# THE RELEVANCE OF SOCIAL PRESENCE ON COGNITIVE AND AFFECTIVE LEARNING IN AN ASYNCHRONOUS DISTANCE LEARNING ENVIRONMENT AS IDENTIFIED BY SELECTED STUDENTS IN A COMMUNITY COLLEGE IN TEXAS

A Dissertation

by

BRENDA JOLIVETTE JONES

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2007

Major Subject: Educational Human Resource Development

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# ABSTRACT

The Relevance of Social Presence on Cognitive and Affective Learning in an Asynchronous Distance Learning Environment as Identified by Selected Students in a Community College in Texas. (December 2007)

Brenda Jolivette Jones, B.B.A., University of Houston – Clear Lake;

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The distance learning environment is one that involves a complex array of factors that influence a learner's perspective of presence, satisfaction, and learning. This study was designed to investigate Lee College freshmen and sophomore students' perceptions of social presence. The purpose of the study was to (a) determine whether or not differences in perceptions of social presence exist among participants who differ in gender, age, and total level of education and (b) investigate whether or not there was a relationship between the participants' perceptions of social presence and their online course activities in WEBCT®. This study was conducted using a questionnaire. The data were collected from a convenience sample of 252 freshmen and sophomore level students at Lee College in Baytown, Texas. A response rate of 62% resulted in a final sample of 156.

The content validity of the questionnaire was established via expert opinion, and the internal consistency and reliability of the instrument was calculated using Cronbach's α. Data screening techniques were employed as the first step in the data

analysis process. Frequency counts, central tendencies, and standard deviations were used in the descriptive analysis of the data obtained via the questionnaire. Correlations and one-way ANOVAS were employed to answer research question 1 regarding the participants' perceptions of social presence and their personal characteristics (i.e., gender, age, and their total number of college credits earned). Six conclusions were generated regarding the participants' perceptions of social presence and their gender, age, and total number of college credits earned.

Principal factor analysis with Varimax rotation revealed six constructs for research question 2 regarding the online course activities in WEBCT®. Differences in the participants' perceptions of social presence in the six constructs for the online course activities in WEBCT® were obtained. A stepwise regression analysis was conducted to obtain additional information regarding the amount of explained variance added by each of the respective predictors. Cronbach's alpha was used to assess reliability of the data. Twelve conclusions were generated for research question 2 regarding the participants' perceptions of social presence and the online course activities. Specific human resource development practices were suggested.

## DEDICATION

First and foremost, I give thanks to my Lord and Savior Jesus Christ for giving me the strength and courage to see this through to the end.

To John, my loving husband, your unconditional love has been the driving force in all that I do. Thank you for all of your loving support, confidence, encouragement, understanding, and constant prayers. It is from you I draw my strength and determination. You have kept me sane and focused. You were always there with a shoulder to lean on when stress started to creep in, or tie the knot back in my rope when it started to become unraveled. You are truly the rock that I cling to in a storm.

To my daughter Brandy and my son Brian, thank you for always being there to proofread and critique my work. Thanks for keeping me lifted up in prayer. To my son Darrell and my daughter Alina, your love, support, and encouragement are greatly appreciated. To my parents, Gloria and Cleveland Bourgeois, thank you for always being willing to help in any way you could. I love you both. Thanks for your constant prayers and faith in my ability to succeed. Last, but not least, to my students and TA's, thank you for your constant and never-ending words of support and encouragement.

## ACKNOWLEDGEMENTS

The educational journey I embarked on when starting this work has now come to an end. As I am writing these words, I am reminded that this is both an exhilarating and agonizing period in my life. I would like to thank a few generous people who helped me to complete my journey and to make this dissertation possible.

First and foremost, I would like to give all praises and honor to Almighty God for giving me the strength to get through my program.

In addition, I would like to extend a very special thank you to my chair, Toby Marshall Egan, for his support and confidence in me and my work. Toby, I will be forever grateful for the advice, conversations, guidance, and encouragement that you gave me throughout this process.

My second committee member, Susan Lynham, has kept me firmly grounded during my "journey." Sue, I will be forever grateful for your guidance, encouragement, and attention to detail.

Many thanks also go to Dr. James Lindner for agreeing to be on my committee. I will be forever grateful for the time and attention you gave to my study.

To Dr. Anthony Rolle, my final committee member, thank you so much for stepping in and becoming a part of my committee. I am grateful for the time that you invested into my educational journey.

Thank you to Dr. Martha Ellis, President of Lee College, and all of the Lee College students and Business and Management faculty members who took part in my study.

Finally, a special thanks to Dr. Lila Carden and Marilyn Oliva for their commitment and dedication to my study.

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# CHAPTER I

# INTRODUCTION

## Overview of the Study

The members of the educational community have found themselves on the cutting edge of a new era of online learning (Richardson & Swan, 2003). The evolution in higher education from traditional to computer-mediated education has created both challenges and opportunities for educators and researchers (Hostetter, 2003). Primary among these challenges is how to meet "the expectations and needs of both instructor and the student and how to design online courses so they provide a satisfying and effective learning environment" (Johnson, Aragon, Shaik, & Palma-Rivas, 2000, p. 31). The environment in which learning takes place, whether online or in person, involves a complex array of factors that influence learner satisfaction, academic achievement, and retention of knowledge (Stein & Wanstreet, 2003). When considering the challenge of the effectiveness of online learning in comparison to traditional classroom learning, researchers have to ask themselves if it is really the physical presence of the instructor and the students who is the essential element of learning (Richardson & Swan, 2003).

Turkle (1995) reported that traditionally, in the field of education, the learning process generally "proceeds as knowledge building among teachers and students" and interactions generally took place when the student and teacher were in the same location at the same time (p. 342). During the last decade, the Internet has significantly changed

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The style and format of this study follow that of *Advances in Developing Human Resources*.

the way learning is delivered and facilitated in both educational and non-educational settings (Aragon, 2003). Bibeau (2001) concluded that teaching and learning functions are inherently social endeavors. This concept initially started with Short, Williams, and Christie in 1976, who represented the first scholars to introduce the concept of social presence. Short et al. (1976) based their initial research on previous research that addressed one-to-one interpersonal communication. In an attempt to obtain a better understanding of social presence, Short et al. (1976) investigated, compared, and evaluated the effects of social interaction via various types of communication media.

In addition, Short et al. (1976) defined social presence as "a quality of the medium itself" and conceived the theory of social presence which they define as the "the degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships" (p. 65). Gunawardena and Zittle (1997) noted that the act of connecting with others in a new social situation enables us to create social presence or a degree of interpersonal contact. Finally, Richardson and Swan (2003) reported that online learning allows students to participate in the learning process regardless of geographic location, independent of time and place with no need to meet face-to-face in order to complete a course.

Bullen (1998) determined that some students feel disconnected in an online learning environment, citing the lack of facial expressions and other features common to a face-to-face classroom setting (i.e., interaction among participants) as the source of their disconnect. Vygotsky (1978) and Sharan (1980) concluded that interaction among participants is critical in learning and cognitive development. In addition, Picard (1997)

reported that there are numerous studies that support the claim that affective clues generally influence cognitive processes, but are often ignored or misunderstood when determining the role they play in a learner's overall performance or the effectiveness of instruction. According to Russo and Benson (2005), current research has demonstrated that social presence, cognitive learning, and affective learning are all important aspects of the overall learning process that merits further examination. In addition, Russo and Benson (2005) also mentioned that, "more investigation of students' assessment of their own presence and its relationship to course outcomes are in order" (p. 60). Finally, Saenz (2002) stated that "these factors may provide insightful information to instructional designers and distance educators" during the design and development of future asynchronous distance learning courses (p. 1).

Vygotsky (1978) and Sharan (1980) found that the relevancy between social presence and cognitive and affective learning in an asynchronous learning environment has gone unexplored by researchers, thereby providing opportunities for HRD professionals to develop new insights in this area. In addition, Picard (1997) determined that there are numerous studies that support the claim that affective cues generally influence cognitive processes, but are often ignored or misunderstood when determining the role they play in a learner's overall performance.

Gunawardena (1995) indicated that from a HRD perspective, this research will lead to the training and development of course instructors in methods that allow them to project positive social presence/immediacy behaviors as well as to incorporate social presence among the participants in their courses. Finally, Richardson and Swan (2003)

stated that similar research has had “immediate implications that extend into the realms of both research and practice” (p. 81). The following section provides a statement regarding the problems faced by many institutions regarding the lack of research on social presence, as it relates to cognitive and affective learning.

## Statement of the Problem

The continuous growth of online course offerings has evoked a great deal of discussion about the effectiveness of distance learning environments as well as the effectiveness of the design, development, and implementation of these online courses. Many colleges, universities, and human resource development (HRD) professionals are having difficulties acquiring a better understanding of how to effectively design, develop and implement online courses that provide opportunities to positively establish a relationship between social presence and cognitive and affective learning in a distance learning environment. As a result of this issue, there is a need for a research study to be conducted that can determine the following: (a) the extent that a component such as perception of presence or the lack of presence can affect a student’s overall success in an online course, (b) the level of comprehension and retention of knowledge (i.e., learning) a student might obtain by participating in an online course, and (c) the overall level of satisfaction a student might experience by taking an online course.

LaRose and Whitten (2000) noted that the degree of presence students perceive in online interaction with an instructor and/or other students is arguably an important factor in student satisfaction and completion rates. In addition, Russo and Benson (2005) stated:

> Given the concerns of teachers, administrators, and students about the efficacy of online education, it is appropriate to examine the outcome variables, in particular affective and cognitive learning, in light of the exigencies and characteristics of the asynchronous online learning environment. (p. 55)

Finally, the limited amount of empirical research in the area of social presence and its relationship to cognitive and affective learning assessment in a distance learning environment makes this study one of particular importance to the literature. The following section provides a detailed description of the overall purpose of this study.

## Purpose of the Study

The purpose of this study was to examine the relevance of social presence (i.e., the dependent variable) to cognitive and affective learning (i.e., independent variables) in an asynchronous distance learning environment. Social presence has been characterized as an important construct in distance learning (McIsaac & Gunawardena, 1996). In addition, Saenz (2002) indicated that there are few studies in the "existing research field that describes the value adult learners place on social presence and whether it affects learner's satisfaction within a mediated learning environment" (p. 45). Therefore, the present study was undertaken to examine adult learner's perceived value of social presence as it relates to their comprehension and retention of knowledge (i.e., cognitive learning) as well as their overall perceived satisfaction (i.e., affective learning) with their online distance education course. Table 1.1 is used to illustrate social presence and the indicator statements associated with it and documentation of research support (i.e., information regarding the originator of the indicator statement) associated with determining level of social presence.

Table 1.1. Indicator Statements Associated With Social Presence

| Dependent Variable | Statements Associated With Social Presence | Author(s) and Year |
|---|---|---|
| Social Presence | "Sense of being perceived as real when participating in a computer-mediated environment" (p. 653). | Jacobson, 2001 |
| | "Many difference variables are cited in the literature that may contribute to the degree of social presence, such as the recipients, topics, privacy, and tasks" (p. 34). | Tu, 2002a |
| | The genealogy of the construct social presence can be traced back to Mehrabian's (1969) concept of immediacy, which he defined as "those communication behaviors that enhance closeness to and nonverbal interaction with another" (p. 203). | Mehrabian, 1969 |

Table 1.2 is used to illustrate the indicator statements associated with cognitive learning, documentation of research support (i.e., information regarding the originator of the indicator statement), and research question(s) associated with determining level of cognitive learning.

Table 1.2. Indicator Statements Associated With Cognitive Learning

| Independent Variable | Statements Associated With Cognitive Learning | Author(s) and Year |
|---|---|---|
| Cognitive Learning | "Knowledge structures as the development of intellectual skills that includes the recognition of specific facts, procedural patterns, and concepts which serve in the development of abilities and skills" (p. 16). | Bloom, 1956 |
| | Learner's overall "comprehension and retention of knowledge" (p. 328). | Christophel, 1990 |
| | "How a person perceives, thinks, and gains an understanding of his or her world through the interaction and influence of genetic and learned factors" (p. 32). | Plotnik, 1999 |
| | "Activities that include thinking, memory, language, evaluating and anticipating consequence" (p. 10). | Malone, 2002 |

Table 1.3 is used to illustrate the independent variable, affective learning, as well as indicator statements associated with affective learning, documentation of research support (i.e., information regarding the originator of the indicator statement), and research question(s) associated with determining level of affective learning.

Table 1.3. Indicator Statements Associated With Affective Learning

| Independent Variable | Statements Associated With Affective Learning | Author(s) and Year |
|---|---|---|
| Affective Learning | "Includes the manner in which we deal with things emotionally, such as feelings, appreciation, enthusiasms, motivations, and attitudes, use of humor, self disclosure" (p. 18). | Bloom, 1956 |
| | "Affective learning represents the attitudes students develop about the course, the topic, and the instructor" (p. 55). | Russo & Benson, 2005 |
| | Concerned with "perception of value issues, and ranges from mere awareness receiving), through to being able to distinguish implicit values through analysis" (p. 26). | Krathwohl, Bloom, & Masia, 1964 |
| | "Involves attitudes, motivation, values, expression of opinions and beliefs" (p. 64). | Smith & Ragan, 1999 |

Finally, Russo and Benson (2005) stated that "as increasing numbers of college-level courses are developed for delivery via the World Wide Web, pressure grows to identify components of online learning environments that contribute to or support learning" (p. 54). The following research questions were used to guide this study.

## Research Questions

As the Internet continues to grow popular, so does the potential for distance online learning. According to Clark (1983), there should be no significant differences expected regarding the effectiveness of well-designed online learning compared with well-designed in-person learning; however, despite this, significant differences still exist in the way students perceive their online distance learning experiences. Several variables

were examined in an attempt to provide information that could assist individuals in obtaining a better understanding of what could potentially cause differences in outcomes (i.e., overall learning outcomes, overall satisfaction outcomes and overall perception of social presence) for online distance learners. Muilenburg and Berge (2005) mentioned that "previous studies have found significant differences in learning, attitudes, motivation, or experiences based on gender" (p. 32). In addition, Rekkedal (1983) indicated that "previous studies have found significant differences in age" (p. 22). Finally, Muilenburg and Berge (2005) conducted a study in which they explored personal characteristics, in particular "the number of online courses completed" (p. 31).

The following personal characteristics of gender, age, and total number of college credit hours earned, were examined to determine if these variables could potentially be viewed as barriers that might affect the learning outcomes for students. The Statistical Package for the Social Sciences (SPSS 13) was used to calculate correlations between the participants' overall perceived presence and the personal characteristics of gender, age, and the participants' total number of college credits earned. The results of these correlations were used to determine if there was a relationship between the participants' overall perceptions of social presence and the personal characteristics. The following research question was specifically used to guide this phase of the study:

*Research Question 1*

What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the

following independent variables (i.e., personal characteristics of gender, age, and the total number of college credits earned)?

In addition, the relationship between participants' overall perceived social presence and various course activities (i.e., meet your classmates/introductions in WEBCT®, WEBCT® class discussions/reflections and answers, written assignments, individual projects, and group projects) were examined. According to Shin (2002), researchers sometimes "seek for other factors that might affect the degree of social presence, but often their main interest is describing the dynamics through which media users construct their own subjective perceptions of other people's presence" (p. 126). In addition, Plotnick (1999) determined that cognitive development refers to "the way an individual might perceive, think, and gain an understanding of his or her world through the interaction and influence of learned factors" for example through activities incorporated into the online course (p. 32). Finally, Shin (2002) stated that "social presence is a strong predictor of distance student satisfaction" (i.e., with course and the course activities, instructors and overall learning) (p. 127). The following research question was specifically used to guide this phase of the study:

*Research Question 2*

What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the following types of course activities that serve as independent variables: (a) meet your classmates/introductions in WEBCT®, (b) WEBCT® class discussion/reflections and answers, (c) written assignments, (d) individual projects, and (e) group projects?

Effectively addressing research questions is important, but it is equally important to have a clear understanding of what various terminologies or variables refer. The following section is used to provide a detailed description for each of the above-mentioned variables.

## Operational Definitions

This study required the examination of the following terms that might have influenced the relationship between the participants' overall perception of social presence and the asynchronous distance learning environment.

*Affective Learning* – Bloom (1956) indicated that the affective domain "includes the manner in which we deal with things emotionally, such as feelings, appreciation, enthusiasms, motivations, and attitudes" (p. 18). In addition, Krathwohl et al. (1964) stated that the affective domain was "concerned with perception of value issues, and ranges from mere awareness (receiving), through to being able to distinguish implicit values through analysis" (p. 26). The next operational definition that the researcher examined was the asynchronous distance learning environment.

*Asynchronous Distance Learning Environment* – According to Cohen (1999), "distance learning began as correspondence learning and has evolved from the use of primary print-based material into a worldwide movement using various technologies" (p. 218). Rourke, Anderson, Garrison, and Archer (1999) indicated that asynchronous learning environments negate the need for communication to occur simultaneously and allow correspondence with students and teachers to

occur at different times and places. The next operational definition that the researcher examined was cognitive learning.

*Cognitive Learning* – Bloom (1956) stated that cognitive refers to "knowledge structures as the development of intellectual skills that includes the recognition of specific facts, procedural patterns, and concepts which serve in the development of abilities and skills" (p. 16). Finally, Plotnik (1999) found that cognitive learning refers to "how a person perceives, thinks, and gains an understanding of his or her world through the interaction and influence of genetic and learned factors" (p. 32). The next operational definition that the researcher examined was community colleges in Texas.

*Community Colleges in Texas* – For the purpose of this study, the term community college is used to specifically refer to Lee College in Baytown, Texas. Established in 1934, Lee College is a state-affiliated locally controlled community college that is located in Harris County and, more specifically, in Baytown, Texas. The highest degree offering for Lee College is a two-year associate degree. Lee College operates on a semester calendar system and as of May 2005 Spring semester, below are demographic logistics for the college.

- Enrollment was 6304 students and the ethnic breakdown for the campus was as follows: 54% Caucasian, 18.6% African American, 22.8% Hispanic, 1.5% Asian/Pacific Islander, 0.2% American Indian/Alaskan, 1.5% International, and 1.4% other/or not reported.

- The gender breakdown is as follows: 62.4 female and 37.6 male with 1.1% of the students under the age of 18, 53% between the ages of 18-25, 34.8% between the ages of 26-41, and 11.1% were 42 years of age or older.
- 60.7% were freshman students, 28.4 were sophomores, and 4.4% were unclassified.
- 63.2% were part-time students and 36.8% were full-time students.

Lee College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). Under the supervision of SACS, Lee College is authorized to award the Associate of Arts Degree, the Associate of Science Degree, and the Associate of Applied Science Degree. Lee College is also accredited by the Texas Higher Education Coordinating Board and the Texas Education Agency. This information is based on data retrieved for the Lee College Website (Lee College, n.d.). The next operational definition that the researcher examined was relevance.

*Relevance* – According to Lunsford (1995), relevance is defined as "those outcomes of our work with clear value to society" (p. 9). In addition, Schutz (1970) defined the following three basic and interdependent types of relevance:

> (a) "topical relevance which refers to the perception of something being problematic, what is separated from the horizon to form a theme, (b) interpretational relevance which involves the horizon, the stock of knowledge at hand, past experiences and the like, in grasping the meaning and to which the topical theme may be compared, and (c) motivational relevance which involves selection regarding which course of action to take" (p. 4).

The next operational definition that the researcher examined was social presence.

*Social Presence* – The term social presence refers to "the degree of person-to-person awareness that occurs in a mediated environment" (Tu, 2002b, p. 34). Gunawardena and Zittle (1997) determined that the act of connecting with others in a new social situation enables us to create social presence or a degree of interpersonal contact. In an attempt to clarify what social presence entails, consider the following scenario: Think about all of the new faces that surrounded you the last time you started a new job, or attended a new training seminar. Initially in these situations, you were possibly unfamiliar with proper protocol, which may have caused you to experience a degree of uneasiness, anxiousness, loneliness, anxiety, or maybe even slight depression. Now think about the ways that you might have eased your level of uneasiness and anxiety: Did you initiate a conversation with someone, or did someone initiate a conversation with you? Did you look for a familiar face or did you look for individuals who might have the same type of job that you had? Whatever approach you decided to take, you probably began to feel more comfortable with your new social surroundings in a short period of time. As you became more comfortable, you probably started to communicate more easily with those around you. By connecting and communicating more easily with others in your new social environment you were able to create a degree of interpersonal contact or "social presence" with these individuals.

## Significance of the Study

In addition to opportunities being sought to acquire a better understanding of the relationship between social presence and cognitive and affective learning in an asynchronous distance learning environment, opportunities to enhance or provide new knowledge for the field of human resource development (HRD) were also investigated. According to Rourke and Anderson (2002) "the social presence concept in particular and the broad area of social interaction in general are currently receiving much attention in the educational literature: therefore, sound measures of investigation are becoming increasingly important" (p. 9). In addition**,** Russo and Benson (2005) reported that that "it is increasingly clear that the degree to which online students feel that they are engaged with others influences classroom outcomes, and refinement of our understanding of both process and product of online presence is in order" (pp. 60-61). As more colleges and universities are faced with the challenges of technological advances, it is important to have a clear understanding of the complex array of factors that influences a learner's perspective of achievement, satisfaction, and retention of knowledge. Therefore, the purpose of this study was to examine the relevance of social presence on cognitive learning and affective learning, and to utilize the outcomes to determine the most effective way to maximize this newly developed knowledge and provide course designers or developers with opportunities to optimize the potential of the learning environment as well as add new knowledge to the field of HRD regarding an individual's perception of social presence as it relates to cognitive and affective

learning. The following section is used to provide a detailed overview of the assumptions that were made regarding this study.

## Assumptions

The following assumptions were made regarding this study and the approach to this study:

1. Consent to participate in the research study was assumed by the return of the completed Section One portion of the survey instrument.
2. Participants who were surveyed understood the scope of the study, understood the language of the instrument, were competent in self-reporting, and they would respond objectively and honestly.
3. Participants who were surveyed would have some degree of proficiency in computer operations and interpretation of the data would accurately reflect the intent of the respondent.
4. Methodology proposed and described would offer a logical and appropriate design for this particular research study.

The assumptions were disclosed in an attempt to make explicit the known assumptions that could potentially be considered underlying factors in this study. This was considered to be reasonable and necessary in an attempt to reduce the potential perception that the participants might operate under the halo effect (i.e., saying what the researcher wants to hear rather than what they really feel). The following section provides a detailed overview of the limitations that were associated with this study.

## Limitations

The following limitations applied to this study:

1. This study was limited to the selected community college (i.e., Lee College in Baytown, Texas) that is located within the State of Texas.
2. This study was limited to the information acquired from the literature review and survey instruments, and findings may be generalized only to the community college (i.e., Lee College in Baytown, Texas) within the State of Texas.

## Ethical Considerations

The following ethical consideration applied to this study:

1. This research study has been reviewed and approved by the Institutional Review Board – Human Subjects in Research, Texas A&M University.
2. All records will be held confidentially and participants' identities will always remain confidential.

## Overview of Remaining Chapters

This section outlines the remaining chapters. A literature review that encompasses previous research and relevant literature related to social presence, the cognitive learning domain, the affective learning domain, and the distance learning environment is provided in Chapter II.

The following research methodology is outlined in Chapter III:

1. A detailed description of the type of sampling and a timeline for the study (i.e., Fall – August through December 2006).

2. A description of the college setting and the participating departments from Lee College in Baytown, Texas.
3. The sample calculation procedures and the sample calculation formula.
4. Explanation of additional criteria (i.e., confidence interval, estimated population total, estimated sampling total and alpha level).
5. Procedure for selecting the convenience sample.
6. Information describing the instrumentation and plans for the data analysis procedures.

The data obtained and the findings from the analysis of the survey data are presented in Chapter IV. A summary of the study, discussions of the findings, conclusions of this research, and recommendations for future research are provided in Chapter V.

# CHAPTER II

# REVIEW OF LITERATURE

## Introduction

With the evolution of distance education, colleges and universities have found themselves on the cutting edge of an unprecedented new era in online learning. According to Daniel (1996), distance education is one of the fastest growing areas of education today. Birnbaum (2001) indicated that "the distance education environment uses three current and popular forms of media: (a) broadcast television, (b) two-way videoconferencing, and (c) asynchronous learning networks" (p. 4). As a result of these innovative forms of media, communication has been transformed, and learners now have the ability to access a learning environment anytime, anywhere, at their own pace.

According to Kruse (2001), "college and university faculty members may elect to use one of the following two communication modes: (a) *synchronous* or (b) *asynchronous*" (p. 5). In addition, Kruse (2001) stated that "*synchronous* involves interacting with an instructor via the Web in real time and literally means *at the same time*" (p. 5). Finally, Kruse (2001) stated that *asynchronous* "allows the student to complete the Web-based training on his own time and schedule, without live interaction with the instructor, and literally means *not at the same time*" (p. 5). Terrell (2005) stated that "the majority of faculty members choose an asynchronous approach" (p. 1). In addition, Passerini and Granger (2000) concluded that the preference to utilize the asynchronous mode of communication reflects the trend in distance education programs today. Finally, in addition to recent technological innovations being implemented in

distance learning environments, Wheeler (2005) indicated that “social presence is a vitally important component of any learning situation, and doubly so in electronically mediated contexts” (p. 1).

This literature review examined the role of social presence and its relevancy to cognitive and affective learning in an asynchronous distance learning environment. The purpose of this literature search was to identify any existing sources of information (i.e., journal articles, books, and electronic articles) that were most relevant to this study. Findings from prior studies outlining the relationships between student perceptions of self and the influence of these perceptions on cognitive and affective learning outcomes is highlighted and implications for the roles of social presence, cognitive learning, and affective learning are discussed. Recommendations and suggestions for future research on social presence as identified by key authors are summarized, and contributions to new knowledge in human resource development (HRD) are provided. Finally, the following variables were examined:

1. What types of research designs have other researchers used in prior studies?
2. What hypotheses have been tested in prior research studies?
3. What research had already been conducted that is relevant to this study’s research questions?
4. How were the participants tested (i.e., what instruments were utilized) in these previous research studies?
5. What were some of the strengths and weaknesses of prior instruments used?
6. What participant populations have been studied in prior research studies?

7. How previous researchers defined the variables that they utilized in their studies?
8. What theories have guided the research that has already been conducted?
9. What were some of the key findings and limitations for prior research studies conducted?
10. What were some of the methodologies/methods utilized in prior studies conducted?
11. What recommendations have been made for future research?

This literature review was conducted using the academic search premiere EBSCOhost database and the ERIC database to search for key journals related to social presence, cognitive learning, and affective learning in an asynchronous distance learning environment. The academic discipline that was used to conduct the search was education. The word AND was selected to assist in narrowing the search results in both databases. The EBSCOhost database was used as the primary key search resource. According to the EBSCOhost Website, the date range for this database is 1975; it covers a wide range of academic subjects, bibliographic citations, abstracts, and features full text for selected journals and indexing for over 3,600 scholarly journals. In addition, according to the EBSCOhost Website, the subject coverage for this database encompasses subjects such as Asian American studies, communication, composition, electronic journals, general indexes (for all subjects), and multidisciplinary databases (for all subjects).

The ERIC database was used as a secondary key search resource to locate any potential journal articles not contained in the EBSCOhost database search results. In both databases (EBSCOhost and ERIC), the search parameters were defined as the descriptors or keywords that were used, such as social presence, affective learning, cognitive learning, and asynchronous distance learning. In addition, only scholarly (peer reviewed) journals with full text and citations were requested. The search was conducted on May 29, 2006 and the EBSCOhost database search resulted in the following: (a) a total of 11 articles were found when social presence was specified as the single parameter and (b) a total of 104 articles were found when social presence, affective learning, and cognitive learning in an asynchronous distance learning environment were specified as the search parameter.

A grand total of 115 journal articles were found utilizing the EBSCOhost database. When the search was conducted on May 29, 2006 using the ERIC database, the following journal articles were found: (a) a total of five articles were located using the search parameters social presence and asynchronous distance learning and (b) a total of five journal articles were found using the search parameters social presence, cognitive learning, and affective learning. A grand total of 10 journal articles were located utilizing the ERIC database. Overall a total of 125 (i.e., 115 from EBSCOhost and 10 from ERIC database) scholarly, full text (with citations) peer review journal articles were found. Of the 125 journal articles found, a total of 22 articles regarding social presence, distance learning, cognitive learning, and affective learning were relevant to this study.

The following systematic process was adhered to during the review and selection of journal articles that were considered relevant to this study:

1. First, the titles for each of the 125 scholarly journal articles were reviewed for replication in the databases. Once replications were determined and noted, the journal articles were examined to determine potential relevance to this study. If the title of the journal article appeared to be potentially relevant, the abstract was examined.
2. After reviewing the journal article abstract, it was determined whether that the article could potentially be relevant to the study. If the article was determined to be relevant, it was printed in its entirety along with a copy of the page from the EBSCOhost and/or ERIC Webpage to serve as a cover sheet for organization purposes.
3. The printed potentially relevant journal articles were then organized and categorized based on the overall subject matter of the article (i.e., social presence, social presence and asynchronous distance learning, social presence and cognitive and affective learning).
4. Once all potentially relevant articles were printed and categorized, the articles were reviewed in their entirety to develop a chronological table outlining the study's methodology/methods used, the author(s) and year, the participants, and the key findings, limitations, and any recommended future research indicated in the study.

The following electronic journals that were accessed to obtain the 22 relevant articles were *Human Communication Research, International Journal of Educational Telecommunications, The American Journal of Distance Education, Journal of Personality and Social Psychology, Journal of Network and Computer Applications, MIS Quarterly, Journal of Information Systems Education, Open Learning, e-Service Journal, Education and Information Technologies, International Journal on E-Learning, Elements of Quality Online Education, Journal of Asynchronous Learning Networks, Journal of Educational Computing Research, Cyber Psychology & Behavior, Distance Education, British Journal of Educational Technology, Tele-operators and Virtual Environments, Journal of Information Systems Education, Journal of Educational Computing Research, Educational Technology & Society and Behavior, and Information Technology* .

Additional sources were obtained via Websites for the TAFE Conference, Queensland, Australia, Midwest Research to Practice Conference in Adult Continuing and Community Education, the International Presence Workshop, Proceedings of the 3rd International Conference on Technology in Teaching and Learning in Higher Education, Proceedings of the 5th International Conference on Information Communication Technologies in Education 2004, Proceedings of 2004 AARE Conference, Presence and Proceedings of Winter International Symposium on Information and Communication Technologies. The following section of this literature review is used to illustrate an overview of a chronological bibliographic entry for each of 22 articles that were selected for further review to determine relevance for this study.

## Prior Research Studies Conducted on Social Presence

According to Richardson and Swan (2003), "there is a limited amount of empirical research in the area of social presence, a limited amount of empirical research in the area of online learning, and a lack of empirical research in the area of social presence related to online learning" (p. 18). Due to the lack of research on social presence as it relates to online learning, this literature review focused strictly on those studies that were directly related to the specific factors relative to this study (i.e., social presence, cognitive learning, and affective learning in a distance learning environment). Table 2.1 contains an overview of prior studies conducted on social presence along with the methodology/methods, article summary, key findings, and limitations for each article that was examined for relevancy to this study.

Table 2.1. Overview of Prior Studies Conducted on Social Presence

| Author(s), Year, and Study | |
|---|---|
| **Short, Williams, & Christie, 1976** | *Summary*<br>Short et al. (1976) stated that they believed that "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships is an important hypothetical construct" (p. 65). In addition, Short et al. (1976) also indicated that this "hypothetical construct (i.e., concept) was that the degree of advancement of a participant in an interaction with someone has a direct affect on the degree of advancement of the interpersonal relationship between the two" (p. 65). Short et al. (1976) referred to this quality as social presence theory and that they regarded "*social presence* as a quality of the communication medium" (p. 43). In addition, Short et al. (1976) mentioned that "social presence is an important key to understanding person-to person telecommunications" (p. 65). Finally, Short et al. (1976) stated that "they conceived *social presence* as a single dimension representing the cognitive synthesis of factors (i.e., proximity and non-verbal signals) as they are perceived by the individual to be present in the medium" (p. 65). |

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|
| *Methodology/Method*<br>In an attempt to examine the social presence theory and obtain a better understanding of a telecommunication medium, Short et al. (1976) indicated that "it was important to know how the user perceived the medium, what his feelings were as well as his mental state" (p. 66). Using the above-mentioned criteria as a guideline, Short et al. (1976) attempted to measure the social presence theory by utilizing Osgood, Suci, and Tannenbaum's (1957) semantic differential technique that required "the experimental subjects to rate the communication media on a seven-point, bipolar scale (i.e., impersonal – personal)" (p. 66).<br><br>*Setting*<br>Short et al. (1976) chose to conduct their research on the social presence theory by examining three media settings (i.e., face-to-face, closed circuit television, and an audio system type environment) for managerial civil servants.<br><br>*Participants*<br>The subjects who participated in Short, Williams, and Christie's (1976) study consisted of 72 managerial civil servants.<br><br>*Procedures*<br>In this study, Short et al. (1976) indicated that the 72 managerial civil servants were required to use one of three communications media to discuss decision-making problems and rate the acceptable degree of risk of these items as determined by the subject. In addition, Short et al. (1976) indicated that the three communications media were: (a) face-to-face, (b) closed circuit television, and (c) an audio system. The subjects were divided into pairs and each pair was responsible for conducting a total of three conversations (i.e., one conversation over each media). Upon completion of each conversation, the subjects were asked to rate the medium on a 24 differential scale that was created by Snyder and Wiggins in 1970.<br><br>*Research Question*<br>*H1* Does the perceived level of social presence vary based on the different types of communications media used?<br><br>*Findings*<br>The first factor to be analyzed in this study was a combination of *social presence* and the *aesthetic appeal* that "examined user's attitudes toward different media using the semantic differential technique" (Short et al., 1976, p. 67). The following factors had the highest results:<br><br>Colorless – colorful (0.76)<br>Small – large (0.74)<br>Constricted – spacious (0.68)<br>Boring – interesting (0.63)<br>Ugly – beautiful (0.62).<br><br>According to Short et al. (1976), the following two scales measuring *social presence* had lower ratings:<br>Unsociable – sociable (0.60)<br>Insensitive – sensitive (0.57) | |

Table 2.1. (continued)

| Author(s), Year, and Study |
|---|

Short et al. (1976) found that the "*social presence* factor tends to fuse with the *aesthetic appeal* factor when the range of communications media is limited" as in this study (p. 66). As a result of these findings, Short et al. (1976) concluded that there is some indication that social presence is a good discriminator between communications media; therefore, supporting the hypothesis that social presence varies significantly between different communications media.

*Limitations*
One limitation with this study is the fact that only three different communications media (i.e., face-to-face, closed circuit television, and an audio system) were examined. Another limitation is that no single factor for social presence was isolated

**Gunawardena, 1995**

*Overview*
In this study, the researcher examined the social presence theory and the implications for analyzing interaction, communication, collaborative learning, and the social context of a computer-mediated communication (CMC) learning environment. In addition, *the researcher conducted two studies* (i.e., Spring 1992 and Fall 1993).

*The following Methodology was used in this study:*

*Participants*
The researcher conducted two studies (i.e., the first was conducted in Spring 1992 and the second was conducted in the Fall 1993. The participants in the study were students who participated in the computer conferences. The Spring 1992 GlobalEd conference had 70 participants and the Fall 1993 conference had 90 participants.

In addition, the Spring 1992 GlobalEd conference linked graduate students from four universities: Florida State, the Universities of New Mexico, Oklahoma, Wyoming, U.S.A., and Anadolu University in Turkey. The Fall 1993 GlobalEd conference linked students in seven universities: San Diego State University, Texas A&M University, and the Universities of Oklahoma, New Mexico, Wisconsin-Madison, Wyoming, U.S.A., and Wollongong, Australia. In these studies, the participants were responsible for providing their reactions to the medium of CMC after they had participated in the conferences. In the studies, the researcher assessed students' subjective perceptions of media characteristics and not their performance in using these characteristics.

*Research Questions*
In this study, the researcher attempted to examine the following research question:

Whether social presence could be considered an attribute of the communication medium.
Whether social presence could be considered an attribute of the users' perception of the medium.

*Instrument*
The questionnaire was administered after the participants completed the GlobalEd computer conferences, and the question asked students to indicate their current feelings about CMC. The 17 bipolar scales incorporated into the questionnaire included the following rating scales for the participants to choose from when describing their feelings:

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|
| Stimulating-dull | Personal-impersonal |
| Sociable-unsociable | Sensitive-insensitive |
| Warm-cold | Colorful-colorless |
| Interesting-boring | Appealing-not appealing |
| Interactive-non-interactive | Active-passive |
| Reliable-unreliable | Humanizing-dehumanizing |
| Immediate/non-immediate | Easy-difficult |
| Efficient-inefficient | Unthreatening-threatening |
| Helpful-hindering | |

Finally, the participants were required to rate their responses on a scale of 1-5 with 5 indicating an overall negative reaction to the medium and 1 indicating a very positive reaction.

*Procedures*

The majority of the universities that participated in the GlobalEd conference integrated the GlobalEd program into their face-to-face graduate class on distance education. Two of the institutions (i.e., The University of Wisconsin-Madison and Texas A&M University) chose to integrate GlobalEd into a class taught by distance education technologies. The University of Wisconsin-Madison chose to teach the entire class by utilizing CMC, and Texas A&M University chose to teach the class via a compressed video system.

*Findings*

A qualitative analysis of the University of New Mexico participants' reactions to the 1993 GlobalEd indicated that it was a positive experience for most of them in spite of the technical difficulties they experienced. Based on these findings, the researcher concluded that although CMC is described as a medium that is low in non-verbal cues and social context cues, participants in conferences create social presence by projecting their identities and building online communities.

The researcher determined from the results of the data collected that the distance learners from both Texas A&M University and the University of Wisconsin rated the medium positively. In addition, the researcher also concluded that the students' personal reactions to the medium of CMC from five different universities (i.e., San Diego State, Texas A&M, and the Universities of New Mexico, Wisconsin-Madison, and Wyoming) were very positive. The results were as follows:

CMC was rated highly as an "interactive" medium (mean = 2.0).
CMC was rated "active" (mean=2.07).
CMC was rated "interesting" (mean=2.07).
CMC was rated "sociable" medium (mean=2.18).

Based on these findings, H1 is partially supported, but Gunawardena (1995), who noted that "a relational perspective suggests that functional and social factors should be examined" (p. 164). Finally, the researcher found that the students' perceptions of CMC and the level of social presence suggested that the social and human qualities of the medium will depend on the social presence created by the instructors/moderators and the online community, thus supporting H2.

Table 2.1. (continued)

| Author(s), Year, and Study |
|---|
| *Limitations*<br>The limitation that the researcher found was that the instructors or moderators who were accustomed to relying on nonverbal cues (i.e., a smile, head nod, or hand gestures) to provide feedback, would be at a loss when teaching via channels such as audio teleconferencing and CMC. The researcher based this on the fact that they would not have the ability transmit certain nonverbal cues. |
| **O'Malley & McCraw, 1999** |
| *Overview*<br>The researcher's goal of this study is to obtain a better understanding of students' perceptions of the effectiveness of these two teaching methodologies (i.e., distance and online learning). In addition, this paper investigates dimensions of distance and online learning that the researchers believed were potentially perceived by students as providing advantages over the traditional teaching methodology. |
| *Participants*<br>The researchers administered a survey that consisted of 31 paired items (a total of 62 items) to 128 students at the participating university in a variety of business (i.e., management, accounting, finance, and information systems) courses. The participants ranged from sophomores to graduate students with juniors accounting for 62.5% and seniors representing 29% of the respondents. The remaining 8.5% of the respondents were either sophomores or graduate students. No freshmen filled out the survey, because freshmen generally do not take business courses at the university where the questionnaire was administered. |
| *Research Questions*<br>H1 Do students perceive the online learning environment to be more effective than traditional face-to-face learning environment?<br>H2 Does the online learning environment provide more advantages and opportunities than a traditional learning environment? |
| *Instrument*<br>In addition, the researchers based their instrument on Everett Rogers' (1995) model of the diffusion of innovation. According to O'Malley and McCraw (1999), "Rogers' modeled five stages in the innovation decision process: Knowledge, Persuasion, Decision, Implementation, and Confirmation" (p. 4). The researchers developed their instrument by utilizing the following:<br><br>1. The first two stages of Rogers' model, Knowledge and Persuasion. Rogers' three constructs, prior conditions, characteristics of the decision-making unit, and perceived characteristics of the innovation, to match our research domain.<br><br>2. The researchers referred to their modified constructs as (a) prior educational conditions, (b) characteristics of students, and (c) perceived characteristics of distance and online learning. In addition, each of the constructs consisted of multiple facets. |
| *Findings*<br>The researchers found that the analysis of these 31 paired items demonstrated that for 19 of the pairs, the average answer for OL was significantly (.05 level) different from the average DL answer. In addition, the researchers concluded that the probability of randomly having 19 or more significant differences out of a |

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|

total of 31 paired items equated to approximately 14.05%. Based on these results the researchers determined that students do not perceive that OL and DL are the same. Finally, the researchers concluded that the participants did not seem to prefer OL to traditional courses and they tended to agree that they could learn the same amount in an OL course; therefore, the finding was not significant and *H1 was not supported*

In examining research question 2, the researchers determined that the participants indicated that OL was beneficial. More specifically, the participants indicated that most of the relative advantage of OL appeared in the following ways: (a) saving time, (b) scheduling, and (c) ability to take more courses. Based on these results, the researchers concluded that students perceived the OL learning environment to provide a significant relative advantage over that of traditional methodologies. Based on these findings, the researchers concluded that *H2 was supported.*

*Limitations*
The first limitation of this study is that the researchers only surveyed students who were enrolled in business courses at one university. As a result, the findings cannot be generalized to non-business students, nor can they be generalized to students at other universities.

**Yoo & Alavi, 2001**

*Overview*
In this study, the researchers examined the following:

The relative influences of media condition and group cohesion on social presence, task participation, and group consensus (i.e., member's attraction to the group). In addition, the researchers examined how both social presence and task participation influence the degree of consensus among group members in a decision-making task.

*Design of Study*
The researchers used a between subjects design to test their research model and hypotheses. They conducted a laboratory experiment in which they manipulated media (audio conferencing vs. desktop videoconferencing) in two different group history environments (zero-history vs. established).

*Participants*
The participants for this study were recruited from an undergraduate introductory computer literacy course at a business school at a large state university in the United States. These participants consisted of a total of 45 triads or 135 individuals (45 x 3).

This total of 45 triads consisted of 24 audio conferencing and 21 desktop videoconferencing participants; 24 zero-history and 21 established participants; and 24 video conferencing and 21 desktop videoconferencing participants. Among the 135 participants, 51% were female, and the average age was 21 years. No participant had used desktop videoconferencing prior to the experiment.

*Research Questions*
In this study, the researchers hypothesize the following:
*H1*: In a zero-history group condition, a video channel will increase the degrees of social presence perceived by the group members.

