Social Presence and Online Learning: A Current View from a Research Perspective

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Abstract
While the development of online education has been progressing rapidly, further research is needed on the experiences of students in online courses. One concept that has been explored in relation to the quality of the online learning experience is social presence, the degree to which a person is perceived as "real" in mediated communication. The purpose of this article is to discuss the findings regarding the Social Presence and Satisfaction instruments (Gunawardena & Zittle, 1997) used in a recent research study focusing on online learning. Background literature regarding social presence and existing studies of this construct in relation to online learning are analyzed. Descriptive statistics for the Social Presence Scale and Satisfaction Scale are presented and show that students in online courses feel comfortable relating and interacting in the online environment, and are satisfied with online courses. Findings support the continued reliability and validity of these scales and encourage further use of these scales in educational research.

Introduction

Online learning continues to be a major trend in education. With over 20% of all higher education students in the U.S. taking at least one online course in the fall of 2007 (Allen & Seaman, 2008), it can be expected that the number of students taking online courses will continue to grow. While the development of online education has been progressing rapidly, further research is needed on the experiences of students in online courses and specific factors related to learning outcomes and satisfaction (Atack & Rankin, 2002; Halter, Kleiner, & Hess, 2006).

One concept that has been explored in relation to the quality of the online learning experience is social presence, the degree to which a person is perceived as "real" in mediated communication (Gunawardena & Zittle, 1997). Social presence has been identified as key to the level of learner participation and success of online collaboration (Lakin, 2005) as well as satisfaction with online courses. While the existing studies of social presence and online education show it to be an important construct, further research is needed in this area. The purpose of this article is to discuss the findings regarding the Social Presence and Satisfaction instruments (Gunawardena & Zittle) used in a recent research study regarding online learning.

This information can assist future researchers to use these instruments to explore these concepts further.

Social Presence

Social presence is a concept that has its base in the telecommunications literature. Short, Williams, and Christie (1976) developed social presence theory as a model for analyzing the social - psychological dimensions of mediated communication from a "social cues perspective" (Gunawardena & Zittle, 1997). They defined social presence as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Short, et al., p. 65). They viewed social presence as a quality of the communications medium itself and hypothesized that "communications media vary in their degree of social presence, and …these variations are important in determining the way individuals interact" (p. 65). The capacity of the medium to transmit information about facial expression and non-verbal cues contribute to the degree of social presence of a communications medium. Differences in how these factors contribute to social presence and the importance of each of these factors are highly individualized. According to Homer, Plass, & Blake (2008), a general finding of the body of research into social presence and learning is that when information is presented in a way that increases social presence, it is better remembered by learners and the learning process is considered more engaging.

Short et al. (1976) described social presence as a construct comprised of two concepts: intimacy (Argyle & Dean, 1965) and immediacy (Wiener & Mehrabian, 1968). Argyle and Dean asserted that intimacy in a communication medium is influenced by the factors of physical distance, eye contact, smiling, and personal topics of conversation. Short, et al. (1976), suggested that social presence be added to the list of factors that contribute to intimacy of a communication medium. Wiener and Mehrabian (1968) conceptualized immediacy as a measure of psychological distance that a communicator puts between himself and the object of his communication. Immediacy and non-immediacy can be conveyed verbally or non-verbally through physical proximity, formality of dress, and facial expression. Immediacy enhances social presence (Gunawardena & Zittle, 1997).

Viewed within Short, Williams, and Christie's (1976) framework, text-based computer-mediated communication (CMC) could be considered to be potentially low in social presence. Gunawardena (1995) took Short, et al.'s (1976) work a step further by refining the definition of social presence as "the degree to which a person is perceived as a "real person" in mediated communication" (p. 151) and asserted that social presence can be "cultured" among participants in teleconferences and computer-mediated communication. Gunawardeda (1995) reported on two studies of student perceptions of CMC in computer conferences in which graduate students discussed distance education issues and research related to distance education. The instrument was a researcher-developed questionnaire used to evaluate the conferences that included 17 five-point bipolar scales soliciting student reactions on a range of feelings towards CMC. The first study sample consisted of 70 graduate students from four universities in the U.S. that participated in the conference. The second study was a comparison of two student groups (n=90) at one university that participated in the conference the following year. Findings from both studies indicated that CMC was characterized by the subjects as highly interactive, active, stimulating, and a social medium. The role of the moderator was identified as critical to creating a sense of online community and enhancing social presence. Useful techniques include providing a forum

