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# Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Online and Face-to-Face Courses

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# Social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses

by

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# DEDICATION

Dedicated to my Mother
Valerie J. Spears

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# CHAPTER 1. INTRODUCTION

## Background and Setting

While many view distance learning as a new concept, in actuality it has been around for some time. Cohen (1999) reminds us "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). Phipps and Merisotis (1999, p. 26) categorized the growth stages of distance educational systems into "*generations.*" Correspondence education has been labeled as "*first generation*" with one-way delivery methods that included mail, radio, and television. McIssac and Bolcher (1998) revealed that "distance learning continued to further develop in the forms of teleconferencing, web-based instruction, chat rooms, satellite television, computer networks and virtual classrooms" (p. 43). The introduction of computer and web-based learning guided the "*second generation*" (Phipps & Merisotis, 1999, p. 26). The "*third generation*" emphasizes the multiple uses of these educational technologies. Now, the increasing use of educational technologies with computers, the Internet, and the World Wide Web in higher education are shaping the current generation of distance learning (Wu &Turner, 2006).

## Online Learning

Swan and Shih (2005) highlight that "over the past decade, the Internet has had a profound impact on higher education, enabling the phenomenal growth of online learning" (p. 115). Also noting that "the altered learning environments created by web-based courses not only eliminate barriers of time and space, providing increased access to higher education, they challenge our traditional notions of teaching and learning" (Swan & Shih, 2005, p. 115). Each year Allen and Seaman (2009) develop a report, *Learning on Demand,* which highlights trends in online learning in the United States. In 2009 the report stated, "for the past six years online enrollments have been growing substantially faster than overall higher education enrollments. The expectation of academic

leaders has been that online enrollments would continue their substantial growth for at least another year" (Allen & Seaman, 2009, p.1). Allen and Seaman (2009) reported over 4.6 million students were taking online courses during fall 2008. These statistics represent a 1.2% growth rate of online learners. So by now, it is obvious to most in higher education that technology is transforming education (DeNeui & Dodge, 2006).

Online learning has been promoted as being more cost effective and convenient than traditional educational environments, as well as providing opportunities for more learners to continue their education (Richardson & Swan, 2003). There is a growing acceptance for the view that educating students beyond the campus is a major element of a university's mission (Harris, 1999). This view is sustained by the enhanced capacity for efficient and widespread use of distance education through advanced electronic delivery systems (Rovai, 2002).

Distance educators and their learners are beginning to ask important instructional questions about the quality of these computer-mediated educational programs. As the number of online courses continues to expand, so must the ways in which instructors engage in active facilitation of learning among their students (Ice, Curtis, Phillips, & Wells, 2007). With the increasing popularity of the Internet, web-based environments have become well-suited for facilitating students' learning asynchronously (Hiltz & Wellman, 1997). In 1990, Harasim forecasted the impact of technology by suggesting the inclusion of online education may provide unlimited opportunities for educational interactivity (Harasim, 1990).

## Social Presence, Social Interaction, Collaborative Learning, and Satisfaction

Researchers have concurred that learning is a social process (Harasim, 2002; Tu, 2000). Social presence and social interaction are factors linked to online learning. Researchers have identified social presence (Short, Williams, & Christie, 1976; Gunawardena & Zittle, 1997; So & Brush, 2008), social interaction (Gunawardena & Zittle, 1997; Picciano, 2002), collaborative learning

(Kitchen &McDougall, 1998; Curtis & Lawson, 2001; So & Brush, 2008), and satisfaction (Gunawardena & Zittle, 1997; So & Brush, 2008) as important and essential elements for any successful and effective online course design (McFadden, 2006).

## Social Presence

Social presence has been noted a necessity to improve instruction in both traditional and online learning environments (Gunawardena, 1995). Short, Williams, and Christie (1976) defined social presence as "the degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (p. 65). Simply, social presence is the perception there is another real person taking part in the interaction (Tu & McIssac, 2002). And, more generally speaking, it can be considered a continuum reflecting the degree to which participants believe they know one another (Rourke, Anderson, Garrison, & Archer, 2001). Therefore, social presence can be regarded as an ability to socially and emotionally project himself/herself in a course or online community (Rourke, Anderson, Garrison, & Archer, 2001).

Short, Williams, and Christie (1976) placed emphasis on the quality of the communication medium, while noting the "communications media vary in their degree of social presence and that these variations are important in determining how individuals act" (p. 65). Face-to-face communication was determined the most important form of socially-present media, followed by video and audio communications ranking second and third, respectively (Tu, 2002). Adding to this, Hample and Dallinger (1995) contend a lack of social presence may lead to a high level of frustration, a critical attitude toward the instructor's effectiveness, and a lower level of affective learning. Now, more than ever, many researchers are conducting studies on social presence. And, many have demonstrated high levels of social presence will facilitate better online communications and learning.