Table 2.1. (continued)

| Author(s), Year, and Study |
|---|
| *H2*: In a zero-history group condition, a video channel will lower the degrees of task participation of group members. |
| *Regarding the Social Construction Perspective and Group Cohesion, the researchers hypothesize the following*: |
| *H3*: In an established group condition, group cohesion will increase the degrees of social presence perceived by the group members.<br>*H4:* In an established group condition, group cohesion will increase the degrees of task participation of group members.<br>*H5:* In an established group condition, the influence of group cohesion on social presence and task participation will be larger than that of media condition.<br>*H6:* The direct influence of media condition on social influence and task participation will be lower in the established group condition than in the zero-history group condition. |
| The researchers suggested that for established groups, group cohesion will have a greater influence on social presence and task participation than media condition would and that social presence and task participation will positively influence task outcomes. Finally, they suggested that a high level of task participation enhances group consensus and as a result, the researchers hypothesized the following: |
| *H7*: A high degree of social presence will improve group consensus.<br>*H8*: A high degree of task participation by group members will improve group consensus |
| Based on the fact that zero-history groups have no prior foundation for forming group cohesion, the researchers decided that they would not include group cohesion in the model for zero-history groups. |
| *The following variables were identified as independent variables:* |
| *Group Cohesion*<br>Individuals were recruited from different sections of the same course to participate in either the Zero-history group or the established groups. Individuals participating in the Zero-history group had the opportunity to be scheduled individually and meet their teammates when they came to the experimental session. With this group, all experiments were scheduled to be completed prior to the midterm of the semester. Individuals participating in the established group condition were asked to form a group of three at the beginning of the semester for a semester-long project. These individuals were required to complete two computer-programming projects as a group prior to being able to participate in the experiment that was scheduled to start after the midterm of the semester. The individuals in the established group worked together for approximately 32.6 hours, while individuals in the zero-history group condition worked together for fewer than 0.05 hours ($p < 0.001$). |
| *Instrument*<br>The researchers used Evans and Jarvis' (1986) Group Attitude Scale (GAS) (which was administered immediately at the end of the semester) to measure the degree of affective group cohesion that was present with each group. The Group Attitude Scale (GAS) consists of 20 items that are assessed on a nine-point scale where 1 = strongly disagree and 9 = strongly agree. With the GAS, the higher scores indicate a higher degree of attraction to the group. The final independent variable that was examined was media |

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|

conditions. Under this independent variable, individuals were randomly assigned to two different groups (i.e., audio conferencing treatment group, desktop videoconferencing treatment group). Participants who were members of the audio conferencing treatment were centrally located in three individually separate rooms that consisted of three-way conference calling and computer application-sharing capability.

*The Mediating Variables that were examined in this study were as follows*:
Social Presence was measured using the original measure developed and tested by Short et al. (1976). In addition, four items were measured immediately after the session, using a seven-point semantic anchoring scale whereby a higher score indicated a communication interaction with a higher degree of social presence. The final Mediating variable that was examined was Task participation. This variable utilized a five-point Likert-type scale instruments. This instrument measured on a scale where 5 indicated the highest score and the highest degree of participation in the task process. The instrument was developed and tested by Green and Taber in 1980.

*The Dependent Variables that were examined in this study were as follows:*
The researchers attempted to determine whether a substantial amount of convergence was present between the participants in each group on all areas of perception that were measured. The researchers used an inter-rater reliability coefficient (James coefficient) to examine the intra-group reliability of responses (James, Demaree, & Wolf, 1984). On an average, the intra-group reliability scores ranged from 0.74 to 0.86 for the perceptual variables used in this particular study. The results indicated that there was indeed a substantial convergence between participants in each group, based on the measures that were performed by the researchers. The researchers tested their model by running Partial Least Squares (PLS) twice. The results are presented in two stages: tests of the measurement models and tests of the structural models.

Under the tests of the measurement models, the researchers examined the following three things:

Internal consistency (which was examined using the composite scale reliability index with a criterion cut-off of .7 or higher was recommended and the researchers concluded from the results of this test that all constructs met the recommended criterion for both models (i.e., tests of the measurement models and tests of the structural models).

Discriminant validity was used to determine the average variance shared between a construct and its measures). The researchers concluded both the tests of the measurement models and tests of the structural models met the criteria.

Individual item reliability was assessed by examining the loadings of the measures on their corresponding constructs.

*Research Questions*
To answer research question *H1* and *H2*, the researchers hypothesized that in the zero-history group condition, a video channel would increase social presence and lower task participation. The results indicated that desktop videoconferencing increased the scores of social presence measure by 46% and reduced the scores of task participation measure by 62%. Therefore, *H1* and *H2* were supported based on the above-mentioned findings

Table 2.1. (continued)

| Author(s), Year, and Study | |
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To answer research question *H3* and *H4*, the researchers hypothesized that in the established group condition, the group cohesion would increase in both social presence and task participation. They indicated that the group cohesion has a significant effect on both social presence and task participation. Therefore, *H3* and *H4* were supported based on the above-mentioned findings.

To answer research question *H5*, the researchers hypothesized that in the *established group* condition, the group cohesion would influence social presence and task participation would influence of media condition. According to the *established group* condition results, which support *H5*, (i.e., social presence ($t = 3.397$, $p < 0.001$) and task participation ($t = 3.875$, $p < 0.001$), group cohesion had a greater influence than media condition. Therefore, *H5* was supported based on the above-mentioned findings.

To answer research question *H6*, the researchers hypothesized that in the established group condition, direct influences of media condition on social presence and task participation would be diminished statistically in this group as opposed to that of the zero-history group condition. The researchers found that the established group condition experienced significantly lower influence of media condition on task participation than the *zero-history* group condition with scores of $t = -2.388$, $p < 0.05$, making H6 a partially supported research question.

To answer research questions *H7* and *H8*, the researchers hypothesized that groups would achieve high degrees of consensus among its members when high degrees of social presence and task participation were present. The researchers also found that task participation actually improved group consensus, but the social presence results indicated no significance. Based on the results, the researchers concluded that *H7* is not supported, and *H8* is supported only in the *established group* condition.

*Limitations*
Due to the nature of the environment in which the study was conducted (i.e., a somewhat controlled laboratory type), the ability to generalize the results were limited. The next limitation is the fact that in this initial study, some of the variables (i.e., the role of group cohesion in relation to social presence and task outcomes) were tested in single sessions rather than replications. The third limitation for this study is the fact that the participants spent a brief amount of time with the desktop videoconferencing system rather than being given sufficient time to get proficient with the system.

**Rourke, Anderson, Garrison, & Archer, 2001**

*Overview*
The researchers achieved this by conducting a pilot study that examined selected transcripts from two graduate-level courses. This template was referred to as a community of inquiry model. A community of inquiry is composed of both the instructors and their students. These individuals are considered the key participants in the educational process. In this community of inquiry model, the researchers assumed that learning occurs within the community through the interaction of three core components: cognitive presence, teaching presence, and social presence.

*Methodology*
*Selection 1* was comprised of a graduate-level conference in workplace learning that was derived by examining a 13-week course that was delivered at a distance and supported primarily by computer conferencing self-contained discussions. The FirstClass® conferencing system was used. A total of 14

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|

people that consisted of the instructor, two student moderators, and 11 other students participated in the discussions. The student moderators were responsible for leading, stimulating, and summarizing discussions as well as providing comments to the remaining participants. The instructor took a passive role and only became active when it was time to close out the discussion. He or she accomplished this by summarizing the discussion and giving feedback to reinforce positive behavior.

*Selection 2* was set up very similar to that of *Selection 1*. *Selection 2* consisted of a 13-week timeframe; it measured a graduate-level course that utilized distance learning as a mode of delivery that was supported primarily by computer conferencing. The WEBCT® conferencing system was used. *Selection 2* was divided into weeklong, self-contained discussions. A total of 17 people (which consisted of the instructor, two student moderators, and 14 other students) participated in the discussion. The moderators for *Selection 2* functioned identical to those of *Selection 1*. The change comes in with the Instructor. Instead of taking a *passive* role like the instructor in *Selection 1,* the instructor for *Selection* 2 took a more active role by participating more in the discussions with the students.

In addition, the researchers also established the construct social presence into the following three categories:

Affective responses (i.e., expression of emotions, use of humor, and self-disclosure), interactive responses (i.e., continuing a thread, quoting from others' messages, and complimenting, expressing appreciation), Cohesive responses (i.e., addresses or refers to the group using inclusive pronouns, and salutations) and the 12 indicators. The next step was to identify these indicators in the computer conferencing transcripts.

*Data Analysis*

The information obtained during each session (*Selection 1* and *Selection 2*) were compiled into their respective conferencing systems (i.e., The FirstClass® conferencing system). Once the information was completely compiled and entered into their respective conferencing systems, it was then imported into the qualitative analysis program AtlasTi. The messages appeared in a *threaded* format and they were also in *chronological* order. The three researchers worked together to establish and enter *codes* for the messages and imported these codes into the AtlasTi system.

Once a sound protocol was established, two coders working independently followed this protocol in *coding* the two conference selections.

*Selection 1* (n = 362) contained 2.5 times as many instances of social presence than *Selection 2* (n = 145). *Selection 1* (with an n 14 students) contained twice as many messages and four times as many words as *Selection 2* (with an n-=17 students).

Rourke et al. (2001) concluded that the raw number of times social presence was present was skewed by differences in the number of words per message or conferencing session that was calculated. So to compensate for this, the researchers compared the two sessions more accurately by taking the sum of the raw numbers and dividing that total by the total number of words in a given message. Finally, Rourke et al. (2001) called the results of this calculation the "social presence density" (p. 58).

Table 2.1. (continued)

| Author(s), Year, and Study | |
|---|---|
| *Findings*<br>According to the authors, their intuitive impressions of the sociability and educational effectiveness of the two conferences that were formed while reading the transcripts were confirmed. In addition, the authors also suggested that the template. The First Class®, was able to expose and quantify important differences in social presence. Finally, the researchers mentioned that the social presence density calculation provides an important quantitative description of computer conferencing environments in that it provides opportunities for the formulation and testing of hypotheses in which social presence is used as a dependent or independent variable.<br><br>*Limitations*<br>Although the community of inquiry represents the interaction of three core components: cognitive presence, teaching presence, and social presence, a limitation of this particular study is that the researchers utilized their template First Class® to only analyze the social presence component of educational computer conferences. The researchers concluded that their methods were time-consuming and that within their research group, further work was needed to extend this methodology to the remaining components of the community of inquiry model – cognitive presence and teaching presence. Finally, the researchers suggested that further research be conducted by utilizing instruments that triangulate participant perception of social presence and its value and the relationship between social presence and learning outcomes | |
| **Picciano, 2002**<br><br>*Overview*<br>The researcher in this study examined performance in an online course in relationship to student interaction and sense of presence in the course. In addition, the researcher attempted to go beyond student perceptions of interaction and performance to include perceptions of social presence as well as actual participation in class activities. Data were collected to determine the overall performance measures that related specifically to course objectives.<br><br>*Setting*<br>The researcher chose to conduct a descriptive analysis of interaction, presence, and performance on the data collected in a graduate course at an education administration program at Hunter College in New York City. Web-based courses were offered in this program and students could complete the majority of the coursework for the program online. The course was entitled, Administration and Supervision (ADSUP) 722, and it was designed to provide future administrators with an appreciation of differences in points of view and the ability to approach issues that can be divisive in a school or community. The course was structured around readings, a weekly discussion, and written assignments that were designed to put the student in the position of an administrator making a decision or recommending a course of action related to one of the issues. A completely asynchronous model was used for delivering this course via a course Website utilizing the BlackBoard course management system (CMS).<br><br>*Participants*<br>The students enrolled in the Administration and Supervision program consisted of the following personal characteristics:<br><br>More than 80% were women.<br>Approximately 25% of the students were from minority groups.<br>Approximately 75% of these students worked in New York City public schools. | |

Table 2.1. (continued)

| Author(s), Year, and Study |
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The remaining 25% worked in private schools or in public schools outside of New York City.

All of the students held full-time jobs while maintaining families, parenthood, and higher education. From the above-mentioned group of students, 23 students enrolled in the Administration and Supervision course for Fall 2001. The average age among the participants was 37 years. Sixteen were female and 7 were male. The ethnic composition was as follows: 3 African-American, 3 were from Latin decent, and 17 were White/ Caucasian. Eight of the 23 participants had previously taken an online course(s); the remaining 15 had not.

*Research Questions*

The researcher sought answers to the following research questions:
H1: What is the relationship between actual student interaction/participation and performance?
H2: What is the relationship between student perception of social presence and performance?
H3: What is the relationship between student perceptions of social presence and actual participation?
H4: Are there differences in student perceptions of their learning experiences and actual performance?
H5: Are there differences in student perceptions of their interaction and actual participation?

*Data Collection Procedures*

The researcher encouraged the utilization of various techniques (i.e., first names were used in all online discussions, complimenting students, self-disclosure, warmth, and activities) to encourage social presence and a sense of community among course participants. In addition, participants were used as facilitators each week to encourage them to assume some ownership of the online discussion and to reduce their overall dependence on their instructor. Finally, an Internet cafe where students could interact on non-instructional issues was also available.

*Instrument*

The survey was based on the Inventory of Presence Questionnaire developed by the Presence Research Working Group at the Technische Universiteit Eindhoven, Netherlands (Picciano, 2002). In addition, the following two student performance measures were collected:

Scores on an examination and scores on written assignments were used to assist in the measurement of the student's knowledge base regarding contemporary issues in education. Thirteen issues were explored during the semester by utilizing a multiple choice question format. In addition, the researcher incorporated student participation as part of the overall grading criteria, but withdrawal or attrition data were not utilized as all of the students completed the course. Finally, based on the small sample size, the researcher chose not to make any attempts to use formal statistical significance or sample size techniques to infer that the results of this study represented larger populations. Instead basic descriptive analyses using means and correlations were used.

*Findings*

*Students' Perceptions of Interaction and Learning*

The researchers examined the results of the data collected on the student satisfaction survey (i.e., Questions 9A through 9D) to assist in determining the overall relationship between student perceptions of their interaction and performance, compared the amount and quality of their interactions with students and the instructor in traditional courses. A Likert scale (i.e., ranging from 1- 5 (Decreased - Somewhat Decreased - No Change - Somewhat Increased - Increased) was used and the participants' responses were scored and combined into an overall perception of student interaction variable that ranged from 1 to 5.

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Based on the results of this data, the researcher found that the mean for all participants on the perception of the interaction variable was 4.00* (Somewhat Increased).<br><br>In addition, the researcher used the results of the data collected on survey Questions 9E and 9F to assist in determining the overall quality and quantity of their learning experiences. Again, the participants' responses were incorporated in a Likert scale, scored and combined into an overall perception of student learning variable that ranged from 1 to 5. The mean for all students on this perception of learning variable was 4.32 (Somewhat Increased). Finally, the researcher conducted a simple correlation on these two variables that resulted in a positive coefficient (.6732) and a statistical significance (.05 Level). *Based on these results, the researcher concluded that there was a strong, positive relationship between student perceptions of their interaction in the course and their perceptions of the quality and quantity of their learning.*<br><br>*Student's Actual Interaction and Performance*<br>Throughout the semester, data were collected on the actual number of student postings to the discussion board. The researcher found that the total number of postings of individual students for the semester ranged from a low of 9 to a high of 101 with a mean of 42.26 or approximately 3 postings per student per week.<br><br>Based on conducting a correlation on the actual student postings with actual student performance scores on the examination and written assignment, the researcher found that the results were positive at .1318 and .4577, but not statistically significant (.05 level). The researcher concluded that actual student interaction that was measured by the number of postings on the discussion board *had no relationship* to performance on the examination. In addition, the researcher also found that the actual student interaction that was measured by the number of postings on the discussion board *did have a relationship* to the written assignment for students in the high interactive grouping. *As a result of these findings, the researcher concluded that H1 and H5 were partially supported.*<br><br>*Social Presence and Performance*<br>The researcher obtained data on the students' perceptions of social presence via a series of questions (Questions 16A through 16K) related to presence. The actual student scores ranged from a low of 48 to a high of 76. The mean for all students on the perception of social presence variable was 64.26 (Somewhat Agree). The correlation between perception of social presence variable and the overall perception of student interaction variable was highly positive (.8477) and statistically significant (.05 Level). In addition, the correlation between perception of social presence variable and the overall perception of learning variable was also highly positive (.6714) and statistically significant (.05 Level). *Based on these results, the researcher determined that there was a definite, consistent and strong relationship among student perceptions of interaction, social presence, and learning; therefore supporting H2, and H4.*<br><br>*Students' Perceptions of Interaction and Actual Participation*<br>In analyzing the data collected pertaining to the relationship between the participants' perceived interaction of students and *actual* interaction, the researcher perceived a number of postings per student and the actual postings per student that the results were positive (.5756) and statistically significant (.05 Level). Based on these findings, the researcher concluded that H3 was supported. |

Table 2.1. (continued)

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The perceptions of the number of postings for the moderate interaction group were consistent with their actual postings. Finally, the results indicated that the students' perceptions of their interaction in a course should be viewed with caution.

*Limitations*
A limitation found in this particular study is that typical institutional performance measures such as grades and withdrawal rates were not included in the variables that were measured. Another limitation of this study is based on the fact that the results indicated that the relationship of actual measures of interaction and performance is *mixed* and *inconsistent* depending upon the measures.

**Tu, 2002b**

This mixed-method (qualitative and quantitative) study examines how three computer-mediated communication (CMC) systems, e-mail, bulletin boards, and real-time discussion, influence the level of online social presence and privacy of 51 students enrolled in a graduate level course at a four-year university in the southwestern U.S. Participation in this survey was voluntary. Forty-three responses (84.31%) were returned. The researcher concluded from the results of the study that there is relationship between social presence and three CMC systems, e-mail, bulletin boards, and real-time discussions as well as privacy.

*Methodology*
The researcher used a mixed-method approach by utilizing both *quantitative* and *qualitative* methods to assist him in acquiring a better understanding of the relationship between social presence, privacy, and CMC (i.e., e-mails, bulletin boards, and real-time discussion boards). Fifty-one participants who were enrolled in a graduate level course at a four-year university in the southwestern U.S. made up the sample population for this study. The courses that were examined were either in a televised or face-to-face format. The same instructor taught both classes using exactly the same course content, lectures, assignments, and class requirements.

*Qualitative Method*
With the qualitative method, the researcher captured student's communication and perceptions of social presence and privacy via FirstClass®, a computer conferencing system that provided e-mail, bulletin boards, and real-time discussion functions. Data were collected in the following forms:

(a) *Through casual conversation* (which were conducted between the researcher and the subjects in the researcher's office, the classroom, or any convenient location, (b) *through in-depth interviews* (which consisted of eight semi-structured in-depth interviews that were conducted with participants during the 12th week of the study to explore particular concepts in social presence, privacy, and three types of CMC, (c) *direct observations* were conducted in the classroom, and through online asynchronous and synchronous class discussions, and (d) *through document analysis* (which consisted of all messages delivered on FirstClass and outside e-mail received by the instructor and the teaching assistant.

*Quantitative Method*
With the quantitative method, the researcher asked the 51 participants to answer the CMC Questionnaire that was developed by Tu (2002a). This session took place during Week 12 of the semester. The questionnaire was based on a five-point Likert scale and it contained 17 social presence items and 13 privacy items.

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| | *Findings*<br>Of the 51 participants, 43 responded to the questionnaire in the study. The participants estimated their computer expertise as follows: *Novice* (9 participants responded in this category equaling 20.93%), *Intermediate* (29 participants responded in this category equaling 67.44%), and *Expert* (5 participants responded in this category equaling 11.63%). Results of the questionnaire indicated that participants had been using e-mail longer than bulletin boards and real-time discussions. In addition, the researcher determined the following: (a) A little less than 75% of the students had been using e-mail from 1-6 years and (b) over half of them had less than 1 year's experience in bulletin boards and real-time discussions.<br><br>*Quantitative Results*<br>Due to the small number of participants (N= 43), it was necessary to conduct *Bartlett's Test of Sphericity* to examine the validity of the results. The hypothesis was that the correlation matrix was an identity matrix and would be rejected at the .01 of α level. The correlation matrix produced a significant chi-square by this test; therefore, factor analysis proceeded. In addition, an exploratory factor analysis was performed on 30 questionnaire items concerning social presence (social context, online communication, interactivity) and computer privacy (system privacy and perception of privacy). These five factors accounted for 76.74% of the variance.<br><br>*Qualitative Results*<br>The researcher conducted the qualitative data analysis by examining three dimensions (social context, online communication, and interactivity) and privacy factors as derived from the literature and the quantitative results. It is important to note that the three basic dimensions and the privacy factors remained unchanged.<br><br>*Limitations*<br>The first limitation that the researcher experienced in this study was the inability to separate CMC systems and CMC modes (i.e., one-to-one, one-to-many, and many-to-many modes) and attributes (asynchronous and synchronous) because the style of the discussions imposed a very different level of privacy and personal feeling. Another limitation was the fact that the researcher was unable to reach a comprehensive understanding of the impact on social presence based on the simple extraction of information obtained via e-mail, bulletin boards, and real-time discussions. |
| **Swan, 2002** | |
| | *Overview*<br>In this study the researcher looked at the affective, interactive, and cohesive verbal immediacy behaviors of students participating in online discussions in an asynchronous graduate course in education. In addition, the researcher attempted to link student's perceptions of satisfaction, learning, and interactions in asynchronous online courses to course design factors. In addition, the researcher also explored the overall relationship between social presences in computer-mediated communication to that of verbal immediacy in a face-to-face environment. Through this study, the researcher examined the effects of teacher immediacy and its relationship to the learning model, motivation model, and the affective learning model to determine the relevance of immediacy to learning. In addition, the researcher examined the *equilibrium model of social presence* to determine the relationship between social presence, verbal immediacy, and the affective communication channel. |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Participants*<br>Approximately two thirds of the study participants were females with an average age ranging between 23-48 years of age. The majority of the participants were employed as practicing K-12 teachers, but some occupied positions such as post-secondary educators, librarians, and educational technology specialists.<br><br>*Methodology*<br>Individuals who were enrolled in a graduate level course in Educational Computing (conducted entirely online) in the Spring 2001 semester served as the participants for this study. In this course, four modules that ran sequentially across the semester were incorporated and the researcher examined a total of three discussions that were initiated by the instructor. In each discussion, the participants were required to submit a minimum total of one response to the instructor prompt and a minimum total of two responses to their classmates. They were not penalized for participating and corresponding more. For the first five days that each module was open, various data were collected from the first discussion in each module that was initiated.<br><br>The researcher developed a coding scheme based on Rourke et al.'s (2001) categories and on research on classroom-based immediacy, on social presence in a computer-mediated communication. Through the utilization of the coding scheme, the researcher identified the following three categories of indicators:<br><br>(a) Affective indicators (Swan, Polhemus, Shih, & Rogers, 2001) that represent personal expressions of emotion, feelings, beliefs, and values. Examples of affective indicators might be paralanguage, humor, and self-disclosure (b) *cohesive indicators* (Swan et al., 2001) support the development of community and are based on verbal immediacy behaviors that build and solidify group commitment, presence and immediacy among individuals. Examples of cohesive indicators might be greetings and salutations among group members, and (c) interactive indicators (Swan et al., 2001) support interactions among communicators and provide evidence that the other are in attendance (Rourke et al., 2001). Examples of interactive indicators might be acknowledgement, agreement, approval, invitation, and personal advice.<br><br>*Findings*<br>The researcher examined a total of 1,336 (663 affective, 468, interactive, and 235 cohesive) in 235 postings, which equated to approximately six indicators per posting. Through this examination of data, the researcher found many immediacy/social presence indicators in the online discussions. The researcher determined that paralanguage (i.e., emoticons,☺) represented the most frequently used verbal immediacy behavior with a total of 254 instances.<br><br>In addition, the researcher found an average of 2.8 *affective indicators* per response, with paralanguage representing the most frequently used affective indicator per response. Finally, self-disclosure (i.e., the sharing of personal information) represented the second most frequently employed *affective indicator*, with almost one indicator per response. The researcher determined that *cohesive indicators* that had an average of 1 cohesive indicator per response was the least used of verbal immediacy behaviors that the researcher coded with the most frequently used cohesive indicator. In addition, cohesive indicators referred to group reference or the use of words such as "we," "our," or "us" to refer to the class as a group. Regarding interactive indicators, the researcher found an average of two interactive indicators per response with acknowledgement (i.e., quoting from or referring directly to the contents of others' messages) representing the most frequently used interactive indicator. |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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Based on these findings, the researcher concluded that acknowledgement, agreement, and approval were the main components that keep the discussions flowing in an online environment. In addition, these findings led the researcher to determine that students participating in the online course discussions worked hard at creating a community of learning in an attempt to reduce the psychological distance they might have experienced. This led participants to embrace and support the equilibrium model of social presence. The researcher also found that as the course progressed, cohesive indicators declined in importance, while the importance of interactive indicators increased. Finally, the use of affective indicators generally mirrored the general flow of the course discussions that indicated to the researcher that affective presence was a crucial component to the maintenance of community.

*Limitations*
This study only examined a single course that makes it impossible to generalize from the results. In addition, although the research supported an equilibrium model, it did not confirm it because the researcher suggested that future research should be conducted to examine discussion in other course contexts to see if the model holds true.

**Richardson & Swan, 2003**

*Overview*
In this study, the researchers used a correlational design to explore the role of social presence in online learning environments and its relationship to several variables (i.e., students' perceptions of learning).

*Participants*
Students who completed Empire State College's (ESC) online learning courses in the Spring of 2000 served as participants for this study. The ESC online course templates are now utilized within the entire State University of New York (SUNY) Learning Network of online courses. Data were not collected from students who enrolled, but did not complete the course. A total of 97 individuals participated in the study. Of the 97 individuals, 63% of participants were female and 37% were male.

In addition, 57% of the participants indicated that they had a total of 3-260 credits and that they were at least at the junior/senior undergraduate level in their studies. With regard to the number of online courses completed, 47% of the participants reported that this was their first online course, 15% reported taking two online courses including the current course, and 38% indicated that they had taken three or more online courses.

*Research Questions*
The following hypotheses were tested:
*H1*. Students' perceptions of social presence in online courses are related to their perceived learning and satisfaction with their instructor.
*H2*. Students' perceptions of social presence in online courses are a predictor of their perceived learning.
*H3* Course activities perceived by students as having the highest level of social presence also have high levels of students' perceived learning.
*H4*. Gender, age, and number of college credits earned are related to students' perceptions of social presence in online courses.

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Instrument*<br>The instrument that was used in this study, the *GobalEd Instrument*, was based on a social presence scale originally constructed by Gunawardena and Zittle (1997) for their research examining social presence as a predictor of satisfaction within computer-mediated conferencing environments. The researchers modified the *GlobalEd Instrument* in the following ways: (a) the language of the social presence scale was modified to correspond with the SUNY Learning Network (SNY) environment rather than the *GlobalEd environment*, (b) the independent variables were modified via extension to focus on students' perceived learning, and (c) the scale was also modified so that individual course activities could be examined rather than from an overall course perspective.<br><br>*Section One* of the questionnaire consisted of general demographic items (i.e., gender, age, amount of online experience (one online course, two online courses, three or more online courses), and number of college credits earned).<br><br>*Section Two* of the survey consisted of 16 Likert-type items (i.e., 1=strongly agree to 6=strongly disagree). Students were allowed to answer "not applicable" if the course activity was not present in their online course designed to assess students' overall perceptions of the course (i.e., students' satisfaction with their instructor, students' overall perceived learning, and students' overall perceived social presence).<br><br>*Section Three* of the survey consisted of indicator statements related to social presence for each of the various types of course activities (i.e., lectures, notes, reading assignments, written assignments, individual projects, group projects, and self-tests, module tests, final exam).<br><br>*Procedures*<br>*The researchers conducted their data collection procedures by implementing the following procedures:*<br><br>A cover letter explaining the survey and a mail-out that incorporated a mail-back section of the final questionnaire were sent to all students enrolled in the participating online courses (n=369). Participants were given two weeks to return the completed survey questionnaire. After the second mailing, the final sample size was 97 students out of a possible 369 students.<br><br>*Findings*<br>The researchers calculated correlations between the following three variables: (a) students' perception of social presence, (b) students' perceived learning, and (c) students' satisfaction with instructor. The researches concluded the following from the results:<br><br>Students' overall perceived learning yielded a correlation of .68 with students' overall social presence scores. The researchers concluded that these results indicated that there was a relationship between social presence and perceived learning.<br><br>Students' overall perceived learning yielded a correlation of .73 with students' satisfaction with the instructor. The researchers concluded that these results indicated that there was a relationship between satisfaction with instructor and perceived learning. In addition, students' perception of social presence yielded a correlation of .60 with students' satisfaction with the instructor. The researchers concluded that these results indicated that there was a relationship between students' perceptions of social presence and | |

Table 2.1. (continued)

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their perceptions of whether their instructors had satisfactory online presence (i.e., the amount as well as the quality of interaction experienced with the instructor).

Finally, the researchers also collected qualitative data via open-ended questions that were located at the end of section two of the survey. These open-ended questions sought to obtain additional information about which activities (i.e., written assignments, class discussions/question areas, readings, lectures and notes, individual projects, self-tests/module tests/final exams, and group projects) participants found most beneficial to their learning and why. Of the activities listed, written assignments accounted for about one-third of the responses because the researchers concluded that written assignments were the activity that participants received feedback from their instructors regarding their degree of learning as well as their degree of comprehension of the topic.

*Results by Hypothesis*
*The researchers found the following regarding Hypothesis* (i.e., *H1, H2, H3,* and *H4*):
(a) Regarding *H1*, the researchers concluded that the correlational analyses clearly showed a relationship between students' perceived social presence and perceived learning, thus the results support *H1*, (b) for *H2*, the researchers concluded that the data collected from the correlational analysis indicated that the amount and/or intensity of social presence participants' perceived in their online courses, from both their instructor and/or their peers, was directly related to their perceived learning in them, thus the results support *H2,* (c) for *H3* a little closer, the researchers concluded that a significant correlation was found between gender and students' overall perception of social presence, but correlations between the variable age as well as the number of college credits earned were not statistically significant, thus the results support *H3,* and finally, (d) in examining the results of the data for *H4*, the researchers concluded that significant correlations were present between social presence and perceived learning for each of the following six individual activities: (a) written assignments, (b) class discussions/question areas, (c) readings, lectures and notes, (d) individual projects, (e) self-tests/module tests/final exams, and (f) group projects. The student's scores indicated that the social presence of the instructor and/or other students was perceived by students as an important factor in their educational experience, thus the results support *H4.*

*Limitations*
The following limitations were present in this study: (a) the first limitation of this study was that it only took into consideration the perceptions of the students who responded to the survey, and no concessions were made for the viewpoint of individuals who chose not to participate in the study and (b) the second limitation of this study is the fact that the researchers experienced a lack of randomization with this study because the participants' represent an "intact group."

**Stein & Wanstreet, 2003**

*Overview*
The researchers examined whether there was a difference in overall satisfaction with perceived knowledge gained between learners who chose to collaborate online and those who chose to collaborate face-to-face.

A mixed-method approach was used to examine factors that contributed to satisfaction with perceived knowledge gained in a distance learning environment. The researchers examined the overall relationship between variables such as the physical, psychological, and social dimensions of the teaching-learning environment. The following are three aspects of the learning environment:

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| The role of learner choice in selecting whether to collaborate in physical space or cyberspace, the efforts to compensate for the psychological gap inherent in distance education, and the ability of learners to perceive and establish social presence in collaborative work. | |

*Population*
A total of 37 undergraduate and graduate participants who were enrolled in a course pertaining to the philosophical and historical perspectives on adult education in American society at a large Midwestern university in 2003 served as participants for this study.

*Research Questions*
The research questions for the study were as follows:
*H1*: Is there a difference in satisfaction with the course between the group of learners who chose an online collaborative format and the group who chose a face-to-face collaborative format?
*H2*: How does the course structure affect the collaborative format choice and satisfaction with the course?
*H3*: Is there a difference in the perceived social presence of computer-mediated communication technologies between the group who chose an online collaborative format and the group who chose a face-to-face collaborative format?

*Quantitative Portion of the Study/Independent & Dependent Variables:*
The quantitative portion of this study involved the examination of the overall difference in satisfaction experienced with perceived learning between the group of learners who chose an online collaborative format and those who chose a face-to-face collaborative format. A static group comparison design was used. The *degree of perceived social presence* represented the *main independent variable.* The demographic characteristics related to *gender, age, and computer use* represented the *remaining independent variables*. The researchers used the Computer-Mediated Communication (CMC) Questionnaire developed by Tu (2002a), which contained 17 social presence items and 13 privacy items, and 12 demographic items that were rated on a Likert type scale to measure the overall degree of social presence.

*Satisfaction With the Overall Conduct of the Course*
Satisfaction was assessed on an end-of-course questionnaire developed by the researchers represented the dependent variable. This dependent variable had an alpha reliability coefficient of .96. This dependent variable was measured by utilizing a 10-item instrument that consisted of a Likert type scale of items that ask respondents to rate the level of the interaction in the course and their satisfaction with different aspects of the course as well as their overall perceived knowledge gained.

*Qualitative Portion of the Study*
For the qualitative portion of this study, the researchers used the comments of focus groups to assist them in identifying the various themes that clarified why learners made the collaborative format choice they did and how that choice contributed to their perceived learning and satisfaction with the course. This was accomplished by asking the participants questions that addressed the potential breadth and depth of information exchange as well as the factors that affect interaction and social presence.

*Findings*
*Regarding Format and Satisfaction*
A total of 22 participants who chose the online format had an average overall satisfaction with a perceived learning score of 4.45 on a five-point scale (*SD* = .60). The 13 participants who chose a face-to-face

Table 2.1. (continued)

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format had an average overall satisfaction with perceived learning score of 4.23 (*SD* = .83). These results indicated no difference in satisfaction with the overall course between the group of learners who chose an online collaborative format and the group who chose a face-to-face collaborative format ($t$ (33) = .93, $p$ = .36).

*Results for Research Question 1 (H1, H2, H3, and H4)*
Overall the results indicated that social presence may not have played a role in choice of a distance learning format. The researchers concluded that the quantitative findings represent no differences found in collaborative activities. In addition, the researchers also concluded that when given the opportunity, the participants would select what is most comfortable for them to bring about satisfactory results, *thus supporting H1*. In addition, the researchers also concluded that having the ability to choose group members as well as collaborative format as part of the course structure contributed to a greater comfort level with group members, which increased learner-learner interaction and lessened the effects of transactional distance. *Thus the results support H2.* Finally, based on the results of the study, the researchers concluded that the perceived social presence of computer-mediated communication technologies between the online and face-to-face participants was unexpected and contradicts the strong opinions expressed during focus group interviews. *This resulted in the researchers concluding more exploration was needed regarding H3.*

*Limitations*
A limitation regarding this study is the fact that there is no widely accepted way to effectively measure social presence. The second limitation found in this study is the distance learning environment represents a very complex system of teaching and learning where each element of the conceptual framework resents various ways that the participants could choose to interact not only with the instructor, but with the other participants as well during the course.

**Na Ubon & Kimble, 2003**

*Overview*
In this study, the researchers used the results of a pilot study with participants enrolled in Health Economics for Health Care professionals by Distance Learning Programs at the University of York, UK. In this study, the researchers sought to obtain data to assist them in determining whether the participants could be classified as "satisfied" with learning in a distance learning environment.

*Participants and type of study:*
There were 16 participants involved in this *mixed-methods* study. Communication among participants was provided by the Computer-Mediated Communication System (CMC) in WEBCT®. Most communication among the participants occurred in an asynchronous setting.

*Research Question*
The main research question that the researchers wanted to answer is as follows:
*H1*: Can we create the sense of social presence in on line communities (OLC) through the use of an asynchronous text-based computer-mediated communication (CMC) system?

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| | *Instrument*<br>Online questionnaires were used to collect *quantitative data* and electronic bulletin board transcripts were analyzed to generate *qualitative data* for the study. Finally, in this study, the researchers sought to determine the potential of a text-based CMC system to support social presence online.<br><br>*Findings*<br>The researchers concluded that the review of transcripts on the bulletin boards provided numerous opportunities for the participants to develop social interaction skills with other online participants. The researchers concluded that social presence was illustrated via the exhibit of emotion among participants through the use of capitalization and emoticons (i.e., ☺/☹). The researchers determined that the results of the study and the review of transcripts indicated that there is potential to create social presence and facilitate interaction in OLC through the use of asynchronous text-based CMC systems.<br>*The findings therefore support H1.*<br><br>*Limitations*<br>A limitation that the researchers found this study is that technology alone was not enough to generate enough interested participants to work together. The researchers concluded that it was essential to apply some type of technique that would encourage participants to want to enthusiastically work together toward a common goal. A final limitation of this study is the fact that it only examined the role of the participant in creating social presence and no examination of the role of the instructor took place. |
| **Wise, Chang, Duffy, & del Valle, 2004** | |
| | *Overview*<br>The researchers used one-to-one mentoring in this study. As the learning context, the instructor established the level of social presence of the learning environment to assist the researchers in obtaining a better understanding of how manipulating the instructor's social presence cues could affect the level of student interaction, performance, and satisfaction with the course. Examples of social presence cues included message friendliness, personal/impersonal, self-disclosures, greeting students by name, and salutations. In addition, the researchers sought to extend the existing research on social presence in the following three ways: (a) to use one-to-one mentoring as the learning context with the instructor initiating the overall level of social presence of the learning environment, (b) to utilize an experimental test to examine the overall effects of social presence on student interaction, performance, and satisfaction with the course, and (c) the researchers examine the overall relationship of the learning goals and trust of the students to their response to the social presence cues and performance in the course.<br><br>*Methodology*<br>Graduate level students who were enrolled at a large Midwestern university in the graduate course "Elementary and Secondary School Curriculum" were selected to serve as the participants in the study. Twenty-three students were selected as potential participants in the study. In addition, only 20 of the 23 selected students agreed to take part in the study. Finally, 15 of the 20 participants were between the ages of 20 and 30 while 5 were over 40 years of age. Eight of the participants had been or were full-time teachers returning to school, while the other 12 had only field work and student teaching experience. Of those with no full-time teaching experience, one was a technology coordinator and one was a library specialist. The 20 participants were randomly assigned to high and low social presence conditions. |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| | *Instructors*<br>A total of two instructors were randomly assigned to five students in each condition (i.e., high and low social presence conditions). Each instructor had over five years of teaching experience, five years of mentoring students, and each was well versed in technology usage and learner-centered instruction. The instructors were responsible for introducing the course and themselves to the students at the beginning of the course. In addition, the instructors were held responsible for encouraging students in their work as well as answering questions, providing feedback and interacting with them on an as-needed basis. To keep their use of the social presence cues consistent, the instructors were trained in the manipulation of social presence cues and were given a reference guide detailing eight social presence cues drawn from the literature. The researchers stressed the importance of feedback remaining of high quality for both groups – only the social presence was to be manipulated. In addition, it was more difficult for the researchers to implement the low social presence learning environment because the instructors were naturally friendly and engaging. To assure consistency in their response types, the instructors continued to compare and critique each other's messages throughout the study.<br><br>*Research Questions*<br>The following research questions were examined by the researchers*:*<br>*H1*: Could the participants perceive the manipulation of social presence?<br>*H2*: Does social presence impact instructional effectiveness?<br>*H3*: Do trust and intentions impact perceptions of the instructor or outcomes?<br><br>*Procedures*<br>The researchers solicited the participation of the students at the beginning of the course. The participants were never informed about the manipulation of the social presence cues. The participants were allowed to progress at their own pace throughout the course. In addition, the researchers required the participants to complete an electronic survey that provided basic demographic data and information pertaining to trust and their learning intentions. The students had a total of 5-7 tasks to complete and a total of six weeks to complete them in. During the course, instructors provided welcoming messages, encouragement as necessary, answered questions, and provided feedback on each task. Once the course was complete, the students were required to complete an electronic Web-based end-of-course evaluation and a post survey on their perceived instructor social presence, perceived learning, satisfaction, and engagement.<br><br>*Findings*<br>With regards to *H1* (i.e., w*as the manipulation of social presence perceived by the participants?)*, the researchers concluded that the most direct test to determine an answer to this question was the response of participants to the assessment of *message friendliness.* The results of the one-tail t test indicated that both groups saw the messages as friendly. With regards to *H2* (i.e., d*id the instructor successfully model social presence?)*, the researchers concluded that the results indicate that the social presence of the instructor was perceived by the students, somewhat impacted their perception of the instructor, and did impact their interaction with the instructor, *thus supporting H2.*<br><br>The researchers used *H3* to determine if the participants could perceive the manipulation of social presence. The researchers concluded that the results were consistent and social presence impacted the overall atmosphere of the course as indexed by the perceptions of the instructor and the nature of the interaction. The researchers also found that there was no identifiable effect on the overall impact of the course as indexed by learning or perceived learning, engagement, or satisfaction. As a result, H3 was partially supported. With regards to *H4* (i.e., Do trust and intentions impact perceptions of the instructor or |

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outcomes?), the researchers concluded that the results indicate that both trust and intentions were seen as variables that might counteract the manipulation of social presence.

Finally, the researchers determined the following from the results of the study:
(a) That social presence does not appear to be causally related to learning, (b) that trust and learning intentions are potentially important factors impacting student perceptions of the learning environment and performance, and (c) the richer theoretical frameworks are to guide research regarding on online discussion in learning contexts, activities in a learning environment should be conceptualized in relation to their effect on learning and tested to determine their impact on both learning and motivation.

*Limitations*
There are a number of variables (i.e., emotions, and level of reflection) that the researchers could have explored regarding the social presence cues of the instructor, they chose to examine only two (i.e., the goals the learners bring to the learning environment and the trust they bring to the environment). The researchers focused on the validity of the measures of critical thinking that were used in the past. As a result, they concluded that another limitation to this study is the fact that there is also the need for research that leads us to question under what circumstances collaboration is valuable, even when there is a high level of critical thinking present.

**Murphy, 2004**

*Overview*
This study examined the identification and measurement of collaboration (i.e., the amount of interaction) in an online asynchronous discussion (OAD) drawn from a Web-based learning module called *Solving Problems in Collaborative Environments* (SPICE) (Murphy, 2000). A preliminary instrument with six processes was developed to measure OAD during this study. The six processes that were examined were (a) Social presence, (b) Articulating individual perspective, (c) Accommodating or reflecting the perspectives of others, (d) Co-constructing shared perspectives and meanings, (e) Building shared goals and purposes, and (f) Producing shared artifacts.

Through application of the instrument to an OAD, the instrument was further developed with indicators added for each process. The instrument was subsequently used to analyze an OAD for evidence of collaboration. The module was delivered in a WEBCT® environment and relied on use of an OAD to promote collaborative problem solving (CPS). In addition, the SPICE learning module used a three-step approach to CPS (i.e., Consult, Gather, and Act). Consult and Gather support problem formulation by exposing participants to multiple perspectives and Act by providing participants with the opportunity to present solutions to their problems.

*Participants*
The participants for the study consisted of e eleven pre-service teachers of French as a second language. These individuals used the module during a four-week period in an undergraduate methods course. The eleven participants authored a total of 103 messages in the transcript of the SPICE OAD that was later coded with the letter codes.

*Development of the Instrument*
The model's six processes, described above, also serve as the main categories for the instrument. The indicators for this study was derived by first identifying the types of statements participants made in their

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postings – for example, posing a question, sharing information about oneself or disagreeing with another participant. Once the transcript was read and completely coded and categorized, the resulting list of indicators were compared with the six major processes. The individual indicator letters were then associated with the process they supported. Once this process was complete, the instrument was finalized.

*Findings*
Based on the results of the study, the researcher found the following:
Many messages showed evidence of interaction in the phase social presence and articulating individual perspectives, fewer messages showed evidence of collaborative processes in the *accommodating or reflecting the perspectives of others* and co-constructing shared perspectives and meanings phases. Only one message showed evidence of any attempt at building shared goals and purpose, and no messages showed evidence of *producing shared artifacts.* The researchers also indicated that the lowest number of responses was recorded at the highest-level collaborative processes: building shared goals and purposes and producing shared artifacts. This result suggests that in order for the highest-level collaborative processes to occur within an OAD, there must be explicit strategies or techniques aimed at promoting these processes. Finally, the researchers concluded that promoting collaboration in an OAD would require the implementation of approaches that could potentially counter a tendency toward individual efforts.

**Baskin & Barker, 2004**

*Overview*
In this study, the researchers attempted to capture and bracket the learning experiences of 164 first-year students as they make the transition from a conventional face-to-face setting to an enhanced learning environment referred to as an Information and Communication Technology (ICT) center.

During the process of examining social presence, the researchers conclude that there are *three dimensions of social presence* (i.e., *social context, communication, and interactivity*) that emerged as important elements in the processes of knowledge construction in both an ICT and face-to-face setting.

*Participants*
The participants of the study were actively engaged in the following three learning stages of the program: S*tages one* face-to-face (f-2-f), s*tage two* online (ITC) and s*tage three* (blended learning) to enhance learning with a mixture of learning styles.

*The following research questions were examined in this study:*
*H1*: How can we inoculate the ICT enhanced learning environment against the claims and consequences of low social presence?
*H2*: How does the ICT setting compare to the traditional face-to-face setting in comparing the social presence of learning interactions?
*H3*: Is it possible to assign social presence indices to both face-to-face and ICT settings for purposes of comparison?
*H4*: What would constitute a best learning systems model?

