it yields. One variable that researchers have examined to determine future willingness to participate in a mentoring relationship is prior experience. Ragins & Cotton (1993) have found those with prior experience in mentoring were more willing to be mentors than those without prior experience. Allen (2007) in her review of the literature on mentoring relationships from the perspective of mentors also concurred that the preponderance of literature

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indicates that prior experience in mentoring will predict the future likelihood of becoming a mentor. In fact, Allen suggests that the norm of reciprocity is applicable as those who have been given help in the past feel obligated to return the favor.

Applying the lens of social exchange theory, it seems likely that when both the mentor and mentee's prior experiences with computer-mediated communications (CMC) have been positive that they would both see future use of CMC in a positive light. Potential participants in e-mentoring programs that have experienced mutual benefits from prior mentoring relationships may perceive CMC as providing additional benefits. For example, if CMC had reduced the time of performing certain tasks in the past, individuals may be inclined to perceive CMC as reducing the time to perform certain tasks in mentoring relationships. Several studies have found that e-mentoring provides mutual benefits to both the mentor and mentee by balancing busy schedules to provide mentoring at a time that is convenient for one's schedule (Duff, 2000; Ensher et al., 2003; Lynch, 2003; Singer, 2005). Therefore, it is suggested that consistent with the previous research in face-to-face settings, we will find similar results within an online context suggesting that:

*H1: Positive prior mentoring experiences will increase the likelihood of participating in e-mentoring programs.*

### Social Presence

Short et al. (1976) conducted some of the original work on social presence. They considered social presence as the level in which social cues (e.g., tone of voice) are present in an interaction. An important element of their work with respect to e-mentoring is that social presence also considers the consequence of how social cues are perceived. For example, tone of voice is present in face-to-face interaction; whereas, tone of voice is lacking in e-mail interaction. What impact does tone of voice have on the nature of the interaction?

Face-to-face communication is considered the baseline or "gold standard" (Harms, 2005) for measuring social presence. The high degree of social presence associated with face-to-face communication lies in the media richness of face-to-face interaction. Media richness describes the degree to which a medium can convey intended meanings of communication. In face-to-face communication, senders and recipients have not only the words but tone of voice, facial and body language to assist in understanding the meaning of the message. Each form of CMC is associated with different levels of social presence (Arbaugh, 2000; Murphy, 2011).

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De Greef & Ijsselsteijn (2001) compared social presence between audio only to audio/video. They conducted a designed experiment using the Photoshare system, a system that allows participants to show family pictures to one another. They developed and used a questionnaire that included several bipolar measures (cold versus warm, impersonal versus personal) in assessing social presence. After controlling for gender, women experienced a higher level of social presence than did the men. Additionally, the use of video/audio had a higher level of social presence than using audio only. This difference in social presence between these differing forms of CMC may offer some important insights into developing effective e-mentoring relationships. Incorporating an array of different types of CMC with varying levels of social presence may be very important for effective e-mentoring relationships.

However, CMC is not without its problems. One negative aspect of using e-mail as a primary form of communication is the possibility of increased flaming (speaking in a fanatical manner about uninteresting topics or being highly insulting to others). Some of the present research regarding the increased possibilities of flaming in e-mentoring relationships is based on the work of Sproull & Kiesler (1986). In their study, they explored the use of e-mail in business settings. They found that the incidence of flaming increased significantly when e-mail is used. The respondents in their study stated flaming occurred on average thirty-three times per week while using e-mail. In contrast, flaming occurred on average four times per week in face-to-face communication.

Based on the findings of Sproull & Kiesler (1986), researchers (e.g., Ensher et al., 2003; Mueller, 2004) have hypothesized the probability of flaming is greater in e-mentoring relationships. Because Sproull & Kiesler's (1986) work was not set in the context of mentoring relationships, further work is needed to substantiate the degree of flaming that may occur in e-mentoring relationships. One issue that research needs to address is the incidence of flaming that might occur in forms of CMC that possess less anonymity (e.g., video teleconferencing). Although de Greef & Ijsselsteijn (2001) found video teleconferencing possessed higher levels of social presence over audio only, there was no link made between social presence and flaming. E-mentoring relationships that have goals requiring a high degree of social presence (e.g., role modeling) may benefit from using video teleconferencing.

Social presence theory would suggest that individuals who have had more positive past experiences with CMC would be more likely to engage in e-mentoring. Conversely, individuals with negative prior experiences with CMC like flaming may be less likely to engage in e-mentoring. In fact, Murphy (2011) found that blended mentoring in which e-mail plus talking on the phone or meeting in person increased the overall satisfaction

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of the mentoring relationships. Based on the role of social presence, two research hypotheses are:

*H2:* Previous positive experiences with CMC will increase the likelihood of participating in e-mentoring programs.