## Social Interaction

Social presence is said to be a vital element to influence online interactions (Tu, 2002; Tu & McIssac, 2002). "Social interaction is defined as interaction between learners and instructors that occurs when instructors adopt strategies to promote interpersonal encouragement and social integration" (Jung, Choi, Lim, & Lee, 2002, p. 153). Learner-to-learner interaction is said to be motivating and stimulating for students (Moore & Kearsley, 2005), while being a critical element to online learning (Richardson & Swan, 2003). Garramore, Harris, and Anderson (1986) caution when the level of social presence is low, interaction is low. While Gundawardena (1995) warned without interactions, learning should not be expected. Moreover, "active online interaction remains a desirable learning situation" (Tu & Corry, 2003, p. 52).

## Collaborative Learning

An important aspect of collaborative learning is the move from assimilation to construction, i.e., creating new understandings, based on students' discussions (Puntambekar, 2006). Collaborative learning requires cognitive and environmental determinants, social presence is required to enhance and foster online social interactions, a major vehicle for collaborative learning (Tu, 2000). Constructivists believe learning is constructing knowledge from one's experiences rather than directly receiving information from the outside world (Brown, Collins, & Duguid, 1989).

> Notwithstanding the improving capacities of user-friendly online learning technologies, many university courses still fail to incorporate procedures that capitalize on them for active student engagement. Constructivist online teaching includes multiple activities that promote asynchronous reflection and synchronous conversation. Such courses capitalize on a variety of media to support diverse learning styles (McFadden, 2006, p. 13).

Educators have attempted to incorporate collaborative learning methods in their distance education courses with the belief that increased interactions among students could enhance learning

outcomes and student satisfaction (Curtis & Lawson, 2001). However, despite popular support among educators for collaborative learning approaches, prior research studies suggest students are often dissatisfied and frustrated with their collaborative learning experiences (Kitchen & McDougall, 1998). McFadden (2006) contends online teaching and learning can be a positive experience. She follows with the recommendation that "online educators pay close attention to organization and clarity of the design of the course" (p. 13). Therefore, collaborative learning environments should be designed with the full understanding and consideration of group dynamics, social interaction, and instructional technology (So, 2005).

## Satisfaction

Satisfaction is defined as "an affective learning outcome indicating the degree of: learner reaction to values and quality of learning, and motivation for learning" (So & Brush, 2008, p. 323). So and Brush contend when evaluating the effectiveness of courses, student satisfaction plays an important role. Aragon (2003) notes an emergence of research on the relationship between student satisfaction and learning outcomes in *Creating Social Presence in Online Environments*. In his article, Aragon suggests learners, who have a higher level of social presence, are more satisfied with online learning.

## Summary

In summary, social presence has been researched in the field of education. And "over time, has evolved to include specific interactions that take place with the medium as well as users' subjective perceptions of these interactions" (Wise, Chang, Duffy, & Del Valle, 2004, p. 568). Higher student social presence is associated with greater interactions (Tu & MsIssac, 2002) and greater social presence is also associated with a higher level of student satisfaction and perceived learning (Richardson & Swan, 2003).

So and Brush (2008) point to the lack of knowledge regarding the characteristics and effects of social presence related to communication media and the user, insisting more research is needed. Also, Russo and Benson (2005) mention that "more investigation of students' assessment of their own presence and its relationship to course outcomes is in order" (p. 60). Schrire (2006) adds that "research into CMC [computer mediated communication] and computer supported collaborative learning (CSCL) can, and should, rest on the existing knowledge base of learning processes (with and without technology) and extrapolate from it what is relevant" (p. 50). And, since social presence, social interaction, collaborative learning, and satisfaction have been readily identified as essential elements for online course design, there is a need to understand these constructs more in-depth.

During the past decade, educators in the field of agriculture have come a long way in making strides to understand online learning. Researchers have studied a sundry of topics related to distance education. Agriculture educators began their approach to understanding online learning by first identifying opportunities and obstacles related to online learning (Miller, 1995; Murphy & Terry, 1998; Murphrey & Dooley, 2000). Similar to other disciplines, agriculture educators also compared on- and off-campus courses (Miller & Shih, 1999; Miller & Pilcher, 2001; Moore & Wilson, 2005) and identified relevant educational technologies that would support online learners (Murphy & Terry, 1998, Murphy, 1999; Dooley & Murphy, 2001). Evaluation of online courses is also prevalent in literature related to online courses in agriculture (Murphrey, 2010; Roberts, Irani, Lundy, & Teig, 2004; Mink & Moore, 2005).

However, the broader base of literature suggests social presence, social interaction, collaborative learning, and satisfaction are important to online learning and the media used to deliver a course can be influenced by these constructs. This broader base of literature comes from research in disciplines such as administration and supervision, health education, and distance education. Unfortunately, none of these studies focus on courses in agriculture.

Moreover, there is a lack of research from all disciples that examines the constructs related to social presence, social interaction, collaborative learning, and satisfaction in agriculture online courses and face-to-face courses. It is not known if online courses compare favorably to face-to-face courses in facilitating social presence, social interaction, collaborative learning, and satisfaction.