*Program and Procedures*
*Stage one* of the program consisted of a face-to-face lecture and tutorial style of delivery. The participants were required to engage in learning activities outside of class-time on a weekly basis and were responsible for functioning in semiautonomous study groups or learning circles.

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*Stage two* of the program featured an online study component. A proprietary Learning Management System (Blackboard) was implemented to provide support to the GroupWare technologies that were originally utilized to enable easy transition between private and public learning spaces. This implementation resulted in a shift of the learning process from the macro (class) level to the micro (learning circle) level.

*Stage three* of the program featured a blended approach (f-2-f and ICT enhanced) to the learning program. In this stage, participants were given access to multiple modes of delivery.

The purpose of this particular setup was to examine or to explore how knowledge construction and social presence interact in f-2-f and ICT enhanced learning environments. In addition, the researchers attempted to determine the overall relationship between the student's perceptions of social presence in ICT enhanced and f-2-f learning, as well as the students' self-perceptions of their learning and their satisfaction with their overall learning experience.

*Instrument*
During each Stage (1, 2, & 3) of the program the participants were asked to complete a survey instrument that was adopted from Gunawardena and Zittle (1997) called the *GlobalEd Survey*. This survey instrument was comprised of indicator statements related to social presence for each of the following nine learning events:

Lectures
Tutorial Exercises
Group Work Content
Group Work Processes
Examinations/Quizzes
Interpersonal Exchanges
Academic Writing Skills Development
Learning Self-Management
Academic Reading Practices

Finally, the participants were asked to indicate the degree to which they either agreed or disagreed with each of the nine above-mentioned learning events by utilizing a five-point Likert-scale where they used 1=strongly disagree to 5=strongly agree.

*Findings*
In analyzing the data collected, the researchers determined the following:
In response to *H1*, the researchers compared the structured f-2-f interpersonal exchanges to support learning, and the f-2-f academic writing workshops to f-2-f group work activities they found that the participants perceived a higher degree of social presence in the f-2-f setting relative to the lecture setting. By performing this analysis, the researchers were able to determine in response of H1 that the claims and consequences of low social presence not only affect the ITC enhanced environment, but f-2-f environment as well.

The researchers found that the participants perceived a high social presence value to both f-2-f (M=4.04) and online lectures (M= 3.99), with a preference for the f-2-f environment. In addition, the participants also perceived a higher degree of social presence in the f-2-f learning groups and workshops as opposed to

Table 2.1. (continued)

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| the online version of these to activities. By performing this analysis, the researchers were able to determine in response to *H2, H3, and H4* that in the ICT mediated learning environment (i.e., lectures, structured interpersonal exchanges, academic writing workshops, and f-2-f group work activities), as well as in the f-2-f learning environment (i.e., e-tutorials, e-quizzes and exams, academic reading activities, learning self-management, as well as the management of e-group work processes), a strong argument can be made for a more-blended approach to be implemented. The researchers concluded that this type of blended environment, if implemented properly, could borrow on the strengths of both the ICT learning environment as well as the f-2-f mode of delivery. |
| *Limitations*<br>The researchers mentioned that the ICT environment tends to promote or feed on the limitations that instructors generally have to face on a daily basis in the process of teaching. In addition, the researchers also emphasized the fact that emphases that is placed on time management, class management, efficiency, individualization, autonomy of the participants, information processing, and problem solving in an ICT environment can promote an atmosphere that diminishes the social presence of the teacher at times. When this occurs, the learning response of the participants tends to be pigeon holed based on their perception of the instructors perceived presence and perceived concepts being taught. |
| **Hayashi, Chen, Ryan, & Wu, 2004** |
| *Overview*<br>In this study, the researchers conducted a pilot field survey by utilizing online participants who were enrolled in an introductory MIS course for an undergraduate Business Administration degree. The study was conducted in a field setting over a four-month period (i.e., September to December, 2002). In addition, the participants of the study used the Computer-Mediated Communication (CMC) system Black Board in their online learning environment. The study was exploratory in nature and required that variables (e.g., learning style, training methods, and subject areas of study) under investigation be manipulated. The researchers sought to obtain a better understanding of how course materials that were designed with various degrees of social presence type interaction or activities (i.e., introductions and team building exercises) could potentially impact the participants' perceived usefulness, comprehension, and satisfaction in the e-learning environment. |
| *Setting*<br>The researchers chose to conduct this study on the campus of the following two accredited universities: *California State University at Northridge* and *Loyola Marymount University*. |
| *Participants*<br>There were a total of 110 undergraduate Business majors to participate in the study. |
| *Hypotheses*<br>According to the researchers, the Expected Confirmation Theory (ECT) states user satisfaction is defined by the following two variables: expectation of the Information Systems and Confirmation of the Expectation. In this study, the researchers sought to examine the following Hypotheses: |
| *In examining Confirmation vs. Perceived Usefulness, the researchers sought answers to the following three questions: H1:* Whether the stronger the end users' extent of confirmation, the higher their perceived usefulness for a low social presence learning system in a Virtual Learning Environment (VLE) would be? |

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| *In examining Computer Self-Efficacy vs. Actual Use, the researchers sought answers to the following three questions: H16*: Are the end users computer self-efficacy and their actual use of a low social presence learning system in a VLE related? *H17:* Whether the end users' computer self-efficacy and their actual use of a medium social presence learning system in a VLE are related. *H18*: Whether the higher end users' computer self-efficacy, the higher their actual use using a high social presence learning system in a VLE? | |
| *In examining Computer Self-Efficacy as a Moderating Factor among Perceived Usefulness, Satisfaction, and Continuance Intention, the researchers sought answers to the following two questions: H19*: Does the group with high computer self-efficacy have higher perceived usefulness of e-learning systems, but a lower satisfaction level after using them? H20: Does the group with low computer self-efficacy have lower perceived usefulness of e-learning systems, but a higher satisfaction level after using them? | |
| *Procedures*<br>The participants were required to complete a *Pre-Test questionnaire* regarding their experience in operating the Microsoft Access and other database applications. The researchers used the questionnaire to assist them in obtaining data that could potentially be used to determine the effects of computer literacy and experience on the findings. By implementing this particular procedure, the researchers attempted to improve the internal validity of their study. The researchers evaluated the participants immediately after the 30-minute training session was complete in an attempt to control the exposure of the participants' time with the e-learning system and the training duration. In addition, the participants also completed another *Post-Test questionnaire* regarding their affect and confirmation of the e-learning system. | |
| *Instrumentation*<br>The researchers used Davis, Bagozzi, and Warshaw (1989) six-item perceived usefulness scale to determine the perceived usefulness. The researchers modified the instrument to incorporate a seven-point Likert scale and determined that the higher scores would indicate the participants' perceived usefulness for a low social presence learning system in a Virtual Learning Environment was much stronger.<br>In addition, the researchers also concluded that *confirmation* items are presented in the literature in the following three ways: (a) *objective,* (b) *inferred,* and (c) *perceived*. As a result of this, the researchers adapted Bhattacherjeer's (2001) three-item confirmation and modified the scale from one to seven, (i.e., 1= very disagreed to 7= very agreed). | |
| In addition, the researchers chose to measure *satisfaction* by utilizing Spreng and Olshaysky's (1993) overall *satisfaction scale.* This scale captured respondents' satisfaction levels along seven-point scales by utilizing four semantic differential adjective pairs: (i.e., (a) very dissatisfied/very satisfied, (b) very displeased/very pleased, (c) very frustrated/very contented, and (d) absolutely terrible/absolutely delighted. The researcher also adapted Bhattacherjee (2001) scale to measure the *continuance intention.* The researchers determined that the following items that would be measured with this scale: (a) the participants' intention to continue e-learning, and (b) whether the participants chose to discontinue e-learning or to use an alternate method, such as a traditional learning environment. In addition, the researchers chose to assess a final component. Below is the final component: (c) the participants' overall discontinuance intention. In addition, the researchers chose to measure *Computer Self-Efficacy (CSE)* by utilizing an instrument that was developed by Compeau and Higgins in 1995. With this instrument, the participants were required to answer "yes" or "no" to various questions Finally, the researchers used Bandura's (1986) theory of self-efficacy and Schunk's (1991) model of classroom learning to guide them in the development of the Computer Self-Efficacy Scale. | |

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| *Data Analysis*<br>The researchers used the following procedures to analyze the data collected for this study:<br><br>A *confirmatory factor analysis* (CFA) procedure to collectively test the formulated hypotheses was utilized. The maximum likelihood approach was used to estimate the degree of correlation among five factors of the theoretical construct (i.e., (a) *Perceived Usefulness*, (b) *Satisfaction*, (c) *Self-Efficacy*, (d) *Continuance Intention*, and (e) *Confirmation*). A communality estimate to determine whether the computer self-efficacy factor was greater than 1.0 was established.<br><br>*Findings*<br>Based on the results of the study, the researchers determined that improving satisfaction levels could potentially lead to the use of e-learning systems more often and that satisfaction and learning outcomes tend to be positively correlated. The researchers performed an initial check for overall goodness-of-fit of the theoretical model utilizing Bartlett's Test of Sphericity and determined the following results: ([chi] 2=257.52; degrees of freedom (df) =10). The indicator [chi] 2/df is 0.00. As a result of these findings, the researchers concluded that the initial analysis suggested that a further analysis on the goodness-of-fit of integrating ECM into the CFA model be conducted with three data sets collected from different treatments (low, medium and high social presence course contents). Based on the above-mentioned conclusion and to validate their findings, the researchers decided to reorganize the data set and conduct another round of CFA testing based on the following treatments (a) low, (b) medium, and (c) high social presence).<br><br>*The researchers determined that the sample sizes would be as follows for each treatment:*<br>39) (Low social presence).<br>27) (Medium social presence).<br>44) (High social presence).<br><br>Based on this new set up, the researchers generated three indicator factor loadings ([lambda]) for each experiment and below are the results: Low social presence ([chi]2=100.32; df =10). With regards to low social presence, the researchers concluded the following from the analysis of the data collected and tested:<br><br>The value of intention to continue e-learning was significant (F=0.001). In addition, the researchers determined that the Continuance Intention (ICI) could be directly predicted by Perceived usefulness ([beta] =-0.134) and S ([beta] =0.705). Finally, the researchers concluded that these three variables account for 40% and 62% ICI variance, respectively. Therefore, these results support Hypotheses H1 thru H12. In addition, the researchers determined that Perceived usefulness ([beta] =-0.322) and confirmation ([beta] =-0.693) explained 73% and 88% satisfaction variance, respectively. Finally, there was a 61% *satisfaction* variance that resulted from the indirect effect of confirmation on perceived usefulness, therefore, supporting the following Hypotheses: H1, H4, H7, H10, and H13. Medium social presence ([chi] 2=79.296; df =10). In examining the medium social presence aspects of this study, the researchers determined that the Intention to continue IS use was predicted by perceived usefulness ([beta] =-0.396) and satisfaction ([beta] =-0.231). Based on the above-mentioned results, the researchers also concluded that these results explained 59% and 57% of the continuance intention variance, respectively.<br><br>Based on the results, the researchers concluded that the cause for lower degree of correlation among CSE factors was probably due to the HCSE of trainees. In addition, the researchers concluded that it may be important to improve course content and utilize different online learning environments by reducing the influence of CSE to the intention of continuance usage. Finally, the researchers also concluded that the |

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CSE construct continued to account for very little of the variance in perceived usefulness (10%), satisfaction (14%), and continuance intention (-1%) of using online training to assimilate IT skills; therefore, Hypotheses H18 could not be supported.

*Limitations*
The course materials were delivered to the participants through a projector, the researchers concluded that participants with varying degree of experience and knowledge in database applications expressed dissatisfaction with the play speed of course materials and the frequency of repetition of some of the basic commands. Finally, the researchers also found that another limitation in the study was the existence of potential flaws in the recording quality and speed.

**Harms & Biocca, 2004**

*Overview*
The researchers designed this study as an initial validation of the networked minds social presence scale.

In addition, the researchers utilized a between subject experimental design where the study participants were randomly assigned into one of the following three conditions: (a) face-to-face interaction, (b) interaction via text-based low affordance media, and (c) mediated interaction via videoconferencing high affordance media.

*Participants and Setting*
The researchers used a total of 240 students who were enrolled in a communication course at a large Midwestern university to participate in this study for extra credit.

*Procedures*
The researchers instructed the participants of this study to sign up for the extra-credit study by using an online scheduling site. Once signed up, the participants were instructed to choose a 15-minute time slot that would work with their schedule. Upon entering the lab, the participants went through a series of the following four steps: (a) first, students were instructed to read through and sign the consent form they were given upon entering the lab, (b) second, students were informed that they would be interacting with another student for approximately five minutes, (c) third, the participants were instructed to work with a partner on a simple "get-to-know" interaction exercise where they were responsible for learning their partner's major, how their partner likes school, and what their partner does for fun in his/her free time, and (d) the participants were instructed to move to another computer upon completion of the questionnaire and the interaction exercise.

*Upon completion of the four above-mentioned steps, the participants were randomly assigned to one of three conditions*:
Face-to-face, text-based low-cost affordable media and video-conferencing high-cost affordable media. After five minutes, the participants were told to bring their conversations to a close and then move to another computer.

*Instrument*
Once the participants moved to the next computer, they were required to answer *the Networked Minds Social Presence Inventory* of items which that made up of 100 items that reflected the six hypothesized

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| dimensions (i.e., co-presence, attentional allocation, perceived message understanding, perceived affective understanding, perceived affective interdependence, and perceived behavioral interdependence) as well as self-report items. According to Harms and Biocca (2004), social presence has been conceptualized as the following six sub-dimensions:<br><br>*Co-Presence*<br>Refers to "the degree to which the observer believes he/she is not alone and secluded, their level of peripheral or focal awareness of the other, and their sense of the degree to which the other is peripherally or focally aware of them" (Harms & Biocca, 2004, p. 1).<br><br>*Attentional Allocation*<br>Refers to "the amount of attention the user allocates to and receives from interaction with others" (Harms & Biocca, 2004, p. 1).<br><br>*Perceived Message Understanding*<br>Refers to "the ability of the user to understand the message being received from the participant as well as their perception of the participants' level of message understanding" (Harms & Biocca, 2004, p. 1).<br><br>*Perceived Affective Understanding*<br>Refers to "the user's ability to understand the participants' emotional and attitudinal states as well as their perception of the participants' ability to understand the user's emotional and attitudinal states" (Harms & Biocca, 2004, p. 1).<br><br>*Perceived Affective Interdependence*<br>Refers to "the extent to which the user's emotional and attitudinal state affects and is affected by the emotional and attitudinal states of the participant" (Harms & Biocca, 2004, p. 1).<br><br>*Perceived Behavioral Interdependence*<br>Refers to "the extent to which a user's behavior affects and is affected by the participants' behavior" (Harms & Biocca, 2004, p. 2).<br><br>*Research Question*<br>The following research question was addressed in this study:<br>*H1*: *Does social presence form six separate factors?*<br><br>*Findings*<br>The researchers conducted a *Confirmatory Factor Analysis* (CFA) to estimate the parameters of the measurement model. The researchers determined that no trends were evident in the error matrix and a valid set of indicators was obtained for all six factors of social presence. In addition, the *CFA was used to test hypothesis one* and the researchers used four specific criteria to determine the quality and dimensionality of the social presence scale: face validity, reliability, internal consistency, and parallelism.<br><br>The researchers also found that of the 100 items tested, 64 items were deleted in total to acquire an optimally sized scale. As a result, *support was found for hypothesis one in that social presence was found to form six separate factors based on the literature*. |

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| *Limitations*<br>The researchers indicated that the following limitations were encountered in this study:<br>First, the difference in media type and sensory stimuli and second the lack of relational comparison between the participants and variation of objective. |
| **Sallnäs, 2004** |
| *Overview*<br>The particular concern in this study was how humans are affected by different multimodal interfaces when they are collaborating with another person in a shared virtual environment. One aspect considered is how different modalities affect social presence, i.e., people's ability to perceive the other person's intentions and emotions. Another aspect investigated is how different modalities affect people's notion of being present in a virtual environment that feels realistic and meaningful. Finally, this study attempts to understand how human behavior and efficiency in task performance are affected when using different modalities for collaboration. |
| *Participants and Instrument*<br>In this study, participants collaborated in a virtual exhibition that was developed in Active Worlds from ActiveWorlds, Inc. The virtual exhibition was displayed to the users using two lap-top computers. The virtual exhibition consisted of an area with walls all around and an exit in the middle of one of the walls. Information points were displayed in the exhibition, in the form of pictures and links to video clips in which information about the car models was presented.<br><br>Both users were represented by an image of a person, an avatar. Each user could see the other person's avatar, but not their own. They could move around in the world using the keyboard and they could position themselves in relation to the information and also in relation to the other person. In this way, it was possible for them to see in which direction the other person was looking and where the other person was going in the virtual environment. |
| *Methodology*<br>Ratings from 18 of the subjects were used for the analysis in this study. Subjects collaborated in nine pairs, each consisting of one woman and one man except one pair with two men. The independent variable was the shared virtual environment with two conditions, a haptic condition and a nonhaptic condition. The dependent variables were the subjects' ratings on three questionnaires measuring social presence, virtual presence, and perceived performance.<br><br>Perceived task performance was measured by a questionnaire with 14 items, using bipolar Likert-type seven-point scales. The questionnaire focused on the users' evaluation of their own task performance when using the system, how well they understood the system, and to what degree they felt that they learned how to use the system and also their skill level in using specific features in the system. |
| *Procedures*<br>Three different communication media were tested in combination with the shared virtual exhibition. In one condition, users had a large video conference image 30 degrees on their left hand side and the PowerBook with the virtual exhibition directly in front of them. They also had headsets and talked to each other via a telephone connection. In a second condition, users only had a telephone connection and two headsets. In a third condition, users communicated via text-chat, which is a feature in Active Worlds. |

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| Haptic feedback systems now make it possible not only to use vision and hearing, but also to use the touch modality when interacting in virtual environments. A virtual environment with haptic feedback was developed for the experiment presented in article A and B that consisted of a three dimensional room with eight cubes and where users were represented by avatars in the shape of one blue and one green sphere.<br><br>*Research Questions*<br>What is the participants' perceived social presence and virtual presence when communicating with the following communication media:<br>Text Chat<br>Voice Communication<br><br>*Results*<br>The results showed that people rated their perceived social presence and virtual presence to be significantly lower if they had communicated with text chat, when they solved the task together in the Active Worlds exhibition, compared to the other two conditions. No significant differences for these measures were found regarding whether video was used in addition to voice communication or not in the Active Worlds exhibition. This result supports the argument that adding voice communication in a virtual environment like this makes a difference.<br><br>*Limitations*<br>Questionnaires were used to a large extent in the thesis, and there are a number of limitations and particularities that have to be considered with such an approach. The most urgent concern is the validity of the items that measure the concepts' social presence, virtual presence, and perceived performance. |
| **Wong, Shi, & Wilson, 2004**<br><br>*Overview*<br>In this study, the researchers examined the importance of relationships among social presence, decision process satisfaction, group member's relevant experience, group performance, the effects of gender composition on social presence, and decision process satisfaction. The main goal in this study was to identify the relationships among social presence, decision process, satisfaction, and group performance.<br><br>*Participants*<br>A total of 72 undergraduates enrolled in an information systems course at a large public university in Australia and volunteered to participate in the research study. Each of the participants was classified as Information Systems majors. The participants were randomly assigned to 24 three-member groups with approximately half of them being male, and half of them being female, between 21 to 25 years of age. Finally, the majority of them were 3rd year students.<br><br>The participants were required to produce a wedding plan using Microsoft Project 2000. They were also required to incorporate major and sub tasks design, milestones, recourse allocations, and duration time for all tasks. Group members were required to present their proposed solutions for the wedding plan and all group members were required to agree and select one alternative from the proposed solutions. The purpose of this task was to allow groups to participate in the decision-making process. |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Research Questions*<br>The researchers believed that groups, which perceive higher degree of social presence of a medium, would be more satisfied with decision process. To test, the following research questions were examined:<br><br>*H1*: *Is there a positive relationship between social presence and decision process satisfaction?*<br>*H2*: *Is there a positive relationship between social presence and group performance?*<br>*H3*: *Is social presence of mixed-gender groups higher than that of same-gender groups?*<br>*H4*: *Is decision process satisfaction of mixed-gender groups higher than that of same-gender groups?*<br>H5: Is t*here a positive relationship between decision process satisfaction and group performance?*<br>*H6*: *Does the experience individuals gained in the same organizational environment have a positive effect on group performance?*<br><br>*Procedures*<br>The participants engaged in the following six steps to complete the collection of data for this study:<br><br>1. *Training* – (which consisted of a one-hour tutorial training).<br>2. Briefing the purpose of the task – (where the lab supervisor distributed the task instructions and went through the requirements).<br>3. Assigning group – (where the lab supervisor randomly assigned three subjects in a group).<br>4. *Performing group task* – (where group member followed the requirements and performed the task).<br>5. *Post-meeting survey* – (where all subjects completed and returned the questionnaire to the lab supervisor).<br>6. *Debriefing* – (which entailed the process of obtaining and providing feedback and comments).<br><br>*Instrument*<br>The following were used to measure the various aspects of this study:<br><br>1. Four questions taken from Short et al. (1976) were used to measure social presence.<br>2. Five questions from Green and Taber (1980) were used to measure decision process satisfaction. (Group scores for both variables were the average scores of all group members).<br>3. Gender composition was the participants variable coded 1 for mixed-gender group and 0 for same-gender group.<br>4. Relevant experience was measured by the months of experience with software application (except for Microsoft Project).<br>5. Group performance was measured by the grade assigned to the group project by the lecturer-in-charge (the first author). To assess the reliability of this measuring criterion, all the finished projects were also graded by another lecturer and then the inter-rater agreement between the two lecturers were assessed using the *r*WG approach provided by James et al. (1984).<br><br>*Reliability and Validity*<br>The researchers conducted the following reliability and validity tests:<br>1. Cronbach's alphas of social presence (Cronbach, 1970) measured 0.81 and the decision process satisfaction was 0.85. The researchers concluded that *these results indicated good reliability* based on Nunnally's Criteria (Nunnally, 1978).<br>2. The researchers utilized a factor analysis with a varimax rotation to reproduce two factors that explained 68% of the variance and *indicate a discriminate validity of the instrument.* | |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Findings and Hypothesis Testing*<br>To test the hypothesis, the researchers analyzed all data on a group level at a significant level of 0.05, two-tailed. The following results were determined based on the results:<br><br>1. A Pearson's correlation test was used to test the relationships among social presence, decision-process satisfaction, relevant experience, and group performance. The researchers found that there was a positive relationship between social presence and decision process satisfaction ($r = 0.59$, $p < 0.01$).<br>2. There was a positive relationship between decision process satisfaction and group performance ($r = 0.43$, $p < 0.05$).<br>3. There was a positive relationship between university experience and group performance.<br>4. There was no evidence that social presence is related to group performance ($r = 0.36$, $p =$ n. s.); *therefore, H1, H5 were supported, but H2 was not supported.*<br><br>The correlation analysis showed the decision process satisfaction and university experience as positively related to group performance. The regression results were as follows: *Hypothesis 6 was supported because university experience is a significant determinant of group performance*. In addition, an analysis of variance (ANOVA) was used to examine the effects of gender composition on social presence and decision process satisfaction. *The results were as follows: H3 was supported ($F1, 23 = 6.31$, $p < 0.05$) and H4 was not supported ($F1, 23 = 0.69$, $p =$ n. s.).*<br><br>*Limitations*<br>One of the limitations of this study was the sample was small (N = 24 groups). In addition, Wong et al. (2004) stated that "another limitation of this study was its laboratory setting. Laboratory experimental study is normally limited by its low external validity although its internal validity is high; therefore as a result, the generalization of the research findings into real world contexts should be done cautiously" (p. 8). | |
| **Russo & Benson, 2005**<br><br>*Overview*<br>In this study, the researchers investigated the relationship between student perceptions of others in an online class and both affective and cognitive learning outcomes. In addition, the researchers examined the relationship between teacher immediacy and social presence, in an on line distance learning environment.<br><br>*Participants*<br>This study consisted of 22 students who were enrolled in a Spring 2002 class, LFSC 630, *Principles of Transmission Genetics: Historical and Modern Perspectives* class. The components for this course were organized in ten one-week-long modules that offered a Master's degree in Life Sciences to science teachers in high schools, community colleges, and technical colleges. The 22 participants consisted of 15 women (70%), and 7 men (30%). These participants were required to access their class from a wide variety of locations (i.e., Maryland, Delaware, Maine, Florida, George, South Carolina, Wisconsin, California, the North Pole, and the Yukon). Several of the participants had taken prior courses utilizing this WEBCT® program, but for about half, this was their first online class. All, but one student (95%), completed the class; family circumstances were responsible for the one incomplete. | |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Data Collection Procedures*<br>The data for this study were collected in several forms: (i.e., through an end-of-course self-report survey, a self-assessment of class performance for participants, and as percentage of points earned during the course).<br><br>*Research Questions*<br>The researchers sought answers to the following research questions:<br>*H1*: How much presence students perceived others students and the instructor had and how much presence they perceived they had in the online class.?<br>*H2*: To what extent these perceptions were related to students' attitudes toward the course and the subject?<br>*H3*: What was the relationship between perceptions of presence and student learning?<br><br>*Instrumentation*<br>To assess the overall perception of presence, the researchers asked the participants to complete a survey at the end of the course. In the survey, the participants were asked to rate on a scale of 1-5 (with 5 being the highest) the amount of presence they perceived in the other students and in the instructor, as well as to rate the amount of presence they believed they had in the class. To assist them in assessing *affective learning*, the researchers incorporated the following six single items into the survey: (a) to determine the participants' overall satisfaction with their learning, (b) satisfaction with the online delivery system, (c) the degree to which the delivery system contributed to their learning experience, (d) the degree to which this online course was more enjoyable than others they have taken, (e) the degree to which the class was a positive learning environment, and (f) the degree to which the class had provoked heightened awareness of and reading in the topic area. Finally, the researchers measured cognitive learning in the following three ways: two measures reflected self-assessment and a single item in the summative survey that asked the participants for a self- assessment of their overall learning.<br><br>*Findings*<br>In response to research question 1, the participants reported perceiving fairly high presence in the other students (mean = 3.94 on a scale of 1-5 where 5 was highest) and in the instructor (mean = 3.94).<br><br>Their assessments of their own presence in the class were somewhat lower (mean = 3.71). There were no statistically significant differences in their assessment of the presence of the three targets. In response to research question 2, a scale called attitude reflecting attitudes about the class material and class experience was created from the seven survey items. The mean for this scale was 17.0 (range = 8-23, standard deviation (SD) = 3.91). Reliability for this scale using Cronbach's alpha was .81. In addition the researchers determined from the results that perceptions of instructor's presence ($r = .70$, $p = .001$) were positively and statistically significantly correlated with the attitude scale variable. In addition, both perceptions of other students' presence ($r = .69$, $p = .00$) and the instructor's presence ($r = .52$, $p = .03$) were significantly correlated with student responses to the single survey item addressing satisfaction with their learning in this class.<br><br>Finally, in response to research question 3, the researchers concluded that although students did earn some points through participation, most of the points reflected performance on homework assignments and examinations. Mean percentage of points earned was 88 (range 68 – 108, sd = 9.9). Interestingly, self-assigned grades and points earned were not significantly correlated ($r = .46$, $p = .07$). In addition, the researchers found that the correlation analysis indicated a statistically significant positive relationship between student perceptions of their own presence and the points earned in the class ($r = .58$, $p = .03$). In |

Table 2.1. (continued)

Author(s), Year, and Study

addition, the researchers found that the correlation analysis indicated a statistically significant positive relationship between student perceptions of their presence and the grade they assigned themselves *(r = .75, p = .00)*. In self-assignment of grades, the range of responses was 2 to 4 on a four-point scale, with 4 representing a grade of A. The mean was 3.3 and the standard deviation was .54. Finally, the self-reported measure of learning was significantly correlated with students' self-assigned grade (r = .64, p = .01). Scores on this item ranged from 2 to 5 on a 5-point scale, with a mean of 3.2 and a standard deviation of .81.

*Limitations*
The researchers indicated that "this study is limited by the small sample size and by the homogeneous nature of the sample and the findings reflect the difficulty of measuring presence" (p. 7).

**Swan & Shih, 2005**

*Overview*
The researchers used a mixed-methods approach in this study to explore in greater depth the nature of social presence and how it develops in online course discussions. In addition, the researchers used survey measures and techniques that they adapted from those employed by Gunawardena and Zittle (1997), Richardson and Swan (2003), and Picciano (2002) to explore the various relationships that might exist between perceived social presence and satisfaction with online discussions. Finally, the researchers sought to identify factors contributing to perceptions of social presence in online courses through qualitative analyses of interviews with students perceiving the highest and lowest levels of social presence.

*Setting*
The participants for this study were selected from students participating in four online graduate classes in educational technology offered in the Spring 2003 semester at a large public university in the northeast. The classes included two sections of Mass Communications and Education and two sections of Educational Computing. Two instructors each taught one section of each course. This allowed the researchers to be able to perform comparative analysis by instructor and course. Both courses required students to participate in weekly threaded discussions (that were prompted by focus questions), and discussion participation, assessed for both quantity and quality, counted for a significant portion of students' final grades. Both instructors chose to maintain a *restrained presence* by mostly communicating with students through more private channels (i.e., through weekly writing with students and through the use of e-mails to comment on student discussion postings).

*Participants*
The researchers obtained a total of 51 (out of 91 total enrolled) volunteer participants to complete an online questionnaire at the end of the semester. The 51 responding participants had an average age that ranged from 21 to over 50, with nearly two-thirds falling in the 26 to 45 year old age range. In addition, more than two thirds of the respondents were female, and the majority of the survey respondents reported having taken at least one previous online course. Thirty-five percent had no previous online experience and the researchers determined that nearly two-thirds rated themselves as expert or above average in navigating online discussions.

*Instrument*
A questionnaire adapted from Richardson and Swan's (2003) survey was used to gather demographic and experiential information about the respondents. In addition, the researchers also obtained the participants'

Table 2.1. (continued)

| Author(s), Year, and Study |
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| rankings of their perceptions of the social presence of their peers and instructors, their satisfaction with their instructors, their perceived learning from online discussions, and their perceptions of interaction among discussion participants. A five-point Likert scale was used to obtain the above-mentioned data.<br><br>*Procedures*<br>The participants were asked to consider their ratings in the specific context of online discussion and the questionnaire contained three open-ended questions at the end asking respondents about their feelings of community and knowing other students in their classes. Based on the responses provided by the participants, the researchers were able to identify the five respondents with the highest ratings and the five respondents with the lowest ratings of perceived social presence (peers and instructors combined) were identified.<br><br>Because the researchers utilized a mixed-methods approach for this study, all the discussion postings of the 10 participants (the five highest and five lowest ratings of social presence) were captured and coded for social presence indicators using Swan's (2002) coding schema.<br><br>*Research Questions*<br>The following research questions were examined by the researchers in this study:<br>*H1*: What is the relationship between students' perceptions of social presence (of peers and of the instructor) and students' satisfaction with online class discussions (perceived interaction, perceived learning, and satisfaction with their instructor)?<br>*H2*:. How do students with differing levels of perceived social presence project their presence into online class discussions?<br>*H3:* How do students with differing levels of perceived social presence perceive their class discussion?<br><br>*Findings*<br>Based on the results of the study, Swan and Shih (2005) determined that "all variables were found to be highly correlated, indicating significant relationships among them, with the strongest correlations found between perceptions of social presence (peers and instructors), between these and perceived learning, and between the perceived presence of instructors' and satisfaction with them" (p. 7). Swan and Shih (2005) found support for research question 1 based on these results. In addition, Swan and Shih (2005) also determined no other differences between age groupings were found and no significant differences in perceptions of social presence were found between classes or between students having differing instructors were found, nor were differences based on gender, online course experience, or participation in course discussions. Finally, Swan and Shih (2005) used all of the discussion postings of the five participants with the highest perceived social presence and five participants with the lowest perceived social presence to code for social presence indicators in *response to research question 2*.<br><br>Swan and Shih (2005) also created a social presence density index that gave the average frequency of use of the indicators for every 1000 words of text and used the results of the data collected and coded, to assist them in reaching a conclusion that the students perceived the greatest presence of others in online discussions. In addition, Swan and Shih (2005) consistently projected more of their own presence into them, and that they did so in specific ways – by sharing something of themselves with their classmates, by viewing their class as a community, and by acknowledging and building on the responses of their peers, thus, supporting research question 2. |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| In response to research question 3, Swan and Shih (2005) determined from the results that there were differences between groups in all perceptions, with the most significant being in perceived interaction and perceived learning. Swan and Shih (2005) also concluded that the interaction finding was particularly interesting considering the fact that students in the low social presence group actually interacted more than their high social presence peers, again pointing to what the researchers refer to as "the primacy of perception over actual interactivity" (p. 10) Therefore, Swan and Shih (2005) determined that although students in the high social presence groups both appreciated and adopted a more conversational and social tone in their online interactions, students in the low social presence group definitely did not. Finally, Swan and Shih (2005) indicated very differing notions of the appropriate nature and purposes of online discussion between these differing groups of students, thus supporting the need for additional research to be conducted on research question 3. | |
| *Limitations*<br>One limitation of the study is that it explored social presence in the context of graduate courses in educational technology taught by two highly competent instructors who were well aware of social presence issues and consciously worked to develop relationship with and among their students. These circumstances are clearly not representative of *all* online courses, instructors or students. Thus, this study's findings may not be generalizable to other areas of interest. In addition, a second limitation of this study is its reliance on self-reports in both the student surveys and student interviews. Finally, the effects of the participants' perceptions on actual learning were not explored. | |
| **Wheeler, 2005** | |
| *Overview*<br>In this study, the researcher sought answers to questions regarding to the extent to which students feel technologies provide a viable alternative to classroom-based learning, and the extent to which learning materials, experiences, and outcomes are perceived to be at least equivalent to traditional delivery.<br><br>In addition, the researcher decided to measure student satisfaction to determine whether it would inform distance educators about the needs and preferences of the participants. Finally, the researcher sought to identify individual differences in learning and student perceptions. | |
| *Sample*<br>The researcher recruited a total of 305 participants who were enrolled at the University of Plymouth. The 305 participants were comprised of 272 females and 33 males. The majority of these participants were students who were mature and full-time employed in teaching. The average age of the participants was 40.8 years (SD = 8.15). | |
| *Instrument*<br>All participants participating in the study were administered two questionnaires. The first questionnaire was administered at the onset of their studies, and the second questionnaire was administered approximately after their studies began. The questionnaire was comprised of the Entwistle's (1981) Approaches to Study Inventory. In addition, the instrument also incorporated two instruments created by the author to measure student support needs (*SSI: Student Support Inventory*; Wheeler, 2000) and communication mode perceptions (*CMQ: Communication Mode Questionnaire*). All participants were required to complete questions in face-to-face mode and one other distance technology mode. | |

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Research Questions*<br>The researcher addressed the following questions in this study:<br>*H1*: To what extent do students feel technologies provide a viable alternative to classroom-based learning?<br>*H2*: To what extent do students perceive the learning materials, experiences, and outcomes to be at least equivalent to traditional delivery? | |
| *Procedures*<br>The researcher implemented the following procedures in this study:<br>Structural equation modeling was used to assist the researcher in defining the pathways between factors and to calculate the values of interrelationships between the factors.<br>Structural equation modeling was used to define pathways between factors and to calculate the values of interrelationships between the factors.<br><br>In addition, the researcher created several measurement models to assist in the testing of whether technologies yielded different support for social presence. Four path models were used to present the following:<br>Coefficients predicting student perceptions in face-to-face,<br>Coefficients predicting student perceptions when utilizing the telephone,<br>Coefficients predicting student perceptions when utilizing e-mails, and<br>Coefficients predicting student perceptions when utilizing videoconference modes. | |
| *Findings*<br>Based on the results of the test, the researcher concluded the following:<br><br>Tenacious students (i.e., students who tend to experience high levels of social presence) and autonomous students (i.e., students who due to their independence, neither need nor experience a great deal of social presence) appear to have different learning experiences. In the telephone mode, Wheeler (2005) found that autonomous students perceive a higher level of connectedness whereas, tenacious students did not; thus, the results were just the opposite when measuring the social presence aspect of the study. In e-mail mode, Wheeler (2005) determined that "*the more autonomy a student imposed on learning, the less social presence was perceived, while more tenacious students experienced higher perceptions of connectedness*" (p. 6). Finally, Wheeler (2005) concluded that in *both telephone and e-mail* models, the autonomous students experience high levels of social presence in telephone mode ($\beta = .73$, $p < .05$), but low levels in e-mail mode ($\beta = -1.94$).<br><br>Wheeler (2005) also concluded that *autonomous students* prefer to use telephone communication to connect with their tutor and peers, by capitalizing on the immediacy and spontaneity of the technology, as well as the ability to dictate the pace and direction of the conversation in a proactive manner. On the other hand, Wheeler (2005) determined that *tenacious students* may prefer to use e-mail to maintain a longer and more permanent discussion with their tutors and peers. In addition, Wheeler (2005) also stated that "neither form of communication should be ruled out, but it should perhaps be acknowledged that student dispositions lead to varying perceptions of connectedness and presence" (p. 7). Wheeler (2005) also determined that students who are at a distance rightly feel socially isolated if they have important questions to ask and their tutor appears to ignore them by not answering an e-mail or phone message. | |

Table 2.1. (continued)

| Author(s), Year, and Study |
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Wheeler (2005) also found "that these individuals need a place to mix socially, share their ideas, and virtually get together if we want them to feel that modern technologies provide a viable alternative to classroom based learning" (p. 7). *These findings support H1.* Finally, Wheeler (2005) also determined that "students should be actively encouraged to participate in regular discussion group postings so that they not only gain ownership over the discussion, but also obtain feedback from their peer group and tutors in both online environment and face-to-face settings" (p. 7). *These findings supported H2*.

*Limitations*
A limitation of this study is that the results can only be generalized back to a student population that is predominantly mature and full-time employed in teaching, with mean ages of 40.8 years. This study did not have a representative sample of other age groups to participate.

**So & Brush, 2006**

*Overview*
This study examined participants' experiences and perceptions of cooperative learning and their relationships with social presence and satisfaction through an in-depth case study of one graduate-level distance course. The following three variables were examined: the students' perceived levels of: (a) cooperative learning, (b) social presence and (c) overall satisfaction. As a result, the in depth case study conducted, the researcher determined that cooperative learning in a distance learning environment is an important approach affecting student's perception of social presence and satisfaction. In addition, cooperative learning is an instructional strategy used for the social construction of knowledge and skills. This particular type of learning environment (i.e., a cooperative one) is one that provides opportunities for students with different backgrounds to experience multiple perspectives of others. Based on the results attained in this study, it was determined that a sense of learning community can be promoted and cultivated in distance learning environments, and a computer-mediated conferencing (CMC) technology setting is often regarded as impersonal and formal due to the absence of non-verbal and relational cues.

The researcher concluded that a person's perception of social presence is greatly related to others' intimacy behaviors such as physical proximity, smiling, and eye contact, which can, in turn, create the feeling of intimacy and enhance the level of social presence. On a final note, the researcher found that a feeling of connection positively affected the participants' self-motivation efforts.

*Setting*
In this case study, a graduate-level distance course in health education at a large state university was examined. A total of 48 participants who worked on a cooperative learning project to develop a comprehensive HIV prevention community planning paper were involved. These 48 participants were divided into three groups that consisted of 3-5 members with each group being comprised of the following four Community Planning Groups (CPGs):

Behaviors
Epidemiology
Interventions
A resource committee

*Research Questions*
The following two research questions were addressed in this study:

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *H1*: What are the relationships among students' perceived levels of cooperative learning, social presence, and overall satisfaction?<br>*H2*: What are the important factors related to students' perceived levels of cooperative learning, social presence, and satisfaction? | |

*Data Collection and Analysis*
A mixed-methods approach was used in this study. The researchers collected both quantitative and qualitative data to assist them in answering their research questions.

Data were collected from the following sources:
*The questionnaire* – which provided information regarding the statistical relationships among student perceptions of cooperative learning, social presence, and satisfaction, s*tudent postings in online discussion forums – which were analyzed* according to the coding schemes developed by the researcher, face-to-face *interviews with selected students* – which were analyzed to determine common themes of critical factors.

The next phase of the current study was to answer the question, "what are the important factors related to students' perceived levels of cooperative learning, social presence, and satisfaction?" To obtain an answer to this question, the researcher realized that the students' comments regarding their learning experience in the distance education course could provide valuable data that could not be obtained via the questionnaire or the discussion forums. To effectively complete the triangulation process, the researcher realized that these comments represented a crucial component of the research. As a result, nine students were randomly selected by the researcher to take part in the face-to-face interviews.

*Correlations*
The researcher examined statistical relationships among the three variables (i.e., the students' perceived levels of: cooperative learning, social presence, and overall satisfaction. The following correlations were found between the three relationships: when cooperative learning and satisfaction scores were examined, a statistically positive relationship was found with the following results ($r$=.41, $p$<.01). These scores indicated that students tended to be highly satisfied with their distance course when they reported high levels of cooperative learning. Finally, approximately 16% of the variance in the perception of student satisfaction was accounted for by the perception of cooperative learning. In addition, the relationship between cooperative learning and social presence was examined to determine whether students who reported high levels of cooperative learning tended to perceive high levels of social presence. The following results were attained: statistically significant with $r$ = .31 at .05. Finally, a positive correlation of .22 was found between social presence and overall satisfaction with the course, but this relationship was not statistically significant.

*Multiple Regression Analysis*
A multiple regression was performed to further examine the relationships among the three variables under examination. In lieu of the positive association between cooperative learning and student satisfaction, the next question the researcher sought to answer was whether the student perception of satisfaction with distance courses could be predicted with other variables examined in this study. To determine this, the researcher performed a multiple regression to examine further the relationship among the three variables, i.e., the students' perceived levels of: cooperative learning, social presence, and overall satisfaction. The researcher entered the following seven variables into the multiple regression analysis:

Table 2.1. (continued)

| Author(s), Year, and Study | |
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| *Multiple Regressions*<br>Perceived level of cooperative learning<br>Perceived level of social presence<br>Age<br>Number of distance courses<br>Level of computer competency<br>Preference to individual learning<br>Perceived level of collaboration | *Findings*<br>The findings of this study are important for two reasons: (a) it examined the participants' perceptions and experiences of cooperative learning in a distance learning environment, and (b) it utilized mixed research methods to identify relationships and critical factors affecting student participation in cooperative learning processes. Because there is a lack of research studies that specifically examine cooperative learning approaches in distance courses, this particular study sets the tone for future discussions regarding how students taking distance courses perceive cooperative learning. This is accomplished by providing opportunities to emphasize the relationship between participants' overall satisfaction in a course and the perceived social presence in that course. Data were collected on the following three variables: the students' perceived levels of: (a) cooperative learning, (b) social presence, and (c) other overall satisfaction.<br><br>The researcher determined that cooperative learning activities led to more interactions among students and increased students' perceived feelings of connection with others. The researcher also concluded that structure associated with cooperative learning increased dialogue and interaction among students in distance learning environments. More specifically, the results of this examination are as follows: the researcher found that critical factors such as (a) course structure, (b) emotional support, (c) the instructional and communication medium, (d) peer support, (e) accountability, and (f) lack of guidelines were critical factors worth mentioning. Based on these factors, course structure, emotional support, and the instructional and communication medium, were determined to be the most critical factors.<br><br>The researchers found that the emotional support is a critical element needed to reduce students' sense of distance between them as a result of the distance learning environment and that this environment should be designed to provide socio-affective interaction among the participants. Finally, the researchers concluded that a sense of learning community can be promoted and cultivated in distance learning environments, but the lack of face-to-face interaction was considered a negative factor that could affect participants' perceptions of the three variables: (a) cooperative learning, (b) social presence, and (c) other overall satisfaction.<br><br>*Limitations*<br>The researcher determined that one potential limitation of this study that is important to note is that misused or overused activities designed to promote cooperative learning could negatively affect students' learning. A second limitation of this study is that according to the researcher, participants were reluctant to participate in online cooperative learning when they lacked a feeling of connection, and this affected overall motivation. |

## Rationale for Study

In reviewing the above-referenced articles, it was determined that several of the articles examined social presence in a traditional classroom setting; however, very few articles examined social presence in the context of a Web-based instructional program setting. It is also important to note that Saenz (2002) concluded that "few studies on social presence have examined a Web-based instructional program" (p. 44) specifically within the context of a self-directed, asynchronous environment. In addition, Muirhead (2000) found that the social dimension of learning by computer-mediated communication (CMC) has received little attention in the literature. Muirhead's (2000) findings indicated that it is important to seek to obtain a better understanding of how social presence (or the lack of it) is perceived in this type of instructional setting and the effects it might have on the learning outcomes for individuals participating in an asynchronous distance learning environment.