*H3:* The use of forms of CMC possessing higher degrees of social presence will positively influence willingness to engage in e-mentoring relationships.

### Methodology

#### Participants

Undergraduate and graduate students from a College of Education of a large state university within the Southeastern part of the United States as well as teachers from high schools within the area participated in the study. Professors within this College of Education were asked to advertise this research within their classes. Interested participants, pre- and in-service teachers, were directed to an online survey to obtain information regarding prior mentoring and CMC experiences as well as the interest in participating in e-mentoring. The teachers in the study had no mentoring relationships with one another. Forty-eight individuals completed the online survey. No information was collected regarding the participant's age or gender. However, based on the general demographics of this group, it is estimated that the pre-service teachers were between 18-23 years old, and the in-service teachers were 30-50 years old. Sixteen (1/3) of the survey respondents were pre-service teachers. Thirty-two (2/3) of the survey respondents were in-service teachers. All participants in the survey were anonymous.

#### Questionnaire Measures

##### Prior experiences with mentoring

The first section of the survey requested information on prior experiences with mentoring which referred to the frequency that the participant had been a mentor or mentee. Participants rated the frequency using a Likert scale (1 = low to 5 = high). The frequency provided by the participants was subjective to each participant because no quantitative scale was provided for the frequency measure. In addition, the participants rated their overall perception of prior mentoring experiences within the last three years using a Likert scale (1 = poor to 5 = superior). This data was used to assess hypothesis 1 in terms of their perspectives of mentoring relationships they had in the past.

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### **Prior experiences with computer-mediated communications**

The second section of the survey was used to collect information on the participant's prior experiences with CMC. This section of the survey considered the participant's comfort level (1 = low to 5 = high), perceived usefulness (1 = no use to 5 = incredibly useful) and willingness to learn more about (1 = not willing to 5 = extremely willing) various forms of CMC (e-mail, discussion board, chat rooms and video teleconferencing). This section of the survey also collected information on the duration the participant had used various forms of CMC (e.g., the number of years using e-mail). This section was used for the analysis of research hypothesis 2 as a measure of the prior experiences participants had with CMC. Likert scale questions (e.g., comfort level using discussion boards) were used to address research hypotheses 2 and 3 in terms of how the participants' interest in using CMC would influence the impacted comfort level and social presence of various forms of CMC.

### **Willingness to participate in e-mentoring relationships in the future**

The last section of the survey asked the participants whether they would be willing to participate in an e-mentoring relationship in the future as a mentor and protégé (yes or no). The section was used to address research hypotheses 1 and 2 (willingness to participate in e-mentoring relationships in the future). The participants were given the definition of e-mentoring as a relationship between two or more individuals for the purposes of professional development that lasts for at least two months that occurs via computer-mediated communication (like e-mail) rather than face-to-face. The participants were then provided some examples of e-mentoring programs with a brief description: "One example is Mentornet ([www.mentornet.net](http://www.mentornet.net)) (a program where female engineering and science students (the mentee) exchange e-mails with practicing engineers and scientists (the mentor) over a period of 8 months)".

## Results

Table 1 provides a listing of the means and standard deviations for the variables that were considered.

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Table 1.  
*Statistics for variables under consideration*

<b>Variable</b>	<b>Mean</b>	<b>s.d.</b>
(1) Prior mentoring rating for those willing to be an e-mentor	3.8	0.8
(2) Prior mentoring rating for those not willing to be an e-mentor	3.4	0.8
(3) Prior mentoring rating for those willing to be an e-mentee	3.7	0.8
(4) Prior mentoring rating for those not willing to be an e-mentee	3.5	0.9
(5) Comfort level with instant messaging for those willing to be e-mentors	3.9	1.2
(6) Comfort level with instant messaging for those not willing to be e-mentors	2.8	1.4
(7) Comfort level with chat rooms messaging for those willing to be e-mentors	2.5	1.3
(8) Comfort level with chat rooms for those not willing to be e-mentors	1.7	1.1
(9) Comfort level with chat rooms for those willing to be e-mentees	2.5	1.2
(10) Comfort level with chat rooms for those not willing to be e-mentees	1.7	1.3
(11) Comfort level using video teleconferencing	2.0	0.9
(12) Willingness to learn more about video teleconferencing	3.5	1.2
(13) Usefulness of video teleconferencing for communicating with others	3.1	0.6

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Table 2.