## Statement of the Problem

What are the College of Agriculture and Life Sciences online students' perceptions of social presence, social interaction, satisfaction, and collaborative learning in online courses as compared to face-to-face courses?

## Purpose and Objectives of the Study

The purpose of this study was to describe and compare students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. This study is guided by the following objectives.

1. Describe the characteristics of students in online courses in the College of Agriculture and Life Sciences at Iowa State University.
2. Describe students' perceptions of their online learning experiences in the College of Agriculture and Life Sciences at Iowa State University.
3. Describe and compare the students' perceptions of social presence in online and face-to-face courses.
4. Describe and compare the students' perceptions of social interaction in online and face-to-face courses.
5. Describe and compare the students' perceptions of collaborative learning in online and face-to-face courses.
6. Describe and compare the students' perceptions of satisfaction in online and face-to-face courses.
7. Describe the relationships among social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.
8. Describe the relationships between the characteristics of the students in online courses in the College of Agriculture and Life Sciences and their perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

## Significance of the Study

This research can be helpful to individual departments, the college, the university and the growing base of online educators to better understand the online environment and best practices for developing online courses that encourage effective learning. The gender, age, and major of students enrolled in online courses in the College of Agriculture and Life Sciences include a wide range. While identifying the demographics of online learners, educators may begin to understand the general makeup of students in their courses and begin to tailor the curriculum to better suit the needs of learners in their courses with respect to social presence, social interaction, collaborative learning, and satisfaction.

## Limitations/Delimitations

Results of this study are only generalizable to students enrolled in College of Agriculture and Life Sciences online courses at Iowa State University.

## Definition of Terms

***Social Presence***-Short, Williams, and Christie (1976) define social presence as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (p. 65). Student perceptions of social presence will be measured with the Social Presence Scale. The Social Presence Scale consists of nine 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5).

***Social Interaction***- "Social interaction is defined as interaction between learners and instructors that occurs when instructors adopt strategies to promote interpersonal encouragement and social integration" (Jung et al., 2002, p. 153). Student perceptions of social interaction will be measured with the Interaction Scale. The Social Interaction Scale consists of six 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5).

**Collaborative Learning**- "An instructional approach in which a small number of learners interact together and share knowledge and skills in order to reach a specific learning goal" (So & Brush, 2008, p. 322). Student perceptions of collaborative learning will be measured with the Collaborative Learning Scale. The Collaborative Learning Scale consists of seven 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5).

**Satisfaction**-"An affective learning outcome indicating the degree of learner reaction to values, quality of learning, and motivation for learning" (So & Brush, 2008, p. 323). Student perceptions of satisfaction will be measured with the Satisfaction Scale. The Satisfaction Scale consists of eleven 5-point Likert-type items with response options ranging from strongly disagree (1) to strongly agree (5).

# CHAPTER 2. REVIEW OF LITERATURE

## Introduction

Online learning has become an important component of higher education. The past decade has shown a steady increase in the use of the Internet and educational technologies in higher education. Allen and Seaman (2009) report more than one in four higher education students take at least one course online. However, contrary to older versions of online learning environments, more and more opportunities have been provided for learners to socially engage in their learning environment, participate in learning communities, and construct knowledge socially. As should be expected, scholars have often presented findings and conclusions critical of the use of the new advancements in higher education. However, Gunawardena (1995) adds that despite its lack of social cues, CMC (computer mediated communication) can engage, interest, and stimulate students. Needless to say, continuous, escalating use of web-based interventions in course offerings has led to increased efforts to research various dynamics relating to web-based classes (Friday et al., 2006).

Gunawardena (1995) developed research to explain how CMC in online learning environments can be very personal and social; later, Tu (2000) reported similar findings. Warschauer (1997) asserts the web is also seen as an innovation tool that encourages students to think beyond their normal range. Cain (2005) suggests some of the possible explanations of why there is a positive association between the use of CMC and learning gains stems from the effectiveness and ease of use. The need to share knowledge is not restricted to the desktop PC, text-based environment, since knowledge lives in the world and mobile applications supply students with the opportunity for ubiquitous learning (Wei et al.,2007).

Computer-mediated conferencing is now known to support high levels of responsive, intelligent interaction between and among faculty and students, while simultaneously providing high levels of freedom of time and place to engage in this interactivity (Rourke et al., 2001). As online

learning courses continue in popularity and course development becomes a priority for many educators, Rourke, Anderson, Garrison, and Archer (2001) suggest it is "important (a) to develop research methods that explore the nature of teaching and learning in these environments (b) to apply these tools in authentic contexts, and (c) to use the results to develop instructional models that use this technology effectively" (p. 51).

Online educators are now trying to understand the intricacies of online learning. Researchers have begun to identify best practices elements for online learning. Over the past decade, researchers have identified social presence, social interaction, collaborative learning, and satisfaction as important constructs of an online course.