Given the lack of social presence research in distance education, McIsaac and Gunawardena (1996) expressed the need for additional studies on the effect of social presence on dimensions such as student learning (cognitive learning), motivation, attitudes (affective learning), achievement, and attrition. Saenz (2002) also mentioned that a student's "perceptions of social presence and its value in relation to participation in a Web-based instructional program could provide pertinent information about whether asynchronous programs have the ability to convey social presence" (p. 44). In addition, Richardson and Swan (2003) concluded that there is a need to conduct more research to "determine the extent that social presence influences student motivation, satisfaction and

actual cognitive and affective learning" (p. 81). Lehman (2006) indicated that presence, (i.e., a sense of being there), is critical to the success of designing, teaching, and learning at a distance using both synchronous and asynchronous (blended) technologies" (p. 12). Finally, Tu (2002b) stated that "a clear understanding of social presence is necessary to direct research and to provide practitioners with clear guidelines for instructional design for distance education" (p. 35). It is evident from the review of literature that there has been a limited number of articles written regarding social presence and its relevance to cognitive and affective learning in an asynchronous distance learning environment. Consequently, the rationale and the need for this study to be conducted was determined and based on the lack of literature and the lack of research on this topic.

In an attempt to provide a comprehensive review of literature, it is important to establish a solid foundation or framework of knowledge regarding variables such as social presence, cognitive learning, affective learning, and the distance learning environment. The following sections contains additional information pertaining to (a) an overview of social presence, (b) the various forms of definitions for social presence, (c) methods used to measure social presence, and (d) components that are considered indicators of social presence.

## An Overview of Social Presence

Social presence can be traced back to Mehrabian's (1969) concept of immediacy. Mehrabrian defined immediacy as "those communication behaviors that enhance closeness to and nonverbal interaction with another" (p. 203). Short et al. (1976) were the first to introduce the term social presence. In addition, Short et al.'s (1976) research

study initiated the concept of seeking to obtain a better understanding of how mediated communication could affect the learner's feelings of satisfaction, their sense of being perceived as real, and their overall retention of knowledge in a distance learning environment. The following section provides an overview of the various definitions associated with social presence.

### *Social Presence Defined*

Although Short et al. (1976) conceived the theory of social presence and attempted to define it in simple terms, it is apparent from the body of literature that there are several definitions of social presence. Table 2.2 contains various definitions along with author(s) and year of creation as it pertains to social presence.

In addition to having a clear understanding of how social presence is defined, it is also imperative that we have a clear understanding of how social presence has been measured. The following section of this literature review provides a detailed overview of the various methods that have been used to measure social presence in the past.

### *Methods Used to Measure Social Presence*

It is also important to note that there is no widely accepted method for measuring social presence. A detailed summary of the various methods that have been utilized in the past to measure social presence is outlined in Table 2.3.

Table 2.2. Social Presence Defined

| Author | Year | Definition |
|---|---|---|
| Short, Williams, & Christie | 1976 | "The degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships and interactions" (p. 65). |
| Rice | 1984 | "The personal or social differentiating quality of communications acts" (p. 5). |
| Heeter | 1992 | "The extent to which other beings (living or synthetic) also exist in the world and appear to react to you" (p. 262). |
| Blocher | 1997 | "The degree to which the delivery medium can provide a conduit for interactive communication that supports the feelings of being present for reciprocal social interactions" (p. 33). |
| Tu | 2002b | "The degree of feeling, perception and reaction of being connected to another intellectual entity on computer-mediated communication (CMC)" (p. 34). |
| Harms & Biocca | 2004 | "The degree of initial awareness, allocated attention, the capacity for both content and affective comprehension, and the capacity for both affective and behavioral interdependence with said entity" (p. 1). |
| Rourke, Anderson, Garrison, & Archer | 2001 | "The ability of learners to project themselves socially and affectively into a community of inquiry" (p. 52). |
| Swan & Shih | 2005 | "The degree to which participants in computer-mediated communication feel affectively connected one to another, has been shown to be an important factor in student satisfaction and success in online courses" (p. 1). |

Table 2.3. Methods Used to Measure Social Presence

| Author | Year | Method Used to Measure Social Presence |
|---|---|---|
| Short, Williams, & Christie | 1976 | Short et al. (1976) utilized Semantic Differential Scales to assess the social and emotional capabilities of the medium (i.e., insensitive-sensitive, cold-warm, impersonal-personal, and unsociable-sociable). |
| Gunawardena & Zittle | 1997 | Gunawardena and Zittle (1997) developed a scale that they referred to as the GlobalEd scale. This scale consisted of 14 Likert items addressing the social presence of a computer-mediated conferencing environment, particularly the concept of immediacy. |
| Garrison, Anderson, & Archer | 2000 | Garrison et al. (2000) developed a template for analyzing and coding transcripts from a computer conference in terms of cognitive, social, and teaching presence. Their template lists emotional expression, open communication, and instructional management as the categories that indicate elements of social presence. |
| Tu | 2002a | Tu (2002a) determined that social presence is a complicated construct and involves privacy, social relationships, a vast number of communication styles, as well as the nature of the task, feedback, and immediacy, among other items. In addition, Tu (2002a) developed a 42-item questionnaire that identified social context, online communication, and interactivity as factors that comprised social presence. Finally, Tu (2002a) developed the Computer-Mediated Communication (CMC) Questionnaire that contains 17 social presence items and 13 privacy items, each with a Likert scale, as well as 12 demographic items. |

### *Social Presence Indicators*

Just as defining and measuring social presence is important, it is equally important to understand how various phrases and/or terminology can serve as indicators of creating social presence. A detailed summary adapted from Eggins and Slade (1997) of the various forms of social presence indicators is outlined in Table 2.4.

Table 2.4. Social Presence Indicators

| Social Presence Indicators | Example(s) |
|---|---|
| *Paralanguage* is defined as "the use of manner of speaking to communicate particular meanings, such as capitalization, acronym, quotation, coloration, font, font size, abbreviation, exclamation, slang, and colloquialism" (Eggins & Slade, 1997, p. 294). Features of written language that might be used outside of formal grammar to enhance or give new meanings to the message. | I really liked your comments.<br>Thank you for your assistance.<br>That was very well said. |
| *Social Immediacy* is conveyed through speech and associated cues (i.e., verbal and non-verbal). In addition, "immediacy is a measure of the *social and psychological distance* a communicator puts between himself/herself and the recipient of the communication" (Eggins & Slade, 1997, p. 294). | Social distance can sometimes be extended by means of e-mail, videoconferencing, and other Web-based technologies. |
| *Personal Address* is defined as something that is "achieved by making a point of utilizing the individual's name when a reply was being made in the opening statement of that response" (Eggins & Slade, 1997, p. 294). | Adam, thank you for your wonderful suggestions.<br>Mary, please send the additional documents to the participants office at your earliest convenience. |
| *Interactive Responses* are defined as "threaded responses (represented by a continuous dialogue or a group of related messages threaded together among participants regarding a particular subject matter of interest) with messages of socially appreciative nature" (Eggins & Slade, 1997, p. 294). | (Jerry) - What other assignments did Mr. Perry give our class to complete when I was absent?<br>(Adam) - He assigned the Apply your Knowledge Exercise on page 64 of our book.<br>(Jerry) - Thank you so much.<br>(Adam) - No problem. If you need any notes from Monday to help you with the assignment, I would be happy to share the participants' notes with you.<br>(Jerry) - Thanks Adam, I might just have to take you up on that offer. |
| *Affective Responses* are defined as "represented by emotion, feeling, and mood which is expressed by emotional comments, humor, and self-disclosure" (Eggins & Slade, 1997, p. 294) | It *saddens* me to think that no one would offer to help.<br>I was very *excited* to hear the good news!<br>Actually, *I am somewhat afraid to stand up and speak before a large group of people.* |
| *Cohesive Responses* are defined as "group activities that build a cohesive group environment, and this type of environment is usually measured by factors such as salutations, addressing participants by name, and referring the group as we, ours and/or us" (Eggins & Slade, 1997, p. 294). | Dear Group Three members:<br>Mary, I would like to call to your attention the following items.<br>Our group worked very hard to deliver the project on time to the Dallas *group.* |

Table 2.4 (continued)

| Social Presence Indicators | Example(s) |
|---|---|
| *Acknowledgement* is defined as the act of "using another person's name in your response, restating another's response, agreeing or disagreeing with another person's response" (Eggins & Slade, 1997, p. 294). | Johnny, I believe that Marsh wanted to discuss the topic in more detail. I agree with Tim that it would be beneficial for our team to take a few additional days to analyze the data more thoroughly. |
| *Conflict* in defined as an act that "could potentially be caused as a result of disagreements, lack of prompt responses among individuals and different points of view on a particular subject matter" (Eggins & Slade, 1997, p. 294). | (Sally) - I personally feel we should address the issue more directly.<br>(Jessica) - I disagree. It is the participants' opinion that we should probably take a more indirect approach to avoid hurting Mary's feelings. |
| *Reflection Responses* are defined as "the art of reflecting and analyzing other's behaviors and comments online" (Eggins & Slade, 1997, p. 294). Group reflection improves the social value of the social learning process by enabling learners to understand their group member's activities better which will enable them to make constructive decisions. | (Terrence) - Adam, the more I think about your comments regarding globalization, the more I tend to agree with the concept that you presented to our group. |
| *Group Collaboration Discussions* are defined as responses that "enable group members to work out discrepancies and become cohesive units" (Eggins & Slade, 1997, p. 294). | (Tim) - Now that we have worked through our differences and reached a consensus on how to proceed, I must admit that was an excellent team-building exercise.<br>(Pete) - Thanks for taking the lead on this issue. It was really nice to see you take a more visible stance and assisting us in finding a workable solution to our problem. |
| *Making Inquiries* is defined as "acknowledging other's messages and making inquiries were the most frequently used interactive responses" and an excellent way to generate presence in an online distance learning environment (Eggins & Slade, 1997, pp. 294-295). | What are your thoughts on this subject matter? Does anyone have any thoughts on how our team might proceed with this assignment? |

While social presence is important, it is equally important to have a clear understanding of the cognitive learning domain. In addition to the historical timeline, Table 2.5 illustrates how the cognitive domain is connected to the cognitivists as well as the behavioralists and outlines the progression of each of the following theoretical framework: (a) Wundt and the beginning, (b) structuralism, (c) functionalism, (d) behaviorism, (e) Gestalt theory, (f) psychoanalysis, and (g) cognitive perspective theory developments.

Table 2.5. Historical Timeline for the Cognitive Learning Domain

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| The Beginning | | According to Winn and Snyder (1996), starting in the late nineteenth century, psychology began to be considered a science, and not just as a branch of philosophy | |
| 1863 | Wundt | In 1863, Wundt wrote about introspection in *Lectures on Human and Animal Psychology*. Wundt wrote one of the most important books in the history of psychology, *Principles of Physiological Psychology* in 1874. | Established introspection, a cognitive approach that utilized a self-observation to examine the working of the mind. |
| Structuralism versus Functionalism | | The following section provides an overview of the structuralism versus functionalism era. | |
| 1869 | Titchener (as cited in Atkinson, 1990) | According to Atkinson (1990), Tichener who was a follower of the psychological teachings of Wilhelm Wundt, who believed that all | Atkinson (1990) also indicated that Titchener attempted to determine the contents of the mind further by investigating what the elements of thought were, and how those |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| | | consciousness was capable of being reduced to three states: (a) sensations, which are the basic elements of perception; (b) images, which are the pictures formed in our minds to characterize what is perceived; and (c) affections, which are the constituents of emotions. | elements combined to create new thoughts which he referrred to as structuralism.<br><br>Although Titchner was a strong advocate for structualism in the United States, he had competition from an opposing school of thought, called functionalism (Atkinson, 1990). Finally, the functionalists sought to determine what consciousness was used for (Atkinson, 1990). |
| 1890 | James | Following Wundt's (1863) work was James (1890), a contributor to the functionalist movement. James (1890) studied the functions of consciousness to determine how they were motivated by (a) the usefulness of things and ideas rather than their ultimate explanation, and (b) by *Darwin's Theory of Evolution*. | James (1890) wrote the first psychology textbook, *Principles of Psychology* and developed the concept of functionalism that represents the ability of persons to adapt to their environment. |
| Psychoanalysis Era | | The following section provides an overview of the psychoanalysis era.<br>. | |
| 1890 | Freud | Wundt (1863) and James' (1890) work served as the springboard for the second major movement in Europe, the psychoanalytic theory that was developed by Austrian psychologist Sigmund Freud in 1890. | Freud's (1890) work was based on his understanding of the mind, its interpretive methods, and introspection that is a technique developed by Wundt in 1879 regarding the contemplation of oneself. |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| The Behaviorism Era – America | | According to Atkinson (1990), both camps (i.e., the structuralist and the functionalist) held firm to their convictions about which approach to psychology was best, and neither side surfaced as a clear winner. | It was the subjective and introspective nature of psychology during this time (1863-1890) that served as a springboard for behaviorism to become popular as a guiding psychological theory (Atkinson, 1990). |
| 1891-1990 | Pavlov (as cited in Atkinson, 1990) | Atkinson (1990) indicated that one of the most prominent researchers during this era was Pavlov (1891-1990). | According to Atkinson (1990), Pavlov was widely known for first describing the phenomenon now known as classical conditioning with his experiments with dogs. |
| 1898 | Thorndike | Thorndike (1898) introduced the law of effect, which concludes that responses to stimuli that produce a satisfying or pleasant effect in a particular situation are more likely to occur again in the situation. | Thorndike's work also included *Psychology of Learning* and *The Measurement of Intelligence.* One of the most aspects of Thorndike's work dealt with his attempt to establish connections between stimuli and appropriate responses. It was through Thorndike's research on the study of voluntary behaviors that the stage was set for Skinner's operant conditioning. |
| 1913 | Watson | Watson (1913) was an advocate for behaviorism that stressed the focus of psychology, rather than consciousness. In addition, Watson was known for his behaviorist approach, in which he used animals to try to discover why specific stimuli evoked specific responses. | In 1913, Watson published what is sometimes considered his most important work, the article *Psychology as the Behaviorist Views It* which is sometimes referred to as *The Behaviorist Manifesto*. In this article, Watson outlined the major features of his new philosophy of psychology, called behaviorism. |
| 1938 | Skinner | Skinner (1938) believed that psychology could become a science only through the study of behavior. In 1938, Skinner conducted research on | Skinner (1938) used Thorndike's law of effect (i.e., the emitted responses act on the environment to produce different kinds of consequences that affect the organism and thereby alter future behavior) as the foundation for |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| | | shaping behavior through positive and negative reinforcement and demonstrated operant conditioning. This research lead to the development of the philosophy of radical behaviorism that is a philosophy that underlies the experimental analysis of behavior for the further development of applied behavior analysis. | his research to developed the *Theory of Operant Conditioning*. Through his research, Skinner (1938) derived the following three essential components of learning from Thorndike's paradigm: "1) the discriminative stimulus, 2) the response, and 3) the reinforcing stimulus" (p. 92). |
| 1951 | Lewin | Lewin (1951) indicated that he joined the Psychological Institute of the University of Berlin in 1921 where he was to lecture and offer seminars in both philosophy and psychology<br><br>Lewin (1951) also indicated that "the political position worsening considerably in Germany and in 1933 he and his wife and daughter settled in the USA where he became an American citizen in 1940" (p. 241).<br><br>Finally, Lewin (1951) concluded that he was influenced by Gestalt psychology and concerned with problems of motivation of individuals and of groups as determined by the context of a given situation; thus, his work opened up a new realm of psychological investigation. | Lewin (1951) stated that "behavior was determined by totality of an individual's situation and in his field theory, a field is defined as the totality of coexisting facts which are conceived of as mutually interdependent" (p. 240). In addition, according to Lewin (1951), he also developed change theory.<br><br>Lewin (1951) indicated that he introduced the following three-step change model:<br><br>Step one consisted the process of changing behavior is to unfreeze the existing situation, second step in the process of changing behavior is movement, and the third and final step is refreezing, which takes place after the change has been implemented in order for it to be sustained. Finally, (Lewin (1951) indicated that "one of his most aspiring protégé's was Leon Festinger who created the cognitive dissonance theory in 1957" (p. 242). |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| 1956 | Bloom | In 1956, Benjamin Bloom headed a group of educational psychologists who developed taxonomy on the participants or classification of levels of intellectual behavior. This taxonomy on the participants included three overlapping domains, the cognitive, psychomotor, and affective and could be utilized through the interaction of media Anderson (1995). | In 1956, a break in behaviorism occurred when Benjamin Bloom developed what we refer to today as Bloom's Taxonomy. |
| 1957 | Festinger | Festinger (1957) published a theory of cognitive dissonance, which has changed the way psychologists look at decision-making and behavior. In addition, Festinger (1957) found that the heart of the cognitive dissonance theory is rather simple because it begins with the idea of cognitions which are simply bits of knowledge that can pertain to any variety of thoughts, values, facts, or emotions. | In 1957, Festinger created the cognitive dissonance theory that was concerned with the relationships among cognitions. |
| The Gestalt Movement – Germany | | In 1913, that Watson *was starting the behaviorist movement* in America, three psychologists, Max Wertheimer, Wolfgang Kohler, and Kurt Koffka were implementing their new approach in Germany. | |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| 1913 | Wertheimer, Kohler, & Koffka (as cited in Raphael & Halpert, 1994) | Latner (1992) indicated Gestalt therapy emerged from the clinical work of two German psychotherapists, Frederick Salomon Perls, M.D., and Lore Perls, Ph.D. in the 1940s. Gestalt Psychology, which arose from Max Wertheimer's 1913 research into an illusion of movement, called the phi phenomenon (Raphael & Halpert, 1994, p. 56). . | According to Raphael and Halpert, 1994), Wertheimer, Kohler, and Koffka's approach "emphasized perception, thinking, and problem-solving" (p. 56). |
| 1932 | Tolman | According to Galotti (1994), in 1932, Tolman was known for his work that focused on demonstrating that animals had both expectations and internal representations that guided their behavior. | In 1932, Edward Tolman developed his view on cognitive learning and wrote *Purposive Behavior in Animals and Men*. Tolman (1932) determined that the primary focus on Gestalt writings and research was the dynamic nature of perception. |
| 1935 | Koffka | Koffka (1935) indicated that along with Wertheimer, Kohler initiated the Gestalt Movement in Germany | Koffka (1935) published the *Principle of Gestalt Psychology* in 1935, and indicated that through their research, he, Wertheimer, and Koehler examined memory, relationships between objects, productive thinking, and isomorphis. |
| The Gestalt Movement-Ends in Germany 1930s | | The Gestalt movement in Germany was short lived. According to Anderson (1995), "the Nazi movement in the 1930s, Gestalt psychology would come to an end, all three of the founders of Gestalt psychology migrated to the U.S. where they had some influence on psychology" (p. 87). | |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| The Behaviorism Era – Europe 1920s-1950s | | When Behaviorism ruled in the academic circles of the U.S., "there were two notable exceptions in cognitive thinking and research going on in Europe, one of these was in the work of Jean Piaget, and the other is the work of Frederick Bartlett" (Piaget, 1955, p. 87) | According to Piaget (1955), the Gestalt psychologists believed that "individuals were pre-disposed to organize information in a particular way and argued that the whole of conscious experience was greater than the sum of its parts" (p. 87). |
| 1955, 1969 | Piaget | While behaviorism was the dominant school in the U.S. and France, the Swiss psychologist Jean Piaget was studying the cognitive development of children. Piaget (1955) indicated that "his research had one unique goal which was to determine how does knowledge grow " (p. 87) | Piaget (1969) used his concern for the structure of knowledge to assist him in the development of the cognitive development theory. |
| Cognitive Perspective Movement | | According to Anderson (1995) *behaviorism* and the "behaviorist era" was the dominant model in psychology for much of the early 20th century, thereby eliminating any serious research in cognitive psychology for approximately 40 years. In addition, Anderson (1995) stated that "cognitive psychology first emerged in the two decades between 1950 and 1970, and the modern development of cognitive psychology was due to the WWII focus on research on human performance and attention, developments in computer science" (p. 52). | Anderson (1995) indicated that the cognitive perspective movement is different from the behaviorism era in that it focuses extensively on mental processes and is much more objective and calculating. The main concept for this movement is as follows: "1) individuals are exposed to various degrees of information in their environment, 2) they take in and process this information with their senses, and 3) they process the information with their mental capacity" (p. 52). In addition, the processing of the information requires the individual to perform several tasks (i.e., organizing it, manipulating it, storing it in memory, and relating it to previously stored information) Anderson (1995). |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| 1960 | Bruner | Bruner (1960) called for a theory of instruction that stressed the element of social interaction as an integral part of information processing. In 1960, Bruner developed the discovery theory of learning, which he defined as "obtaining knowledge for oneself by the use of one's own mind" (Bruner, 1966, p. 48). | Bruner (1966) indicated that he endorsed problem solving with structured searching strategies is an integral part of discovery learning and he also acknowledged that" the root of constructivism was evident in the discovery theory" (p. 48). |
| 1965 | Gagne | Driscoll (1991), indicated that although Gagne's (1965) work reflected behaviorist | Gagne (1985) concluded that the nine steps of instructions involved the following: |
| 1974 | Weiner | Weiner introduced the Attribution theory in 1974. Weiner (1974) indicated that the attribution theory was concerned with how individuals interpret events and how this relates to their thinking and behavior. Heider (1958) was the first to propose a psychological theory of attribution, but Weiner and colleagues (e.g., Jones et al, 1972; Weiner, 1974) developed a theoretical framework that has become a major research paradigm of social psychology. | According to Weiner (1974), "the attribution theory assumes that people try to determine why people do what they do, (i.e., attribute causes to behavior)" (p. 26). Finally, Weiner (1974) indicated that the following three-stage process underlie an attribution: "(1) The person must perceive or observe the behavior, (2) the person must believe that the behavior was intentionally performed, and (3) then the person must determine if they believe the other person was forced to perform the behavior" (p. 43). |
| 1978 | Vygotsky | Vygotsky (1978) upheld the belief that psychology should study humans, as opposed to animals because he wanted to discover the unique aspects of human cognition. | In 1978, Vygotsky introduced the next theory that is referred to as the cultural-historical theory of psychological development. |

Table 2.5 (continued)

| Year | Scholar(s)/ Contributors | Documentation of Contribution to the Cognitive Domain | Theory or Concept Developed as a Result of the Contribution |
|---|---|---|---|
| | | thought, he is considered to be an experimental psychologist who is concerned with learning and instruction. In addition, Driscoll (1991) also indicated that Gagne's (1965) idea was tied to Skinner's idea of sequenced learning events (i.e., which serve the basis for organizing learning materials). | "1 Gain attention<br>2 Inform learner of objective.<br>3 Stimulate recall of prior knowledge<br>4 Present the material<br>5 Provide guidance for learning<br>6 Elicit performance<br>7 Provide feedback and inform.<br>8 Assess performance<br>9 Enhance retention and transfer**"** (p. 64). |
| 1980 | Bandura | Bandura (1980) assisted in the mass migration toward the cognitive revolution occurred and the cognitive development approach became the springboard for all other intellectual theories. | Developed social-cognitive theory, which addresses an individual's ability to be self-regulating, self-organizing, proactive and self-reflecting. |
| 1991 | Spiro, Feltovich, Jacobson, & Coulson | Spiro et al.'s (1991) research led to the development of the cognitive flexibility theory. | According to Spiro et al.'s (1991), the cognitive flexibility theory is an "integrated theory of learning, mental representation, and instruction" (p. 28). This theory was especially formulated to support the use of interactive technology such as asynchronous learning environments as well as complex domains that may be ill structured. |

At the time of this writing (i.e., the years 2006-2007), the formal discipline of psychology is calculated to be over 144 years old (1863-2007). In an attempt to provide a comprehensive review of the literature regarding cognitive learning styles, it is imperative that we have a clear understanding of how cognitive learning styles evolved. The following section provides an overview of the construct of cognitive learning styles and the major dimensions of cognitive learning styles that were examined. In addition, Table 2.6 provides (a) a chronological listing of terminology that has been used to describe cognitive learning styles, (b) scholar(s) who introduced the concept, and (c) definitions and a brief description of the cognitive learning style indicated.

This concludes the researcher's review of the cognitive learning domain. The following section of this literature review provides: (a) an introduction for the affective learning domain, (b) definition describing the affective learning domain, (c) a historical overview of the affective learning domain, (d) terminology associated with the affective learning domain, (e) various theories associated with the affective learning domain, (f) affective learning indicators, and (g) the role of affective learning in creating presence and enhancing learning.

Table 2.6. Terminology Associated With the Cognitive Learning Domain

| Year | Scholar(s) | Cognitive Learning Style Concept Introduced | Definition/Examples |
|---|---|---|---|
| 1883 | Galton | Sensory Preference | The concept of sensory preference can be traced back to Galton (1883). The following three sensory systems have been defined by Galton (1883) as avenues through which individuals tend to experience the world:<br>(1) Visual (seeing)<br>(2) Auditory (hearing)<br>(3) Kinesthetic (touch, taste, smell) |
| 1945 | Lewenfeld | Visual vs. Haptic perceptual type | Barry (1994) indicated that Lewenfeld (1945) introduced Visual perception, which refers to an awareness of seeing. Greek words haptikos meaning able to touch and haptesthai translates to able to lay hold of (Revesz, 1950; Krueger, 1989).<br><br>Haptic perception refers to the study of touch and the human interaction with the external environment via touch. In contrast, haptic perception involves sensory exploration over time and space and enables the learner to identify hardness, density, size, outline, shape, texture, oiliness, wetness, and dampness (involving both temperature and pressure sensations) (Druyan, 1997; Schiffman, 1976). |
| 1954 | Holzman & Klein | Sharpener vs. Leveller | Using the complexity with which individuals might perceive a task, Holzman and Klein (1954) introduced the concept of leveler-sharpener.<br><br>According to Holzman and Klein (1954), "the leveler tends to oversimplify their perception of the task, assimilating details and reducing complexity and the sharpener fails to assimilate effectively, but instead introduces complexity, treating each piece of detail as novel" (p. 115). |
| 1955 | Kelly | Cognitive complexity vs. Cognitive simplicity | Letteri (1992) indicated that Kelly (1955) introduced the concept of "Complex/Simple, which describes individual differences in the variety of highly organized, distinct, and highly specific categories by which information is structured in memory" (p. 59). |

Table 2.6 (continued)

| Year | Scholar(s) | Cognitive Learning Style Concept Introduced | Definition/Examples |
|---|---|---|---|
| 1962 | Witkin | Field Dependence vs. Field Independence | Witkin (1962) indicated that "Field-independent individuals perceive objects as separate from the field, impose personal structures on the environment, set self-defined goals, work alone, choose to deal with abstract subject matter and are socially detached" (p. 21). In addition, Witkin (1962) also mentioned that the "field-dependent people tend to rely on the field for clues about an object and prefer a structure provided by the environment" (p. 21). |
| 1965 | Kagan | Active Learners vs. Reflective Learners | Kagan (1965) mentioned that "Active learners learn well in situations that enable them to do something physical" (p. 133).<br><br>In addition, Kagan (1965) also indicated that "Reflective learners learn well in situations that provide them with opportunities to think about the information being presented" (p. 133). |
| 1972 | Pask | Holist vs. Serialist | Pask (1972) stated that "the serialist/ holist cognitive style describes the way that learners select and represent information" (p. 211). |
| 1973 | Bergouist, Lloyd, & Johansson | Sensitizers vs. Repressors | Bergouist et al. (1973) mentioned that "Sensitizers are persons who tend to seek out information and think about stressful events, and Repressors are persons who tend to avoid information" (p. 144). |
| 1976 | Riding & Taylor | Verbalizer vs. Imag*er* | Riding and Cheema (1991) described four distinct cognitive styles; wholist, analytics, verbalizers, and imagers. In addition, Riding and Cheema (1991) also indicated that Riding and Taylor (1976) indicated that "v*erbalizers* prefer to have information presented as words or verbal associations, and i*magers* see things in the form of pictures and prefer material to be presented in vivid context" (p. 193). |

Table 2.6 (continued)

| Year | Scholar(s) | Cognitive Learning Style Concept Introduced | Definition/Examples |
|---|---|---|---|
| 1977 | Richardson | Verbalizer vs. Visualizer | Richardson (1977) mentioned that "visual learners prefer that information be presented visually—in pictures, diagrams, flow charts, time lines, films, and demonstrations—rather than in spoken or written words, and v*erbal learners* prefer spoken or written explanations to visual presentations" (p. 109). |
| 1977 | Peters | Wholist vs. Analytic | Riding and Cheema (1991) also indicated that Peters (1977) introduced the wholist view, which examines information as a whole, as well as analytics which can break down information into distinct parts, but have difficulty understanding the big picture. |
| 1984 | Kolb | Kolb's learning style model | Kolb (1984) determined that "there are four basic learning styles: (1) *Converge* (i.e., focus on decision making/problem-solving), (2) Diverger (focus on adaptation by observation rather than action), (3) Assimilator (ex.: Reflective Observer), and (4) Accommodator (ex: focus on risk taking, opportunity seeking)" (p. 16). |
| 1988 | Das | Simultaneous vs. Successive | Das (1988) indicated that Luria (1973) introduced s*imultaneous and successive* synthesis, which represents two dimensions of information processing in a program of Neuro-psychological research. According to Das (1988), "*simultaneous* synthesis involves integration of information in a holistic or spatial fashion, and successive synthesis involves processing information sequentially" (p. 101). |
| 1988 | Kirby | Analytical vs. Global | Kirby (1988) stated that "a*nalytical/global*: marks a tendency of a student to either experience items as part of a background (*global*) or to overcome the influence of an embedded context and view items as separate from the background (*analytic*)" (p. 229). |
| 1988 | Torrance & Rockenstein | Right- vs. Left-Brained | According to Torrance and Rockenstein (1988), scholars Asselin and Mooney (1996) used brain hemisphericity to differentiate between the *right-brain (global*) and *left brain (analytic) learners.* |

Table 2.6 (continued)

| Year | Scholar(s) | Cognitive Learning Style Concept Introduced | Definition/Examples |
|---|---|---|---|
| 1989 | O'Boyle & Hellige | Hemispheric Preferences | O'Boyle and Hellige (1989) found that *hemispheric asymmetry,* such as degree of dominance, direction of dominance, characteristic arousal level and complimentary of functioning, play an important role in individual differences in cognition. In addition, Sonnier (1991) indicated that *hemispheric preferences* might be a major contributing factor to individual differences. The left-hemispheric students are strong in analytical thought processing, while right-hemispheric students are visual processors. |

## An Overview of the Affective Learning Domain

Bloom (1956) determined that the affective learning domain addresses a learner's emotions toward learning experiences. A learner's attitudes, interest, attention, awareness, and values are demonstrated by affective behaviors. In addition, Bloom (1956) also found that the emotional behaviors are organized in a hierarchical format also, starting from simplest and building to most complex. These emotional behaviors are as follows:

- *Internalizing Values* (i.e., behavior which is controlled by a value system).
- *Organization* (i.e., organizing values into order of priority).
- Va*luing* (i.e., the value a person attaches to something).
- *Responding to phenomena* (i.e., taking an active part in learning; participating).
- *Receiving phenomena* (i.e., an awareness; willingness to listen).

In addition to understanding what the affective domain entails, it is also important to understand how it is defined. The following section of this literature review provides an overview of how this domain is defined.

### *The Affective Learning Domain Defined*

Krathwohl et al.'s (1964) definition was used to define the affective learning domain. The definition indicated that the affective learning domain refers to one's ability to examine the interests, attitudes, appreciations, values, and emotional sets or biases of individuals.

### *Historical Overview of Affective Learning*

According to Picard et al. (2004), "modern research in this area began before the turn of the century, when Charles Darwin and William James devoted seminal works to describing emotion, anchoring its description in measurable bodily changes and expressions" (p. 254). It was not until the late 19th century and early 20th century that the earlier theories of William James (1890) and those of Benjamin Bloom (1956) and others began to counter this idea by presenting their view – that emotion was central to cognition. Bloom's taxonomy on the participants represents a hierarchy of learning behaviors that was categorized into three interrelated and overlapping learning domains: (a) the cognitive (knowledge), (b) affective (attitude), and (c) psychomotor (skills). This section of the literature review was used to focus particularly on the affective (attitude/emotional) portion of Bloom's Taxonomy on the participants.

Lehman (2006) mentioned that initially,

> Training professionals shied away from the affective domain because of its complexity, a lack of research, and the expense and impracticality of developing learning technologies that map to the affective domain, but, recent research is adding strength to the consideration of a more balanced view that includes emotion. (p. 12)

Salovey and Sluyter (1997) stated that,

> Emotional intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (p. 10)

These concepts lead to a natural progression of questioning the relationship and value of emotion and learning. Reigeluth (1996) found that the emotional domain encompasses attitudes and values, morals and ethics, and personal development. A detailed summary of the various terminology associated with the affective learning domain along with the respective definitions are outlined in Table 2.7.

While it is important to understand terminology associated with the affective learning domain, it is equally important to have an understanding of theories associated with this domain. Below is an overview of the various theories associated with the affective learning domain.

Table 2.7. Terminology Associated With the Affective Learning Domain

| Year | Scholar(s) | Terminology | Definition |
|---|---|---|---|
| 1986 | Martin & Briggs | Attitude | Martin and Briggs (1986) found that the cognitive and affective "domains interact significantly in instruction and learning" and any behavior that deals with attitudes or has an emotional component lies within the affective learning domain (p. 3). |
| 1991 | Zimbardo & Leippe | Attitude | Zimbardo and Leippe (1991) indicated that attitudes are learned or established predispositions to respond. |
| 1993 | Bednar & Levie | Attitude | Bednar and Levie (1993) indicated that "attitudes are not directly observable, but the actions and behaviors to which they contribute may be observed" (p. 283). |
| 2001 | Simonson & Maushak | Attitude | Simonson and Maushak (2001) stated that "today, most researchers agree that attitudes are acquired and therefore subject to fairly predictable change" (p. 984). |
| 2005 | Miller | Attitude Change | Miller (2005) indicated that an attitude change might consist of any alteration in the direction, degree, or intensity of an individual's initial attitude. In addition, Miller (2005) also indicated that a change in one component of a given attitude could potentially produce a change in other components, pertaining to the attitude. |
| 2006 | Lehman | Emotion | Lehman (2006) mentioned that "the affective learning or the emotional domain is complex and includes: 1) Emotion, a complex and usually strong subjective response; 2) Affect, emotion as distinguished from thought or action; and 3) Feelings, which result from emotional experiences" (p. 13) |

### *Theories Associated With the Affective Learning Domain*

Table 2.8 contains an outlined summary of the various theories associated with the affective learning domain.

According to Swan, Polhemus, Shih, and Rogers (2001), affective learning indicators are personal expressions of emotion, feelings, beliefs, and value. Swan (2002) determined that affective indicators might be thought of as ways of projecting personal immediacy/social presence into online discourse, as ways of making up for the lack of gestures, facial expressions, and/or intonation in face-to-face communication. An overview of the various indicators of the affective learning domain as well as terms or terminology associated with this domain can be found in the following section.

Table 2.8. Theories Associated With the Affective Learning Domain

| Year | Scholar(s) | Theory | Description |
|---|---|---|---|
| 1972 | McDonald & Kielsmeier | Social Learning theory | McDonald and Kielsmeier (1972) determined that "the social learning theory suggests that an individual learns attitudes by observing the behaviors of others and modeling or imitating them" (p. 93). |
| 1991 | Zimbardo & Leippe | Consistency theories | According to Zimbardo and Leippe (1991), "consistency theories assume that individuals need to have consistency between and among their attitudes and behaviors and will modify one or both to achieve this balance" (p. 188). |
| 1991 | Zimbardo & Leippe | Affective-Cognitive Consistency theory | Zimbardo and Leippe (1991), indicated that "a persuasive message is most likely to cause attitude *and* behavior change if it can shape both beliefs and perceptions about its topic and beliefs and perceptions about what important individuals and social groups think about the topic and how they behave toward it" (p. 188). |
| 1999 | Smith & Ragan | Festinger's Cognitive Dissonance theory | According to Smith and Ragan (1999), early research on attitude change drew on Festinger's cognitive dissonance theory, which posits that, when a person is persuaded to act in a way that is not congruent with a pre-existing attitude, he or she may change the attitude to reduce dissonance. |
| 2005 | Miller | Affective-Cognitive Consistency theory | According to Miller (2005), the affective cognitive consistency theory examines the relationship between attitudes and beliefs and suggests that the affective component of the attitude system may be changed by providing new information. |

*Indicators Associated With the Affective Learning Domain*

A detailed summary of the various indicators associated with the affective learning domain are outlined in Table 2.9.

Table 2.9. Affective Learning Indicators

| Affective Learning Indicators | Definition | Example(s) | Author(s), Year |
|---|---|---|---|
| Personal Expression of Emoticons | A typewritten picture of a facial expression, such as a smiley face. | A smiley face ☺<br>A sad face ☹ | Tu, 2002a |
| Feelings, beliefs and values. | Words to describe one's feelings (i.e., excitement, love, etc.) | Wow!!<br>I just love the way that you explained that.<br>I believe that these children have every right to a good education. | Bussman, 1998 |
| Self-Disclosure | The act of sharing personal information with other participants. | I'm really afraid to see what the participants' final grade will be in Mr. Jacob's English II Class. | Cutler, 1995 |
| Humor | The art of making someone feel amused. | (Jim) Thomas is known for coming to the rescue. | Eggins & Slade, 1997 |
| | Usually accomplished by using sarcastic comments. | (Sam) It's almost like I expect to see Thomas pop out from behind his desk with the red "S" on his chest and the big blue cape flying behind him. | |

It is important to note that Lehman (2006) stated that "emotions, behavior, and cognition are components of the way presence is perceived and experienced and are essential for explaining the ways we consciously and unconsciously perceive and experience distance education" (p. 16). In addition, Lehman (2006) also mentioned that developing "an understanding of the types, modes, determinants, dimensions, and

elements that impact the creation of presence contribute to an understanding of how emotion may intersect with the design process and impact the creation of presence" (p. 16). Finally, Lehman (2006) indicated that "the development of a framework based on these models can help designers, educators, and learners better understand and design future courses for the relationship of emotion, thought, and presence and its effect on learning outcomes and behavior" (p. 16). The role of affective learning and emotion in creating presence, influencing perceptions, and enhancing the overall learning process was examined and the results can be found in the following section of this literature review.

### *The Role of Affective Learning in Creating Presence*

McLeod (1991) indicated that affective aspects of learning such as beliefs, attitudes, motivation, expectations, emotions, and learning styles greatly influence learning. One of the most prevalent messages coming from the body of research on affect is that affective elements accompanying a student's thinking and problem solving can significantly facilitate the overall learning process. Today, an increased number of educators are beginning to understand that students' affective responses are the avenues that enable them to create social presence as well as identity in online settings. In the past, affective learning or attention to the emotional part of learning has been undervalued in our educational systems. Maciocia, Mavrikis, Abela, and Lee (2003) stated that it is difficult to develop educational systems that take into account affective issues because of the "pervasive influences of affective factors" but mostly "due to the existence of various, usually contradictory theories" (p. 1). Because social presence is a

significant factor in improving instructional effectiveness (Tu, 2002a), it is imperative that educators understand that the lack of social presence can lead to more frustration and less affective learning (Rifkind, 1992).

Lehman (2006) determined that emotions act both with and without the intervention of cognition and serve as the gatekeeper for our perceptions. In addition, emotions or the affective learning domain provide opportunities for individuals to interact within the perceptual field to create opinions or representations of the world around them. Alcañiz, Bañoa, Botella, and Rey (2003) found that emotions are key to the interaction process in the perceptual field because they focus our perceptions on particular aspects of a situation and enable us to concentrate on specific situations, connect the affective to the cognitive, and arrive at thoughtful and appropriate decisions.

Finally, Lehman (2006) stated that:

> An approach that considers and utilizes the importance of emotion in creating a sense of presence includes the following two important facets: (a) this approach enables instructors and instructional designers to consciously think about the role of emotion and relay this information to their students, (b) by considering and using the importance of emotion in creating a sense of presence, this approach guides instructors and instructional designers to integrate this information into the design process and teaching to assist in developing solutions to problems that may be subconsciously caused by emotions. (p. 17)

While the affective learning domain is important to this research study, it is equally important to have a clear understanding of the distance learning environment. The following section outlines (a) an introduction for the distance learning environment, (b) definitions associated with the distance learning environment, (c) a historical overview of the distance learning environment, (d) a historical timeline associated with the

distance learning environment, and (e) theories associated with the distance learning environment.

## An Overview of the Distance Learning Environment

Distance education is a medium of teaching and learning that has grown significantly in the past 10 years as indicated by the number of higher education institutions that offer courses and/or full degree programs via distance learning (Maguire, 2005). Schott, Chernish, Dooley, and Lindner (2003) indicated that distance education relies on the students' abilities to be self-directed and internally motivated. The following section provides (a) a definition for the distance learning environment, (b) a historical overview of the distance learning environment, (c) a historical timeline for the distance learning environment, and (d) theories associated with the distance learning environment.

### *The Distance Learning Environment Defined*

In an attempt to compile a meaningful body of knowledge regarding the distance learning environment, it is important that we have a clear understanding of how the terms distance and education are defined. As mentioned by Hanson et al. (1997),

> The word distance has multiple meanings and the term distance education has been applied to a tremendous variety of programs serving numerous audiences via a wide variety of media, and finally, rapid changes in technology challenge the ways in which traditional distance education is defined. (p. 1)

Maguire (2005) mentioned that the definition of distance education has been refined and redefined over the years and a prime example of this can be found "seen in the evolution of Moore's distance education definitions" (p. 1). In addition, Maguire (2005) also quoted Moore (1990) as describing distance education as "all arrangements for providing

instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor or instructors" (p. xv).

The evolution of the definition continues when Moore and Kearsley (1996) refined the definition to specify that the learning is planned and includes "organizational and administrative arrangements" (p. 2). It is also important to note that distance learning encompasses a vast area of learning environments, and as a result, there have been several definitions developed throughout the years. A detailed summary of the various definitions associated with the distance learning environment is in Table 2.10.