for introductions of participants, facilitating some social interaction along with academic interaction, and providing collaborative learning experiences. Gunawardena believes that "it is these techniques, rather than the medium, that will ultimately impact students' perception of interaction and social presence" (p. 165). Gunawardena and Zittle (1997) differentiate social presence and interaction, indicating that interactivity is a potential quality of communication that may or may not be realized by the individual. When it is realized and noticed by participants, there is "social presence." Tu and McIssac (2002) also supported the reciprocal relation of interaction and social presence, noting that in order to increase the level of online interaction, the degree of social presence must also be increased.

Gunawardena and Zittle (1997) also studied how effective social presence is as a predictor of overall student satisfaction in an inter-university computer conference using CMC. The subjects were 50 graduate students in distance education from five universities in the U.S. who participated in an inter-university virtual conference. The conference was a class requirement that ran the length of the semester. Students were required to do a research project, share results with the other students, moderate discussion on their research project, and participate in discussions of other students' research projects. Communication was conducted online via asynchronous, text-based computer mediated communication. The instrument used in the study was the GlobalEd questionnaire, which was developed by the researchers to evaluate the conference and assess student responses to CMC, including social presence. Social presence was found to be a strong predictor of student satisfaction. Another finding of the study was that among subjects with a low level of social presence, emoticon use had no effect on satisfaction, while at higher levels of social presence emoticon use was associated with increased satisfaction. According to Lahaie (2007) "emoticons (e.g., smiley faces) are anthropomorphic symbols used frequently in online interactions, such as in e-mail and discussions" (p. 100). These symbols as well as acronyms such as "LOL" for laughing out loud influence social presence in online courses by compensating for the lack of voice inflections, facial expressions, and other physical gestures (Lahaie 2007).

Garrison, Anderson, and Archer (2000) included social presence in a model of community inquiry which they developed for use as a conceptual framework in computer-mediated communication in higher education. The model identified three core elements of an educational experience that included *social presence* and two other concepts: *cognitive presence, and teaching presence. Cognitive presence*, a vital element in critical thinking, refers to the extent to which participants in a community of inquiry are able to construct meaning through sustained communication. *Teaching presence* refers to designing and managing learning, providing subject matter expertise, and facilitation of active learning. In the model, *social presence* is defined as "the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting themselves to others as 'real people'" (Garrison et al. (2000), p. 89). Three categories of social presence are identified in the model: expression of emotion, open communication, and group cohesion. Emotional expression includes humor and self-disclosure. Open communication consists of reciprocal and respectful exchanges. Examples of open communication are mutual awareness and recognition of each other's contributions. Group cohesion refers to activities that foster a sense of group commitment and a sense of belonging. Garrison et al. (2000) argue that cognitive presence itself is not enough to sustain a community of learners— individuals must feel comfortable relating to each other. Therefore, social presence is critical to cognitive presence and to establishing a critical community of learners, as explicated by the authors: "social presence marks a qualitative

difference between a collaborative community of inquiry and a simple process of downloading information" (Garrison et al. (2000), p. 96). The third element of the model, teaching presence, consists of the design of the educational experience and facilitation. Teaching presence is "a means to an end–to support and enhance social and cognitive presence for the purpose of realizing educational outcomes" (Garrison, et al., p. 90). While the teaching role is pivotal in building a community of learners, when the Community of Inquiry Model (e.g. cognitive presence, social presence, and teaching presence) is applied to a computer conferencing environment, social presence is regarded as a function of both learners and teachers (Rourke, Anderson, Garrison, & Archer, 1999). Rourke et al.(1999) postulated that while fairly high levels of social presence are necessary to support the development of deep and meaningful online learning, there is an optimal level above which too much social presence may be detrimental to learning.