## Social Presence, Social Interaction, Collaborative Learning, and Satisfaction

### Social presence

Social presence has emerged as an important social factor in the field of distance learning (Gunawardena & Zittle, 1997), as well as one of the most critical factors in technology-based learning (Tu, 2000). To fully understand the concept of social presence, it is important to understand what socialization and presence entails (Jolivette, 2006). Kanwar and Swenson (2000) state socialization refers to the "process by which people learn the characteristics of their group and the attitudes, values, and actions thought appropriate for them" (p. 18). Jacobson (2001) described presence as "the sense of being caught up in the representation of virtual worlds" (p. 653). Being socially present implies more than just being with another, but being connected or engaged with others in some form of exchange (Scollins-Mantha, 2008).

By defining social presence, understanding how to measure it, and exploring the ways in which teachers, instructional designers, and students can enhance social presence, a richer, more engaging learning community can be formed in an online classroom (Scollins-Mantha, 2008). Short, Williams, and Christie (1976) tested the ability of media, such as fax machines, voice mail, and

audio-teleconferencing, to transmit nonverbal cues. Short et al. were the first to introduce the concept of social presence defined as "a quality of a medium itself" and the *social presence theory* as the "degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships" (p. 65). Regarding social presence as the most important perception that occurs in an environment, Short et al. stated this is fundamental to person-to-person communication. Short et al. defined social presence as both a factor of the communication media and the level at which people involved in a transaction via that media feel socially aware of each other. The social presence theory was not originally designed to explain CMC; in fact, it was initially studied in face-to-face, audio, and closed-circuit television encounters (Tu, 2000). The social presence theory was developed to explain the effect of telecommunications media on communication (Short et al., 1976).

Gunawardena (1995) defined social presence as "the degree to which a person is perceived as a 'real person' in mediated communication" (p. 151). Social presence has also been defined as "the degree of feeling, perception, and reaction of being connected by CMC to another intellectual entity through a text-based encounter" (Tu & McIssac, 2002, p. 140). Picciano (2002) defines social presence as "a student's sense of belonging in a course and the ability to interact with other students and the instructor" (p. 22). Garrison, Anderson, Archer (2000) defined social presence as "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people through the medium of communication being used" (p.94).

Garrison et al. (2000) developed the Community of Inquiry Model (COI). The COI model assumes in the community, learning occurs through the interaction of three core components—cognitive presence, teaching presence, and social presence. The purpose of social presence in the model is to support cognitive and affective objectives of learning through its ability to instigate, sustain, and support critical thinking in a community of learners. Often in a face-to-face educational environment, the relationship present is merely assumed. However, it should be reiterated that to

effectively establish a community of inquiry in an online setting, social presence or the feeling of connection with others is necessary (Jolivette, 2006).

Online learning environments, which feature mainly asynchronous text-based CMC (computer-mediated communication), have been criticized for their lack of support for social presence. This lack of support for social presence may impact the sense of belonging and acceptance in a group (Rovai, 2002). However, recent studies have shown social presence is a significant factor to improve instructional effectiveness. Garramore, Harris, and Anderson (1986) concluded the degree of social presence on computer bulletin boards was perceived as higher for users who were more interactive than for those who were not. Richardson and Swan (2003) found students with high overall perceptions of social presence scored high in terms of perceived learning and perceived satisfaction with the instructor. Therefore, Russo and Benson (2005) asserted "more investigation of students' assessment of their own presence and its relationship to course outcomes is in order" (p. 60).

The universal application of CMC, as an educational communication tool, requires social presence be redefined (Tu, 2000). Gunawardena (1995) argues social presence is necessary to enhance and improve effective instruction in both traditional and technology-based classrooms. Research has also shown instructors or moderators of online communities can cultivate social presence by developing interaction skills that create a sense of social presence (Gunawardena, 1995). The lack of social presence will lead to a high level of frustration, an attitude critical of the instructor's effectiveness, and a lower level of affective learning (Rifkind, 1992). Recent studies have shown social presence is a significant factor to improve instructional effectiveness. Therefore, it is one of the most significant factors for distance education (Tu, 2000).

Few studies in the field lend themselves to fully understand the role of social presence from an adult learner's perspective participating in distance education courses (Jolivette, 2006). A clear

understanding of social presence is necessary to direct research and to provide practitioners with clear guidelines for instructional design for distance education (Tu, 2000). Due to the lack of research on social presence and its relevancy to cognitive and affective learning in online environments, there is a need to generate a framework of knowledge that instructional designers and educators can utilize to assist them in effectively developing future courses (Jolivette, 2006). Richardson and Swan (2003) state it is important for researchers "to ask themselves if it is really the physical (social) presence of the instructor and students that is essential to the element of learning when considering the challenge of the effectiveness of online learning" (p. 69). Jolivette (2006) supports the generation of a new framework of knowledge to understand social presence, and its relevancy to cognitive and affective learning in online environments will assist educators to determine the extent that perception of social presence influences student's retention of knowledge (cognitive learning) and provide information that will help them to determine the extent perception of social presence influences student's satisfaction with the course (affective learning).