Table 2.10. Definitions of Distance Learning/Education

| Year | Scholar(s) | Definition |
|---|---|---|
| 1966 | Delling | Delling (1966) described distance education as "a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the supervision and support of student learning which is achieved by bridging the physical distance between student and teacher by means of at least one appropriate technical medium" (p. 186). |
| 1967 | Dohmen | Dohmen (1967) indicated "that distance education is a systematically organized form of self-study in which student counseling, the presentation of learning material and the securing and supervising of students' success is carried out by a team of teachers, each of whom has responsibilities" (p. 9). Dohmen (1967) also determined that "it is made possible at a distance by means of media which can cover long distances and the opposite of distance education is a type of education that takes place with direct contact between lecturers and students" (p. 9). |
| 1973 | Peters | Peters (1973) defined distance education as "a method of imparting knowledge, skills and attitudes which is rationalized by the application of division of labor and organizational principles as well as by the extensive use of technical media, especially for the purpose of reproducing high quality teaching material which makes it possible to instruct great numbers of students at the same time wherever they live" (p. 206). |
| 1973 | Moore | Moore (1973) defined *distance education* as "the family of instructional methods in which the teaching behaviors are executed apart from the learning behaviors, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical, or other devices" (p. 664). |

Table 2.10 (continued)

| Year | Scholar(s) | Description |
|---|---|---|
| 1977 | Holmberg | According to Holmberg (1977) the distance education is "a concept that covers the learning-teaching activities in the cognitive and/or psychomotor and affective domains of an individual learner and a supportive organization" (p. 181). |
| 1987 | Garrison & Shale | According to Garrison and Shale (1987), "distance education implies that the majority of educational communication between (among) teacher and student(s) occurs non-contiguously, and it must involve two-way communication between (among) teacher and student(s) for the purpose of facilitating and supporting the educational process. It uses technology to mediate the necessary two-way communication" (p. 11). |
| 1988 | Perraton | Perraton (1988) indicated that distance education "is an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner" (p. 34). |
| 1990 | Moore | Moore (1990) defined distance education as "arrangements for providing instruction through print or electronic communications media to person engaged in planned learning in a place or time different from that of the instructor or instructors" (p. xv). |

*Historical Overview of the Distance Learning Environment*

Traditionally, courses were designed such that instructor and students occupied the same geographical facility with little-to-no technology. This concept has drastically changed in the 21st century. The evolution of the distance learning environment has prompted many colleges and universities to seek a better understanding of the online learning environment. According to Valentine (2002), one of the earlier forms of distance learning was initiated in Europe over 100 years ago with the introduction of correspondence courses. Because the term "distance learning" or "distance education" encompasses numerous areas of interest or study, it is also important to note that these terms (i.e., distance learning or distance education) are also referred to as

correspondence study, home study, independent study, external study, distance instruction and distance teaching, although the terms are not synonymous (Keegan, 1996). In addition to understanding the various terminologies used to refer to distance learning, it is equally important to have a foundational knowledge of how the distance learning environment has evolved. An overview of the evolution of the distance learning environment can be found in the following section of this literature review.

### *A Historical Timeline for the Distance Learning Environment*

A detailed summary of a timeline describing the evolution of the distance learning environment is outlined in Table 2.11.

Table 2.11. Evolution of Distance Learning/Education

| Year | Contributors to Distance Learning | Contribution to Distance Learning and scholars providing the documentation | Author(s), Year |
|---|---|---|---|
| 1728 | Caleb Phillips | Battenberg (1971) mentioned that "in The Boston Gazette of 20 March, 1728, 'Caleb Phillipps, Teacher of the New Method of Short Hand' advertises that any 'Persons in the Country desirous to Learn this Art, may by having the several lessons sent weekly to them, be as perfectly instructed as those that live in Boston (Battenberg, 1971, p. 44). In addition, Holmberg (1995) concluded that "there is even an indication that distance education may have been provided as early as 1728" (p. 3). | Battenberg (1971)<br><br>Holmberg (1995) |
| 1833 | 'Lunds Weckoblad', No. 30 (1833) | According to Baath (1980) and Baath (1985), "a hundred years later there is more conclusive evidence of distance education when an advertisement appears in English in 'Lunds Weckoblad', No. 30, 1833, a weekly published in the old Swedish university city of Lund, offering ladies and gentlemen an opportunity to study composition through the medium of the Post" (Baath, 1980, p. 13; Baath, 1985, p. 62). | Baath (1980)<br><br>Baath (1985) |

Table 2.11 (continued)

| Year | Contributors to Distance Learning | Contribution to Distance Learning and scholars providing the documentation | Author(s), Year |
|---|---|---|---|
| 1840s | Isaac Pitman | Verduin and Clark (1991) found that the first correspondence courses were developed by Sir Isaac Pitman in the 1840s in connection with the teaching of stenography in England. | Verduin & Clark (1991) |
| 1843 | The Phonographic Correspondence Society | In 1843, the Phonographic Correspondence Society was formed and it later became Sir Isaac Pitman Correspondence Colleges (Dinsdale 1953, p. 573; Light 1956). | Dinsdale (1953)<br>Light (1956) |
| 1856 | Charles Toussaint & Gustav Langenscheidt | Moore (1990) and Watkins (1991) found that distance education was developed by two language teachers in Berlin (i.e., Charles Toussaint and Gustav Langenscheidt) as correspondence study in the late 1800s. Noffsinger (1926) stated that "according to early tradition, organized distance education is assumed to have been introduced in Germany in the year 1856 by the Frenchman Charles Toussaint and the German Gustav Langenscheidt, who formed and organized a school in Berlin for language teaching by correspondence" (p. 4) | Moore (1990). Watkins (1991) Noffsinger (1926) |
| 1883 | Correspondence University in Ithaca, NY founded | Holmberg (1995) determined that in 1883 the Correspondence University in Ithaca, NY was established. | Holmberg (1995) |
| 1890 | The University extension department of Chicago University founded | Mathieson (1971) concluded that "in the USA Illinois Wesleyan College, founded in 1874, and the university extension department of Chicago University, 1890, were amongst the pioneers" (p. 3). | Mathieson (1971) |
| 1900s | Early 20th century developments | Moore (1990) indicated that since the early 1900s, distance education as been incorporated into the practices of many institutions, as has the traveling of faculty to meet students off campus to conduct educational instruction. | Moore (1990) |

Table 2.11 (continued)

| Year | Contributors to Distance Learning | Contribution to Distance Learning and scholars providing the documentation | Author(s), Year |
|---|---|---|---|
| 1980s to mid 1990s | Introduction of Audio and visual technology | Batley and Golek (2004) stated that "late in the nineteenth century, the American public became involved with correspondence education through the postal system and distance learning eventually evolved with technology through the introduction of radio programming, local television and eventually, video and phone based courses" (p. 169). | Batley & Golek (2004) |
| | | As the overall scope of the distance learning environment changed over time both video and audio taped lessons were introduced. Moore and Lockee (1998) determined that videotaped lectures have been a standard in university and professional courses for the last two decades. | Moore & Lockee (1998) |
| | | Imel (1998) agreed with this progression of the distance learning environment when he found that correspondence courses remained the primary means of distance learning until the middle of this century when instructional radio and television became more popular. | Imel (1998) |
| | | Finally, Teaster and Blieszner (1999) noted that audiotapes and lessons sent via the mail have been used in correspondence courses to teach subjects such as foreign language for quite some time. | Teaster & Blieszner (1999) |
| Late 1990s | World Wide Web introduced to distance learning arena | As this learning environment evolved, the Internet emerged bringing with it a vast array of technological advances that have led to a new emphasis being placed on distance learning in both business and academic settings. The Internet now serves as an avenue to conduct both *synchronous*, which is when both delivery and receipt of course material occur at the same time, and *asynchronous*, when delivery of the course material precedes receipt of such material by the student (Graves 1997). | Graves (1997) |

As the distance learning environment continues to grow in popularity with both traditional and non-traditional students, instructors and administrators are seeking ways to improve the overall online learning experience (Piezon & Donaldson, 2005). The field

of distance learning represents a growing body of research that not only raises questions about individuals' ability to effectively utilize technology to enhance their overall learning process, but it also examines the ability to develop systematic approaches to designing and developing more effective online courses. McIssac and Bolcher (1998) stated that "as distance learning evolves, this environment continues to further develop in the forms of extended education, teleconferencing, Web-based instruction, chat rooms, satellite television, computer networks and virtual classrooms" (p. 43). The introduction of these new learning communities has many educational facilities analyzing their current programs to determine which components successfully contribute to or support their student's overall retention of knowledge (i.e., cognitive learning) and satisfaction (i.e., affective learning).

Communication has been transformed via the integration of telecommunication, media, and computers, and the Internet has significantly changed the way learning is delivered and facilitated (Aragon, 2003). Distance learning has been promoted as being a more convenient, flexible, and cost-effective way for adult learners to continue their studies. In addition, researchers who examined distance education suggested further encouraging of a sense of learning community by considering the role of social presence. It is evident from the review of literature that there has been a limited number of articles written regarding social presence that provide information to assist in fully understanding the importance of social presence from the perspective of the distance learner. Therefore, social presence and its relevance to distance learning is a topic worthy of further examination. Finally, it is important to have a clear understanding of

theories associated with distance learning as well as the opportunities and conveniences associated with this new method of learning. An overview of some of the various theories associated with the distance learning environment can be found in the following section of this literature review.

### *Theories Associated With the Distance Learning Environment*

Saba (2003) found that the first scholarly journal of distance education dates back to 1987 when Michael G. Moore established *The American Journal of Distance Education* that emphasizes the importance of distance education theory and recognizes the contributions of research and practice in this area of study. In addition, Keegan (1996) and Saba (2003) indicated that Holmberg, Wedemeyer, Moore, and Peters, who represent the leading scholars in the field of distance education, developed theories (i.e., (a) theories of autonomy of the participants and independence, (b) theory of industrialization, and (c) theories of interaction and communication. A detailed summary of the various theories associated with the distance learning environment are outlined in Table 2.12.

Table 2.12. Theories Associated With Distance Learning/Education

| Year | Scholar(s) | Theory | Description |
|---|---|---|---|
| 1972 | Moore | Theory of Transactional Distance | Moore (1972) determined that "the theory of transactional distance is based on the following three major variables: (1) dialogue (the interaction between the participants), (2) structure (the elements of the course design), and (3) autonomy on the participants (the elements of learning that are under the learner's control)" (p. 76). |
| 1979 | Tajfel & Turner | Social Identity Theory | According to Tajfel and Turner (1979), "the Social Identity theory refers to an individual's overall perception of self/self-concept" (p. 34). Tajfel and Turner (1979) also found that the Social Identity theory is unique because it consists of three main subsections: (a) categorization, (b) identification, and (c) comparison. |
| 1981 thru 1995 | Holmberg, Wedemeyer, Delling, & Moore | Theories of Autonomy of the participants and Independence | According to Keegan (1996) and Saba (2003), Holmberg, Wedemeyer, Delling, and Moore developed Theories of Autonomy of the participants and independence that placed the learner in the middle of the educational process.<br><br>In addition, Saba (2003) also stated that "the centrality of the learner is one of the distinguishing features of distance education, and understanding this fact is essential for discerning why it is essentially different from other forms of education" (p. 4). |
| 1981 | Wedemeyer | Theory of Independent Study | Wedemeyer (1981) indicated four essential elements involved in every teaching-learning scenario: (a) A teacher, (b) a learner(s), (c) communications system, and (d) information to be taught or learned. In addition, Keegan (1995) also mentioned that Wedemeyer's proposal on the separation of teaching from learning, included the following characteristics of independent study: "the student and teacher are separated, the normal processes of teaching and learning are carried out in writing or through some other medium, teaching is individualized, learning is made convenient for the student in his own environment, the learner takes responsibility for the pace of his or her own progress, with freedom to start and stop at any time" (p. 64). |

Table 2.12 (continued)

| Year | Scholar(s) | Theory | Description |
|---|---|---|---|
| 1983<br>1997 | Moore<br>Hanson, Maushak, Schlosser, Anderson, & Simonson | Theory of Independent Study | According to Hanson et al. (1997), in 1983, Moore attempted to build on Wedemeyer's work by examining the (a) learner autonomy and (b) the concept of distance between the learner and the instructor which latter became referred to as transactional distance. |
| 1983 | Moore | Theory of Independent Study (continued) | Finally, Hanson et al. (1997) also determined that Moore (1983) distance deals with two things (a) two-way communication and (b) the level of responsiveness to the needs of the individual learner. |
| 1984<br>1986 | Daft & Lengel | Media/Information Richness Theory | Daft and Lengel (1984, 1986) indicated that, Media/Information Richness theory refers to the extent to which a medium or information is perceived as rich or lean by the communicators. |
| 1984 | Kiesler, Siegel, & McGuire | Social Context Cues Theory | Social Context Cues Theory is primarily based on work by Kiesler et al. (1984) and Dubrovsky, Kiesler, and Sethna (1991). Social Context Cues Theory refers to the extent to which a medium is perceived as providing social context cues to the communicators. |
| 1986 | Holmberg | Holmberg's Normative Teaching Theory | Holmberg (1986) developed and introduced the "Normative Teaching Theory," which promoted "student motivation, learning pleasure and studying relevant to the individual learner and his/her needs, creating feelings of rapport between the learner and the distance education institution" (p. 123). |
| 1986 | Holmberg | Holmberg's Theory of Interaction and Communication | Holmberg (1986) developed the theory of Interaction and Communication which had the following assumptions: "The core of teaching is interaction between the teaching and learning parties, emotional feelings of personal relation between the teaching and learning parties are likely to contribute to learning pleasure, learning pleasure supports student motivation, participation in decision-making concerning the study is favorable to student motivation, strong student motivation facilitates learning, and a friendly tone contributed to learning pleasure" (p. 123). |

Table 2.12 (continued)

| Year | Scholar(s) | Theory | Description |
|---|---|---|---|
| 1991 | Dubrovsky, Kiesler, & Sethna | | In addition, according to Dubrovsky et al. (1991), the status hierarchy of a communication exchange can regulate group behavior if group members perceive the social order. |
| 1995 | Holmberg | Holmberg's Theory of Distance Education | According to Holmberg (1995), this theory was "based on seven postulates guided by characteristics of didactic conversation. They included: Feelings of personal relations between the instructor and student to promote study pleasure and motivation; that such feelings would be supported by well-developed instructional materials and two-way communications; that such feelings would be supported by well-developed instructional materials and two-way communications; study motivation was important for attaining goals; that the atmosphere of friendly conversation favors feelings of personal relation according to postulate 1; that communications within natural conversation are easily understood and remembered, that the conversation concept can be successfully translated for use by the media available to distance students; and that the process of planning and guiding the curriculum were necessary for organized study at a distance" (p. 47). |
| 1997 | Bandura | Self-Efficacy Theory | According to Bandura (1997), the Self-Efficacy theory refers to "one's judgment about their ability to perform at a particular level" (p. 30). |
| 1998 | Kearsley & Shneiderman | Engagement Theory | According to Kearsley and Shneiderman (1998) The fundamental idea underlying the Engagement Theory is that there are three primary means to accomplish engagement: (a) an emphasis on collaborative efforts, (b) project based assignments, and (c) non-academic focus. |

Finally, Table 2.12 outlines the following key concepts that are important to the distance learning environment: (a) dialogue, (b) structure, (c) the perception of individual participants (i.e., instructors and students), (d) the characteristics of

independent study, (e) distance, (f) learner autonomy, (g) various types of computer-mediated communication, (h) the concept of interaction, and involvement of participants, (i) establishing rapport between the learner and the distance education institution, and (j) participant motivation. Mehrotra, Hollister, and McGahey (2001) mentioned that,

> Distance learning, or distance education is not a future possibility for which higher education must prepare, it is a current reality creating opportunities and challenges for educational institutions; a reality offering students expanded choices in where, when, how, and from whom they learn; a reality making education accessible to ever larger numbers of persons. (p. ix)

Therefore, it is imperative that we seek to establish a foundation of knowledge on which to draw when faced with the complex issues that the distance learning environment could potentially present in the future, thus, making this study one of particular importance to the literature. The following section provides a brief summary regarding the need to examine the overall relationship between the distance learning environment, social presence, cognitive learning, and affective learning.

## Summary

As universities and colleges form partnerships to share faculty resources to develop and implement effective online courses (Oblinger, Barone, & Hawkins, 2001), it is important to have a clear understanding of the relationship between the three variables social presence, cognitive learning, and affective learning, as well as how these three variables influence each other. The researcher's intentions for Chapter II were to: (a) provide a detailed in-depth review for each of the four variables social presence, cognitive learning, affective learning, and the asynchronous distance learning environment; (b) identify key themes, theoretical concepts, and findings established

through prior studies, (c) utilize terminology associated with social presence, cognitive learning, affective learning, and the asynchronous distance learning environment, (d) provide a clear summary of the research opportunities and objectives that emerge from the review of prior literature, and (e) identify how this study will make a meaningful contribution to the literature. Based on the limited amount of empirical research in the area of social presence and its relevance to cognitive and affective learning in an asynchronous distance learning environment, this study represents one of particular importance to the literature. The following section provides a detailed overview of the outcomes or the results of this study.

# CHAPTER III

# METHODOLOGY

## Introduction

The purpose of this study was to examine the relationship among students' perception of social presence and their perceived learning and satisfaction in their asynchronous distance learning course. The selected methodology for this study was guided by the replication of a prior study that was originally conducted by Richardson and Swan (2003) (i.e., *Examining Social Presence in Online Courses in Relation to Students' Perceived Learning and Satisfaction*). The following section includes a description of the setting, the research design, population and sample, variables, a description of the instrument, data collection procedures, and data analysis procedures.

## The Setting

Thirteen asynchronous distance learning courses offered through the Business and Management Departments at Lee College in Baytown, Texas for the Fall 2006 semester served as the setting for this study. A detailed description of the research design for this study can be found in the following section.

## Research Design

For the purpose of this study, a non-experimental quantitative research design was used and the data were collected with the modified GlobalEd Survey instrument. More specifically, a participant survey was conducted to collect individual-level perception data on the relationship between various phenomena related to overall perception of social presence. Fowler (1995) indicated the structure of a written

questionnaire, composed of well-known scales allow for statistical comparison between subjects. In addition, Mertler and Vannatta (2005) indicated that "in non-experimental research (e.g., descriptive, correlational, survey, or causal-comparative design) the researcher can define the independent variables, but cannot assign participants to the various levels of it" as is the case in this study (p. 2).

The results of the study were reported using numerical and graphical techniques. Displays such as tables were used to present the findings. It is also important to note that Mertler and Vannatta (2005) stated that "since there is no manipulation or random assignment in a non-experimental research study, the researcher is able to conclude that the independent variable and the dependent variable are related to each other, but causal inference is limited" (p. 2). Several statistical procedures (i.e., descriptive and inferential statistics, factor analysis, reliability assessment, one-way ANOVAS, correlations, a correlation matrix and stepwise regressions) were used to analyze data and answer the research questions. The procedures were chosen for their applicability to the data as well as the research objective. A detailed description of the population and sample for this study can be found in the following section.

## Population and Sample

The study participants, who were selected using convenience sampling, were comprised of freshman and sophomore level students registered in the 13 asynchronous distance learning courses. Spatz (2005) indicated that the most commonly employed type of sampling is the convenience sampling, which refers to the method of choosing items arbitrarily and in an unstructured manner. The rationale used for the selection of

study participants was based on practical reasons of convenience and appropriateness for the research questions posed. In addition, the rationale used to estimate the approximate number of participants or sample size needed to conduct this study is outlined in Table 3.1.

Table 3.1. Sample Size Calculation for a Given Population

| Approximate Number of Participants Per Class | Total Number of Proposed Online Courses to Participate in the Study | Approximate Sample Size Needed for Study |
|---|---|---|
| 20 | 13<br>260 | (155) * |

*Note*. The approximate number of students per class was based on 13 classes and the average enrollment of 20 participants per class (which was the approximate number of students who had enrolled in prior asynchronous distance learning courses at Lee College in Baytown, Texas). For example, 13 courses x 20 students per class = 260 participants. The approximate sample size denoted by the (*) was calculated utilizing the sample size formula and the sample size table (see Table 3.2), which were provided by Krejcie and Morgan (1970) indicated below.

*Sample size formula:*

$$n = \frac{Npq}{[(N-1)\,D + p\,q]}$$

(*Note*. $D = B^2 / A$, n= Desired sample size, N=Population Size (approximate), p= population proportion processing the characteristic of interest, q = 1-p, A = table $X^2$ for 1 degrees of freedom (df) at desired α (alpha) level).

Example:

*Sample Calculation: (For 13 courses with 20 participants per course)*

$$n = \frac{Npq}{[(N-1)\,D + p\,q]}$$

$$n = \frac{(260)\,(.5)\,(1-.5)}{[(260-1)\,.05^2] + (.5)\,(1-p)}$$

$$3.84$$

$$n = \frac{(260)\,(.5)\,(.5)}{[(259)\,(0.0007)] + (.5)\,(.5)} = \frac{65.00}{[(259)\,(0.0007)] + (.5)\,(.5)}$$

$$n = \frac{65.00}{.18 + .25} = \frac{65.00}{.43}$$

*n= 151 (approximate number of participants needed for sample size).*

For the purpose of study this study, the value noted below (*) was used. (Note: B = bound of tolerance (.05).

| | α | $X^2$ |
|---|---|---|
| A values: | .010 | 6.63 |
| | .025 | 5.02 |
| | **.050** | **3.84 (*)** |
| | 0.100 | 2.71 |

A detailed summary of sample sizes for a finite population is outlined in Table 3.2. In addition, it is important to note that the figure in the sample calculation was rounded up so that the calculated approximate sample size figure would coincide with the figures indicated in Table 3.2 which was adapted from Krejcie and Morgan (1970).

Finally, the following criteria were used to guide this study

- An estimated confidence level of 90%.
- An estimated population totaling 260 proposed participants (based on 13 online courses – see Table 3.1).
- An estimated sample size totaling 155 proposed participants (based on 13 online courses – see Table 3.1).
- An (alpha level) α = .05.

Table 3.2. Sample Size Table for a Finite Population (N= Population Size and n = Sample Size)

| N – n | N – n | N – n | N - n | N – n |
|---|---|---|---|---|
| 10 – 10 | 100 – 80 | 280 – 162 | 800 – 260 | 2800 – 338 |
| 15 – 14 | 110 – 86 | 290 – 165 | 850 – 265 | 3000 – 341 |
| 20 – 19 | 120 – 92 | 300 – 169 | 900 – 269 | 3500 – 346 |
| 25 – 24 | 130 – 97 | 320 – 175 | 950 – 274 | 4000 – 351 |
| 30 – 28 | 140 – 103 | 340 – 181 | 1000 – 278 | 4500 – 354 |
| 35 – 32 | 150 – 108 | 360 – 186 | 1100 – 285 | 5000 – 357 |
| 40 – 36 | 160 – 113 | 380 – 191 | 1200 – 291 | 6000 – 361 |
| 45 – 40 | 170 – 118 | 400 – 196 | 1300 – 297 | 7000 – 364 |
| 50 – 44 | 180 – 123 | 420 – 201 | 1400 – 302 | 8000 – 367 |
| 55 – 48 | 190 – 127 | 440 – 205 | 1500 – 306 | 9000 – 368 |
| 60 – 52 | 200 – 132 | 460 – 210 | 1600 – 310 | 10000 – 370 |
| 65 – 56 | 210 – 136 | 480 – 241 | 1700 – 313 | 15000 – 375 |
| 70 – 59 | 220 – 140 | 500 – 217 | 1800 – 317 | 20000 – 377 |
| 75 – 63 | 230 – 144 | 550 – 226 | 1900 – 320 | 30000 – 379 |
| 80 – 66 | 240 – 148 | 600 – 234 | 2000 – 322 | 40000 – 380 |
| 85 – 70 | 250 – 152 | 650 – 242 | 2200 – 327 | 50000 – 381 |
| 90 – 73 | **260 – 155** | 700 – 248 | 2400 – 331 | 75000 – 382 |
| 95 – 76 | 270 – 159 | 750 – 254 | 2600 – 335 | 100000 – 384 |

While it is important to understand how the sample size was determined, it is equally important to have a clear understanding of the procedures that were used when selecting the convenience sample. A detailed description of the procedures used for selecting the convenience sample is as follows: a complete listing of all proposed participants enrolled in the 13 selected asynchronous distance learning online courses for the Business and Management Departments was made available for the study from departmental personnel. The proposed participants were required to attend the following two sessions that were pre-requisites for enrolling in their respective online courses: (a)

an initial departmental orientation session (which took place two weeks after the semester started) and (b) a departmental follow-up session (which took place three weeks before the semester ended). Of the 252 proposed participants enrolled in the 13 asynchronous online distance learning courses, the final sample consisted of 156 participants. The following section provides a detailed overview of the description of the sample for this study.

### *Description of the Sample*

As mentioned earlier, the sample was selected from the original population in the study which consisted of 252 potential participants enrolled in 13 selected asynchronous distance learning online courses for the Business and Management Departments at Lee College in Baytown, Texas. In August of 2006 the study was presented to the 252 potential participants and 156 participants elected to participate in the study for an overall response rate of 62%.

Although the entire population (N=252) did not elect to participate, the number of participants who did elect to participate in the study (N=156) was enough to satisfied the required sample size based on the *Sample Size Table for a Finite Population* (Adapted from Krejcie & Morgan, 1970, p. 608). An examination of the descriptive statistics for the sample revealed that there were 34 male and 122 female participants (n=156). It is important to note that six surveys were incomplete. The usable sample size equaled 150; therefore, the final sample size consisted of 31 male and 119 female participants. Table 3.3 provides a detailed summary of the frequencies and percentages that were obtained regarding the personal characteristics of participants in this study.

Table 3.3. Frequencies and Percentages for Personal Characteristics

| Variables | Frequencies | Percentage | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| Gender | | | | |
| Male | 31 | 19.9 | 20.7 | 20.7 |
| Female | 119 | 76.3 | 79.3 | 100.0 |
| Missing | 6 | 3.8 | 100.0 | |
| Age | | | | |
| 20-24 Years | 39 | 25.0 | 26.0 | 26.0 |
| 25-29 Years | 43 | 27.7 | 28.7 | 54.7 |
| 30-34 Years | 36 | 23.1 | 24.0 | 78.7 |
| 35-51 Years | 32 | 20.4 | 21.3 | 100.0 |
| Missing | 6 | 3.8 | 100.0 | |
| Total College Credits Earned | | | | |
| 0-30 TCC Earned | 52 | 33.3 | 34.7 | 34.7 |
| 31-54 TCC Earned | 64 | 41.0 | 42.7 | 77.3 |
| 55-Over 120 Earned | 34 | 21.9 | 22.6 | 100.0 |
| Missing | 6 | 3.8 | 100.0 | |
| Total Online Experience | | | | |
| This is my first online course | 63 | 40.4 | 42.0 | 42.0 |
| I've taken 2 online courses | 38 | 24.4 | 25.3 | 67.3 |
| I've taken more than 2 online courses | 49 | 31.4 | 32.7 | 100.0 |
| Missing | 6 | 3.8 | 100.0 | |

*Note*. (TCC) = Total college credits earned. The frequencies differ depending on the number of participants who answered each item.

The data for the personal characteristics of the study participants are presented in Table 3.3. In terms of the gender, 19.9% were male and 76.3% were female. In addition, 25% were between the ages of 20 and 24, 27.7% were between the ages of 25 and 29, 23.1% were between the ages of 30 and 34, and 20.4% were between the ages of 35 and 51. In terms of the participants' total number of college credits earned, 33.3% had 0-30 total college credits earned, 41.0% had 31-54 total college credits earned, and 21.9% had 55-over 120 total college credits earned. Finally, in terms of their total amount of online

experience, 40.4% indicated that this was their first online course, 24.4% indicated that they had take at least two online courses, and 31.4% indicated that they had taken more than two online courses. The following section provides a detailed overview of the variables of interest that were examined in this study.

## Variables

The variables under investigation in this study were divided into the following three categories: (a) overall perceived social presence (i.e., the dependent variable), (b) personal characteristics (i.e., independent variables gender, age, and total number of college credits earned), and (c) various course activities (i.e., independent variables meet classmates, class discussions, written assignments, individual projects, and group projects activities). It is important to note that the dependent variable (i.e., overall perceived social presence) and independent variables (i.e., personal characteristics gender, age, total college credits earned, and the course activities meet classmates, class discussions, written assignments, individual projects, and group projects) remained unchanged from the original variables presented in the GlobalEd Survey; therefore, there was no threat to reliability in this study.

According to Borg and Gall (1996), reliability refers to "the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures" as the initial researcher (p. 596). In addition, Rourke et al. (1999) mentioned that there is a need to respond to the need to measure social presence "in terms of its effect on variables such as student satisfaction (i.e., affective learning), achievement, and retention of knowledge (i.e., cognitive learning)" (p. 69). The

following section provides an overview of the various variables (i.e., overall perceived social presence, gender, age, and the total number of college credits earned) that were examined in research question 1.

*Overall Perceived Social Presence*

This study sought to examine the possible role of social presence in online learning environments. Overall perceived social presence served as the dependent variable in this study. More specifically, the researcher examined the relationship among the participants' overall perception of social presence in their online courses and their perceived learning and satisfaction with the course.

**Gender**

The first independent variable, gender, was a dichotomous variable measured with a check-the-box item. It was anticipated that the majority of the study participants were female as was reflected in other social presence research utilizing college students as the study population.

**Age**

The second independent variable, age as used in this study was explicated through the completed individual participants' survey item that reflected their responses regarding the personal characteristic age.

**Total College Credits Earned**

The third independent variable, the participants' total number of college credits earned, as used in this study was also explicated through the completed individual

participants' survey item that reflected their responses regarding the personal characteristic total number of college credits completed to date.

The following research questions and hypotheses were examined regarding the above-mentioned variables:

*Research Question 1*

The participants' perception of social presence was examined in terms of participants' personal characteristic type information obtained via the questionnaire to answer research question 1:

1. What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the following independent variables (i.e., personal characteristics)?
    - Gender
    - Age
    - The total number of college credits earned

**Null Hypotheses for Research Question 1**

Based on research question 1, the following hypotheses stated in the null form were identified:

a. There is no statistically significant difference between the participants' responses regarding their overall perception of social presence and gender.
b. There is no statistically significant difference between the participants' responses regarding their overall perception of social presence and age.

c. There is no statistically significant difference between the participants' responses regarding their overall perception of social presence and their total number of college credits earned.

The following independent variables (i.e., meet classmates-introductions, class discussions, written assignments, individual projects, and group projects activities in WEBCT®) were used to examine the relationship between the participants' overall perception of social presence, and these variables to answer research question 2.

Section three of the survey consisted of indicator statements related to the participants' overall perception of social presence and the independent variables (i.e., meet classmates-introductions, class discussions, written assignments, individual projects, and group projects activities in WEBCT®) activities in the online courses. In this section of the survey, the participants were prompted to indicate the degree to which they agreed with each of the 12 indicator statements pertaining to the various online course activities using a seven-point Likert-type scale (1=strongly agree to 7=non applicable if the activity was not presence in their particular online course). The following research questions and hypotheses were examined regarding the above-mentioned independent variables (i.e., meet classmates-introductions, class discussions, written assignments, individual projects, and group projects activities in WEBCT®) and the participants' overall perception of social presence.

*Research Question 2*

Data were collected in response to research question 2:

2. What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the following types of course activities?
    - Meet your classmates/introductions in WEBCT®
    - WEBCT® class discussion/reflections and answers
    - Written assignments
    - Individual projects
    - Group projects

**Null Hypotheses for Research Question 2**

The hypotheses for research question 2 restated in the null form were:

- There was no statistically significant correlation between the participants' overall perception of social presence in the meet classmates/introductions in WEBCT®, activities.
- The correlation between the participants' overall perceived social presence in the meet classmates/introductions in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.
- There was no statistically significant correlation between the participants' overall perceived social presence in the class discussions activities in WEBCT®.
- The correlation between the participants' overall perceived social presence in the class discussions activities in WEBCT®, did not account for a certain

percentage of variability in their overall perception of social presence responses.

- There was no statistically significant correlation between the participants overall perception of social presence in the written assignments activities in WEBCT®
- The correlation between the participants overall perceived social presence in the written assignments activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.
- There was no statistically significant correlation between the participants' overall perceived social presence in the individual projects activities in WEBCT®.
- The correlation between the participants' overall perceived social presence in the individual projects activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.
- There was no statistically significant correlation between the participants' overall perceived social presence in the group projects activities in WEBCT®.
- The correlation between the participants' overall perceived social presence in the group projects activities in WEBCT®, did not account for a certain

percentage of variability in their overall perception of social presence responses.

This concludes the detailed description of the variables that were examined in this study. A summary of the instrumentation used for this study can be found in the following section.

## Instrumentation

The data were collected by utilizing a subject completed survey questionnaire that was based on the GlobalEd survey originally constructed by Gunawardena and Zittle (1997) for their research examining social presence as a predictor of satisfaction within a computer-mediated conferencing environment. The survey questionnaire (Appendix A) follows the guidelines provided in *Educational Research: An Introduction* (Gall, Borg, & Gall, 2003). Shermis and Lombard (1999) determined that response rates of surveys are frequently used to assess data quality.

Permission (see Appendix B) was received from Charlotte N. Gunawardena, the original developer of the GlobalEd social presence scale to use/modify the original version of the instrument. A quantitative design for data collection and analysis was used. Modifications were made to the survey instrument to correspond with the software system (i.e., WEBCT®) that was introduced in the study. The first modification focused on the language. The language was modified to correspond with the Business and Management Department's asynchronous distance learning environments' computerized education software system WEBCT® (an e-learning system for educational institutions) rather than that of the GlobalEd software program. Both WEBCT® and GlobalEd are e-

learning software programs utilized in educational systems, so it was assumed that there was no threat to validity or reliability by changing the name of the software program being utilized by the educational institution in this study. Finally, instead of examining the course from an overall perspective, individual course activities (which compiled together make up the overall course perspective) were examined.

The study was comprised of the following two main sections: (a) personal characteristic (i.e., gender, age, and total college credits earned) questions and (b) the assessment of participants' overall perception of social presence regarding course activities. It is also important to note that Section Three of the survey was comprised of two parts: (a) Part A (see Appendix C) and (b) Part B (see Appendix D). The following section is used to provide a detailed summary of information contained in Section Three (Part A) and Section Three (Part B) of the survey used in this study.

*Section Three (Part A) (Appendix D)*

This section of the survey was used to examine the following two activities (listed in research question 2 above): (a) meet your classmates/introductions in WEBCT® and (b) class discussion /reflection activities in WEBCT®. For each of these course activities, participants were prompted to indicate the degree to which they agree with each of the indicator statements using a six-point Likert-type scale (1=strongly agree to 6= strongly disagree). Participants were also allowed to answer "not applicable" if the course activity was not presented in their course. The following two variables were generated as a result of this section of the survey: (a) the participants' overall perceived social presence for the course activity meet your classmates/introductions in WEBCT®

and (b) the participants' overall perceived social presence for the course activity WEBCT® class discussion/reflection.

*Section Three (Part B) (Appendix D)*

This section of the survey was used to examine the remaining three activities (listed in research question 2 above): (a) written assignments activities in WEBCT®, (b) individual projects activities in WEBCT®, and (c) group projects activities in WEBCT®. Again, the participants were instructed to write the number (1=strongly agree through 6 = strongly disagree) that best reflected their experience for the course in the box that corresponds with each activity and indicator statement. In addition, they were instructed to respond with "NA" for not applicable if their course did not contain a particular activity. The following three variables were generated as a result of this section of the survey: (a) the participants' overall perceived social presence for the course activity-written assignments, (b) the participants' overall perceived social presence for the course activity individual projects, and (c) the participants' overall perceived social presence for the course activity group projects.

Finally, to recap Section Three (Part A: Appendix C) and (Part B: Appendix D) a total of five variables (two from Part A and three from Part B) were generated. The Likert-scale items were used to assess self-report measures of overall perceived social presence and various personal characteristics (i.e., gender, age, and total number of college credits earned), and overall perceived social presence in various online course activities (i.e., meet classmates/introductions in WEBCT® (MC), class discussions activities in WEBCT® (CD), written assignments in WEBCT® (WA), individual

projects activities in WEBCT® (IP), and group projects activities in WEBCT® (GP). Multiple item scales were computed for internal consistency using Cronbach's Alpha. Table 3.4 displays the variables of interest to the study along with a detailed overview of the total number of categories or survey items to which that particular variable was comprised.

Table 3.4. Description of GlobalEd Survey Items

| Scale Items | Description of Survey Item | Total Number of Survey Items or Categories |
|---|---|---|
| Gender | Male/Female | 2 (**) |
| Age | Age Categories | 4 (**) |
| TCC Earned | TCC Earned | 3 (**) |
| Social Presence | OPSP | 13 (*) |
| MC Activities | Meet Classmates | 12 (*) |
| CD Activities | Class Discussions | 12 (*) |
| WA Activities | Written Assignments | 12 (*) |
| IP Activities | Individual Projects | 12 (*) |
| GP Activities | Group Projects | 12 (*) |

*Note*. (*) denotes total number of items. (**) denotes total number of categories. Age = (category 1 – 20-24 yrs of age, category 2 = 25-29 yrs of age, category 3 = 30-34 yrs of age, and category 4 = 35-51 yrs of age), Total College Credits Earned (TCC) = (category 1 = 0-30, category 2 = 31-54, and category 3=55-120 total college credits earned), Overall Perceived Social Presence (OPSP), Meet Classmates(MC), Class Discussions (CD), Written Assignments (WA), Individual Projects (IP), and Group Projects (GP).

The following section provides a detailed description of the reliability associated with the GlobalEd Survey utilized in this study.

### *Reliability*

Huck (2004) indicated that "the basic idea of reliability is summed up in one word consistency" (p. 76). In addition, Huck (2004) also mentioned that "whereas the best one-word synonym for reliability is consistency, the core essence of validity is captured nicely by the word accuracy and a researcher's data are reliable and valid to the extent that the results of the measurement process are both consistent and accurate" (p. 88). Finally, Borg and Gall (1996), indicated that reliability refers to "the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures" as the initial researcher (p. 596). Based on the above-mentioned criteria, Gunawardena and Zittle (1997) concluded that the GlobalEd Survey had a reliability level or internal consistency of $\alpha$ =.88 as measured by Cronbach's alpha (i.e., $\alpha$=alpha). Nunnally (1978) indicated that there is not a commonly agreed cut-off for alpha, usually 0.7 and above is acceptable, and the higher the alpha is, the more reliable the test is. The following section provides a detailed description of the validity associated with the GlobalEd Survey utilized in this study.

### *Validity*

In addition, to reliability being an important factor in research, validity is equally important. Walsh and Betz (2001) stated that validity refers to "the extent to which the test we're using actually measures the characteristics or dimension we intend to measure" (p. 56). Gunawardena and Zittle (1997) indicated that the GlobalEd Survey had a validity rating of high correlations (varying between .52 and .87) between social presence and semantic differential, which measures people's reactions to stimulus words

and concepts in terms of ratings on bipolar scales defined with contrasting adjectives at each end. The following section provides a detailed description of the data collection procedures that were adhered to in this study.

## Data Collection Procedures

During the initial departmental orientation session, the following two documents for the study were introduced the proposed study participants:

- The *Information Sheet* (see Appendix E) that gave a detailed description of the logistics pertaining to the study)
- Section one of the questionnaires (see Appendix A) that consisted of a request for information regarding personal characteristics (i.e., gender, age and the number of college credits earned).

During the second departmental follow-up session, the following two remaining sections of the survey instrument were introduced to the study participants:

- Section Two (see Appendix F) that was used to assess the participants' overall perceptions of social presence with regards to the following six variables: (a) participants' perceived presence of peers, (b) participants' perceived presence of their instructor, (c) participants' perceived presence of self, (d) participants' perceived learning in a course, (e) participants' perceived satisfaction with a course, and (f) participants' perceived satisfaction with their instructor.
- Section Three (Part A) (see Appendix C) that was used to assess the participants' relationship between their overall perceived social presence and

the following two types of course activities listed in research question 2: meet your classmates/introductions in WEBCT® and WEBCT® class discussion/reflections and answers.

- Section Three (Part B) (see Appendix D) that was used to assess the participants' relationship between their overall perceived social presence and the following three remaining types of course activities that are listed (i.e., written assignments, individual projects, and group projects).

If a participant encountered difficulties attending the initial departmental orientation or was located in another geographic location (i.e., out of state), the following departmental protocol was adhered to for the purpose of this study:

- Contact information (i.e., phone number or mailing address) was obtained via the student registration records that were provided by departmental personnel at the onset of the semester to discuss the study and solicit their participation.
- If a phone call was determined to be the best avenue for contacting the proposed participant, the Information Sheet (see Appendix E) was used as a guideline for providing a brief introduction and explanation of the study to the proposed participants.
- If the proposed participant agreed to participate in the study, the Information Sheet and Section One of the survey (see Appendix A) that consisted of a request for personal characteristic information (i.e., gender, age and number of college credits earned), was sent to the participants by mailing it to their physical address for completion and return.

- If regular mail was determined to be the best avenue for contacting the proposed participant, the following documents were sent: (a) a brief introductory cover letter, (b) the Information Sheet (see Appendix E), (c) Section One of the survey (see Appendix A), and (d) a self-addressed stamped return envelope for the participants' convenience. The introductory cover letter was used to explain the purpose of the study and solicit participation. In all cases (i.e., phone calls, e-mail, and mail), the proposed participants were given approximately two weeks from receipt of the Information Sheet and Section One of the survey to return these documents. If the need arose, one follow-up correspondence was sent approximately one week later to solicit participation. If no response was received at that time, it was assumed that the proposed participant had no interest in participating in the study and no further correspondence was sent.

The initial departmental orientation session was conducted during the second week of the semester, and the second departmental follow-up session was conducted approximately three weeks before the semester was completed. The sessions took place in a facility on the Lee College Campus in Baytown, Texas, that could accommodate all 10-15 classes at one time. When the participants arrived for the initial departmental orientation session, they were sectioned off by course. No instructor for any of the 13 courses was present during either of the departmental sessions (i.e., the initial or the follow up) for the presentation of the research study and the administering of the survey to the participants. Once it was determined that all proposed participants who intended to

attend the session had arrived, roll was called and an Information Sheet (see Appendix E) was distributed to each proposed participant.

This Information Sheet contained detailed information regarding the purpose of the research study as well as all logistics pertaining to the study. The proposed participants were informed that participation in the study was voluntary and that the data collected would be treated confidentially. Procedures for collecting data and how the data would be reported were explained to the proposed participants as well. Confidential treatment of data collected and complete anonymity were guaranteed to the proposed participants (i.e., survey contained no questions that requires the proposed participants to divulge their identity in any way). Upon completion of explaining the research study and answering any questions or addressing any concerns that the proposed participants had, all proposed participants who elected to participate in the study received Section One of the survey instrument (see Appendix A) that asked each of them to provide information pertaining to their personal characteristics (i.e., gender, age, and total number of college credits earned). Those proposed participants who elected not to participate in the study were released from the initial departmental orientation session prior to the demographic survey instruments being distributed. Consent to participate in the research study was assumed by the return of the completed Section One portion of the survey instrument. Finally, a detailed summary of the data analysis procedures utilized in the study is provided in the following section.

## Data Analysis

Several statistical procedures were performed to answer the two research questions. To ensure the quality of the data, the researcher conducted a data screening technique as the first step in the data analysis process. According to Mertler and Vannatta (2005), the first purpose for screening data prior to conducting a multivariate analysis is to verify the accuracy of the data collected. During the data screening process, the researcher sought to determine whether there were any missing data, the underlying reason as to their occurrence, and ultimately the proper way to resolve this issue in order to ensure generalizability of the results. Once the data screening process was complete, response frequencies were conducted to assess the distribution of the responses, means and standard deviations were calculated for each scale to assess central tendencies, and correlations were calculated for each variable (i.e., gender, age, total college credits earned, meet classmates activities, class discussions activities, written assignments activities, individual projects activities, and group projects activities) with the participants' overall perception of social presence. The significance level was set at $p < .01$ and .05. Reliability analysis using Cronbach's alpha was used to determine the reliability of all scales, and the resulting coefficient alpha scores were then compared to the published reliability estimates for pre-existing scales used in this study.

To provide evidence to support the construct validity of the instrument, responses on the dependent variable (i.e., overall perceived social presence) and the independent variables (i.e., meet classmates, class discussions, written assignments, individual projects, and group projects) were subjected to factor analysis. Factor loading values

were examined to determine the strength of relationship between each item and each factor. Three separate factor analyses using principal components analyses with varimax rotation were performed. Based on the results of the original factor analysis, the researcher used a factor loading value of .45 as the cut-off criteria for the factor analysis phase of this study. Hair, Anderson, Tatham, and Black (1998) indicated that values greater than 0.3 are considered to be substantial or salient; however, factor loadings of 0.50 or greater are considered practically significant. In addition, Chen and Hsu (2001) as well as Kim (2002) indicated that any item with a factor loading value less than 0.50 and any item loading on more than one factor, that is, with a loading score equal to or greater than 0.40 on each factor should be eliminated from the analysis.

Reliability analysis using Cronbach's Alpha was used to determine the reliability of all scales. Finally, the results of the factor analysis were used to determine the suitability of the items used to assess the participants' overall perception of social presence in their respective asynchronous online course. The research hypotheses and data analyses techniques utilized to answer research question 1 is specified in the following section.