In a study of best practices and social presence in a Web-based international nursing informatics pilot course (Skiba, Holloway, & Springer, 2000), a university in the United States and one in Holland participated in creating a pilot graduate course in nursing informatics. Eleven students, all American, participated in the evaluation of the course. Three Dutch students who were originally enrolled in the course did not continue participation due to course overloads and according to the authors, "the abstract nature of the course" (p. 651). Only a few students elected to take the course for graduate credit, and the majority participated for continuing education credit. The evaluation tool used was the Best Practices in Teaching and Learning in Web-Based Nursing Courses, of which 49 closed ended items were selected for this study, focusing on the areas of outcomes, educational practices and technology use/user support. Three open-ended questions were also included: best things about the course, how it can be improved, and the amount of hours per week spent on the course. The social presence tool was the 14-item Social Presence Scale developed by Gunawardena and Zittle as part of the GlobalEd questionnaire (1997). Average means were reported for each of the social presence items, but no mean overall social presence scores were reported nor were any correlations made between social presence and any other variables. A qualitative component of evaluation was included in which students were interviewed regarding their lived experiences with online education. More than half (54%) of the students indicated they were more likely to enjoy learning in the course due to electronic communications as compared to a similar class that relied primarily on face-to-face discussions. Students also felt that electronic communication made them less likely to feel isolated from other students (54%) and the instructor (54%) as compared to face-to-face discussions. Limitations of the study are the small sample size and the fact that some students elected to take the course for graduate credit and others for continuing education credit.

In a mixed methods study of the relationship of social presence and interaction in online classes (Tu & McIsaac, 2002), social presence was described as "a measure of the feeling of community that a learner experiences in an online environment" (p. 131). 43 students enrolled in a graduate level online course participated in the study. The researchers did not further describe the type of course by subject. The course was delivered by FirstClass, a computer conferencing system that provides e-mail, bulletin board, and real-time chat functions. Text-based computer-mediated communication was used as the online communication format in the course. The research instrument used in the study was the online Computer-Mediated Communication (CMC) Questionnaire developed by one of the researchers. The questionnaire included 17 social-presence items and 13 privacy items, each with a five-point Likert scale. Based on the literature, the researchers chose to examine three dimensions of social presence: social context, online

communication, and interactivity. For the purposes of the study, interactivity was defined as "the activities in which CMC users engage and the communication styles they use" (Tu & McIssac, 2002, p. 135). The dimensions of social context, online communication, and interactivity were found to positively impact social presence. Perceived social presence (M = 3.32, SD = .39) and privacy (M = 3.08, SD = .53) of CMC were not found to be highly correlated (r = .286). Based on the study results, the researchers concluded that social presence is a more complicated construct than previous studies indicated and they further described social presence as "the degree of feeling, perception, and reaction of being connected by CMC to another intellectual entity through a text-based encounter" (p. 140). Qualitative data were collected by participant observation and suggested that social presence is impacted by students' social relationships such as demonstrating caring, exchanging information, and providing services. Consistent with Gunawardena and Zittle's (1997) findings, students used emoticons to compensate for the lack of social context cues in the online communication environment. Response time by faculty to student questions was also found to be critical to online interaction and was related to the degree of perceived social presence. While the study was limited by a relatively small sample size, the mixed methods design provided breadth and depth of data.

In a study of undergraduate and graduate students (N = 97) participating in online courses during one semester at a college, a correlational design was used to examine the relationship of social presence, perceived learning, and satisfaction with the instructor (Richardson & Swan, 2003). The authors did not identify whether subjects were undergraduate or graduate students, or both. The survey consisted of a modified version of Gunawardena and Zittle's (1997) Social Presence Scale along with questions about students' overall perceptions of the course and general demographic items. This was one of the few studies in which the researchers examined individual course activities: lectures; notes and reading assignments; written assignments; individual projects; group projects; and self-tests, module tests, and the final exam. Perceptions of social presence correlated positively to perceived learning and perceived satisfaction with the instructor. Students' perceptions of social presence served as a predictor of perceived learning. This is also one of the few studies to examine gender differences in experiences with online education. There was a statistically significant correlation between gender and overall social presence scores (p < .05), indicating that gender accounted for approximately 5% of the variability in students' overall social presence scores, with women having higher perceived social presence. Perception of social presence was not influenced by age or amount of college experience. In the analysis of individual course activities, a significant correlation was found between social presence and perceived learning in each of the activities, with the strongest correlation being in class discussions and question and answer areas (r= .83, p < .01, R^2 = .69), followed by group projects (r = .80, p < .01, R^2 = .64). The investigators believe this shows that the social presence of the instructor and/or other students was perceived by students as a key component of the educational experience and that social presence occurs in learning activities normally thought of as individual in nature. While they included the variable 'number of previous online courses' on their questionnaire, they did not report their findings in this area.