*T test results on comparing mean statistics in table 1*

<b>Variables compared in table 1</b>	<b>t</b>	<b>d.f.</b>
(1) versus (2) : Prior mentoring rating for those willing to e-mentor versus those that were not	1.43	33
(3) versus (4): Prior mentoring rating for those willing to be an e-mentee versus those that were not	0.42	33
5) versus (6): IM comfort for those willing to be e-mentors versus those that were not	2.74	46
(7) versus (8): Chat room comfort for those willing to be e-mentors versus those that were not	2.13	46
(9) versus (10): Chat room comfort for those willing to be e-mentees versus those that were not	2.19	46
(11) versus (12): Comfort level with video teleconferencing versus willingness to learn more about video teleconferencing	7.4	91
(11) versus (13): Comfort level with video teleconferencing versus usefulness of video teleconferencing in communicating with others	5.0	91

\* Mean difference is significant at 0.05 level (2-tailed).

\*\* Mean difference is significant at 0.01 level (2-tailed).

*Research Hypothesis 1:* Positive prior mentoring experiences will increase the likelihood of participating in e-mentoring programs.

As shown in table 2, hypothesis 1 was not supported by the data. However, table 3 shows the likelihood of the willingness to be an e-mentor is positively related to prior mentoring experiences in terms of a logistic regression model for an average user in terms of number of years using e-mail, number of e-mails sent and received per day. In contrast, none of the questions regarding prior mentoring experiences were significantly related to willingness to be an e-mentee. The only variable that had a significant impact on willingness to be an e-mentee was the teacher status (pre or in-service teacher). The pre-service teachers were more willing to be e-mentees than the in-service teachers.

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Table 3.

*Willingness to be an e-mentor depending on prior mentoring experiences*

<b>Rating given to prior mentoring experiences</b>	<b>Likelihood of willingness to be an e-mentor</b>
1 = poor	6.0% *
2 = fair	19.1%
3 = good	46.8%
4 = excellent	76.6%
5 = superior	92.4%

Likelihood of being willing to be an e-mentor =

$$\exp(-4.072 + 1.314 * \text{mentor rating}) / (1 + \exp(-4.072 + 1.314 * \text{mentor rating})) * 100$$

\* Example for prior mentor rating of 1:

$$\exp(-4.072 + 1.314 * 1) / (1 + \exp(-4.072 + 1.314 * 1)) * 100\% = 0.063 / 1.063 * 100 = 6.0\%$$

*Research Hypothesis 2:* Positive prior experiences with computer-mediated communications will increase the likelihood of participating in e-mentoring programs.

The results were significant with respect to the comfort level and duration of use for certain forms of CMC (shown in table 2). The comfort levels for using instant messaging and chat rooms were significantly higher for those willing to be e-mentors versus those that were not. The participants that were willing to serve as e-mentors received on average 4.9 fewer e-mails per day than those that were not willing to be e-mentors after controlling for the number of e-mails sent per day and the number of years using chat rooms. Overall, the number of years the participant had used e-mail, the number of e-mails received per day and the number of e-mails sent per day had the most influence on the likelihood of being willing to be an e-mentor. This likelihood increased as the number of years using e-mail and number of e-mails sent per day increased and the number of e-mails received per day decreased. A separate comparison revealed that the most likely candidates to be e-mentees were those with a larger number of years using e-mail. In addition, those willing to be e-mentees had a higher comfort level using chat rooms.

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Research Hypothesis 3: The use of computer-mediated communications possessing higher degrees of social presence will positively influence the willingness to engage in e-mentoring relationships.

Although the data did not directly support this hypothesis, the information collected on comfort level, willingness to use and usefulness of video teleconferencing offered some interesting insights into research hypothesis 3. Video teleconferencing had the lowest mean score for the five forms of CMC addressed in the survey for comfort level in using. In contrast, participant's average scores for video teleconferencing's usefulness in communicating and willingness to learn about new features were significantly higher. Video teleconferencing was the only form of CMC that had statistically significant differences in comparing comfort level to usefulness in communicating with others and willingness to learn about new features (statistical results are shown in table 2).

### Discussion

Computer-mediated communication (CMC) provides avenues within mentoring enabling the mentor and mentee to interact from a distance. The potential opportunities provided by CMC have led to an increase in the quality and quantity of e-mentoring programs that exist (De Janasz, et. al, 2008). However, research has not kept pace with the practice of e-mentoring. The purpose of this study was to address the impact that prior mentoring and CMC experiences have on mentor and mentees' willingness to participate in e-mentoring programs. Social exchange theory and social presence theory were two conceptual frameworks used to frame this study.