**Social interaction**

Many researchers believe interaction is the most important component of learning experiences in face-to-face (Vygotsky, 1978) and online courses (Jung et al., 2002; Moore, 1993). Kanuka and Anderson (1998) add, since learning is social, it requires a means, such as CMC, to support social interactions. According to Tu (2000), social interaction is fundamental to the explanation of the relationship between social presence and the social learning theory. Furthermore, Tu (2000) adds social learning requires cognitive and environmental determinants; social presence is required to enhance and foster online social interaction, a major vehicle of social learning. Technology-based learning environments allow learners to engage in meaningful interactions (Oliver, 2000). Interactivity includes the active communication and learning activities in which CMC users engage and the communication styles they use (Tu, 2002). Jung, Choi, Lim, and Leem (2002)

recognized interaction as one of the most important components of learning experiences, both in conventional education and distance education.

Moore (1993) suggests interaction is one of the most important components of teaching and learning experiences. Moore (1989) acknowledges effective distance education courses include all members of the learning community in educative interaction and defined interaction by dividing it into three categories—learner-content, learner-instructor and learner-learner. Hillman, Willis, and Gunawardena (1994) added learner-interface to Moore's three categories. Learner-content interaction takes place when students study the content, using various media or web-based courses. Learner-instructor interactions occur between learners and instructors, while instructors stimulate and guide learner's engagement with the subject content (So & Brush, 2007). The learner-instructor interaction happens when an instructor delivers content knowledge, provides appropriate scaffolding, clarifies misunderstanding, and increases student motivation (So & Brush, 2008). Learner-learner interactions occur among learners in an online environment with or without the presence of instructors. These "learner-learner interactions can also occur when learners in different geographical areas interact with each other to achieve a certain goal" (So & Brush, 2008, p. 319). Rourke et al. (2001) state "instructional media such as computer conferencing engender high levels of student-student and student -teacher interaction; therefore, they can support models of teaching and learning that are highly interactive and consonant with the communicative ideals of university education" (p. 50). Learner-interface is described as the interaction occurring between the learner and the technology. Moreover, Hillman, Willis, and Gunawardena (1994) consider interaction between learner and interface as a critical component in technology-mediated learning environments.

Interaction is regarded an important component of successful learning (Kearsley, 1995). Interaction among learners also supports the learning process (Rovai, 2002). Social presence has been associated with enhanced online social interactions (Tu & McIssac, 2002). Moreover, when the

level of social presence is low, interaction is also low (Garramone, Harris, & Anderson, 1986). Because responses in asynchronous CMC are delayed, a feeling of low interactivity can diminish social presence (Tu & McIssac, 2002). Gunawardena (1995) explains the negative experiences from her observations in computer conferences where "the social interactions tend to be unusually complex because of the necessity to mediate group activity in a text based environment. Failure tends to occur at the social level far more than they do at the technical level" (p.148).

**Collaborative learning**

Historically, collaborative learning has been considered as an effective instructional method in both traditional and distance learning settings (Bernard, Rubalcava, & St. Pierre, 2000). While promoting collaboration among learners has been regarded as a challenging instructional strategy, recent advances in computer-supported collaborative learning (CSCL) technologies have made online collaborative learning more effective and ubiquitous (Koschmann, Hall, & Miyake, 2002). The possibilities for the expansion of collaborative learning within the academic community are being driven by the integration of technology (Ocker & Yaverburm, 1999).

There are continual ongoing discussions and research into the use of collaborative learning that has provided much debate in the higher educational community. Researchers have long compared time and space barriers (Bonk et al., 1996), reflection time for online discussions (Aiken, 1993), and equal student participation of online learners (Berge & Collins, 1993). Guzdial and Carroll (2002) raised interesting aspects about the lack of dialogue in collaborative interactions. They hold students may not participate if others represent their ideas; yet, they can learn from the discourse. In addition, students might reflect on ideas presented by others, even though they may not actively take part in the dialogue.

Swan and Shih (2005) reported students in text-based online discussions were able to project their personalities into online discussions and create social presence by using emoticons, telling

stories, and using humor. Jung, Choi, Lim, and Leem (2002) conducted a study of 124 Korean undergraduate students, who focused on the effect of three types of asynchronous interaction on learner achievement, satisfaction, participation, and attitude towards online learning. Their findings support prior research that argued for the importance of collaborative learning and social integration to enhance learning outcomes, increase learner satisfaction and promote the use of CMC (Jung et al., 2002). Therefore, in online collaborative learning, strategies promoting the feeling of connectedness and belonging have appeared to be critical for the learner (Hara, Bonk, & Angeli, 2000). And, CMC affords collaborative learning opportunities for learners to exchange knowledge with peers with an unlimited access to information and resources via the Internet and World Wide Web. Lawler and King (2000) suggest online learning environments should build on prior experience, promote active participation, use collaborative learning, and provide transferable, real applications.

The interaction between individuals and collaborative learning activities, and divergent perspectives and shared knowledge building are important facets in collaborative learning (Puntambekar, 2006). In addition, an asynchronous learning environment provides the assurance of equal treatment for the learner by providing the avenue by which they have the opportunity to interact with instructors and peers with little regard for race, sex, or disability (Rourke, Anderson, Garrison, & Archer, (2001). Collaborative learning is a form of learner-learner interactions (So & Brush, 2008). Collaborative environments are built with the assumption students will co-construct knowledge and move towards a shared understanding of the domain (Puntambekar, 2006).