Interaction has been identified as a key component of the online educational experience, yet there is a lack of reliable and valid research instruments and studies in this area. Social presence has been identified as a component of interaction and there is a growing body of literature indicating the importance of social presence in online education. Additional studies using the Social Presence instrument such as the one discussed below are needed to provide

more information on this important construct that will assist educators in planning optimal online educational experiences for students.

Methodology

Subjects were students in an online RN to BSN program at one public college in the northeastern United States. The subjects were students in any of the Web-based nursing courses offered during the semester in which data were collected. All of the courses were 12-weeks in length and were offered fully online through the Blackboard learning platform (http://www.blackboard.com). The range of class size for the RN-to-BSN courses during the term this study was conducted was seven to 15 students, with an average class size of 12.3. The course format was asynchronous and text-based.

Instruments

Two survey instruments were used in this study, the Social Presence Scale and the Satisfaction Scale (Gunawardena & Zittle, 1997). The Social Presence Scale and Satisfaction Scale are subscales of the GlobalEd Questionnaire developed by Gunawardena and Zittle (1997) to evaluate the educational experience and assess student responses to computer-mediated communication (CMC) in a multi-university conference. The sub-scales were used by Gunawardena and Zittle (1997) to study of the effectiveness of social presence in predicting satisfaction in a computer-mediated conferencing environment.

Social Presence Scale

The Social Presence Scale has been used in studies of online courses with undergraduate and graduate nursing and non-nursing students (Richardson & Swan, 2003; Skiba , Holloway, & Springer, 2000). The Social Presence Scale consists of fourteen items that embody the concept of "immediacy" as defined in Short, et al. (1976). A Likert scale is used with scores ranging from 1-5. A score of 1 = strongly disagree, 2=disagree, 3=uncertain, 4-agree, and 5=strongly agree. The maximum score possible is 70. Table 1 shows the Social Presence Scale used in this study along with the descriptive statistics. Slight modification to the wording of the scale was made as appropriate for a Web-based nursing course. The word "GlobalEd" was replaced on the scale with "online nursing course" or "course" to better reflect the online courses in which the nursing students were participating. Permission was obtained from Dr. Gunawardena to make these minor modifications and use the scale. No other adjustments to the scale were made.

Content validity of the Social Presence Scale was assessed by Gunawardena and Zittle (1997) through a bivariate correlational analysis comparing it with six selected bi-polar social indicators used by Short et al. (1976) to measure the concept of "immediacy" in mediated communication. The positive polar ends of the social indicators were: immediate, interactive, personal, sensitive, social, and warm. Gunawardena and Zittle (1997) reported correlation coefficients of .52 – .87 between the bi-polar items and the Social Presence scale, "suggesting that the Social Presence Scale used in this study may be thought to accurately measure the intended social presence parameters" (p. 17). Reliability was reported as a Cronbach's Alpha of .88.

Satisfaction Scale

       The Satisfaction Scale (Gunawardena & Zittle, 1997) consists of ten items scored on a Likert scale of 1-5 as in the Social Presence Scale. A score of 1 = strongly disagree, 2=disagree, 3=uncertain, 4-agree, and 5=strongly agree. Reliability was reported as .87 using Cronbach's Alpha, sufficient according to Carmines and Zeller (1979). Validity data was not presented.