### Social Exchange Findings and Implications

The social exchange theory of mentoring refers to an expectation of an exchange of benefits between a mentor and a mentee (Ensher, et. al, 2003; Eby, 2007). Moreover, Allen (2007) extended these ideas further with the norm of reciprocity by suggesting that mentors who have been given help in the past feel obliged to give help in a future mentoring relationship. In fact, past research examining face-to-face mentoring relationships has found that prior mentoring experience predicted the likelihood of an individual's willingness to mentor (Allen, 2007; Ragins & Cotton, 1993). This study replicated and extended the findings of past research. Specifically, in our first hypothesis, we predicted that those with past positive face-to-face mentoring relationships would be more likely to be mentors in a virtual setting. In fact, as predicted, it was found that those mentors with past positive experiences in a face-to-face relationship were significantly more likely to be e-mentors. However, past experience as a mentee in a face-to-face relationship did not predict future willingness to be a mentee in an e-mentoring relationship, which was surprising. It was

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encouraging to see that the mean rating given to prior mentoring experiences was high for both those willing and those not willing to be e-mentees.

Future researchers would be well advised to explore specifically how mentees' past experiences in mentoring impact their future likelihood of engaging in mentoring relationships. Literature reviews in mentoring remind us of the importance of examining both sides of the mentoring partnership as mentors and mentees may have very different perspectives (Hezlett & Gibson, 2005). As we explore the relatively new area of e-mentoring, future researchers would be well advised to gather data and draw comparisons from both mentors and mentees within a virtual context.

### Social Presence Findings and Implications

Social presence examines how social cues are present and perceived in an interaction. Rich communication formats such as face-to-face dialogue have more opportunities for social presence than lower context mediums such as e-mail (Short, et. al., 1976; Harms, 2005). In our study we had two main predictions derived from social presence theory. First, in hypothesis 2, we predicted that previous positive experience with CMC would increase the likelihood of participating in e-mentoring programs. Support was found for this hypothesis with respect to several methods of CMC. The comfort level of those using chat room, instant messaging, and e-mails were significantly higher for those willing to be e-mentors as compared with those who used a lower amount of various forms of CMC. In a similar fashion, we found that those willing to be e-mentees were more likely to have used e-mail for a longer period of time and have a higher comfort level with chat rooms as compared to those less willing to be e-mentees.

Applying the lens of social presence theory, it makes sense that higher presence forms of CMC such as chat rooms and instant messaging (with its ability to leverage synchronous communication) were more likely to engaging e-mentoring as these tools enable one to express a wider variety of social cues. This is in line with Wang & Newlin (2001) who found that synchronous technologies such as chat rooms provide a higher degree of social presence than asynchronous technologies. The results of Feris et al. (2002) provide some insight into these findings and the goals of using chat rooms and instant messaging within e-mentoring relationships. They found that individuals that engage in chat room interaction do so in order to maximize their social interaction. In addition, their study found that users of chat rooms perceived no difference in social presence between face-to-face interaction or chat room interaction.

While e-mail is usually a less rich communication format, experienced e-mail users may be more likely to understand the nuances of e-mail etiquette (i.e. use of emoticons, proper e-mail length, and forms of address) and are thus better able to

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anticipate working comfortably in this medium in an e-mentoring relationship. E-mail is one of the most common forms of CMC used within e-mentoring relationships (e.g. Bierema & Merriam, 2002; Headlam-Wells, 2004; Kaspurin et al., 2003; Rhoades, 2011). For this reason, comfort level with the use of e-mail is most likely an important contributor for engagement in e-mentoring programs. This may explain our finding that individuals that had a longer duration using e-mail were more inclined to be willing to participate in e-mentoring programs.

These findings suggest that e-mentoring program developers would be well advised to assess users past experiences with various forms of CMC. Lower CMC users could be provided with training in various forms of CMC and thus their willingness to engage in e-mentoring could be increased. Future researchers would be well advised to explore how differences across generations impact CMC prior experience and comfort level. Reverse mentoring programs, which began with GE in the nineties, in which senior executives were paired with younger entry level employees to learn about e-mail and Internet usage (Ensher & Murphy, 2005) could be a tool used to overcome the CMC usage divide. In addition, as users become more comfortable with various forms of CMC, e-mentoring programs can offer a hybrid approach to mentoring program design in which various high and low social presence contexts are incorporated throughout the programs. Researchers could work in tandem with program designers to evaluate how these various forms of CMC impact program retention and satisfaction.