Dewey (1996) describes knowledge construction as a social process. Research on online learning shows that new technologies allow course participants to engage in meaningful discussions so knowledge is not transmitted from the teacher to the students, but rather discovered as individual perspectives are shared in a collaborative learning environment (Harasim, 1990). Odin (2002) cites Bednar et al. (1992) explaining “learning involves construction of internal representations of

knowledge which can best be accomplished in a collaborative situation where learners encounters other knowledge representations or perspectives, which allow them to review, evaluate and assess their own perspective, and revise it as the revision is more meaningful" (p. 2). A positive social dynamic is maintained in online discussions to foster a spirit of openness, sharing, collaboration, exploration, and acceptance of diversity (Hofstad, 2003).

Collaborative learning is viewed as working with others towards a common goal (Hsiao, 1997). Hence, collaborative learning is an instruction method in which students work in groups toward a common academic goal. It provides students with the opportunity to think for themselves, compare their thinking with others, conduct small research projects, investigate subject matter with fellow students, and to practice using higher level cognitive thinking skills. Examples of collaborative learning methods are cooperative learning, problem-centered instruction, writing groups, peer teaching, discussion groups, seminars, and learning communities (Barfurth, 1995).

Collaborative learning is a key component of constructivist learning. Early on, Piaget (1970), who first noted constructivism, posits students create meaning through their interactions with the material, their peers, their environment, and their teachers. Moreover, the method of collaborative learning has been recognized by many cognitive constructivist theorists as an effective technique to improve learning for students (Vygotsky, 1978).

A constructivist view of learning rests on the assumption that learners construct knowledge, as they attempt to make sense of their environments. This theory is based on the concept that learning is constructed. Constructivists believe learning is constructing knowledge from one's experiences rather than directly receiving information from the outside world (Brown, Collins, & Duguid, 1989). Social constructivists believe learning is a social construct (Vygotsky, 1978).

Constructivism emphasizes student engagement in active learning. Constructivism is guided by four assumptions:

1. Knowledge is physically constructed by learners, who are involved in active learning.
2. Knowledge is symbolically constructed by learners, who are making their own representations of action.
3. Knowledge is socially constructed by learners, who guide their meaning making to others.
4. Knowledge is theoretically constructed by learners, who try to explain things they do not completely understand. (Gagnon & Collay, n.d.)

The basic tenets of constructivism are (1) learners construct their own understanding, (2) new learning depends on current understanding, (3) learning is facilitated by social interaction, and (4) meaningful learning occurs within authentic learning tasks (Puntambekar, 2006). Scardamalia and Bereiter (1994) describe in collaborative knowledge building communities, students increasingly take charge of their own learning, lead discussions, offer new perspectives, and learn in a dynamic social environment. Documenting this change from divergence to collaborative knowledge building to possible construction is important, therefore, to understand the nature of collaborative interactions (Puntambekar, 2006). Researchers often refer to the *Zone of Proximal Development* (Vygotsky, 1978), when discussing online learning and constructivism. The *Zone of Proximal Development* asserts that cognitive development is highly dependent on social interaction and collaboration with people who are more capable and knowledgeable.

An important aspect of collaborative learning is the move from assimilation to construction, i.e., creating new understandings, based on students' discussions (Puntambekar, 2006).

Pallof and Pratt (2005, pp. 6-7) offer several reasons why constructivism in the collaborative environment of the online learning classroom works:

1. Allows students to forge deeper knowledge.
2. Encourages new ideas and critical thinking.
3. Fosters shared goals and the beginning of the learning community.
4. Accommodates all types of learners and their unique styles.
5. Supports and acknowledges cultural differences in learning.

Constructivists acknowledge the need for educators to foster interactions between their students. From a constructivist's perspective, the classroom should have active student participation, learner-to-learner interaction, critical thinking, and reflection using a variety of teaching methods. In collaborative web-based learning sessions, discussion forums are applied as primary collaboration and knowledge sharing tools, because discussion constitutes the first step of any collaboration (Guzdial & Turns, 2000). The discussions create a feeling of community among class members (student and instructors).

**Online Discussion Forums**

Web-based learning environments are increasingly becoming a mainstream application in education (Kinshuk, Hong, & Patel, 2001). As this new generation of technology advances, the discussion forum has already grown beyond the initial text only "box" (Markel, 2001). There is a growing acceptance for online learning with an increased use of discussion forums in online courses. Researchers contend that online discussion and learning may be more supportive for experimentation, divergent thinking, exploration of multiple perspectives, complex understanding, and reflection than in face-to-face discussions (Parker & Gemino, 2001; Picciano, 2002).