To examine the hypotheses (for research question 1) that personal characteristics (i.e., gender, age, and total number of college credits earned) are predictors of the participants' overall perception of social presence, correlations were conducted and a one-way ANOVA was examined for each set of variables using the Statistical Package for Social Sciences (SPSS 13) software. The purpose of utilizing the statistical one-way ANOVA technique was to compare the mean levels for the dependent variable (i.e.,

overall perceived social presence) to the respective independent variables (i.e., gender, age, and total number of college credits earned). In addition, correlations were conducted to determine whether there was a relationship between the variables.

In the next phase of the analysis process, the researcher examined the Levene's test of homogeneity to determine whether the variables had approximate equal variance. Once the researcher determined whether the approximate variance was equal (or not), the researcher utilized either the between groups (for approximate equal variance) or the within groups (for unequal variance) figures listed in the ANOVA table to determine whether there was any variation of the group means around the overall mean.

Finally, the researcher examined the significance category on the ANOVA table to determine the significance level of the F-test conducted regarding the variables. If a significant difference was found between the variables, the researcher conducted post hoc tests (i.e., Tukey HSD, Scheffe', and Student Newman-Keuls (SNK) to determine which pair of groups were significantly different. Finally, the researcher made a decision whether to accept or reject the null hypotheses based on the results obtained. The research hypotheses and data analyses techniques utilized to answer research question 2 are specified in the following section.

To examine the hypotheses (for research question 2) that the various course activities (i.e., meet classmates, class discussions, written assignments, individual projects, and group projects) are predictors of the participants' overall perception of social presence, a stepwise-multiple regression was conducted using the SPSS 13 software. The purpose of this statistical technique was to determine which specific

independent variable (i.e., meet classmates, class discussions, written assignments, individual projects, and group projects activities) made meaningful contributions to the overall prediction regarding the dependent variable (i.e., overall perceived social presence). Stepwise regression was selected as the preferred method by which variables were entered and removed from the regression equation as it combines both the forward and backwards methods (Gall et al., 1996).

In addition, Aron and Aron (1999) determined that stepwise-multiple regression analyses are often used in studies that are exploratory in nature. An equation using overall perceived social presence as the dependent variable with the independent variables meet classmates, class discussions, written assignments, individual projects, and group projects was run. The confidence interval was set at 95% for each regression coefficient. A correlation matrix was compiled utilizing the Pearson correlation information obtained via the stepwise regression. The $r^2$ results obtained via the Model Summary table of the regression analysis were used to determine whether practical significance was indicated. Finally, the researcher made a decision whether to accept or reject the null hypotheses based on the results obtained. The following section provides a summary of the methodology utilized in this study.

## Summary

This chapter was used to describe the methodology for carrying out the present study. A general description of the setting, the research design, the population and sample, description of the sample, and the variables was presented. In addition, a description of the instrument utilized was discussed regarding its validity reliability. The

statistical processes that were selected for the data collection procedures as well as the data analysis procedures were also presented. Finally, the results from the data analysis are provided in the following chapter.

# CHAPTER IV

# THE RESULTS

## Introduction

The purpose of this study was to examine the relevance of social presence (i.e., the dependent variable) to cognitive and affective learning (i.e., independent variables) in an asynchronous distance learning environment. The results of the data analysis are presented in the following six sections in this chapter (a) results of the data screening analysis that was utilized in this study; (b) results of the factor analysis; (c) results of the reliability analysis; (d) results of the stepwise multiple regression and correlation matrix for this study; (e) results of the one-way ANOVAS conducted for research question 1 that examined the relationship between the participants' overall perception of social presence (i.e., the dependent variable) and the personal characteristics gender, age, and the total number of college credits earned (i.e., the independent variables); and (f) results of the stepwise regression for research question 2 that examined the relationship between the participants' overall perception of social presence (i.e., the dependent variable) and the various course activities (i.e., meet classmates, class discussions, written assignments, individual projects, and group projects) that served as independent variables. The following section provides a detailed overview of various procedures that were employed during the data analysis process.

## Analysis of Data

The first step in the data analysis process involved the researcher conducting a data screening analysis to ensure the accuracy of the data that had been collected and to

determine if there were any missing data or outliers. The following section provides a detailed overview of four issues that were encountered during the data screening analysis.

### *Data Screening Analysis*

During the data screening analysis, the researcher encountered the following:

1. The issue of missing data that appeared in the form of unequal N's (i.e., total number of participants' responses) per item answered.
2. A non-integral variable (i.e., individual projects) based on the "non-applicable" participants' responses obtained for this type of activity.
3. The need to divide and rename the class discussions (CD) variable into two separate variables based on the results obtained via the factor analysis.
4. The need to divide and rename the written assignments (WA) into two separate variables based on the results obtained via the factor analysis.

To resolve issue one regarding the missing data due to unequal N's or participants' responses, the researcher employed Mertler and Vannatta's (2005) technique of calculating the mean of the available data. Mertler and Vannatta (2005) stated that the most common method utilized by researchers when faced with the issue of missing data is a "method of estimating missing values or data involves the calculation of the means, using available data for values with missing values, and those means are then used to replace the missing values prior to the main analysis" (p. 26).

To resolve issue two, it is important to note that during the data screening process, the researcher determined that the individual projects (IP) activities that were

associated with research question 2 were a non-integral variable. The researcher based this determination on the fact there was a large amount of “non-applicable” responses from the participants regarding this variable, which indicated that they did have this type of activity in their respective online courses. Mertler and Vannatta (2005) stated that “if a certain variable has more than 15% missing data, the researcher may want to consider dropping the variable from the analysis” (p. 37). As a result of the “non-applicable” responses from the participants, the researcher determined that the IP activities played a non-integral role in the study and therefore decided to drop this variable from the data analysis process for research question 2.

To address issue three, the need to divide and rename the class discussions (CD) variable into two separate variables, and issue four, the need to divide and rename the written assignment (WA) variable into two separate variables as a result of the factor analysis, the researcher utilized a third technique from Mertler and Vannatta (2005), which indicated that

> Once the appropriate number of components to retain (via the factor analysis) has been determined, the researcher must then interpret/name the components by evaluating the types of variables included in each factor, the strength of factor loadings, and the directions of the factor loadings. (p. 275)

To resolve issue three (i.e., dividing/renaming the CD variable), the researcher created the following two variables to represent the CD variable in research question 2: overall perceived learning in the class discussion activities, and overall perception of the online community in the class discussion activities. Finally, to resolve issue four (i.e., dividing/renaming the WA variable), the researcher created the following two variables to represent the WA variable in research question 2: (a) overall perceived learning in the

written assignments activities and (b) overall perception of others in the written assignments activities. This concludes the issues that were discovered during the data screening phase of this study. The following section provides an overview of the items and the factor structure of the survey instrument that were extracted and utilized to answer the research questions in this study.

### *Factor Analysis*

Instrument validation is essential in empirical research (Straub, 1989). Therefore, the researcher used exploratory factor analysis to determine whether the 79 items in the survey instrument utilized in this study correctly captured the impact of the participants' overall perception of social presence on their cognitive and affective learning in their respective asynchronous online distance learning courses. Nunnally (1978) indicated that a general rule of thumb in exploratory factor analysis is that the ratio of respondents to items should exceed 5. However, the fact that the ratio in this study (i.e., 150:79) fell below the recommended minimum did not preclude the use of factor analysis. Gorsuch (1983) advocates "using Bartlett's Test of Sphericity to examine the significance of a correlation matrix in instances where the minimum ratio is not achieved" (p. 150). However, Tabachnick and Fidell (1989) stated that "Bartlett's Test of Sphericity is highly sensitive to sample size and suggested supplementing it with Kiaser's measures of sampling adequacy (MSA)" (p. 604). Kaiser and Rice (1974) suggested that the MSA value should be at least 0.60 before proceeding with the factor analysis, though realistically the value should exceed 0.80 if the results of the factor analysis are to be credible. In this study, Bartlett's Test of Sphericity significance level (i.e., .000)

indicated that there were probably significant relationships among the variables and that the data were suitable for factor analysis. In addition, Kaiser's MSA value (i.e., .92) indicated the proportion of variance in the variables which was common variance; therefore, confirming that a factor analysis was a useful technique for analyzing this data. On this basis, the researcher felt that it was appropriate to relax the earlier ratio rule and proceed with the exploratory factor analysis.

Because factor analysis extracts the reliable items that significantly explain the variance of each factor, factor analysis was conducted to determine what, if any, underlying structures exists for measures on the following five variables of interest: (a) overall perceived social presence (OPSP) (i.e., the dependent variable) and independent variables; (b) meet classmates activities (MC); (c) class discussions activities (CD); (d) written assignment activities (WA); and (e) group projects activities (GP). Mertler and Vannatta (2005) stated that "the term factor analysis is commonly used to represent the general process of variable reduction" (p. 250), and, that there are "two basic types of factor analytic procedures (i.e., exploratory and confirmatory)" (p. 257).

For the purpose of this study, the researcher conducted an exploratory factor analysis. A principal component analysis was conducted utilizing a varimax rotation. The first matrix that the researcher examined in the factor analysis process was the correlation matrix, which provided a detailed summary of the correlational values for each variable of interest. In reviewing the correlation matrix, the researcher determined that there were many items with medium (i.e., values at .50 or less) to large (i.e., values greater than .50) correlation values that were moderately correlated with the remaining

variables. After careful review, the researcher determined that there were no variables that were not correlated with the others in the matrix.

In addition, the results of the initial factor analysis indicated that all variables of interest loaded under all components (i.e., 1-11), which caused no full series of rotations to be obtained. Aron and Aron (1999) mentioned that variables typically have loadings on all factors, but will usually have high loadings on only one factor, which was not the case with this factor analysis results. To resolve this issue, the researcher elected to suppress all values that were less than 0.45 for reasons of insufficient contribution to explaining the variance and the factor analysis was re-conducted. Although Hair et al. (1998) suggest that factor loadings of 0.50 or greater are practically significant, a factor loading of greater than 0.45 can be considered significant in this research.

In analyzing the second factor analysis, more specifically the rotated component matrix for each variable (if available), the researcher determined that instead of 11 components (from the initial factor analysis), there was now a total of seven components. All double loading items were deleted and the following results were obtained for each variable: (a) overall perceived social presence (OPSP) still had all factor loadings on component 1, (b) class discussions (CD) had factor loadings on components 1, 4, and 6, (c) written assignments (WA) had factor loadings on component 2, and (d) group projects (GP) had factor loadings on component 3. Reliability analysis utilizing Cronbach's coefficient alpha was conducted. Upon reviewing the above-mentioned results, and keeping in mind that this study was conducted using a convenience sample, the researcher made the decision to proceed with the study analysis

by re-calculating the factor analysis for each variable and their associated items, taking only the top three values obtained for each. Williams (1992) mentioned that by its very nature, interpretation of components or factors involves much subjective decision-making on the part of the researcher. The following section provides a detailed overview of the final factor analysis and reliability analysis results obtained for the dependent variable overall perceived social presence.

**Overall Perceived Social Presence – Final Factor Analysis and Reliability Analysis Results**

A new factor solution, derived by principal component factor analysis with varimax rotation, indicated that 78.6% of the total variance was explained by the overall perceived social presence factor. Overall perceived social presence (i.e., Factor 1) consisted of the following top three items: (a) OPSP-f – overall the instructor for this course met the participants' expectations, (b) OPSP-a – I felt comfortable interacting with other participants in this course, and (c) OPSP-d – the instructor created a sense of online community. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.90 for this construct. In addition, the items mean was 1.82 with a scale mean of 5.48 and a standard deviation of 2.50. The following section provides a detailed overview of the results obtained for the independent variable meet classmates activities in WEBCT®.

**Meet Classmates – Final Factor Analysis and Reliability Analysis Results**

The new factor solution, derived by principal component factor analysis with varimax rotation, indicated that 78.2% of the total variance was explained by the meet classmate factor. The meet classmates activities in WEBCT® (i.e., Factor 1) consisted of the following top three items: (a) MC-a – the participants' overall perceived presence for this activity, (b) MC-b – the participants' overall comprehension and retention of knowledge for this activity, and (c) MC-c – the participants' perception that the quality of learning for this activity was excellent. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.96 for this construct. In addition, the items mean was 1.67 with a scale mean of 5.02 and a standard deviation of 2.05. The following section provides a detailed overview of the results obtained for the independent variable class discussions activities in WEBCT®.

**Class Discussions – Final Factor Analysis and Reliability Analysis Results**

A new factor solution, derived by principal component factor analysis with varimax rotation, indicated that 82.4% of the total variance was explained by the class discussions factor. Class discussions (i.e., Factor 1) consisted of the following top three items: (a) CD-g – the instructor created a sense of online community, (b) CD-l – the participants perceived their point of view was acknowledged by other participants, and (c) CD-f – the participants felt that this activity enabled them to form a sense of online community. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.78 for this construct. In addition, the items mean was 1.80 with a scale mean of 5.41 and a standard deviation of 1.68. It is important to note that the class discussions factor had

factor loadings on two primary components. The following section provides a detailed overview of the results obtained for the Factor 2 Component.

Class discussions (i.e., Factor 2) consisted of the following top three items: (a) CD-a – the participants' overall perceived presence for this activity, (b) CD-b – the participants' overall comprehension and retention of knowledge for this activity, and (c) CD-c – the participants' perception that the quality of learning for this activity was excellent. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.93 for this construct. In addition, the items mean was 1.80 with a scale mean of 5.42 and a standard deviation of 1.63. The following section provides a detailed overview of the results obtained for the independent variable written assignments activities in WEBCT®.

**Written Assignments – Final Factor Analysis and Reliability Analysis Results**

A new factor solution, derived by principal component factor analysis with varimax rotation, indicated that 80.2% of the total variance was explained by the written assignments factor. Written assignments (i.e., Factor 1) consisted of the following top three items: (a) WA-m – the participant were able to form distinct individual impressions of other course participants during this activity, (b) WA-i – the participants perceived that this activity was facilitated by the instructor, and (c) WA-l – the participants felt that their point of view was acknowledged by other participants during this activity. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.83 for this construct. In addition, the items mean was 2.06 with a scale mean of 6.17 and a standard deviation of 1.68. It is important to note that the written assignments factor also had factor

loadings on two primary components. The following section provides a detailed overview of the results obtained for the Factor 2 Component.

Written assignments (i.e., Factor 2) consisted of the following top three items: (a) WA-a – the participants' overall perceived presence for this activity, (b) WA-b – the participants' overall comprehension and retention of knowledge for this activity, and (c) WA-c – the participants' perception that the quality of learning for this activity was excellent. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.87 for this construct. In addition, the items mean was 2.15 with a scale mean of 6.45 and a standard deviation of 1.44. The following section provides a detailed overview of the results obtained for the independent variable group projects activities in WEBCT®.

**Group Projects – Final Factor Analysis and Reliability Analysis Results**

The new factor solution, derived by principal component factor analysis with varimax rotation, indicated that 20.7% of the total variance was explained by the group projects factor. The group projects activities in WEBCT® (i.e., Factor 1) consisted of the following top three items: (a) GP-b – the participants' overall comprehension and retention of knowledge for this activity, (b) GP-c – the participants' perception that the quality of learning for this activity was excellent, and (c) GP-d – the participants felt comfortable conversing online for this activity. Reliability analysis confirmed a Cronbach's alpha coefficient of 0.93 for this construct. In addition, the items mean was 1.64 with a scale mean of 4.92 and a standard deviation of 2.17.

After the factor analysis was completed, the seven factors of interest, i.e., (a) overall perceived social presence, i.e., OPSP; (b) meet your classmates activities, i.e., MC; (c) overall perceived learning in the class discussions activities, i.e., CD 1; (d) overall perception of the online community in the class discussions activities, i.e., CD 2; (e) overall perceived learning in the written assignments activities, i.e., WA 1; (f) overall perception of others in the written assignments activities, WA 2; and (g) group projects activities, i.e., GP, were named based on the major characteristics of the measured variables. Table 4.1 provides a detailed overview of final factor analysis and reliability analysis results that were obtained.

Once the reliability of the data were verified and the researcher concluded that acceptable levels were attained, the top three values for each variable were used to compute an average value for each respective variable. After the computed averages were compiled, the researcher conducted a stepwise regression report, and the following section provides a summary of the results that were obtained.

Table 4.1. Factor Analysis and Reliability Analysis Results

| Variable Description(s) | Component 1 Factor Loading | Component 2 Factor Loading | Cumulative % of Explained Variance | Cronbach's Alpha |
|---|---|---|---|---|
| Overall Perceived Social Presence (OPSP) | | | | |
| • OPSP-f-Instructor met expectations | .88 | | | |
| • OPSP-a-Comfortable interacting w/others | .87 | | 78.6 | .90 |
| • OPSP-d-Teacher created OL community | .87 | | | |
| Meet Classmates Activities (MC) | | | | |
| • MC-a-Perceived presence for activity | .86 | | | |
| • MC-b-Comprehension for activity | .86 | | 78.2 | .96 |
| • MC-c-Quality of learning excellent | .86 | | | |
| Class Discussions Activities (CD 1) | | | | |
| • CD-g-Teacher created OL community | .79 | | | |
| • CD-l-Felt point of view was acknowledge | .75 | | | |
| • CD-f-Able to form sense of OL community | .75 | | | .78 |
| Class Discussions Activities (CD 2) | | | | |
| • CD-a-Perceived presence for activity | | .89 | | |
| • CD-b-Comprehension for activity | | .88 | | |
| • CD-c-Quality of learning excellent | | .86 | 82.4 | .93 |
| Written Assignments Activities (WA 1) | | | | |
| • WA-a-Perceived presence for activity | .82 | | | |
| • WA-i-Activity facilitated by Instructor | .77 | | | |
| • WA-l-Felt point of view was acknowledge | .76 | | | .83 |
| Written Assignments Activities (WA 2) | | | | |
| • WA-a-Perceived presence for activity | | .93 | | |
| • WA-b-Comprehension for activity | | .92 | | |
| • WA-c-Quality of learning excellent | | .80 | 80.2 | .87 |
| Group Projects activities (GP) | | | | |
| • GP-b-Comprehension for activity | .87 | | | |
| • GP-c-Quality of learning excellent | .86 | | 20.7 | .93 |
| • GP-d-Teacher created OL community | .85 | | | |

*Note*. Scale: OL=Online, (OPSP) = overall perceived social presence, (MC) = meet classmates activities, (CD 1) = overall perception of an online community in class discussions activities, (CD 2) = overall perceived learning in class discussions activities, (WA 1) = overall perception of others in the written assignments activities, (WA 2) = overall perceived learning in the written assignments activities, and (GP) = group projects activities.

*Stepwise Regression Analysis*

To examine the hypotheses that overall perceived social presence is a predictor of comprehension and retention of knowledge (i.e., cognitive learning) and satisfaction (i.e., affective learning) in the 13 asynchronous online distance learning course activities, a stepwise regression procedure was calculated using the SPSS 13 software. The six predictor variables of interest, or independent variables, were (a) meet classmates activities (b) overall perceived learning in the class discussions activities, (c) overall perception of the online community in the class discussions activities, (d) overall perceived learning in the written assignments activities, (e) overall perception of others in the written assignments activities, and (f) group projects activities. The purpose of this statistical technique was to obtain additional information regarding the amount of explained variance added by each of the respective predictors when entered into the equation model. In addition, the criterion measure of interest, or dependent variable, was overall perceived social presence, and the probability limits were set at $p \leq .05$. Finally, the main effect of overall perceived social presence on the participants' perceived comprehension and retention of knowledge ratings (i.e., cognitive learning), as well as overall satisfaction ratings (i.e., affective learning), are summarized in Table 4.2.

Table 4.2. Summary of Stepwise Regression Model

| Model | Variable Entered | R | R Squared | Adjusted R Squared | Standard Error of Estimate | R Squared Change |
|---|---|---|---|---|---|---|
| 1 | CD062907 | .62[a] | .38 | .38 | 1.26 | .38 |
| 2 | MC62607 | .70[b] | .49 | .48 | 1.15 | .11 |
| 3 | WA062907 | .72[c] | .52 | .51 | 1.11 | .03 |

*Note*. ($p < .05$): Scale: CD=Class Discussions activities, MC= meet classmate activities, WA=written assignments activities; Dependent variable: Overall Perceived Social Presence (OPSP).
[a]Predictors (Constant), CD062907 (df =1, 143).
[b]Predictors (Constant), CD062907, MC_62607 (df =1, 142).
[c]Predictors (Constant), CD062907, MC_62607, WA062907 (df = 1, 141).

The results contained in Table 4.2 indicated that the stepwise regression analysis converged on a three-predictor model that revealed that the constant predictors (i.e., class discussions (CD), meet classmates (MC) and written assignments (WA), accounted for over 52% of the explained variance ($R=.72$, $R^2=.522$, $F=10.73$, df =1,141, $p < .05$). Rosenthal, Rosnow, and Rubin (2000) stated that the central focus for interpreting results is on the "practical significance" (p. 4). Based on the above-mentioned results, the researcher concluded that the results (i.e., over 52% of explained variance) indicated a medium level of practical significance. The following section addresses the the constant predictors (i.e., class discussions (CD), meet classmates (MC), and written assignments (WA) and their overall contribution to the predictor model.

**Class Discussions**

The class discussions activities (i.e., CD062907) that included the following top three items: (a) CD-g – the instructor created a sense of online community, (b) CD-l –

the participants' perceived their point of view was acknowledged by other participants, and (c) CD-f –the participants felt that this activity enabled them to form a sense of online community, alone contributed approximately 38% of the explained variance.

**Meet Classmates**

The meet classmates activities (i.e., MC-62607) that included the following top three variables: (a) MC-a – the participants' overall perceived presence for this activity, (b) MC-b – the participants' overall comprehension and retention of knowledge for this activity, and (c) MC-c – the participants' perception that the quality of learning for this activity was excellent, accounted for approximately 11% of the explained variance.

**Written Assignments**

The written assignments activities (i.e., WA062907) that included the following top three variables: (a) WA-m – the participants were able to form distinct individual impressions of other course participants during this activity, (b) WA-i – the participants perceived that this activity was facilitated by the instructor, and (c) WA-l –the participants felt that their point of view was acknowledged by other participants during this activity, accounted for approximately 3% of the explained variance. The following section provides a summary of the means, standard deviations, and the factor correlations results that were obtained via the stepwise regression analysis.

**Correlation Matrix**

Table 4.3 shows the correlation matrix for overall perceived social presence and the various online course activities (i.e., (MC) meet classmates activities, (CD 1) overall perception of an online community in class discussions activities, (CD 2) overall

perceived learning in class discussions activities, (WA 1) overall perception of others in the written assignments activities, (WA 2) overall perceived learning in the written assignments activities, and (GP) group projects activities). The significant correlations range from .34 to .58.

Table 4.3. Factor Correlations, Means, and Standard Deviation

| Variable | Mean | SD | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|---|---|
| (1) OPSP | 4.07 | 1.59 | 1.00 | | | | | | |
| (2) MC | 3.91 | 1.63 | 0.57* | 1.00 | | | | | |
| (3) CD1 | 4.23 | 1.36 | 0.62* | 0.46* | 1.00 | | | | |
| (4) CD2 | 4.23 | 1.25 | 0.43* | 0.35* | 0.55* | 1.00 | | | |
| (5) WA1 | 4.86 | 1.27 | 0.57* | 0.45* | 0.55* | 0.42* | 1.00 | | |
| (6) WA2 | 4.96 | 1.06 | 0.34* | 0.44* | 0.43* | 0.49* | 0.58* | 1.00 | |
| (7) GP | 3.76 | 1.43 | 0.47* | 0.41* | 0.48* | 0.35* | 0.49* | 0.36* | 1.00 |

*Note*. (*) Denotes correlation is significant at the 0.05 level (1-tailed: p< .05); Scale: (OPSP) = overall perceived social presence, (MC) = meet classmates activities, (CD 1) = overall perception of an online community in class discussions activities, (CD 2) = overall perceived learning in class discussions activities, (WA 1) = overall perception of others in the in written assignments activities, (WA 2) = overall perceived learning in the written assignments activities, and (GP)= group projects activities.

This concludes the stepwise regression analysis. The following section contains a summary of the overall findings with regard to the research questions that guided this study. More specifically, the findings for research question 1 are addressed.

## Findings

This section presents results by order of research questions. Data collected and analyzed from the survey were used to answer the research questions in this study. The data presented for research question 1 were used to summarize the survey responses

according to the participants' overall perception of social presence as it related to their personal characteristics (i.e., gender, age, and total college credits earned). In addition, the data presented for research question 2 were used to summarize the survey responses according to the participants' overall perception of social presence as it related to various online course activities (i.e., (MC) meet classmates activities, (CD 1) overall perception of an online community in class discussions activities, (CD 2) overall perceived learning in class discussions activities, (WA 1) overall perception of others in written assignments activities, (WA 2) overall perceived learning in written assignments activities, and (GP) group projects activities). The following section provides a summary of the findings for research question 1.

*Research Question 1*

1. What is the relationship between participants' perceived social presence in a selected asynchronous online community college learning environment and the following personal characteristics?
    a. Gender
    b. Age
    c. The total number of college credits earned

The study participants' overall perception of social presence was examined in terms of personal characteristic type information obtained via the GlobalEd survey. These personal characteristic type items (i.e., (a) the participants' gender, (b) age, and (c) total number of college credits earned) served as the independent variables in

research question 1 and the participants' overall perception of social presence served as the dependent variable.

**Overall Perceived Social Presence and Gender Results**

In response to research question 1(a), the data collected were analyzed on the two variables gender and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables gender and the participants' overall perceived social presence was significantly significant.

The null hypothesis tested was as follows:

- There is no statistically significant correlation between the participants' responses regarding their overall perception of social presence and gender.

To examine the hypotheses (for research question 1a) that the personal characteristic gender was a predictor of the participants' overall perception of social presence, a one-way ANOVA was conducted using the Statistical Package for Social Sciences (SPSS 13) software. The purpose of this statistical technique was to compare the mean level for the dependent variable (i.e., overall perceived social presence) to the independent variable gender.

In the next phase of the analysis process, the researcher examined the Levene's test of homogeneity and determined that the significance value (i.e., .875) exceeded .05, which suggested that the variances for the two variables gender and the participants' overall perception of social presence had approximate equal variance. Once the researcher determined that the approximate variance was equal, the between groups (for

approximate equal variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the group means around the overall mean.

Finally, the researcher examined the significance category on the ANOVA table to determine the significance level of the F-test conducted regarding the variables. The F-test results were .457 and the significance level was .500. Because the significance level was greater than .05, the researcher determined that there were no groups that were significantly different; therefore, no post hoc tests were conducted. In addition, the researcher calculated correlations on the two variables and determined that the analysis between the participants' overall perception of social presence and the personal characteristic gender also yielded a statistically insignificant correlation of .055 with an $R^2$ value of .003 ($p<.05$). As a result, the researcher determined that gender accounted for none of the variability in participants' overall social presence scores.

**Overall Perceived Social Presence and Age Results**

In response to research question 1(b), the data collected were analyzed on the two variables age and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables age and the participants' overall perceived social presence was significantly significant.

The null hypothesis tested was as follows:

- There is no statistically significant correlation between the participants' responses regarding their overall perception of social presence and age.

To examine the hypotheses (for research question 1b) that the personal characteristic age was a predictor of the participants' overall perception of social presence, a one-way ANOVA was also conducted using the SPSS 13 software. Again, the purpose of this statistical technique was to compare the mean level for the dependent variable (i.e., overall perceived social presence) to the independent variable age.

In the next phase of the analysis process, the researcher examined the Levene's test of homogeneity and determined that the significance value (i.e., .000) did not exceeded .05, which suggested that the variances for the two variables age and the participants' overall perception of social presence did not have approximate equal variance. Once the researcher determined that the approximate variance was not equal, the within groups (for unequal variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the group means around the overall mean.

Finally, the researcher examined the significance category on the ANOVA table to determine the significance level of the F-test conducted regarding the variables. The F-test results were .1.45 and the significance level was .105. Because the significance level was greater than .05, the researcher determined that there were no groups that were significantly different; therefore, no post hoc tests were conducted. In addition, the researcher calculated correlations on the two variables and determined that the analysis between the participants' overall perception of social presence and the personal characteristic age also yielded a statistically insignificant correlation of .146 with an $R^2$

value of .021 ($p<.05$). As a result, the researcher determined that age accounted for none of the variability in participants' overall social presence scores.

**Overall Perceived Social Presence and Total College Credits Earned Results**

Finally, in response to research question 1(c), the data collected were analyzed on the two variables total college credits earned and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables total college credits earned and the participants' overall perceived social presence was significantly significant.

The null hypothesis tested was as follows:

- There is no statistically significant correlation between the participants' responses regarding their overall perception of social presence and total college credits earned.

Finally, to examine the hypotheses (for research question 1c) that the personal characteristic total number of college credits earned was a predictor of the participants' overall perception of social presence, a one-way ANOVA was also conducted using the SPSS 13 software. The purpose of this statistical technique was to compare the mean level for the dependent variable (i.e., overall perceived social presence) to the independent variable total number of college credits earned.

In the next phase of the analysis process, the researcher examined the Levene's test of homogeneity and determined that the significance value (i.e., .074) exceeded .05, which suggested that the variances for the two variables number of college credits

earned and the participants' overall perception of social presence had approximate equal variance. Once the researcher determined that the approximate variance was equal, the between groups (for approximate equal variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the group means around the overall mean.

Finally, the researcher examined the significance category on the ANOVA table to determine the significance level of the F-test conducted regarding the variables. The F-test results were .756 and the significance level was .583. Because the significance level was greater than .05, the researcher determined that there were no groups that were significantly different; therefore, no post hoc tests were conducted. Finally, the researcher calculated correlations on the two variables and determined that the analysis between the participants' overall perception of social presence and the personal characteristic total college credits earned also yielded a statistically insignificant correlation of .104 with an $R^2$ value of .011 ($p<.05$). As a result, the researcher determined that total college credits earned accounted for none of the variability in participants' overall social presence scores. Based on these results, the researcher failed to reject all null hypotheses; thereby, concluding research question 1. Finally, Table 4.4 provides a summary of results for the correlational analysis on the participants' overall perceived social presence and the personal characteristics (i.e., gender, age, and the total college credits earned) associated with research question 1.

Table 4.4. Correlational Analysis for Perceived Social Presence and Personal Characteristics

| Personal Characteristic | N | Mean Score for OPSP and PC | Correlation between OPSP and PC | Coefficient of Determination $R^2$ | Sig. 2 tailed P value |
|---|---|---|---|---|---|
| Gender | 150 | 1.79 | .05 | .00 | .50 |
| Age | 150 | 14.99 | .14 | .02 | .07 |
| TCC Earned | 150 | 2.81 | .10 | .01 | .20 |

*Note*. N= total number of participant responses, OPSP= overall perceived social presence, PC=personal characteristics, TCC Earned= total college credits earned, and Sig. =significance; ($p < .05$).

These findings concluded research question 1. The following section provides an overview of the results obtained regarding research question 2.

*Research Question 2*

2. What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the following five types of course activities?
    a. Meet your classmates/introductions in WEBCT®
    b. Overall perception of the online community in the class discussions activities
    c. Overall perceived learning in the class discussions activities
    d. Overall perception of others in the written assignments activities
    e. Overall perceived learning in the written assignments activities
    f. Group projects

The participants' overall perceptions of social presence were examined in terms of the various types of activities available in the WEBCT® online courses. The purpose of this exploration was to investigate the relationships between the participants' overall perceptions of social presence in the respective online course activities. The activities (i.e., (a) meet classmates, (b) overall perceived learning in the class discussions, (c) overall perception of the online community in the class discussions, (d) overall perceived learning in the written assignments, (e) overall perception of others in the written assignments, and (f) group projects) were divided into six categories based upon their natural occurrence in the WEBCT® online courses. The following section provides a detailed description of the results obtained for research question 2.

**Overall Perceived Social Presence and Meet Classmate Activities Results**

In response to research question 2(a), the data collected were analyzed on the two variables (MC) meet classmates activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables meet classmate activities in WEBCT® and the participants' overall perceived social presence was significantly significant.
- Whether the correlation between the participants' overall perceived social presence in the meet classmates activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(a) There was no statistically significant correlation between the participants' overall perception of social presence in the meet classmates activities in WEBCT®.

2(b) The correlation between the participants' overall perceived social presence in the meet classmates activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

The mean score for the participants' overall perception of social presence in the meet classmates activities (MC) was 3.91 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .57 ($p<.05$, $r2 = .33$). This indicated that the participants' overall perception of social presence accounted for approximately 33% of the variability in their perception of the meet classmates activities in WEBCT®.

**Overall Perceived Social Presence and Class Discussions Activities Results**

In response to research question 2(b), the data collected were analyzed on the two variables (CD 1) overall perception of an online community in class discussions activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables (CD 1) overall perception of an online community in class discussions activities in WEBCT® and the participants' overall perceived social presence was significantly significant.

- Whether the correlation between the participants overall perceived social presence in the (CD 1) overall perception of an online community in class discussions activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(c) There was no statistically significant correlation between the participants' overall perception of social presence in the (CD 1) overall perception of an online community in class discussions activities in WEBCT®.

2(d) The correlation between the participants' overall perceived social presence in the (CD 1) overall perception of an online community in class discussions activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

Similarly, the mean score for the participants' overall perception of social presence in the (CD 1) class discussions activities was 4.24 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .62 ($p<.05$, $r2 = .37$). This indicated that the participants' overall perception of social presence accounted for approximately 37% of the variability in their perception of whether an online community was established in the class discussions activities. Students with high perceptions of social presence also perceived that an online community was established in the class discussions activities in WEBCT®.

In response to research question 2(c), the data collected were analyzed on the two variables (CD 2) overall perceived learning in class discussions activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables (CD 2) overall perceived learning in class discussions activities in WEBCT® and the participants' overall perceived social presence was significantly significant.
- Whether the correlation between the participants' overall perceived social presence in the (CD 2) overall perceived learning in class discussions activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(e) There was no statistically significant correlation between the participants' overall perception of social presence in the (CD 2) overall perceived learning in class discussions activities in WEBCT®.

2(f) The correlation between the participants' overall perceived social presence in the (CD 2) overall perceived learning in class discussions activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

The mean score for the participants' overall perception of social presence in the (CD 2) class discussions activities was 4.22 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .42 ($p<.05$, $r2 = .17$). This indicated that the participants' overall perception of social presence accounted for

approximately 17% of the variability in their overall perception of learning in the class discussions activities. Students with high perceptions of social presence also perceived high levels of learning in the class discussions activities in WEBCT®.

**Overall Perceived Social Presence and Written Assignments Activities Results**

In response to research question 2(d), the data collected were analyzed on the two variables (WA 1) overall perception of others in written assignments activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables (WA 1) overall perception of others in written assignments activities in WEBCT® and the participants' overall perceived social presence was significantly significant.
- Whether the correlation between the participants' overall perceived social presence in the (WA 1) overall perception of others in written assignments activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(g) There was no statistically significant correlation between the participants' overall perception of social presence in the (WA 1) overall perception of others in written assignments activities in WEBCT®.

2(h) The correlation between the participants' overall perceived social presence in the (WA 1) overall perception of others in written assignments activities

in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

Similarly, the mean score for the participants' overall perception of social presence in the (WA 1) written assignments activities was 4.86 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .56 ($p<.05$, $r2 = .32$). This indicated that the participants' overall perception of social presence accounted for approximately 32% of the variability in their perception of others in the written assignments activities. Students with high perceptions of social presence also perceived high presence of others in the written assignments activities in WEBCT®.

In response to research question 2(e), the data collected were analyzed on the two variables (WA 2) overall perceived learning in written assignments activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables (WA 2) overall perceived learning in written assignments activities in WEBCT® and the participants' overall perceived social presence was significantly significant.
- Whether the correlation between the participants' overall perceived social presence in the (WA 2) overall perceived learning in written assignments activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(i) There was no statistically significant correlation between the participants' overall perception of social presence in the (WA 2) overall perceived learning in written assignments activities in WEBCT®.

2(j) The correlation between the participants' overall perceived social presence in the (WA 2) overall perceived learning in written assignments activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

The mean score for the participants' overall perception of social presence in the (WA 2) written assignments activities was 5.00 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .41 ($p<.05$, $r2 = .17$). This indicated that the participants' overall perception of social presence accounted for approximately 17% of the variability in their overall perception of learning in the written assignments activities. Students with high perceptions of social presence also perceived high levels of presence of learning in the written assignments activities in WEBCT®.

**Overall Perceived Social Presence and Group Projects Activities Results**

In response to research question 2(f), the data collected were analyzed on the two variables (GP) group projects activities in WEBCT® and the participants' overall perceived social presence to determine the following:

- Whether the correlation between the two variables (GP) group projects activities in WEBCT® and the participants' overall perceived social presence was significantly significant.

- Whether the correlation between the participants' overall perceived social presence in the (GP) group projects activities in WEBCT® accounted for any percentage of the variability in their overall perception of social presence responses.

The null hypotheses tested were as follows:

2(k) There was no statistically significant correlation between the participants' overall perception of social presence in the (GP) group projects activities in WEBCT®.

2(l) The correlation between the participants' overall perceived social presence in the (GP) group projects activities in WEBCT®, did not account for a certain percentage of variability in their overall perception of social presence responses.

The mean score for the participants' overall perception of social presence in the (GP) group projects activities was 3.86 on a six-point Likert scale (1=strongly disagree, 6=strongly agree). The analysis yielded a correlation of .64 ($p<.05$, $r2 = .41$). This indicated that the participants' overall perception of social presence accounted for approximately 41% of the variability in their perception of the group projects activities in WEBCT®. Based on the above-mentioned results obtained, the researcher rejected all null hypotheses associated with research question 2. Table 4.5 provides a summary of the findings for the various online course activities.

Table 4.5. Summary Results for Correlational Analysis on Overall Perceived Social Presence and Online Course Activities

| Course Activity | N | Mean Score for OPSP and Course Activity | Correlation Between OPSP & CA | Coefficient of Determination $R^2$ | Sig. 2 tailed P value |
|---|---|---|---|---|---|
| MC | 148 | 3.91 | .57* | .33 | .00 |
| CD1 | 148 | 4.24 | .62* | .37 | .00 |
| CD2 | 148 | 4.22 | .42* | .17 | .00 |
| WA1 | 148 | 4.86 | .56* | .32 | .00 |
| WA2 | 148 | 5.00 | .41* | .17 | .00 |
| GP | 148 | 3.86 | .64* | .41 | .00 |

*Note.* (*) Denotes correlation is significant at the 0.05 level and Sig.=significance (p< .05); Scale: N= total number of participant responses, CA = course activities, (OPSP) = Overall perceived social presence, (MC) = meet classmates activities, (CD 1) = overall perception of an online community in the class discussions activities, (CD 2) = overall perceived learning in the class discussions activities, (WA 1) = overall perception of others in written assignments activities, (WA 2) = overall perceived learning in written assignments activities, and (GP)= group projects activities.

The following section provides an overall summary of the results obtained for the research questions associated with this study.

## Summary

The sample was first examined in terms of personal characteristic type data. The personal characteristics data concerning the participants' gender, age, and total number of college credits earned were illustrated to provide an understanding of the sample in this study. The sample was judged to be a good reflection of the population. Means, standard deviations, and correlation rankings of the participants' overall perception of social presence, personal characteristics (i.e., participants' gender, age, and total number of college credits earned), and online course activities (i.e., meet classmates (MC), class

discussions (CD), written assignments (WA), and group projects (GP) were obtained. Data screening procedures were described. Separate factor analyses of the participants' overall perception of social presence in terms of the various online course activities produced the following six constructs: (a) meet classmate activities (MC), (b) overall perception of an online community in class discussions activities (CD 1), (c) overall perceived learning in class discussions activities (CD 2), (d) overall perception of others in the in written assignments activities (WA 1), (e) overall perceived learning in the written assignments activities (WA 2), and (f) group projects activities (GP).

Correlations were conducted to analyze the relationship between the participants' overall perception of social presence and the personal characteristics gender, age, and total number of college credits earned. No significant differences were found among these variables. Stepwise regressions were employed to examine the hypotheses that overall perceived social presence was a predictor of comprehension and retention of knowledge (i.e., cognitive learning) and satisfaction (i.e., affective learning) in the 13 asynchronous online distance learning course activities (i.e., (MC) meet classmates activities, (CD 1) overall perception of an online community in class discussions activities, (CD 2) overall perceived learning in class discussions activities, (WA 1) overall perception of others in the in written assignments activities, (WA 2) overall perceived learning in the written assignments activities, and (GP) group projects activities). Significant differences were found among these variables.

# CHAPTER V

# SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Introduction

The intent of this chapter is to present a summary of the present study, discuss the findings, state conclusions, and make recommendations for future research.

## Summary

### *Purpose and Research Questions*

This study was designed to explore the role of social presence in an asynchronous distance learning environment. More specifically, the study was designed to examine whether the correlation between the variables (i.e., the participants' overall perceived social presence and the participants' perception of their personal characteristics (a) gender, (b) age, and (c) total number of college credits earned) was significant. In addition, the study was also designed to examine whether the correlation was significant between the participants' overall perception of social presence and the following course activities: (a) meet classmates, (b) overall perception of the online community in the class discussions activities, (c) overall perceived learning in the class discussions activities, (d) overall perception of others in the written assignments activities, (e) overall perceived learning in the written assignments activities, and (f) group projects. Finally, the study examined whether the correlation accounted for any percentage of the variability in the participants' overall perception of social presence responses. Analysis for this study was guided by the following research questions:

1. What is the relationship between participants' perceived social presence in a selected asynchronous online community college learning environment and the following personal characteristics?
    a. Gender
    b. Age
    c. The total number of college credits earned
2. What is the relationship between participants' overall perceived social presence in a selected asynchronous online community college learning environment and the following five types of course activities?
    a. Meet your classmates/introductions in WEBCT®
    b. Overall perception of the online community in the class discussions activities
    c. Overall perceived learning in the class discussions activities
    d. Overall perception of others in the written assignments activities
    e. Overall perceived learning in the written assignments activities
    f. Group projects

The following section provides a summary of the review of literature for this study.

## Review of Literature

A literature review focusing on the areas that were directly related to the specific factors relevant to this study examined (a) a brief overview and synthesis of principal concepts associated with the theory of social presence, (b) a brief overview and synthesis

of principal concepts associated with cognitive and affective learning and their relevancy to social presence in an asynchronous distance learning environment, and (c) findings from prior studies outlining the relationships between student perceptions of self and the influence of these perceptions on cognitive and affective learning outcomes were highlighted and implications for the roles of social presence, cognitive learning, and affective learning were discussed. The purpose of this literature search was to (a) identify any existing sources of information (i.e., journal articles, books and electronic articles) that were most relevant to this study, (b) provide documentation regarding recommendations and suggestions for future research on social presence as identified and summarized by key authors, and (c) provide contributions to new knowledge in human resource development (HRD) as it pertained to social presence and its relevancy to cognitive and affective learning in an asynchronous distance learning environment.

## Methodology

This was a descriptive study in which data from members of a population were surveyed to determine the status of that population's perception of one continuous variable (i.e., social presence) as it related to other variables such as gender, age, total number of college credits earned, meet classmates activities, overall perception of the online community in the class discussions activities, overall perceived learning in the class discussions activities, overall perception of others in the written assignments activities, overall perceived learning in the written assignments activities, and group projects activities in their online course. The survey instrument (i.e., a modified version of the questionnaire entitled GlobalEd) used for this study was based on a social

presence scale that was originally developed by Gunawardena and Zittle for their research examining social presence as a predictor of satisfaction within computer-mediated conferencing environments. The social presence scale was modified in the following ways: (a) first, the language was modified to correspond with the WEBCT® distance learning environment rather than the GlobalEd environment it was originally intended for and (b) second, the scale was modified to focus on individual course activities instead of the course from an overall perspective as it was originally intended.

The questionnaire contained three sections. The first section consisted of general personal characteristic variables (i.e., gender, age, the participants' total number of college credits earned, and their total amount of online experience (i.e., one online course, two online courses, and three or more online courses taken). The second section of the questionnaire consisted of a 13-item Likert-type scale that was designed to assess the participants' overall perception of the course as it pertained to their perception of social presence (which was derived from an average of the participants' responses pertaining to social presence). The questionnaire utilized a six-point scale (i.e., 1=strongly agree to 6=strongly disagree) to prompt participants to indicate the degree to which they agreed with each statement. Finally, section three of the questionnaire consisted of indicator statements related to social presence for each of the various types of course activities. The participants were prompted to indicate the degree to which they agreed with each of the 12 indicator statements using the six-point Likert-type scale (i.e., 1=strongly agree to 6=strongly disagree). In addition, participants were allowed to answer "not applicable" if the course activities were not present in their online course.