       Table 2 shows the Satisfaction Scale used in this study, along with the descriptive statistics. For the purposes of this study, one item on the initial scale was deleted that was specific to the GlobalEd conference ("Projects like GlobalEd enhance face-to-face on-campus courses") and not relative to the Web-based nursing courses in this study. The maximum possible score for the scale in this study was 45. The word "GlobalEd" was replaced on the scale with "online" or "online nursing course" to better reflect the online courses the nursing students were participating in. Permission to use the scale with these adjustments was obtained. No other adjustments to the scale were made.

       A demographic questionnaire was developed for the study and administered along with the Social Presence and Satisfaction Scales. This questionnaire included items on age, gender, race/ethnicity, English as second language, and prior experience with online courses.

       After IRB approval was obtained potential subjects were recruited via e-mails sent to all enrolled students in the RN-to-BSN program at the college. The survey with instruments was included as a link in an e-mail. Data from each survey were entered into a database automatically through the Internet survey service Zoomerang (http://www.zoomerang.com). Data were stored in a secure database protected by password as well as database and network firewalls. All analysis was performed using the SPSS version 11.1. and, as appropriate, the R-statistical programming language.

Results

       Of the 296 students enrolled in an online nursing course during the term that data were collected, 128 responded to the study survey, yielding a response rate of 43.24%. This response rate is within the expected range for mail and web-based questionnaires which typically achieve response rates less than 50% (Polit & Beck 2004). According to the power analysis, this response rate and corresponding sample size provided sufficient power (80%) to detect a .23 level of correlation between items of the social presence and satisfaction scales, and a .30 association between demographic levels (e.g. male versus female, age, number of years experience in nursing). One of the 128 subjects requested a paper survey which was mailed to the subject, returned, and entered manually into the database.

Descriptive characteristics of the respondents

       The sample for this study consisted of 128 students in an online RN-to-BSN program at one college in the northeastern U. S. who responded to the online survey at the end of one 12-week course term. The majority of respondents were age 40 or older (*n* = 98, 77%) and female (*n* = 94%). The majority were Caucasian/white (*n* = 104, 81%), with the second most frequent ethnicity reported as African-American (10%). English was the predominant primary language (*n* = 117, 91%), with 8% (n=9) identifying themselves as English as second language (ESL) students. The number of years of nursing experience ranged from 0 to 5 years (*n* = 24, 19%) to

greater than 25 years (n = 28, 22%), with the majority 11 years or greater (total *n* = 89, 70%). The majority of respondents had online course experience of two or more previous courses (*n* = 85, 66%). Emoticon usage in the online courses was reported by 70% (*n* = 90) of respondents. The majority reported no phone contact with the instructor during the course (*n* = 118, 92%).

Reliability Analysis of the Social Presence and Satisfaction Scales

This study employed two instruments to measure social presence and satisfaction, the Social Presence Scale and the Satisfaction Scale (Gunawardena & Zittle, 1997). Both used a five-point Likert scale. Although these scales have been used in previous studies of online learning, some minor modifications to the wording of specific scale items as discussed previously were made. Thus reliability for each of the scales used in this study was analyzed by calculating Cronbach's alpha. The Cronbach's alpha for the Social Presence Scale was .87 and for the Satisfaction Scales was .85. This is consistent with previous studies. Carmines and Zeller (1979) indicate that a Cronbach's alpha of at least .80 should be achieved for widely used instruments.

Social Presence Scale

The mean, median, standard deviation, and degree of missingness was evaluated for each of the 14 items in the Social Presence Scale. The descriptive statistics are presented in Table 1. Maximum score possible for each item was five. Items 1, 9, 10, and 11 were reverse coded in data analysis. After reverse coding, the average scores ranged from 1.98 to 4.37, with eight items having an average score greater than four and ten having a median of four. The four highest scoring items (4, 6, 12, and 13) concerned comfort with communication. All respondents felt comfortable introducing themselves and communicating in an online environment, and no respondent indicated any level of disagreement with any of these items. The lowest scoring items (9, 10, 11) all concerned the equivalency of computer-mediated communication (CMC) to alternative forms of communication. After reverse coding, the average score for these items ranged from 1.98 to 2.36, with median values of 3. Only 9% of respondents indicated either strongly agreeing or disagreeing with any of these statements. The completion rate for the Social Presence Scale was high. There were only five incomplete responses and no survey was missing more than one item. Since the degree of missingness was low, the missing at random assumption was maintained.