Most web-based learning environments provide text-based discussion forums, which are becoming common in higher education (Li, 2007). Web-based discussion forums enable users to

share knowledge in straightforward and popular platforms (Li, 2007). The online discussion forum allows students to work together on projects in small groups, participate in on-going discussions focused on course content, and to "present" group project products to the remainder of the class (Markel, 2001). Studies have discussed and linked online collaborations through group discussions with better opportunities to promote quantity and quality of student interaction, engagement, satisfaction, and higher-order learning (Hiltz, Coppola, Rotter, & Turoff, 2000; Garrison et al., 2001).

Online discussion forums provide opportunities for responsibility and active learning through the expectations of regular participation in online discussions (Hopperton, 1998). Participation in a virtual conference demands students become actively engaged with the course content and through interactions with their peers, and negotiate the meanings of the content (Markel, 2001). Students engaged with course content in discussions and group work with other students engage in "generative processing" of information (Markel, 2001). Generative processing is described as "deeper information processing results from activating appropriate mental models, using them to interpret new information, assimilating new information back into those models, reorganizing the models in light of the newly interpreted information, and then using those newly aggrandized models to explain, interpret, or infer new knowledge" (Jonassen, 1998, p. 96).

Research has highlighted participants in online courses have become better at critiquing, questioning, analyzing, making connections, and extending the content beyond the classroom through the use of asynchronous online discussion forums (Williams et al., 2001). Asynchronous online discussions can also be seen as a means to enhance student control over learning and make the educational experience "more democratic" (Harasim, 1989).

Several problems could interfere with the educational process when using web-based discussion boards (King, 2001), placing learners accustomed to other learning styles at a disadvantage. Learners need to feel a sense of connectedness, to feel a part of and be included in the

group (Gibbs, 1995). Wei, Chen, Wang, and Li (2007) points to potential issues with discussion forums, such as the lack of immediate delivery and response, the heavily text-based medium, inability to hear expressions of voice, and the heuristically-created discussion topics, which can impede the educational process. The text-based format requires CMC (computer-mediated communication) users to possess some level of computer communication literacy, such as typing, reading, and writing. People without these skills develop communication anxiety when text-based communication is required (Gunawardena, 1991). Therefore, it is suggested training students to use the medium comfortably is crucial to the success of collaborative learning (Tu & McIssac, 2002).

**Satisfaction**

Leading theorists and researchers in student development have published findings on student satisfaction and have found satisfaction in face-to-face courses is usually related to student characteristics, quality of relationships with faculty, curriculum, support services, resources, and facilities. Astin (1993) further asserts factors, such as contact with faculty and administrators, career advisers, and social life on campus, can be attributed to student satisfaction. Additionally, Bean and Bradley (1986) highlight factors, such as academic integration, institutional fit, quality and usefulness of education, social life, and difficulty with curriculum, when predicting student satisfaction.

While similar factors can be attributed to predicting satisfaction in online learning courses, it is also essential elements, such as social presence, social interaction, and collaborative learning, continue to be woven into course design with deliberate intentions. Technology, physical distance, communications, availability, and interaction with instructor and peers, and course design are particularly different when gauging satisfaction in online courses.

Satisfaction in a course is an important "intermediate outcome" (Astin, 1993, p. 278). Generally speaking, when comparing satisfaction with online and face-to-face courses, research suggests online learners tend to be more satisfied with face-to-face interactions (Hiltz, 1993). Watson

and Rutledge (2005) asked students to respond to the statement "I felt as much a part of my online class as regular class" and reported that 30% disagreed with the statement.

Gunawardena and Zittle (1997), along with Kanuka and Anderson (1998), reveal interactions between learner and instructor also contribute to satisfaction. Jung et al. (2002) reported learner's satisfaction was more strongly related to student-student interaction than interaction with the instructor. They also noted that collaboration among students increased levels of satisfaction. Later, Frederickson et al. (2006) found that students, who have interaction and access to the instructor, are more satisfied. Keller advocates that instructor feedback and reinforcement are important factors to learner satisfaction (2010). Additionally, interactions between instructor and student, and student and student heavily influence student satisfaction.

Swan (2001) found most students, who reported high levels of interaction, also reported higher levels of satisfaction in the course. Eom, Wen, and Ashill (2006) also bolstered this finding by reporting results that surveyed 397 online learners whose perception of interactions with both instructors and students was also noted as a contributor to satisfaction in the course. Frederickson et al. (2006) reported in a study of online learners that younger students aged 16-25 reported they learned less and were also less satisfied with online learning. However, students, who ages ranged from 36-45, reported to have learned more and were more satisfied with online learning. Their study also highlights those students, who have adequate access to instructors, reported to be more satisfied with their courses.

**Conclusion**

As institutions of higher learning continue to rely on the use of online courses to provide educational opportunities to the masses, educators and administrators are beginning to attempt to grasp the intricacies of online learning. Moreover, educators are beginning to move past the thinking that traditional face-to-face curriculum can easily transfer to online environments. This review of

literature sought to highlight studies that revolved around social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. Many researchers have conducted studies that include a few of the constructs, but very few studies have integrated social presence, social interaction, collaborative learning, and satisfaction, while comparing face-to-face and online courses.