The following four steps were adhered to during the initial data collection process for the study: (a) securing the permission of the relevant authorities, (b) selecting courses to participate in the study, (c) establishing dates and time to administer the questionnaire to the potential participants, and (d) administering the final instrument to the target sample. Anonymity of the respondents was guaranteed because no individual could be identified regardless of how he or she chose to respond. The study was presented to the 252 potential participants and 156 participants selected to participate in the study for an overall response rate of 62%. An examination of the descriptive statistics for the sample revealed that the final sample consisted of 34 male and 122 female participants (n=156). It is important to note that six surveys were incomplete therefore, the usable sample size equaled 150. Data collected from the questionnaire were analyzed to answer the research questions in this study.

Data screening techniques were employed as the first step in the data analysis process. During this process, the researcher sought to determine whether there were any missing data, the underlying reason as to their occurrence, and ultimately the proper way to resolve this issue in order to ensure generalization of the results. In addition, response frequencies were examined and correlations were conducted for each variable. Significance levels were set at $p < .05$ and reliability analysis was conducted using Cronbach's alpha. The variables were then subjected to factor analysis and the factor loading values were examined to determine the strength of relationship between each item and each factor. Three separate factor analyses using principal components analyses with varimax rotation were performed. As a result, six types of activities (i.e., (a) meet

classmates, (b) overall perception of the online community in the class discussions activities, (c) overall perceived learning in the class discussions activities, (d) overall perception of others in the written assignments activities, (e) overall perceived learning in the written assignments activities, and (f) group projects were identified. Finally, a stepwise regression analysis was conducted to obtain additional information regarding the amount of explained variance added by each of the respective predictors when entered into the equation model. A correlation matrix that indicated significant correlations that ranged from .34 to .58 was obtained, and Cronbach's alpha was used to assess reliability of the data. The following section provides a summary of the results obtained for research question 1.

## Research Question 1

Descriptive statistics, such as frequencies and percentages, as well as correlations and one-way ANOVAs were conducted to assess the relationship between the participants' overall perception of social presence and the personal characteristics (i.e., gender, age, and total number of college credits earned) to answer research question 1. Generally, the study found no direct correlation between the participants' overall perception of social presence and either of the personal characteristics (i.e., gender, age, and total number of college credits earned). The following section provides a detailed overview of the findings, conclusions, and discussions for research question 1.

*Findings, Conclusions, and Discussion*

**Social Presence and Gender**

In terms of examining hypothesis 1(a), the researcher sought to determine whether the personal characteristic gender was a significant predictor of the participants' overall perception of social presence. The results of the one-way ANOVA conducted in this study indicated that there was no significant difference found between the two groups; therefore, no post hoc tests were needed. In addition, these results were confirmed when the correlations were calculated for the participants' overall perception of social presence and gender and the findings also yielded an insignificant correlation. These findings indicated that gender accounted for none of the variability in participants' overall social presence scores.

The larger literature base on gender as stipulated by Acker (1994), Blackmore and Kenway (1993), and Nicholson (1980) indicated that gender played a role in individuals' educational experiences. Over a decade ago, Sacks, Bellisimo, and Mergendoller (1993) argued that males tend to display more positive attitudes toward computers regardless of the level of familiarity, while female attitudes become more positive as the level of familiarity increases. Finally, the study of replication, Richardson and Swan's (2003) analysis between gender and students' overall perception of social presence, yielded a statistically significant correlation of .219 with an $R^2$ value of .047 ($p<.05$), which indicated that gender accounted for approximately 5% of the variability in students' overall social presence scores. The findings of this study regarding overall perceived social presence and gender refutes these concepts.

Through more recent research, Charny (2000) declared that as of January 1999, the online population was more gender-balanced and with more women utilizing online learning, perhaps male voices will no longer dominate. In addition, Hargittai's (2002) research confirmed this concept when the data showed that gender influence was not significantly related to the users' ability to utilize technological advances. A report generated in the year 2001 by the American Association of University Women (AAUW) Educational Foundation indicated that online learning is on the rise, that 60% of the learners are females over the age of 25, and that the high enrollment of females is primarily due to the benefits of schedule flexibility, low enrollment costs, and lower levels of discomfort or alienation than in traditional classrooms. Finally, Bannert and Arbinger (1996) as well as Cooper and Stone (1996) mentioned that statistically significant gender differences may not have any practical value; unstudied variables may influence students' computer-related behavior, and students' self-ratings could be especially problematic due to boys' frequently observed tendency to overestimate and girls to underestimate their abilities.

Based on the findings of this study regarding gender and the participants' overall perception of social presence, the researcher determined that the results could possibly indicate that as technological advances are being made and individuals are becoming more acclimated in the online learning environment, the role of gender has possibly become a less significant factor. This concept is especially important as technology has become an integral part of higher education instruction. It is also important to note that as technology continues to advance and have an impact on society, it is imperative that

educators and HRD professionals seek new ways to ensure that everyone can effectively function in online environments and feel confident that they can benefit from them as well. Finally, the researcher determined that another possibility that could have contributed to the findings of this study regarding gender and overall perception of social presence was that these findings could be specific to this particular sample only. The following section provides a summary of the results obtained regarding the participants' age and their overall perception of social presence.

**Social Presence and Age**

In terms of examining hypothesis 1(b), the researcher sought to determine whether the personal characteristic age was a significant predictor of the participants' overall perception of social presence. The results of the one-way ANOVA conducted in this study indicated that there were no age groups that were significantly different; therefore, no post hoc tests were needed. In addition, these results were confirmed when the correlations were calculated for the participants' overall perception of social presence and age, and the findings also yielded an insignificant correlation. These findings indicated that age also accounted for none of the variability in participants' overall social presence scores.

The growing accessibility of computers as well as the increased number of online courses has prompted students of all ages to take advantage of distance learning. Some studies reported that age was related to attitude and perceptions regarding computer technology (Comber, Colley, Hargreaves, & Dorn, 1997; Dyck & Smither, 1994); but in this study, the effects of age were not apparent. The researcher determined that the

results indicated that age accounted for none of the variability in the student's overall perception of social presence. These findings confirmed Giles' (1999), Feldhaus' (1999), as well as Richardson and Swan's (2003), findings that age does not make any difference in one's distance learning experiences or their perception of social presence in their online learning environment. As a result, the findings of this study indicated that age was not a predictor of the participants' overall perception of social presence. The following section provides a summary of the results obtained for social presence and the personal characteristic total number of college credits earned.

**Social Presence and Total Number of College Credits Earned**

In terms of examining hypothesis 1(c), the researcher sought to determine whether the participants' total number of college credits earned was a significant predictor of their overall perception of social presence. The results of the one-way ANOVA conducted in this study indicated that there was no significant difference found; therefore, no post hoc tests were needed. In addition, these results were confirmed when the correlations were calculated for the participants' overall perception of social presence and their total number of college credits earned, and the findings also yielded an insignificant correlation. Similar to the findings of Molla (1987), Taghavi (2001), and Richardson and Swan (2003), no relationship was found in this study between the participants' total number of college credits earned (i.e., level in college) and their attitudes toward computer technology or their perception of presence in their online learning environments. In addition, Njagi, Smith, and Isbell (2003), stated that "beyond these studies little empirical support is found for such relationships" (p. 5). As

result, the researcher concluded the analysis of the participants' overall perception of social presence as it pertained to their total number of college credits earned; thereby, concluding the analysis of research question 1. The following section will provide a detailed overview of the findings and discussions for research question 2.

## Research Question 2

A stepwise regression analysis was conducted to assess the relationship between the participants' overall perception of social presence and the various online course activities (i.e., (a) meet your classmates/introductions in WEBCT®, (b) overall perception of the online community in the class discussions activities, (c) overall perceived learning in the class discussions activities, (d) overall perception of others in the written assignments activities, (e) overall perceived learning in the written assignments activities, and (f) group projects activities in WEBCT®) to answer research question 2. Generally, the study found a significant correlation between the participants' overall perception of social presence and each of the course activities examined. The following section provides a detailed summary of the results that were obtained.

### *Summary of the Results*

#### Social Presence and Various Course Activities

In the following sub-sections, the hypotheses for research question 2 of the study and the results pertaining to each hypothesis are discussed.

Hypotheses 2(a) was examined by the researcher to determine whether there was a statistically significant correlation between the participants' overall perception of social presence and their perception of social presence in the meet classmate activities in

WEBCT®. In addition, Hypotheses 2(b) was examined by the researcher to determine whether the correlation accounted for any percentage of the variability in their overall perception of social presence scores. The results of the study indicated that there was a significant correlation found between the participants' perception of social presence in the the meet classmate activities in WEBCT® that accounted for approximately 33% of the variability in their overall perception of social presence scores, thereby concluding hypotheses 2(a) and 2(b).

The meet classmate activity in WEBCT® was designed to function as a community building activity that would potentially encourage trust among the participants. Through this activity, the participants were not only able to respond to their classmates postings, but to engage in discussions with any classmate who posted a comment to their responses, thereby learning through their interactions with others within their online communities. When learning occurs socially within communities of practice, there is greater variability in the sense of community ratings in online courses (Gunawardena & Zittle, 1997). Finally, Richardson and Swan (2003) mentioned that verbal immediacy behaviors can lesson the psychological distance between communicators online.

Hypothesis 2(c) was examined by the researcher to determine if there was a statistically significant correlation between the participants' perception of social presence and their perception of whether an online community was established in the class discussions activities in WEBCT®. In addition, Hypothesis 2(d) was examined by the researcher to determine if the correlation accounted for any percentage of the

variability in their overall perception of social presence scores. The results of the study indicated that there was a statistically significant correlation found between the participants' perception of social presence and their perception of whether an online community was established in the class discussions activities. In addition, the correlation accounted for approximately 37% of the variability in their overall perception of social presence scores, thereby concluding hypotheses 2(c) and 2(d).

Rheingold (1993) and Hiltz (1985) used the term online community to connote the intense feelings of camaraderie, empathy, and support that they observed among people in the online spaces they studied. Lock (2002) proposed that there are four cornerstones for the development and maintenance of online learning communities: communication, collaboration, interaction, and participation. In addition, Selznik (1996) identifies seven elements of an online community: history, identity, mutuality, plurality, autonomy, participation, and integration. Both the participants' history with each other as well as their individual identity will generally grow and develop through their communications and interactions with each other online. Selznik (1996) indicated that the mutuality that would be experienced by the members of the online community would require interdependence and reciprocity. Plurality, according to Selznik (1996), results when many different types of interactions among members of a community occur, but that it was important to maintain autonomy or the ability to avoid "group think," "me too," and "I agree" type contributions to the interactions. Finally, Selznik (1996) pointed out that both participation and integration were important elements for the successful

creation of an effective online community. The results for hypotheses 2(c) and 2(d) illustrated that the study participants:

- Maintained their individual identities and exhibited autonomy by indicating their personal perception of presence for the activity.
- Show their ability to master the concept of plurality by communicating with a vast array of personalities.
- Actively participated in the learning process through their interdependence and reciprocity for other members through the integration of technology and discussion postings.
- Exhibited mutual concern and respect for other members of the online community, thus creating a history among them.

Hypothesis 2(e) was examined by the researcher to determine if there was a statistically significant correlation between the participants' perception of social presence and their perception of learning in the class discussions activities in WEBCT®. In addition, Hypothesis 2(f) was examined by the researcher to determine if the correlation accounted for any percentage of the variability in their overall perception of social presence scores. The results of the study indicated that the participants' perception of learning in the class discussions activities accounted for approximately 17% of the variability in their overall perception of social presence scores.

These findings coincide with the literature on online learning that indicated that communication tools (i.e., online discussion boards) support active learning and collaboration for numerous individuals when actively utilized, which, in turn, can

increase motivation and satisfaction (i.e., affective learning) in online courses (Harasim, 1990). In addition, Sharan (1980) as well as Slavin (1983) mentioned that the literature also identifies interaction among students as critical in learning and cognitive development. Discussion boards provides individuals with an avenue to integrate various learning styles, thereby making the learning format more inclusive and encouraging both independent thinking and active learning on the part of the participants. Jiang and Ting (2000) indicated that student learning is related to the quantity and quality of postings in online discussions and to the value instructors place on them. Generally, the dialogue that occurs between students in a discussion board will serve as a springboard to enrich and deepen their understanding of the subject matter that is being discussed. In addition, these discussions will also assist the students in enhancing their reasoning skills, their decision-making skills, as well as their written communication skills.

Palloff and Pratt (1999) determined that students require a forum (i.e., some type of discussion board area) to critically reflect on the material and on themselves as learners to better assimilate and process what they have learned. In essence, the interactions that occur between students in a discussion board will help to create a culture where they can openly share their thoughts, views, opinions, and ideas with other members, thereby enhancing the overall learning process. Palloff and Pratt noted that "it is the relationships and interactions among people through which knowledge (i.e., learning) is primarily generated" (p. 15). As a result, it is imperative that educators as well as HRD professionals obtain a better understanding of how discussions boards can be utilized to blend technological advances with traditional approaches to enhance the

overall learning process. Finally, Thomas (2001) indicated that as new technology continues to enter schools, it is believed that online discussion boards have greater potential to increase the literacy development (including cognitive and affective domains) in participating students.

Hypothesis 2(g) was examined by the researcher to determine if there was a statistically significant correlation between the participants' perception of social presence and their perception of others in the written assignments activities in WEBCT®. In addition, Hypothesis 2(h) was examined by the researcher to determine if the correlation accounted for any percentage of the variability in their overall perception of social presence scores. The results of the study indicated that there was a statistically significant correlation found between the participants' perception social presence and their perception of others in the written assignments activities. In addition, the results of the study indicated that the participants' perception of others in the written assignments activities accounted for approximately 32% of the variability in their overall perception of social presence scores.

In terms of the participants' overall perception of social presence as it related to their perception of others in the written assignments activities, these findings indicated that social presence permeates the written assignments activities that are usually designated as individual activities. One possible explanation for this finding may be that participants were possibly asked to discuss the written assignments with their instructor or other students prior to completing the assignments, or to post reflections regarding their responses to these written assignments in discussion board areas after completion.

These factors may account for participants' perception of social presence during these activities. Moore, Masterson, Christophel, and Shea (1996) pointed out that research has demonstrated that social presence not only affects learning outcomes, but also student, and possibly instructor, satisfaction with a course. Finally, Rourke et al. (2001) noted that social presence is necessary for development of an effective community of inquiry because a feeling of connection may encourage students to engage the material as well as the other people, thereby increasing the likelihood that students will complete their online classes.

Hypothesis 2(i) was examined by the researcher to determine if there was a statistically significant correlation between the participants' perception of social presence and their perception of learning in the written assignments activities in WEBCT®. In addition, Hypothesis 2(j) was examined by the researcher to determine if the correlation accounted for any percentage of the variability in their overall perception of social presence scores. The results of the study indicated that there was a statistically significant correlation found between the participants' perception social presence and their perception of learning in the written assignments activities. In addition, the results of the study indicated that the participants' overall perception of learning in the written assignments activities accounted for approximately 17% of the variability in their overall perception of social presence scores.

Some individuals learn better by doing and others are visual learners. Because each individual has a unique learning style, it is imperative that HRD practitioners design future online learning environments that allow instructors to utilize a variety of

resources (i.e., discussion boards, written assignments, individual projects, and group projects) to accommodate these various learning styles. Bangert-Drowns (1997) said that "literate thinkers build personal knowledge through explorations of meanings in transactions with texts" (p. 2), and suggests that "electronic literatures have special capacities to stimulate, foster, and support literate thinking" (p. 3). It is generally through written context that individuals attempt to analyze the knowledge of others and garner additional knowledge for themselves. By actively engaging in the written assignments activities, the participants had the ability to express their individual understanding of the subject matter and be exposed to the views of others. Because writing is a more formal way of communicating than speaking, the participants' generally compiled their message more carefully by thinking, revising, and perfecting their message, thereby expressing themselves more clearly and making their contributions to the overall learning process more concise and meaningful. Finally, Lemke (1989) said, "it is the explicit meaning-constructing skills of writing alone that enable us to be truly literate" (p. 296) and the nature and qualities of online interactive writing itself bootstrap the construction of meaning.

Hypothesis 2(k) was examined by the researcher to determine if there was a statistically significant correlation between the participants' perception of social presence in the group projects activities in WEBCT®. In addition, Hypothesis 2(l) was examined by the researcher to determine if the correlation accounted for any percentage of the variability in their overall perception of social presence scores. The results of the study indicated that there was a statistically significant correlation found between the

participants' perception of social presence and their perception of social presence in the group activities. In addition, the results of the study indicated that the participants' perception of presence in the group projects activities in WEBCT® accounted for approximately 41% of the variability in their overall perception of social presence scores.

Interactive online activities such as group projects are designed to stimulate individuals' critical thinking through discussions and various exercises associated with the project and by expressing their views to the group, the participants' open themselves to conceptual change. Harasim (1990) described the greatest strength of online education as its ability to facilitate interaction and saw the strength of the online learning environment in group activities. Utilizing group projects to build strong group interdependence also promotes a degree of camaraderie that encourages members to help each other work toward a common goal. Keeping individuals actively engaged and participating in online courses is somewhat challenging, so providing group activities where learners jointly complete an assignment can promote a sense of responsibility among the members. In addition to creating a sense of responsibility among participants, group projects can also foster a degree of trust among the members of the group. Sharing common goals and working together to achieve those goals, provides the participants with opportunities to no longer function as individuals, but as collaborating team members who have aligned their expectations around shared objectives. According to Kreijns, Kirschner, and Jochems (2003), just placing students in groups does not guarantee collaboration; the incentive to collaborate has to be structured within the

groups. Finally, Daniel (2003) indicated that collaborative learning environments, whether virtual or temporal, are developed on the assumption that knowledge or learning is a complex entity that is shaped by social context (such as social presence or social awareness).

In conclusion, the findings for each hypothesis for research question 2 indicated that the correlations between the various online course activities and the participants' overall perception of social presence were statistically significant and they did account for a certain percentage of the variability found in each activity; therefore, the researcher rejected the null hypotheses and concluded research question 2. The following section provides implications for human resource development research and practice.

## Implications for HRD Research and Practice

Implications of the findings of this study to HRD practice and research are many. Volti (2001) stated that the "inability to understand technology and perceive its effects on our society and on ourselves is one of the greatest, if most subtle, problems of an age that has been so influenced by technological change" (p. 3). Technology has changed the face of education and has become a standard expectation of today's learners. Online learning, more than any human endeavor, should be a lasting and beneficial aspect of the technological evolution that has taken place in the world of academia. But, the full potential of this evolution can only be realized if those engaged in the delivery of this type of education are skilled, knowledgeable, and equipped to apply these revolutionary type technologies both effectively and efficiently. However, online learning involves more than just presenting and delivering information via the Web; it involves the use of

motivation, thinking, reflection, and theory building to take us beyond the day-to-day contingencies to ensure the development of robust knowledge and practices regarding online learning.

Anderson (2004) stated that "theory has both been celebrated and condemned in educational practice and research," and that "many argue that theory allows us to see the big picture and makes it possible for us to view our practice and our research from a broader perspective" (p. 33). On the contrary, Wilson (1999) viewed by many as a critic of theory, argued that strict adherence to any particular theoretical viewpoint often filters our perception and *blinds* us to important lessons of reality. As HRD professionals, we have a responsibility to those we serve to "take the blinders off" and equip ourselves to offer solutions to the social challenges that are facing our educational system. In addition, we cannot deny that emerging technologies are reshaping our views on the design and development of online courses. Duderstadt (1999) stated that "the real question is not whether higher education will be transformed, but rather how and by whom" (p. 1). In addition, Duderstadt (1999) also stated that "it could well be that faculty members of the twenty-first century colleges or universities will find it necessary to set aside their roles as teachers and instead become designers of learning experiences, process, and environments" (p. 7).

It is time that we question what effect these emerging technologies will ultimately have on the individuals we teach, ourselves, and our discipline. Most importantly, we must understand our role during this transformation process. Emerging technology as well as the results of this study indicates that the development of clear

standards by HRD practitioners for online social presence (i.e., for instructors and students) is an important step in moving toward a new model for online course design and development. To effectively accomplish this, we must embrace these technological advances, seek new ways to enhance our knowledge and understanding of existing theories, conduct research to develop new theories, and put these concepts into practice via the teaching and learning process that takes place in online settings. Wilson (1997) indicated that good educational theory has three functions (a) to assist us in envisioning new worlds, (b) to help us to invest our limited resources more effectively, and (c) to build on what is already known and to help us to interpret and plan for the unknown. The challenge that HRD professionals and educators face is to develop a model or set of guidelines that most effectively addresses the need to:

- Incorporate the necessary tools during the design and development phase of the online course to encourage lifelong learning and a passion for knowledge.
- Become aware of the impact that social presence or lack thereof may have on students' satisfaction (i.e., affective learning), motivation, and overall learning (i.e., cognitive learning) by determining how the environment helps to define student perceptions of education.
- Create online courses based on sound theories, research, and practice by determining the value of the various activities incorporated into the course.
- Incorporate activities that establish collaborative learning environments, emphasizing interaction, communication, reflection, and exploration.

Anderson (2004) stated that “the creation of a model is often the first step toward the development of a theory” and that the model is used to “illustrate the key variables and their degree of interaction to create a unique online educational experience” (p. 55). In addition, Anderson (2004) also stated that “the first step in theory building often consists of the construction of a model in which the major variables are displayed and the relationships among the variables are schematized” (p. 48). Figure 5.1 provides an illustration of the Jolivette Jones Model of E-Learning for HRD.

The Jolivette Jones Model of E-Learning for HRD (Figure 5.1) provides a visual illustration of the various aspects of theory, research, practice, and assessment criterions that HRD professionals must address when attempting to formulate effective online learning environments. The *theory* aspect of the Jolivette Jones Model of E-Learning for HRD illustrates the fact that HRD professionals are now faced with performing comparative analysis between the traditional and virtual learning environments to seek new ways to achieve higher quality learning outcomes. In addition, the *theory* aspect also provides an illustration that indicates that an evolution is taking place, and these HRD professionals may encounter environmental factors within the online learning environment that could potentially present challenges when attempting to optimize learning outcomes. It is imperative that HRD professionals use rationalization when analyzing these situations, reflect on ways to improve the process, and strive to obtain yields that are both reliable and valid.

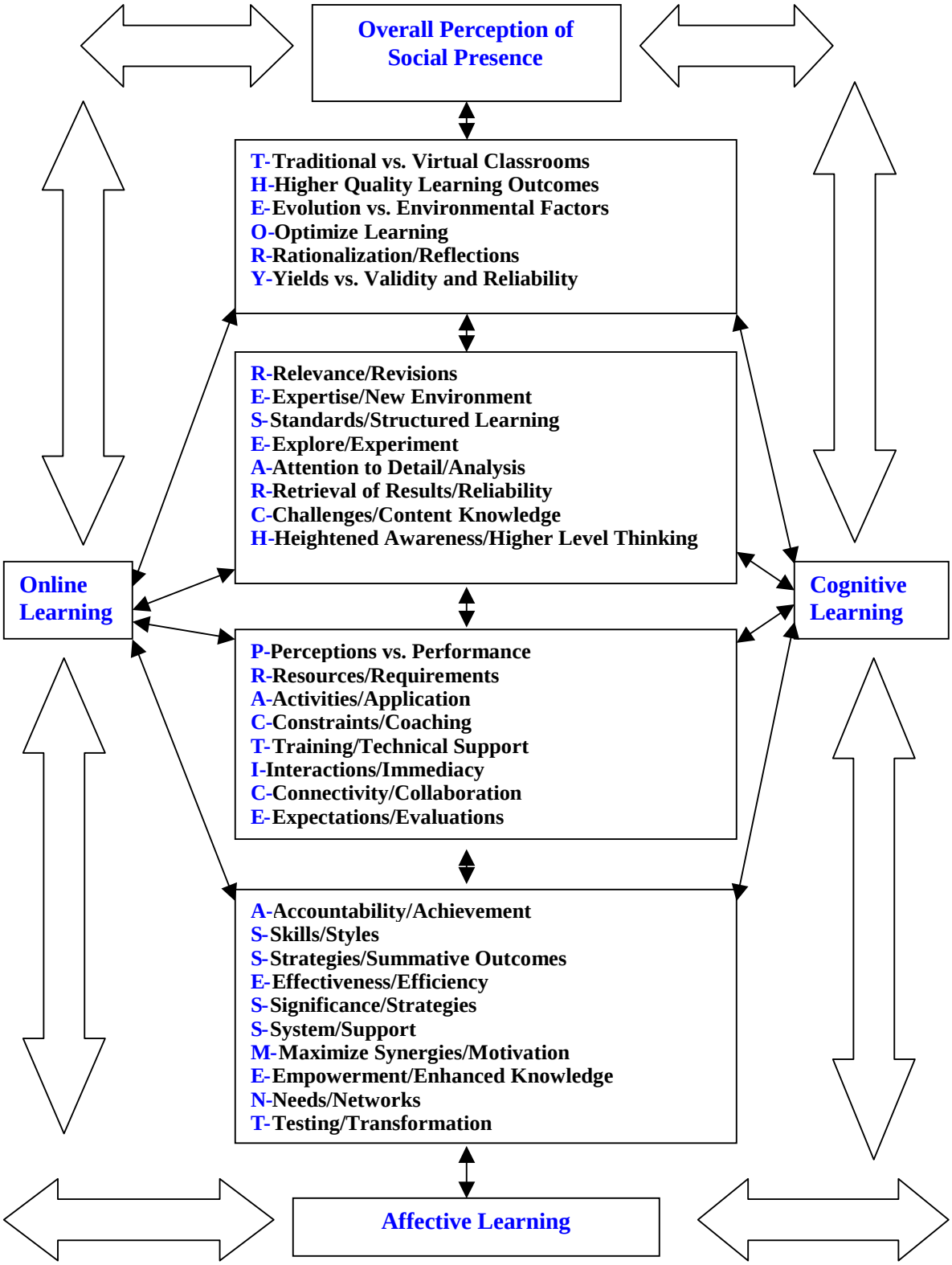


**Figure 5.1.** The Jolivette Jones Model of E-learning for HRD.

The *research* aspect of the Jolivette Jones Model of E-Learning for HRD illustrates the fact that HRD professionals must continually question the relevance of the various issues encountered in the online learning environment and make modifications or revisions to the projected learning outcomes to offset these issues. In addition, they must become experts in this new environment by setting standards that promote structured learning. The HRD professionals must seize every opportunity to explore or experiment with this growing area of concern paying special attention to details when retrieving and analyzing results for reliability and validity. Finally, HRD professionals must face the challenges of the online learning environment and strive to improve content knowledge by establishing a heightened awareness of the importance of higher level thinking.

The *practice* aspect of the Jolivette Jones Model of E-Learning for HRD illustrates the fact that HRD professionals must be cognizant of the effects of perceptions on performance. They must provide the necessary resources that are required to participate in course activities as well as opportunities to apply the skills learned. When faced with constraints, they must provide coaching, additional training, and technical support to assist their clients in overcoming these issues of concern. HRD professionals must design and develop online courses that emphasize the importance of interaction, immediacy, inquiry, connectivity, and collaboration if they hope to surpass expectations and receive good evaluations.

The *assessment* aspect of the Jolivette Jones Model of E-Learning for HRD illustrates the fact that HRD professionals must stress the importance of accountability, achievement, skills, and learning styles when developing strategies to address the effectiveness of their online learning environments. In addition, they must provide the necessary support and have systems in place to assess their progress and determine whether significant differences have occurred. Finally, HRD professionals must develop strategies to maximize synergies, increase motivation, and empower their participants to enhance their knowledge by assessing their needs, establishing networks and testing to effectively complete the transformation of the online learning process. The Jolivette Jones Model of E-Learning for HRD (Figure 5.1) does not yet constitute a theory for social presence, cognitive learning, affective learning, or online learning; however, it is the researcher's hope that this model will provide a better understanding of the complex array of issues that are faced by HRD professionals on a daily basis. The following section provides a summary of the benefits and limitations of the study.

## Limitations of the Study

One of the limitations of this study was that it only took into consideration the responses of the participants who elected to participate in the study with no accountability of the perception of the students who elected not to participate. In addition, the sample used for this study was chosen for its ability to represent the traditional, undergraduate population rather than the non-traditional students returning to school or students at the graduate level. Another limitation is the fact that the questionnaire was not specifically designed to examine participants' satisfaction with

their instructor so there could be some problems with isolating this concept. It is important to point out that there was only one question on participants' satisfaction with their instructor as opposed to multiple questions designed to generate a social presence score, including two questions regarding interaction with the instructor(s). The final limitation is the lack of randomization, because the randomization process in this case was beyond the researcher's control, as is customarily the case in educational settings, since the participants belong to an "intact group" that was administratively defined (Gall et al., 1996). This concludes the limitations for this study. The following section provides a summary of the recommendations for future research.

## Recommendations for Future Research

Within the framework and limitations of this study and based upon the findings and conclusions of this study, the researcher recommends the following:

- Further research should be conducted in the area of social presence, in both online and traditional educational environments, to determine the extent that perceptions of social presence influence satisfaction and other attitudinal factors.
- Another useful extension to this research could be to examine the change in perception of social presence over time. It is increasingly clear that the degree to which participants feel actively engaged with others influences their outcomes regarding perceptions of social presence as well as satisfaction with the course and the instructor.

- Further research needs to be conducted in the area of demographic variables (i.e., gender, age, and level of education) and social presence to confirm the extent that the perception of social presence has shifted.
- An examination of media structure (i.e., asynchronous versus synchronous) and social factors might be useful in determining how individuals perceive and utilize technology. Structuration theory (Giddens 1984) argues that individuals are active creators of social structures, which, in turn, restrict individuals' acts.
- From the instructor's perspective, research needs to be conducted to determine the extent of the influence of social presence on teacher effectiveness ratings and instructor satisfaction with courses taught.
- Additional research should be conducted to determine the effects of social presence on performance in an online environment and on the effective development of an online community.
- Finally, it could be beneficial to examine whether the actual characteristics of the media are the causal determinants of the perceptions of social presence, learning, and satisfaction or whether the participants' perception of the media altered their perceptions of social presence, learning, and satisfaction.

On a final note, it is important to remember that whether students are involved in a full-scale distance learning program or engaged in online activities for a traditional class, their perception of the online experience profoundly affects their comprehension and retention of knowledge (i.e., cognitive learning) in the education process as well as

their perception of satisfaction with the course (i.e., affective learning). The challenges for educators and HRD professionals is to: (a) determine how to help individuals effectively learn; (b) incorporate the right tools during the design and development phase of the distance learning course to assist them in becoming lifelong learners with a passion for knowledge; (c) be aware of the impact that social presence or lack thereof may have on students' satisfaction (i.e., affective learning), motivation, and overall learning (i.e., cognitive learning); and (d) learn how the environment (i.e., a cyber-connected classroom or a traditional face-to-face setting) helps to define student perceptions of education. The findings of this study imply that there is a better model for online courses, and this model should not only present the information and materials to students but also incorporate the social aspects of learning in both the design and instruction of these online courses.

As HRD professionals, we cannot deny that emerging technologies are reshaping our views on the design and development of online classes. In addition, it is imperative that HRD professionals question what effect these emerging technologies will ultimately have on the individuals we teach, ourselves, as well as our disciplines. Consequently, it is imperative that HRD professionals understand their role during the transformation process. Finally, emerging technology as well as the results of this study indicates that the development of clear standards by HRD practitioners for online social presence (i.e., for instructors and students) is an important step in moving toward a new model for online course design and development. The following section provides a summary of the results obtained.

## Summary

A series of analysis that included factor analysis, correlation analysis, regression analysis, and one-way ANOVAs was conducted to test the hypothesis of this study (see Appendix G for an overview of the study and results obtained). Generally, the researcher tested 15 hypotheses, supported by a strong theoretical framework, in an actual higher education setting. Specifically, the study added to the existing knowledge of social presence by examining the effects of personal characteristics (i.e., gender, age, and total number of college credits earned) in an online learning environment. The results suggested that the participants' personal characteristics (i.e., gender, age, and total number of college credits earned) did not nave a direct correlation with the participants' overall perception of social presence. Eastmond (1995) found that groups in online learning environments often transcended age and gender, which in traditional classrooms, might be impediments.

A decade ago, Tuman (1992) emphatically argued that, "we need to look less at the technology itself and more at the existing practices of reading and writing" (p. 6). This approach was more relevant in the 1980s and early 1990s when information and communication technologies such as e-mail, the Internet, and asynchronous communication tools were initially being introduced. More recently, as a result of the findings of this study, it appears those participants' personal characteristics, more specifically, gender, age, and level of education, were not as significant as they once were. For HRD practitioners, these results provided some useful information as to how

the distance learning environment has evolved and how to effectively design and develop future online courses.

In addition, the various course activities (i.e., meet classmates, perception of learning in class discussion activities, perceived learning in the class discussion activities, perception of others in written assignments activities, perceived learning in written assignments, and group projects) did have a direct correlation with the participants' overall perception of social presence. More specifically, the results of this study indicated that the presence of others (i.e., instructor and peers) was an integral component in the online learning environment; therefore, for HRD practitioners, the following standards should be considered in the initial start-up phase of a new online course:

- Course design should be student-centered, provide opportunity for challenges and effective feedback, as well as opportunities for participants to create a sense of community among them. Because isolation is a major contributor to attrition (Morgan & Tam, 1999), one potential strategy for reducing dropout rates is encouraging the students to support each other and feel part of a community.
- Course activities should encourage participation, communication, and the exchange of information to enhance the cognitive and affective learning process. According to Vygotsky's (1978) social development theory, social interaction is vital to cognitive development; and all higher-order functions such as language and concept formation actually originate through the

relationships among individuals. In addition, Vygotsky (1978) noted that to scaffold learning (i.e., to conduct a comparative analysis on learning interactions), we must require learners to interact with the content, the teacher, and each other.

- Provide avenues to properly assess the effectiveness of the online learning environment. For HRD professionals, the planning, design, development, and delivery stages are always viewed as critical, but the challenge generally comes with the assessment of the program or course. According to Brown and Knight (1994), "program assessment should include: (a) clarity of purpose, (b) allow evaluator and learner to review progress, plan further learning, and adjudge teaching effectiveness, (c) clearly describe what is being assessed and check to see if that assessment is being done (validity), and (d) subject the program to quality assurance records" (p. 2).

Professional development for instructors should provide training opportunities to enhance effective communication and feedback, proper usage of online media, and appropriate development of team-building skills to enhance the overall learning process. Harasim (1990) specified that some theorists characterize learning as an interactive group process in which the learners actively construct knowledge and then build upon that knowledge through the exchange of ideas with others and the responses/feedback of others. All of these issues are important and call into question the nature and scope of the online learning environment. This involves the examination of existing theories (i.e., social presence theory), emerging technologies (i.e., the asynchronous classroom), as

well as the role of instructors and students. Finally, the implications of this study to HRD research and practice were discussed. Further, recommendations for future research were made.

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# APPENDIX A

## DEMOGRAPHIC SURVEY

## SECTION ONE

# Demographic Survey Section One

Course Name _____ (Required)

Course Instructor _____ (Required)

Age_____ Gender_____ Approximate number of college credits completed_____

Online experience:

_____This is the participants' first online course.

_____I have taken two online courses including this course.

_____I have taken more than two online courses including this course.

# APPENDIX B

# PERMISSION LETTER

# FOR SURVEY INSTRUMENT

***Permission Letter –for Survey Instrument***

***From:*** *"Lani Gunawardena" lani@unm.edu*
***Re:*** *Request permission to utilize and modify your GlobalEd Questionnaire for Dissertation Research*
***To:*** *bjjolivette@yahoo.com*
***Date:*** *Tue, 28 March, 2006*

Dear Brenda,

Thank you for your interest in the participants work. Yes, I give you permission to use/modify the questionnaire. I have attached the full questionnaire.

Best wishes
Charlotte N. (Lani) Gunawardena, Ph.D.
Professor & Program Coordinator
Organizational Learning and
Instructional Technology Program
College of Education
MSC05-3040
1 University of New Mexico
Albuquerque, NM 87131-0001, USA
e-mail:<lani@unm.edu>

# APPENDIX C

## DEMOGRAPHIC SURVEY

## SECTION THREE – PART A

***Survey-Section Three (Part A - Page 1 of 2)***

1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree

***Course Activity*** ***Meet your classmate/ Introductions in WEBCT®***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| The participants overall perceived presence for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants overall comprehension or retention of knowledge for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The quality of learning in this activity was excellent | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable conversing online for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| Online or web-based education is an excellent medium for social interaction as demonstrated by this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity enabled me to form a sense of online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The instructor created a sense of an online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable participating in this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity was facilitated by the instructor. | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable interacting with other participants during this activity. | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' point of view was acknowledged by others participants during this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I was able to form distinct individual impressions of some course participants during this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |

***Survey-Section Three (Part A- Page 2 of 2)***

1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree

| ***Course Activity*** | ***Class Questions/Discussions/Reflections*** | | | | | | |
|---|---|---|---|---|---|---|---|
| The participants overall perceived presence for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants overall retention of knowledge for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The quality of learning in this activity was excellent | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable conversing online for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| Online or web-based education is an excellent medium for social interaction as demonstrated by this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity enabled me to form a sense of online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The instructor created a sense on an online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable participating in this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity was facilitated by the instructor. | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable interacting with other participants during this activity. | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' point of view was acknowledged by others participants during this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I was able to form distinct individual impressions of some course participants during this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |

# APPENDIX D

## DEMOGRAPHIC SURVEY

## SECTION THREE – PART B

***Survey -Section Three-(Part B – Page 1 of 3)***

1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree

| *Course Activity* | ***Written Assignment/Reflections*** | | | | | | |
|---|---|---|---|---|---|---|---|
| The participants overall perceived presence for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' overall retention of knowledge for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The quality of learning in this activity was excellent. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable conversing online for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| Online or web-based education is an excellent medium for social interaction as demonstrated by this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity enabled me to form a sense of online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The instructor created a sense on an online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable participating in this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity was facilitated by the instructor. | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable interacting with other participants during this activity | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' point of view was acknowledged by others participants during this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I was able to form distinct individual impressions of some course participants during this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |

***Survey-Section Three (Part B- Page 2 of 3)***

| 1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree<br>***Course Activity*** | ***Individual Projects*** | | | | | | |
|---|---|---|---|---|---|---|---|
| The participants overall perceived presence for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants overall retention of knowledge for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The quality of learning in this activity was excellent | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable conversing online for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| Online or web-based education is an excellent medium for social interaction as demonstrated by this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity enabled me to form a sense of online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The instructor created a sense on an online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable participating in this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity was facilitated by the instructor | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable interacting with other participants during this activity | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' point of view was acknowledged by others participants during this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I was able to form distinct individual impressions of some course participants during this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |

***Survey- Section Three-(Part B – Page 3 of 3)***

1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree

| ***Course Activity*** | ***Group Projects*** | | | | | | |
|---|---|---|---|---|---|---|---|
| The participants' overall perceived presence for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' overall retention of knowledge for this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The quality of learning in this activity was excellent | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable conversing online for this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| Online or web-based education is an excellent medium for social interaction as demonstrated by this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity enabled me to form a sense of online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The instructor created a sense on an online community. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable participating in this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| This activity was facilitated by the instructor | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I felt comfortable interacting with other participants during this activity | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| The participants' point of view was acknowledged by others participants during this activity. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |
| I was able to form distinct individual impressions of some course participants during this activity | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 | □ N/A |

# APPENDIX E

# INFORMATION SHEET

**INFORMATION SHEET**

**The Relevance of Social Presence on Cognitive and Affective Learning in an Asynchronous Distance Learning Environment**

You understand that you are being asked to participate in a research study on the relevance of social presence to cognitive and affective learning in an asynchronous distance learning environment. This study is being conducted by Brenda Jolivette Jones and will be the subject of her Ph.D. dissertation at Texas A&M University.

You understand the following:

- You are one of the participants (n=200) asked to participate in the study.
- You will be surveyed regarding your experiences encountered during your participation in an online course during the Fall 2006 semester at Lee College in Baytown, Texas.
- That Brenda obtained your information from departmental personnel through the Lee College online course registration records.
- You may decide whether you want to participate or not and this meeting will last approximately one hour long.
- That participation in the study is strictly voluntary and you may refuse to participate without any consequences.
- That you may withdraw from the study at any time without any consequences.
- That your decision whether to participate or not will not affect your current or future relations with Texas A&M University or Lee College in any way.
- That if you choose to participate in the study you will be required to provide basic demographic data that will be collected via a one-age survey type instrument.
- That the data collected will be treated confidentially, and that no one other than Brenda and her four members Advisory Committee will have access to the completed surveys.

- That all records will be held confidentially and that your identity will always remain confidential and you will not be required to place your name on any documents completed for the study.
- That no other information about the study will be submitted to your instructor for any reason.
- That the information will be reported as aggregated totals and not by individual input and that no questions on the survey will require you to divulge your identity in any way.
- That in Brenda's working documents, in her dissertation, and in any subsequent publication of the study, your name will not be used.
- That if you choose to participate in the study a second departmental follow-up will be held approximately two to three weeks prior to the completion of the course, at which time you will be required to complete the remaining three sections of the survey which will take approximately one hour long.
- That you may refuse to answer any question on the survey that may make you feel uncomfortable in any way and there are no personal benefits from the study.
- That there are no risks involved in the study. The only inconvenience will be the time you will spend attending the two meetings as well as the time you will spend completing the two-part survey.
- That the purpose of this study is to examine the relationship among students' perception of social presence of peers, of their instructor and of themselves in an asynchronous distance learning environment, as well as students' perceived learning and satisfaction with the course and their instructor.
- That the data collected via this study will be analyzed and the results will be utilized to assist educators in effectively developing and designing future online distance education courses and that Brenda will keep the original completed surveys indefinitely, stored securely in her home.

- That if you have any questions about this study you may contact Brenda or the chairperson of her committee, Dr. Toby Egan, whose contact information is listed below.
- That this research study has been reviewed by the President of Lee College, Dr. Martha Ellis.

In addition, you understand that this research study has been reviewed and approved by the Institutional Review Board – Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Angelia M. Raines, Director of Research Compliance, Office of Vice President for Research at (979) 458-4067, araines@vprmail.tamu.edu.

Please be sure that you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the information sheet for your records.

| | |
|---|---|
| Principal Investigator: | Chairperson to Brenda's Advisory Committee: |
| Brenda Jolivette Jones | Dr. Toby M. Egan |
| (713) 828-1386 Cell | (979) 458-3585 |
| bjjolivette@yahoo.com | egan@tamu.edu |



Date_____ Initials_____

# APPENDIX F

# DEMOGRAPHIC SURVEY

# SECTION TWO

***Survey-Section Two (page 1 of 1)***

1=Strongly agree 2=Agree 3=Somewhat agree 4=Somewhat disagree 5=Disagree 6=Strongly Disagree

| Questions | Strongly Agree | | | | | Strongly Disagree |
|---|---|---|---|---|---|---|
| **Perceived Presence of Peers** | | | | | | |
| I felt comfortable interacting with other participants in the course | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| I was able to form distinct individual impressions of some course participants | □ 1 | □2 | □ 3 | □ 4 | □ 5 | □ 6 |
| I felt that the participants' point of view was acknowledged by other participants in the course. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Perceived Presence of Instructor** | | | | | | |
| The instructor created a sense of an online community | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| The instructor responded promptly to correspondence and e-mail inquiries. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| Overall the instructor for this course met the participants expectations | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Perceived Presence of Self** | | | | | | |
| I felt comfortable conversing with others in this course | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| I felt comfortable participating in online course discussions | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Overall Perceived Learning in Course** | | | | | | |
| The participants' level of learning that took place in this course was of the highest quality. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| Overall this course met the participants learning expectations. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Overall Perceived Satisfaction in Course** | | | | | | |
| Overall I was satisfied with this course. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Overall Perceived Satisfaction with Instructor** | | | | | | |
| Overall the instructor for this course met the participant's expectations. | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |
| **Overall Perception of Presence in Course** | | | | | | |
| The participants overall perception of presence in this course is ranked | □ 1 | □ 2 | □ 3 | □ 4 | □ 5 | □ 6 |

# APPENDIX G

# OVERVIEW OF STUDY AND RESULTS

# The Relevancy of Social Presence on Cognitive and Affective Learning in an Asynchronous Distance-Learning Environment as Identified by Community College Students in Texas

**Presented by:**

**Brenda Jolivette Jones**

## INTRODUCTION

Evolution of higher education arena:

- Face-to Face Instruction
  versus
  Computer Mediated Instruction

**Created both challenges and opportunities for HRD professionals, researchers, educators, and students.**

## Now the heat is on…..
## More Colleges and Universities are under increased pressure to:

**Identify components that contribute to student satisfaction and overall learning and retention of knowledge.**

**BUT**

**Few studies in our field lend themselves to fully understanding the role of Social Presence from the perspective of an Adult Learner participating in a distance education course.**

**In an attempt to eliminate some of the confusion as to how or whether Social Presence, Cognitive Learning, or Affective Learning were related, a Literature Review was conducted.**

## Literature Review

- The purpose of the literature review was to:
- Generate a framework of knowledge that HRD professionals, researchers, instructional designers and educators could utilize to assist them in

  *Establishing a better understanding of social presence and how to effectively develop future online courses.*

  Determining the extent that perception of social presence influences student's retention of knowledge (cognitive learning).