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Table 1

Social Presence Scale with Descriptive Statistics

Item	Text	Mean	Median	SD
1	Messages in the online nursing course were impersonal.*	2.19 (2.81)	2	0.92
2	Computer-mediated communication is an excellent medium for social interaction.	3.70	4	0.88
3	I felt comfortable conversing through this text-based medium.	4.20	4	0.73
4	I felt comfortable introducing myself in the online nursing course.	4.37	4	0.53
5	The introductions enabled me to form a sense of online community.	4.16	4	0.69
6	I felt comfortable participating in the course discussions.	4.32	4	0.69
7	The instructor(s) created a feeling of an online community.	4.02	4	0.91
8	The instructor(s) facilitated discussions in the course.	3.89	4	0.99
9	Discussions using the medium of CMC tend to be more impersonal than face-to-face discussions.*	3.02 (1.98)	3	1.12
10	CMC discussions are more impersonal than audio teleconference discussions.*	2.64 (2.36)	3	0.85
11	CMC discussions are more impersonal than video teleconference discussions.*	2.84 (2.16)	3	0.86
12	I felt comfortable interacting with other participants in the online course.	4.33	4	0.53
13	I felt that my point of view was acknowledged by other participants in the course.	4.29	4	0.58

14	I was able to form distinct individual impressions of some course participants even though we communicated only via a text-based medium.	4.10	4	0.73

*Items were reverse coded during analysis and construction of factors (reverse-coded value in parentheses

In this study, as well as two previous studies (Gunawardena & Zittle; Skiba et al., 2000), item 4 of the Social Presence Scale that related to comfort introducing oneself in the online course was one of the three items with the highest average score. Item 12, that related to comfort interacting with other participants, was also one of the three items with the highest mean scores in this study and in the study by Skiba et al.(2000) This reinforces that participants in online courses feel comfortable relating and interacting in the online environment.

The mean Overall Social Presence score was higher in this study ($M = 54.69$, $SD = 6.75$) than in the Gunawardena and Zittle (1997) study ($M = 49.49$, $SD = 8.81$). This could be due to differences in the characteristics of the course and/or subjects in the two studies, or reflect increased social presence in online nursing courses. The subjects in the Gunawardena and Zittle study were graduate students in distance education. The difference could also reflect changing attitudes over time about online courses and social presence as the use of technology for learning and communication has become more common and accepted.

Satisfaction Scale

The mean, median, standard deviation, and degree of missing data was evaluated for each of the 9 items in the Satisfaction Scale. The descriptive statistics are presented in Table 2. The maximum possible score for each item was 5. Average scores ranged from 3.93 to 4.43 with six items having an average score greater than 4 and two having a median of 5.The two highest scoring items (5 and 6) had median scores of 5. These questions concerned willingness to participate in another online course and indication of the usefulness of the online learning experience. The two lowest scoring items were items 7 and 9. Item 7 asked about making acquaintances with other parts of the world/country. This lower average response may reflect the demographic homogeneity of the sample. Item 9 concerns effort with learning the CMC system and likely reflects the subjects' experience with online courses.

The degree of missing data was evaluated. The completion rate for the Satisfaction Scale was high with only four incomplete responses and no survey missing more than one item. Since the degree of missing data was low, the missing-at-random assumption was maintained.