In our third and final hypothesis, we predicted that CMC with higher degrees of social presence would positively influence the willingness to engage in e-mentoring. Unexpectedly, this hypothesis was not directly supported by the data. One possible explanation for this contradiction is the participants only stated whether they were willing to participate in e-mentoring in general.

Despite the fact that the third prediction was not directly supported, some differences resulted with respect to video conferencing that social presence theory may help to explain. For example, participants had low comfort levels using video conferencing but perceived it as a useful tool in communicating with others. Initially, this finding seems to contradict itself. However previous research may provide an explanation. Luo et al. (2010) demonstrated that the perceived usefulness of emerging technologies is a key antecedent to the use of these technologies. One useful feature of video conferencing is that it provides a higher level of social presence over other forms of CMC such as e-mail. This finding has exciting implications as video conferencing can leverage the benefits of in-person communication by being able to see one another and thus read non-verbal cues. In addition, video conferencing still retains the convenience of being available to mentors and mentees who are geographically distant

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from one another. Video conferencing, with its high level of social presence, but relatively low level of cost, can provide a useful tool to facilitate e-mentoring relationships. Future researchers need to examine the impact of this specific form of CMC on mentoring. For example, related literatures such as the use of teleconferencing for meetings and training could be examined as a starting point to understand the unique aspects of this medium within mentoring.

### Overall Implications for Research and Practice

The study provides several important and unique contributions to the research literature. Although the literature is growing with respect to using social exchange theory in face-to-face mentoring, it is limited regarding the applicability of social exchange within e-mentoring relationships. Therefore, this study is the first to provide empirical support that social exchange can be a useful lens to examining mentoring within a virtual context.

By using the lens of social presence theory, this study provides insight into how comfort levels and willingness to use various forms of CMC may impact e-mentoring relationships. These findings suggest that organizations would be well advised to consider training participants to increase their understanding and comfort level with the various aspects of social presence inherent in different forms of CMC. Organizations that implement e-mentoring programs can use the findings of this study as a basis for developing e-mentoring programs. Different forms of CMC have various challenges and costs associated with them and social presence can be a key part of deciding what components of CMC to include in an e-mentoring program.

### Limitations

The primary limitation of this study is the small sample size ( $n = 48$ ) which limits the generalizations that can be made. Because the participants were recruited as a convenience rather than random sample, the sample may not be entirely representative of the teaching community at large. Although a description of e-mentoring programs was provided on the survey, participants may not have fully understood the meaning when responding to willingness to participate in e-mentoring programs due to the only recent emergence of e-mentoring programs.

The study could have been further improved by collecting additional demographics of the participants to evaluate confounding effects of gender and race. Prior research (Blake-Beard et al., 2011; Ensher & Murphy, 2011; O'Brien et al., 2010) has demonstrated that gender and race are significant factors within a mentoring relationship. The measures used within the study were newly developed and need

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subsequent testing regarding their construct validity. However, despite these limitations, the study does provide some initial information from which future studies can expand.

### Recommendations for Future Research

This research, while not flawless, makes important contributions to the nascent stream of research of e-mentoring by providing an empirical investigation of willingness to participate in e-mentoring programs as well as an innovative theoretical framework.

The comfort levels that individuals have with technology may change as CMC evolves. For example, technologies that were novel at one time (e.g., e-mail) are commonplace now. Future research into the development of assessment tools to measure comfort level and experience with CMC that are robust enough to accommodate emerging forms of CMC. As inexpensive forms of video conferencing become more pervasive, mentoring researchers would be well advised to investigate this phenomenon in depth. Due to the positive and negative implications of social presence in video conferencing, future research is recommended to evaluate when it is appropriate to use video conferencing within e-mentoring relationships. Future researchers would be well advised to use social exchange theory as a lens to further explore e-mentoring. Also, it would be important to examine whether the perceived lack of social presence in various forms of CMC impact a mentor or mentee's willingness to put effort and exchanges into the relationship.

The results of this research beg the question that as the tech-savvy Millennium generation enters the workforce, how can organizations best use emerging forms of CMC to properly mentor these new employees? A recent article in *Harvard Business Review* suggests that the millennial generation has different expectations for mentoring than previous generations (Meister & Willyerd, 2010). For example, how do Facebook, LinkedIn, Skype and Youtube provide environments that accomplish useful goals in mentoring programs? Examining differences among generations in their usage and comfort level of CMC would be a very fruitful area of future research.

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