  Determining the extent that perception of social presence influences student's satisfaction with a course (affective learning).

# Literature Review (cont.)

- Electronic Journals were accessed

- Only articles with explicit reference to social presence, cognitive learning, affective learning, and asynchronous learning environments were considered.
- According to Richardson and Swan (2003), "there is a limited amount of empirical research in the area of social presence, a limited amount of empirical research in the area of online learning, and a lack of empirical research in the area of social presence related to online learning" (p. 18).

Effective May 29, 2006:

A total of one hundred twenty five (125) articles regarding social presence were found.

- Due to the lack of research on social presence as it relates to online learning:

Only twenty two (22) articles which were directly related to the specific factors relative to this study were reviewed.

## Literature Review –Key Findings and Key Contributors (cont.)

| *Author(s) and Year* | *Key Findings or Contributions* |
|---|---|
| Short, William, and Christie (1976) | Were the first to introduce the concept of *social presence* and their work initially examined one-to-one interpersonal communication.<br><br>Defined the *social presence theory* as "the degree of salience (i.e. highlighting or featuring) of the other person in the interaction" (p.65). |
| Gunawardena, C. N. & Zittle, F. (1997). | Examined the effectiveness of "social presence" as a predictor of learner satisfaction in a text-based medium environment.<br>Developed the GlobalEd Instrument for measuring social presence.<br>These researchers indicated that social presence was the degree to which a person feel "socially present" in mediated communication including interaction and group cohesion. |
| Tu, C. H. (2002a). | Examined the relationship between social presence and the social learning theory. The researcher found:<br>That social interaction is fundamental to the explanation of the relationship between social presence and the social learning theory. |
| Richardson, J. C. & Swan, K. (2003). | This study explored the role of social presence in online learning environments and its relationship to students' perceptions of learning and satisfaction with the instructor.<br>The researcher found tht age accounted for approximately 5% of th variability in perception of social presence, whereas age and total number of collge credits account or none. |

## Results and Findings of Literature Review

- **Some view incorporating "interaction type activities" into online courses as:**

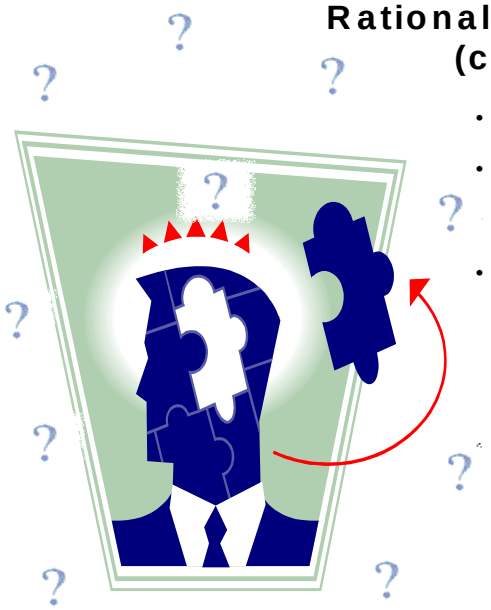
  *** Time consuming and demanding.**

- **Based on this information, one can conclude that:**
- **Feelings of being "connected" =**
- **"Encouragement to participate" in online course discussions and activities =**
- **Increased likelihood that they will "complete the course" =**
- **"Decrease in the attrition rate" =**
- **"Increase the student's level of cognitive and affective learning".**
- **The three variables -" build on each other". With this concept in mind it is imperative that all three elements are in place to have a "smooth flow" of the online course.**

## Rationale for Study

- Sanez (2002) stated that "few studies on social presence have examined a Web-based instructional program," specifically within the context of a self-directed, asynchronous environment (p. 44).
- Initially, online course designers basically "went out on a limb" when developing curriculum for their students.
- Successfully" designing and developing online courses has been like "a roll of the dice" (hoping to get lucky enough to hit the right combination of elements to make the online course a success).

## Rationale for Study (cont.)



- So we ask ourselves…
- What are the "missing pieces"?

  How do we improve the process?
- The limited amount of empirical research in the area of social presence and its relationship to cognitive and affective learning assessment in a distance learning environment makes this study one of particular interest and importance to the literature.

  To obtain a better understanding of how to construct a more engaging online environment for our students, we must first understand the evolution of Social Presence, Cognitive and Affective Learning, and the Distance Learning Process.

## WHAT IS SOCIAL PRESENCE?

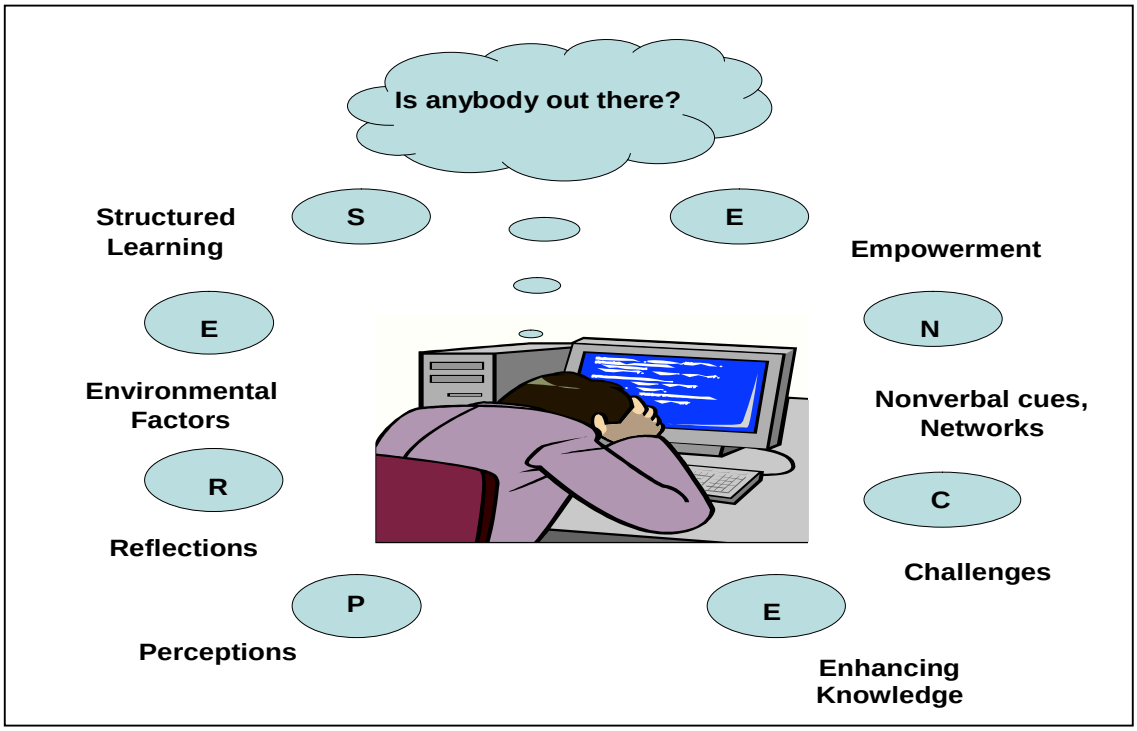
- **In an attempt to clarify what social presence entails, consider the following scenario:**
- **Think about all of the new faces that surrounded you the last ti me you started a new job, or attended a new training seminar or conference.**
  - *** Unfamiliar with proper protocol**
  - *** Caused uneasiness, anxiousness, loneliness or anxiety.**
- **Now think about the ways that you might have eased your level of uneasiness and anxiety.**
  - *** Did you initiate a conversation with someone?**
  - *** Did someone initiate a conversation with you?**
  - *** Did you look for a familiar face?**
  - *** Did you look for individuals who might have the same type of job that you had?**

**Whatever approach you decided to take:**

- *** You probably began to feel more comfortable in a short period of time.**
- *** As you became more comfortable, you probably started to communicate more easily with th ose around you.**

**By connecting and communicating more easily with others in your new social environment you were able to create a degree of interpersonal contact or "social presence" with these individuals.**

- **Gunawardena and Zittle (1997) revealed that the act of connectin g with others in a new social situation enables us to create socia l presence or a degree of interpersonal contact.**



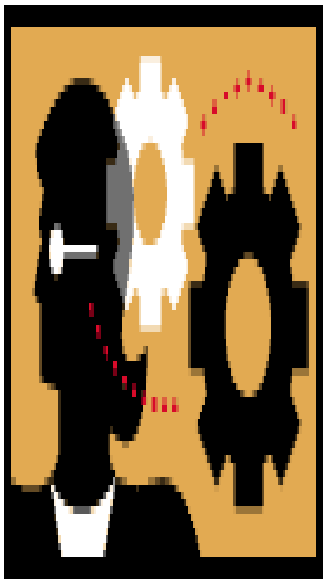

## Theory of Social Presence

- The genealogy of the Social Presence can be traced back to Mehrabian's (1969) concept of "immediacy" which is defined as "those communication behaviors that enhance closeness and nonverbal interactions with one another" (p. 203).

**Now that we have a better understanding of what social presence entails, let's take a look at the history of the cognitive learning domain.**

## Cognitive Learning Theories

**According to Winn and Snyder (1996), the genealogy of the cognitive domain can be traced back to 1879 when William Wundt established *introspection*, a cognitive approach that utilized a self-observation to examine the workings of the mind.**



- **In 1956, Benjamin Bloom defined cognitive learning as "Knowledge structures as the development of intellectual skills" (p. 16).**
- **Mid 1980's Bandura established the *Social Cognitive Theory* which *d*eals with an individuals ability to be self regulating, self organizing and self-reflecting.**
- **Finally, in 1991 Spiro, Feltovich, Jacobson, and Coulson developed the *Cognitive Flexibility Theory* which is an "integrated theory of learning" that was specially formulated to support the use of interactive technology such as asynchronous learning environments" (p. 28).**

Now that we have a little history on the Cognitive Learning domain and the importance of "unlocking" the inner workings of the mind, let 's take a look at the history of the Affective learning domain.

## Affective Learning Theory

- **In 1956, Benjamin Bloom defined affective learning as:**

  **Those actions which "Includes the manner in which we deal with things emotionally, such as feelings, appreciation, enthusiasms, motivations, and attitudes, use of humor, self-disclosure"(p. 18).**

- **Today more and more educators are beginning to understand that:**

  **A student's affective responses = avenues**

  **Which allows them to create social presence as well**
  **and an identity in an online setting.**

  **This in turn increases the probability that the student will be happier and more satisfied with the course.**

- **Now that we understand the importance of Affective learning let's take a look at the history of the distance learning environment.**

## The Evolution of Distance Learning

- Many view distance learning as a new concept, when in actuality it has been around for quite some time.
- According to Cohen (1999), "distance learning began as correspondence learning and has evolved from the use of print-based material into a worldwide movement using various technologies" (p. 218).
- TRADITIONALLY
  Course designs were such that instructor and students occupied the same geographical facility with little to no technology.

## The Evolution of Distance Learning (cont.)

**In the 21st Century Distance Learning has developed in the form of:**

**Web-based instruction**
**Virtual classrooms**
**Chat Rooms**
**Teleconferencing**
**Discussion Boards**

**Now that we understand the evolution of The distance learning environment, we must ask ourselves…**

**Where do we start?**

**Which issue do we address first?**

**What methods will we employ to assist us in investigating these issues further?**

# Methodology

## Purpose of the Study

**To examine the relationship among students' perception of social presence and their perceived learning and satisfaction in their asynchronous distance learning course.**

- **The methodology for this study was guided by the replication of a prior study that was originally conducted by Richardson and Swan (2003) (i.e., Examining Social Presence in Online Courses in Relation to Students' Perceived Learning and Satisfaction).**
- **In this section of the presentation, I will discuss:**
- **The description of the setting**
- **The research design**
- **The population and sample**
- **The variables that were examined**
- **A description of the instrument**
- **The data collection procedures**
- **Data analysis procedures.**

## The Setting

LEE COLLEGE

**13 asynchronous distance learning courses**

**(offered through the Business and Management Departments at Lee College in Baytown, Texas for The Fall 2006 semester served as the setting for this study).**

## Research Design

**A non-experimental quantitative research design was used**

**Data were collected with the modified GlobalEd Survey instrument.**

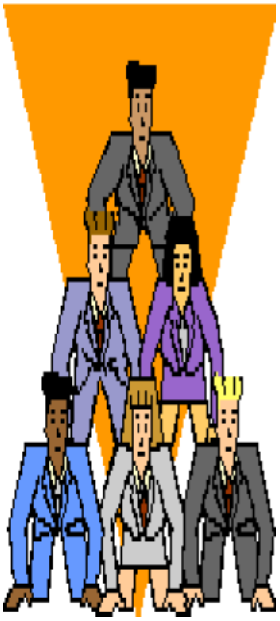
# Population and Sample

The study participants, were selected using convenience sampling was comprised of freshman and sophomore level students.

Spatz (2005) indicated that the most commonly employed type of sampling is the convenience sampling which refers to the method of choosing items arbitrarily and in an unstructured manner.

Of the 252 proposed participants final sample consisted of 156 participants (with a usable sample size that equaled 150).

The final sample size consisted of 31 male and 119 female participants.



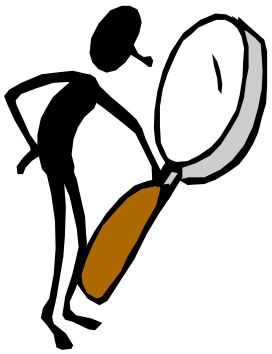
## VARIABLES

**The variables under investigation in this study were divided into the following three categories:**

**Dependent Variable - Overall Perceived Social Presence**

**Independent Variables - Personal Characteristics**
**Gender**
**Age**
**Total number of college credits**

**Independent Variables - Various Course Activities**
**meet classmates** **class discussion**
**written assignments** **individual projects**
**group projects activities**



## INSTRUMENTATION

The data were collected by utilizing a the GlobalEd survey originally constructed by Gunawardena and Zittle (1997)

(for their research examining social presence as a predictor of satisfaction within a computer mediated conferencing environment).

## Reliability and Validity

- Huck (2004) indicated that :

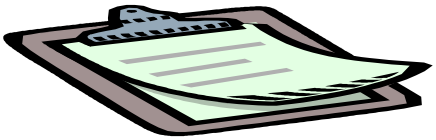
  "the basic idea of reliability is summed up in one word consistency" (p. 76).

- Walsh and Betz (2001) stated that :

  Validity refers to "the extent to which the test we're using actually measures the characteristics or dimension we intend to measure" (p.56).

## Data Collection Procedures

- During the initial departmental orientation session the followin g two documents for the study were introduced the proposed study participants:
- The Information Sheet
- GlobalEd Questionnaire



## Data Analysis

Several statistical procedures were performed to answer the two research question.

The following steps were conducted in the data analysis process:

- Data Cleansing
- Reliability Analysis
- One Way ANOVAS
- Factor Analysis
- Stepwise Regressions
- Correlations

## Data Cleansing Analysis

The issue of missing data that appeared in the form of unequal N's (i.e. total number of participant's responses) per item answered

A non-integral variable (i.e. individual projects) based on the "non applicable" participant's responses obtained for this type of activity

The need to divide and rename the class discussions (CD) variable and The written assignments variable into two separate variables based On the results obtained via the factor analysis

## Data Cleansing Analysis (cont.)

### ISSUE ONE

To resolve issue one - missing data due to unequal N's

Employed Mertler and Vannatta's (2005) technique of calculating the mean of the available data. Mertler and Vannatta (2005) sta ted:

The most common method utilized by researchers when faced with the issue of missing data is a "method of estimating missing values or data involves the calculation of the means, using available d ata for values with missing values, and those means are then used to replace the missing values prior to the main analysis" (p. 26).

### ISSUE TWO

- To resolve issue two, individual projects (IP) activities -a non-integral variable due to the number of "non-applicable responses".
- Mertler and Vannatta (2005) stated:

"If a certain variable has more than 15% missing data, the resear cher may want to consider dropping the variable from the analysis" (p. 37).

## ISSUE THREE and ISSUE FOUR

- To address issue three and issue four, (the need to divide and r ename the variable) I utilized a third technique from Mertler and Vannatta (2005) which indicated that "once the appropriate number of components to retain has been determined (via the factor analysis), the researcher must then:
- Interpret/name the components
- By evaluating the types of variables included in each factor
- Evaluate the strength of factor loadings
- And the directions of the factor loadings" (p. 275).

### Data Cleansing Analysis – Results

| New Variables -Issue 3- (CD) | New Variables – Issue 4- (WA) |
|---|---|
| 1)Overall perceived learning in the class discussion activities | 1) Overall Perceived Learning in the Written Assignments Activities |
| 2) Overall perception of the online community in the class discussion activities. | 2) Overall Perception of Others in the Written Assignments Activities |

**This concludes the issues that were discovered during the data cleansing phase of the analysis process**

## *Factor Analysis*

- **Mertler and Vannatta (2005) stated :**

  **"The term factor analysis is commonly used to represent the general process of variable reduction" (p. 250).**
- **Conducted an exploratory factor analysis and principal component analysis was conducted utilizing a Varimax rotation.**
- **I sought to determine whether:**
- **If the 79 survey items - correctly captured the impact of the participant's overall perception of social presence on their cognitive and affective learning.**
- **Nunnally (1978) indicated that:**

  **A general rule of thumb in exploratory factor Analysis is that the ratio of respondents to items should exceed 5.**
- **The ratio in this study (i.e. 150:79) fell below the recommended minimum but did not preclude the use of factor analysis.**

## Factor Analysis (cont.)

- **Gorsuch (1983) advocates**

  "Using Bartlett's Test of Sphericity to examine the significance of a correlation matrix in instances where the minimum ratio is not achieved" (p. 150).

- **Tabachnick and Fidell (1989) stated :**

  "Bartlett's Test of Sphericity is highly sensitive to sample size

  Suggested supplementing it with Kiaser's measures of sampling adequacy (MSA)" (p. 604).

- **Kaiser and Rice (1974) suggested :**

  MSA value should be at least 0.60 before proceeding with the factor analysis

  Realistically the value should exceed 0.80 if the results of the factor analysis are to be credible.

**RESULTS OBTAINED**

- **Bartlett's Test of Sphericity significance level = .000**

  ( indicated that there were probably significant relationships among the variables and that the data was suitable for factor analysis).

- **Kaiser's MSA value = .92**

  ( indicated the proportion of variance in the variables which was common variance; therefore, confirming that a factor analysis was a useful technique for analyzing this data).

- **On this basis, I felt that it was appropriate to relax the earlier ratio rule and proceed with the exploratory factor analysis.**

## Factor Analysis (cont.)

Factor analysis extracts the reliable items that significantly explain the variance of each factor. (Factor analysis was conducted to determine what, if any, underlying structures exists for measures on the following five variables of Interest:

The dependent variable - (1) perceived social presence (OPSP)

Independent variables:
(2) meet classmates activities (MC) (3) class discussions activities (CD)
(4) written assignment activities (WA) (5) group projects activities (GP).

## The Correlation Matrix


In examining the initial correlation matrix obtained, I determined that there were many items with medium (i.e. values at .50 or less) to large (i.e. values greater than .50) correlation values which were moderately correlated with the remaining variables.

There were no variables that were not correlated with the others in the matrix.

The results of the initial factor analysis indicated that all variables of interest loaded under all components (i.e. 1-11) which caused no full series of rotations to be obtained.

## *Factor Analysis (cont.)*

**Aron and Aron (1999) mentioned:**

That variables typically have loadings on all factors, but will usually have high loadings on only one factor, which was not the case with this factor analysis results.

**To resolve this issue:**

Suppressed all values less than 0.45

(for reasons of insufficient contribution to explaining the variance)

**Although Hair et al. (1998) suggest that factor loadings of 0.50 or greater are practically significant.**

A factor loading of greater than 0.45 was considered significant in this research.

**The factor analysis were re-conducted.**

**In analyzing the second factor analysis, more specifically the rotated component matrix for each variable (if available):**

11 original components now 7

All double loading items were deleted.

Reliability analysis utilizing Cronbach's coefficient alpha was conducted.

The decision was made to re-calculating the factor analysis for each variable

Only the top three values obtained for each factor was utilized.

## Factor Analysis (cont.)
## Perceived Social Presence – Final Factor Analysis and Reliability Analysis Results

**RESULTS**

**A new factor solution indicated:**

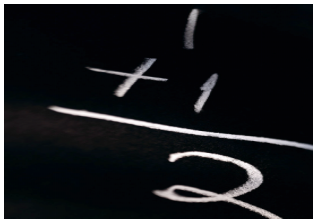
78.6 percent of the total variance was explained by the overall perceived social presence factor.

**Overall perceived social presence (i.e. Factor 1) consisted of the following top three items:**

- (1) OPSP-f –overall the instructor for this course met the participant's expectations
- (2) OPSP-a –I felt comfortable interacting with other participants in this course
- (3) OPSP-d –the instructor created a sense of online community.

Cronbach's alpha =0.90
Confirmed reliability of data.

- Mean = 1.82
- Scale mean = 5.48
- Standard deviation of 2.50.



**Factor Analysis (cont.)**
**Meet Classmates – Final Factor Analysis and Reliability Analysis Results**

**RESULTS**

- The new factor solution indicated:

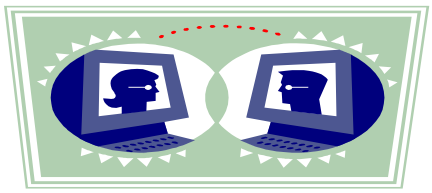
  78.2 percent of the total variance was explained by the meet classmate factor.

The meet classmates activities in WEBCT® (i.e. Factor 1) consisted of the following top three items:

- (1) MC-a –the participant's overall perceived presence for this activity
- (2) MC-b- the participant's overall comprehension and retention of knowledge for this activity
- (3) MC-c- the participant's perception that the quality of learning for this activity was excellent.

Cronbach's alpha =0.96
Confirmed reliability of data.

- Mean = 1.67
- Scale mean = 5.02
- Standard deviation of 2.05.



**Factor Analysis (cont.)**
**Class Discussions – Final Factor Analysis and Reliability Analysis Results**
**Note: The class discussions factor had factor loadings on 2 primary components**

**RESULTS**

**lass discussions (i.e. Factor 1)**
**'erception of Online Community**

new factor solution indicated:

2.4 percent of the total variance was
cplained by the class discussions
ctor.

lass discussions (i.e. Factor 1)
nsisted of the following top three
ems:

) CD-g – the instructor created a sense of online community

) CD-l – the participant's perceived their point of view was acknowledged by other participants

) CD-f –the participants felt that this activity enabled them to form a sense of online community.

ronbach's alpha = 0.78 Mean = 1.80

cale mean = 5.41 standard deviation =1.68.

**Class discussions (i.e. Factor 2)**
**Perceived Learning**

Class discussions (i.e. Factor 2) consisted of
The following top three items:

(1) CD-a – the participant's overall perceived presence for this activity

(2) CD-b –the participant's overall comprehension and retention of knowledge for this activity

(3) CD-c – the participant's perception that the quality of learning for this activity was excellent.

Cronbach's alpha = 0.93 Mean = 1.80

Scale mean = 5.42 standard deviation =1.63.

**Factor Analysis (cont.)**
**Written Assignments – Final Factor Analysis and Reliability Analysis Results**
**Note: The written assignments factor had factor loadings on 2 primary components**
**RESULTS**

**Written Assignments (i.e. Factor 1)**
- **Perceived learning**

A new factor solution indicated:

80.2 percent of the total variance was explained by the written assignments factor.

Written assignments (i.e. Factor 1) consisted of the following top three items:

(1) WA-m – the participant was able to form distinct individual impressions of other course participants during this activity

(2) WA-i – the participant's perceived that this activity was facilitated by the instructor

(3) WA-l –the participants felt that their point of view was acknowledged by other participants during this activity.

Cronbach's alpha = 0.83 Mean = 2.06

Scale mean = 6.17 standard deviation = 1.68.

**Written Assignments (i.e. Factor 2)**
**Perception of Others**

Written assignments (i.e. Factor 2) consisted of the following top three items:

(1) WA-a – the participant's overall perceived presence for this activity

(2) WA-b – the participant's overall comprehension and retention of knowledge for this activity

(3) WA-c – the participant's perception that the quality of learning for this activity was excellent.

Cronbach's alpha = 0.87 Mean = 2.15

Scale mean = 6.45 standard deviation **= 1.44**

**Factor Analysis (cont.)**
**Group Projects – Final Factor Analysis and Reliability Analysis Results**

A new factor solution indicated:

20.7 percent of the total variance was explained by the group projects factor.

- The group projects activities in WEBCT® (i.e. Factor 1) consisted of the following top three items:
- (1) GP-b - the participant's overall comprehension and retention of knowledge for this activity
- (2) GP-c – the participant's perception that the quality of learning for this activity was excellent
- (3) GP-d- the participant's felt comfortable conversing online for this activity.

Cronbach's alpha = 0.93

Mean = 1.64

Scale mean = 4.92

standard deviation = 2.17

## SUMMARY of FACTOR ANALYSIS - RESULTS

- After the factor analysis was completed - seven factors of interest were named and examined further in Research Question two:
- (1) Overall perceived social presence (OPSP)
- (2) Meet your classmates activities (MC)
- (3) Overall perceived learning in the class discussions activities (CD 1)
- (4) Overall perception of the online community in the class discussions activities (CD 2)
- (5) Overall perceived learning in the written assignments activities (WA 1)
- (6) Overall perception of others in the written assignments activities (WA 2)
- (7) Group projects activities (i.e. GP)

The reliability of the data was verified Concluded acceptable levels were attained,

Top three values for each variable was used to compute an average value for each respective variable.

Computed averages were compiled Then conducted a stepwise regression

## STEPWISE REGRESSION

- A stepwise regression procedure was calculated to examine the hypotheses that overall perceived social presence is a predictor of comprehension and retention of knowledge (i.e. cognitive learning) and satisfaction (i.e. affective learning) in the 13 courses.

### PURPOSE

- To obtain additional information regarding the amount of explained variance added by each of the respective predictors when entered into the equation model.

The dependent variable was perceived social presence; Probability limits Were set at $p < .05$.

## STEPWISE REGRESSION - RESULTS

- **Summary of stepwise regression model**

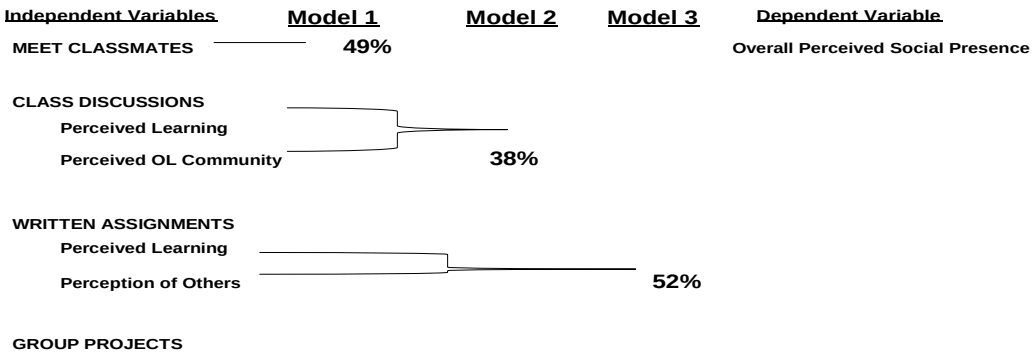
| Model | Variable Entered | R | R Squared | Adjusted R Squared | Standard Error of Estimate |
|---|---|---|---|---|---|
| 1 | CD062907 | .62a | .38 | .38 | 1.26 |
| 2 | MC62607 | .70b | .49 | .48 | 1.15 |
| 3 | WA062907 | .72c | .52 | .51 | 1.11 |

Note ($p < .05$): Scale: CD=Class Discussions activities, MC= meet classmate activities, WA=written assignments activities; Dependent variable: Overall Perceived Social Presence (OPSP)

a. Predictors (Constant), CD062907 (df =1, 143)
b. Predictors (Constant), CD062907, MC_62607 (df =1, 142)
c. Predictors (Constant) CD062907, MC_62607, WA062907 (df = 1, 141)

## STEPWISE REGRESSION – Models

**Social Presence as a predictor of Cognitive and Affective Learning in an Asynchronous Distance Learning Environment**




**The results indicated:**

**The stepwise regression analysis converged on a three predictor model**

**Constant predictors Class Discussions (CD) = 38%, Meet Classmates (MC) = 49%, Written assignments (WA) = 52%**

**Accounted for approximately 38%, 49% and 52% respectively of the explained variance in the participant's overall perception of social presence scores ($p < .05$).**

**This concludes the stepwise regression analysis. The following section contains a summary of the overall findings with regards to the research questions that guided this study.**

# Research Question 1

**What is the relationship between participants perceived social presence in a selected asynchronous online community college learning environment and the following personal characteristics?**
**Gender**
**Age**
**The total number of college credits earned**

## Null Hypotheses for Research Question 1

- **Based on research question one, the following hypotheses stated in the null form was identified:**
- **1a) There is no statistically significant difference between the participant's responses regarding their overall perception of social presence and gender.**
- **1b) There is no statistically significant difference between the participant's responses regarding their overall perception of social presence and age.**
- **1c) There is no statistically significant difference between the participant's responses regarding their overall perception of social presence and their total number of college credits earned**

### OPSP and GENDER RESULTS

**CORRELATION RESULTS**

R=.055 R2 = .003
(p<.05).

yielded a statistically insignificant correlation

**ANOVA RESULTS:**

The Levene's test of homogeneity = .875 ( exceeded .05).

The variances for the two variables gender and the participants' overall perception of social presence Had approximate equal variance.

The Between groups (for approximate equal Variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the group means around the overall mean

- The F-test results were .145
- The significance level was .105.
- Significance level > .05, there were no groups that were significantly different, (no Post hoc tests were conducted) .

(confirmed correlational analysis results)

### SUMMARY OF RESULTS

**OPSP – GENDER**

The larger literature base on gender according to Acker(1994), Blackmore and Kenway (1993), and Nicholson (1980) Indicated:

That gender played a role in individuals' educational experiences.

**RESULTS OF THIS STUDY INDICATED**

That as technological advances are being made and individuals are becoming more acclimated in the online learning environment, the role of gender has Possibly become a less significant factor.

## OPSP and AGE RESULTS

**CORRELATION RESULTS**

R=.146 R2 = .021 (p<.05).

yielded a statistically insignificant correlation

**ANOVA RESULTS:**

The Levene's test of homogeneity = .000 ( did Not exceeded .05).

The variances for the two variables age and the participants' overall perception of social presence did not have approximate equal variance.

The Within groups (for unequal variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the group means around the overall mean.

- The F-test results were .457
- The significance level was .500.
- Significance level > .05, there were no groups that were significantly different, (no Post hoc tests were conducted) .

(confirmed correlational analysis results)

## SUMMARY OF RESULTS

**OPSP – AGE**

The growing accessibility of computers As well as the increased number of Online courses has prompted students of all ages to take advantage of distance learning.

**RESULTS OF THIS STUDY INDICATED**

These findings confirmed Giles' (1999), Feldhaus' (1999), and Richardson and Swan's (2003) findings:

> That age does not make any difference in one's distance learning experiences or their perception of social presence in their online learning environment.

## OPSO and TOTAL COLLEGE CREDITS

**CORRELATION RESULTS**

R=.104 R2 = .011 (p<.05).

yielded a statistically insignificant correlation

**ANOVA RESULTS:**

The Levene's test of homogeneity = .074 ( exceeded .05).

The variances for the two variables total # of college credits earned and the participants' overall perception of social presence had approximate equal variance.

The Between groups (for approximate equal Variance) figures listed in the ANOVA table were examined to determine whether there was any variation of the Group means around the overall mean

- The F-test results were .756
- The significance level was .583.
- Significance level > .05, there were no groups that were significantly different, (no Post hoc tests were conducted) .

(confirmed correlational analysis results)

## SUMMARY OF RESULTS

**OPSO – Total College Credits**

Similar to the findings of Molla (1987), Taghavi (2001), and Richardson and Swan (2003):

> No relationship was found in this study between the participants' total number of college credits earned and their perception of social presence in their online courses.

As a result, the findings of this study indicated that gender, age, nor the participant's total number of college Credits earned were predictors of their overall perception of social presence; And therefore accounted for none of The variability in the participant's overall perception of social presence responses.

## Correlational Analysis for Perceived Social Presence and Personal Characteristics

| Personal Characteristic | N | Mean Score for OPSP and PC | Correlation between OPSP and PC | Coefficient of Determination R2 |
|---|---|---|---|---|
| Gender | 150 | 1.79 | .05 | .00 |
| Age | 150 | 14.99 | .14 | .02 |
| TCC Earned | 150 | 2.81 | .10 | .01 |

*Note*. N= total number of participant responses, OPSP= overall perceived social presence, PC=personal characteristics, TCC Earned= total college credits earned, and Sig. =significance; (p< .05).

Based on these results, I failed to reject all Null hypotheses; thereby, concluding research question 1.

## Research Question 2

- What is the relationship between participants overall perceived social presence in a selected asynchronous online community college learning environment and the following types of course activities?
- a. Meet your classmates/introductions in WEBCT®
- b. Overall perception of the online community in the class discussions activities
- c. Overall perceived learning in the class discussions activities
- d. Overall perception of others in the written assignments activities
- e. Overall perceived learning in the written assignments activities
- f. Group projects

**Research Question 2(a)**
**OPSP & MEET CLASSMATES**

The data collected were analyzed on the two variables to determine:

- Whether the correlation between the two variables was significantly significant.
- Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.

**RESULTS FOR THIS STUDY INDICATED:**

Mean Score = 3.91
(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).

R=.57 R2=.33

Determined that participants' overall perception of social presence accounted for approximately 33% of the variability in their perception of presence in the meet classmates activities in WEBCT®.

Results of this study indicated that there was a statistically significant correlation found between the two variables.

**SUMMARY**

**The meet classmate activity in WEBCT®:**

Designed to function as a community building activity

Designed to encourage trust among the participants.

**According to Gunawardena & Zittle (1997):**

When learning occurs socially within communities of practice, there is greater variability in the sense of community ratings in online courses

**Research Question 2(b)**
**OPSP – CLASS DISCUSSIONS & PERCEIVED LEARNING**

**The data collected were analyzed on the two variables to determine:**

Whether the correlation between the two variables was significantly significant.

Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.

**RESULTS FOR THIS STUDY INDICATED:**

Mean Score = 4.22
(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).

R=.42 R2=.17

Determined that participants' overall perception of social presence accounted for approximately 17% of the variability in their overall perception of learning in the class discussions activities.

Students with high perceptions of social presence also perceived high levels of learning in the class discussions activities in WEBCT®.

**SUMMARY**

These findings coincide with the literature on online Learning.

Harasim (1990) indicated that:
Online discussion boards) support active learning and collaboration for numerous individuals when Actively utilized which, in turn, can Increase motivation and satisfaction (i.e.affective learning) in online courses)
Discussion boards provides individuals with:
Avenues to integrate various learning styles
Makes learning more inclusive
Encourages independent thinking and active learning.

**Research Question 2(c)**
**OPSP – CLASS DISCUSSIONS**
**& ONLINE COMMUNITY**

**The data collected were analyzed on the two variables to determine:**

**Whether the correlation between the two variables was significantly significant.**

**Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.**

**RESULTS FOR THIS STUDY INDICATED:**

**Mean Score = 4.24**
**(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).**

**R=.62 R2=.37**

**Determined that participants' overall perception of social presence accounted for approximately 37% of the variability in their perception of whether an online community was established in the class discussions activities.**

**Students with high perceptions of social presence also perceived that an online community was established in the class discussions activities in WEBCT®.**

**SUMMARY**

**Lock (2002) proposed that there are four cornerstones for the development and maintenance of online learning communities:**

**Communication**
**Collaboration**
**Interaction**
**Participation.**

**Participants' history and their individual Identity will generally grow and develop when they participate in online courses through their communication, collaboration, and interactions with each other in class discussions; thereby creating effective online communities.**

**Research Question 2(d)**
**OPSP – WRITTEN ASSIGNMENTS**
**& PERCEIVED LEARNING**

The data collected were analyzed on the two variables to determine:

Whether the correlation between the two variables was significantly significant.

Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.

**RESULTS FOR THIS STUDY INDICATED:**

Mean Score = 5.00
(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).

R=.41 R2=.17

Determined that participants' overall perception of social presence accounted for approximately 17% of the variability in their perception of learning in the written assignments activities.

Students with high perceptions of social presence also perceived high presence of learning in the written assignments activities in WEBCT®.

**SUMMARY**

Bangert-Drowns (1997) said :

That "literate thinkers build personal knowledge through explorations of meanings in transactions with texts" (p. 2).

By actively engaging in the written Assignments activities, the participants had the ability to:

Express their individual understanding of the subject matter and be exposed to the views of others.

Finally, it is generally through written context That individuals attempt to analyze the knowledge of others and garner additional knowledge for themselves.

**Research Question 2(e)**
**OPSP – WRITTEN ASSIGNMENTS & PERCEPTION OF OTHERS**

The data collected were analyzed on the two variables to determine:

Whether the correlation between the two variables was significantly significant.

Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.

**RESULTS FOR THIS STUDY INDICATED:**

Mean Score = 4.86
(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).

R=.56 R2=.32

Determined that participants' overall perception of social presence accounted for approximately 32% of the variability in their perception of others in the written assignments activities.

Students with high perceptions of social presence also perceived high presence of others in the written assignments activities in WEBCT®.

**SUMMARY**

These findings indicated that social presence permeates the written assignments activities that are usually designated as individual activities.

One possible explanation for this finding may be:

That participants were possibly asked to discuss the written assignments with their instructor or other students prior to completing the assignments, or to post reflections regarding their responses to these written assignments in discussion board areas after completion.

**Research Question 2(f)**
**OPSP – GROUP PROJECTS**

The data collected were analyzed on the two variables to determine:

Whether the correlation between the two variables was significantly significant.

Whether the correlation accounted for any percentage of the variability in their overall perception of social presence responses.

**RESULTS FOR THIS STUDY INDICATED:**

Mean Score = 3.86
(on a six-point Likert scale (1=strongly disagree, 6=strongly agree).

R=.64 R2=.41

Determined that participants' overall perception of social presence accounted for approximately 41% of the variability in their perception of presence in the group projects activities in WEBCT®.

Students with high perceptions of social presence also perceived high presence of others in the group projects activities in WEBCT®.

**SUMMARY**

- Daniel (2003) indicated:

  That collaborative learning environments, whether virtual or temporal, are developed on the assumption that knowledge or learning is shaped by social context (such as social presence or social awareness).

  Utilizing group projects to build strong group interdependence

- Promotes a degree of camaraderie
- Encourages members to help each other work toward a common goal.

## Summary Results for Correlational Analysis on Overall Perceived Social Presence and Online Course Activities

| Course Activity | N | Mean Score for OPSP and Course Activity | Correlation Between OPSP & CA | Coefficient of Determination R2 |
|---|---|---|---|---|
| MC | 148 | 3.91 | .57* | .33 |
| CD1(P Learning) | 148 | 4.24 | .62* | .37 |
| CD2(OL Community) | 148 | 4.22 | .42* | .17 |
| WA1 (P Learning) | 148 | 4.86 | .56* | .32 |
| WA2 (P of others) | 148 | 5.00 | .41* | .17 |
| GP | 148 | 3.86 | .64* | .41 |

***Note.*** **(*) Denotes correlation is significant at the 0.05 level and Sig.=significance (p< .05); Scale: N= total number of participant responses, CA = course activities, (OPSP) = Overall perceived social presence, (MC) = meet classmates activities, (CD 1) = overall perceived learning in the class discussions activities, (CD 2) = overall perception of an online community in the class discussions activities, (WA 1) = overall perceived learning in written assignments activities, (WA 2) = overall perception of others in written assignments activities, and (GP)= group projects activities.**

**The results of this study indicated that there was a statistically significant correlation found OPSP and each of the course activities variables.**

**Based on the above-mentioned results obtained, I rejected all null hypotheses associated with research question 2.**

## Implications for HRD Research and Practice

- As HRD professionals, we cannot deny that emerging technologies are reshaping our views on the design and development of online classes.
- Schott, Chernish, Dooley and Lindner (2003) stated that:
- "Delivering high-quality instruction requires innovation in program development and delivery" (p.1).
- With that in mind, it is imperative that HRD professionals question what effect these emerging technologies will ultimately have on the individuals we teach, ourselves, as well as our disciplines.
- Consequently, it is imperative that HRD professionals understand their role during the transformation process.
- Duderstadt (1999) stated:

  "The real question is not whether higher education will be transformed but rather how and by whom" (p. 1).

Emerging technology as well as the results of this study indicates that the development of clear standards by HRD practitioners for online social presence is an important step in moving toward a new model for online course design and development.

- Finally, the fact that the relevancy between social presence, cognitive and affective learning in an asynchronous environment has gone somewhat unexplored provides HRD professionals with opportunities to link up with practitioners to "Brainstorm" and develop new theories and insights in this growing area of concern.

## Limitations of the Study

- The study only took into consideration the responses of the participants who elected to participate in the study with no accountability of the perception of the students who elected not to participate.
- The sample used for this study was chosen for its ability to represent the traditional, undergraduate population rather than the non-traditional students returning to school or students at the graduate level.
- The questionnaire was not specifically designed to examine participants' satisfaction with their instructor so there could be some problems with isolating this concept.
- The final limitation is the lack of randomization
- (because the randomization process in this case was beyond my control, as is customarily the case in educational settings, since the participants belong to an "intact group" that was administratively defined ) (Gall et al., 1996).

## Recommendations for Future Research

Further research should be conducted in the Area of social presence, in both online and Traditional educational environments:

To determine the extent that perceptions of social presence influences:

Performance
Motivation
Other attitudinal factors.

To examine the change in perception of social presence over time.

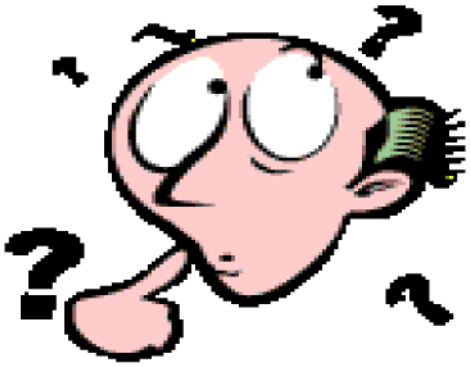
- Determine the extent of the influence of social presence on :
- Teacher effectiveness ratings
- Student's perception of satisfaction with instructors.
- Examine whether the actual characteristics of the media are:
- The causal determinants of the perceptions of social presence, learning, and satisfaction.

## Linking Social Presence, Cognitive & Affective Learning, and Distance Learning Through Research

Creates a "Win-Win situation for everyone concerned.

# The End

- Question & Answer session



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## PUBLICATIONS

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