Table 2

Satisfaction Scale with Descriptive Statistics

Item	Text	Mean	Median	SD
1	I was able to learn through the medium of CMC.	4.43	4	0.60
2	I was able to learn from the online discussions.	4.45	4	0.59
3	I was stimulated to do additional reading or research on topics discussed in the online nursing course.	4.09	4	0.79
4	I learned to value other points of view.	4.32	4	0.59
5	As a result of my experience with the online nursing course, I would like to participate in another online course in the future.	4.55	5	0.61
6	The online course was a useful learning experience.	4.54	5	0.61
7	As a result of my participation in the online course, I made acquaintances electronically in other parts of the country/world.	3.71	4	0.97
8	The diversity of topics in the online course prompted me to participate in the discussions.	4.11	4	0.78
9	I put a great deal of effort to learn the CMC system to participate in the online course.	3.93	4	1.03

Descriptive statistics for the Satisfaction Scale reveal that the items with the highest means in this study were likeliness to participate in future online courses, usefulness of the online learning experience, and ability to learn through the medium of CMC and online discussions. These findings are consistent with Gunawardena and Zittle (1997). Despite the deletion of one item, the mean Overall Satisfaction score in this study was higher ($M = 38.13$, $SD = 4.53$) than in Gunawardena and Zittle's (1997) study ($M = 33.02$, $SD = 6.66$) which could suggest that students are satisfied with online courses and this satisfaction may be increasing as online education is becoming more prevalent.

Conclusion

Social presence remains a key influential component of the quality of the online learning experience from the student perspective. The results of this study show that the Social Presence Scale developed by Gunawardena and Zittle in the late 1990's remains a highly reliable research instrument and should continue to be used in research studies related to online education.

Additionally, the Satisfaction Scale is a reliable means of measuring satisfaction in online courses. Rather than constantly developing unique ways to measure satisfaction, researchers could use these scales more so that study findings can more easily be compared. While the scales have been shown to be reliable in CMC and asynchronous course environments, further study of their reliability in other types of online learning environments, such as blended or hybrid courses, would be beneficial. The scales could also be used to examine the impact of emerging technologies such as video streaming and multimedia learning environments, e.g., voice tools and avatars, on social presence, an area in need of further study (Homer, et al. 2008).

Acknowledgement

References

Allen, I. E., & Seaman, J. (2008). *Staying the course: Online education in the United States, 2008.* Needham, MA: The Sloan Consortium.

Argyle, M., & Dean, J. (1965). Eye contact and distance affiliation. *Sociometry, 28*(3), 289-304.

Atack, L., & Rankin, J. (2002). A descriptive study of registered nurses' experiences with web-based learning. *Journal of Advanced Nursing, 40*(4), 457-465.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment.* Beverly Hills, CA: Sage Publications.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*(2-3), 87-105.

Gunawardena, C. N. (1995). Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications, 1*(2/3), 147-166.

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction with a computer-mediated conferencing environment. *American Journal of Distance Education, 11*, 8-26.

Halter, M. J., Kleiner, C., & Hess, R. (2006). The experience of nursing students in an online doctoral program in nursing: A phenomenological study. *International Journal of Nursing Studies, 43*, 99-105.

Homer, B. D., Plass, J. L., & Blake, L (2008). The effects of video on cognitive load and social presence in multimedia-learning. *Computers in Human Behavior, 24*(3), 786-797.

Lahaie, U. (2007). Strategies for creating social presence online. *Nurse Educator, 32*(3), 100-101.

Lakin, R. B. (2005). Social presence: The secret behind online collaboration. Retrieved April 20, 2008, from http://www.acenet.edu/AM/PrinterTemplate.cfm?Section=Home&CONTENTID=CM/ContentDisplay.dfm

Polit, D. E., & Beck, C. T. (2004). *Nursing research: Principles and Methods.* Philadelphia: PA: Lippincott, Williams & Wilkins.

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education, 14*(2), 50-71.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London: John Wiley & Sons.

Skiba, D. J., Holloway, N. K., & Springer, H. (2000). Measurement of best practices and social presence in web-based international nursing informatics pilot course. *Nursing Informatics 2000: Proceedings of the 7th IMIA International Conference on Nursing*, 650-657.

Tu, C. H., & McIsaac, M. (2002). The relationship of social presence and interaction in online classes. *The American Journal of Distance Education, 16*(3), 131-150.

Wiener, M., & Mehrabian, A. (1968). *Language within language: Immediacy, a channel in verbal communication*. New York: Appleton-Century-Crofts.

Zoomerang. (n.d.). *How does Zoomerang insure the security and privacy of my survey data?* Retrieved July 1, 2007, from http://zoomerang.custhelp.com