There is a plethora of research that makes comparisons between face-to-face and online courses. All prior research highlights the individual value of social presence, social interaction, collaborative learning, and satisfaction, while encouraging the promise of possibilities when implementing strategies for inclusion of all. These landmark studies validate the importance of recognizing the profound differences in the development of curriculum and integration of educational technologies into both learning environments. There is never a paucity of opinion on the establishment of standards of excellence, when educators begin to transition from traditional, face-to-face education to the ever changing, innovative challenges that provide guarantee for elaborate online learning environments. The newness of online learning is constantly powered by advancing educational technologies.

# CHAPTER 3. METHODS AND PROCEDURES

## Research Design

The purpose of this descriptive survey research study was to describe and compare students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. Data were collected with a questionnaire that included instruments to measure social presence, social interaction, collaborative learning, and satisfaction. To control for measurement error, validity and reliability of the instruments were established a priori. A panel of experts, consisting of three professors from the department of Agricultural Education and Studies, and one professor from the department of Statistics, examined the instrument for construct validity. All members of the panel also have expertise in developing and facilitating both online and face-to-face course development, conducting survey research, and a commitment to understanding student learning.

In an effort to establish construct validity, the panel of experts was asked to review each scale (social presence, social interaction, collaborative learning, and satisfaction) to ensure the statements are a valid measure of the constructs, complete a checklist indicating validity of the measures, and make additional suggestions to improve the content of the questionnaire. The first round of revisions and suggestions resulted in a restructuring of the content on the Satisfaction scale. The researcher revised the questionnaire to reflect the inclusion of additional questions to the Satisfaction scale and submitted the document to the panel for a second review. All four, panel members agreed the scales were valid measures of the constructs.

## Subjects and Data Source

The population for this study was students enrolled in off-campus sections of the College of Agriculture and Life Sciences online courses during Fall 2010, Spring 2010, and Summer 2010 semesters (N=1141). The list of students in the population was obtained from The Brenton Center for

Agricultural Instruction and Technology Transfer at Iowa State University. A listing of students' email addresses were compiled in Excel and uploaded into Survey Monkey. Since many of students take several online courses, duplicate emails were removed from the list before uploaded to Survey Monkey.

## Instrumentation

### Social presence

Several online educators and researchers have utilized the Social Presence Scale to assess social presence in online courses (Picciano, 2002; Swan & Shih, 2005; So & Brush, 2008; Cobb 2009). The Social Presence Scale is a subscale of the GlobalEd Questionnaire developed by Gunawardena and Zittle (1997). The GlobalEd Questionnaire was developed to evaluate the educational experience and assess student responses to computer-mediated communication. Gunawardena and Zittle (1997) developed the subscale to study the effectiveness of social presence in predicating satisfaction in a computer-mediated environment. Using Cronbach's alpha, Gundawardena and Zittle (1997) established a reliability of .88. Cronbach's alpha was also calculated on data obtained from the respondents in the study. The coefficients were .72 for face-to-face courses and .76 for online courses. However, validity was not reported for the scale. A panel of experts, consisting of three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics, examined the instrument for construct validity. All four, panel members agreed the scale is a valid measure of students' perceptions of Social Presence.

The survey instrument was modified by changing the context of the instrument to language used in the College of Agriculture and Life Sciences online courses. The words related to specific studies were replaced with language that would better reflect the College of Agriculture and Life Sciences online courses.

**Social interaction**

Another instrument employed for this study was a modified version of the instrument used by Picciano (2002) to examine performance in an online course in relationship to student interaction and sense of presence in the course. The survey instrument was modified by changing the context of the instrument to language used in the College of Agriculture and Life Sciences online courses. The words related to specific studies were replaced with language that would better reflect the College of Agriculture and Life Sciences online courses.

Cronbach's alpha was calculated on data obtained from the respondents in the study. The coefficients were .84 for face-to-face and online courses. A panel of experts, consisting of three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics examined the instrument for construct validity. All four, panel members agreed the scale is a valid measure of students' perceptions of Social Interaction.

**Collaborative learning**

So and Brush (2008) developed The Collaborative Learning, Social Presence, and Satisfaction (CLSS) questionnaire to measure students' perceived levels of collaborative learning, social presence, and overall satisfaction. Using Cronbach's alpha, So and Brush (2008) established a reliability of .72 for the Collaborative Learning Scale. Cronbach's alpha was also calculated on data obtained from the respondents in the study. The coefficients were .84 for face-to-face courses and .88 for online courses. This study modified the CLSS Collaborative Learning subscale to measure students' perceptions on preferences to group versus individual work, and preferences to online interaction versus face-to-face interaction, amounts of collaboration, and overall satisfaction with collaborative learning (So & Brush, 2008).

The Collaborative Learning Scale was modified by changing the context of the scale to the language used in the College of Agriculture and Life Sciences online courses. The words related to specific studies were replaced with language that would better reflect the College of Agriculture and Life Sciences online courses. A panel of experts, consisting of three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics, examined the instrument for construct validity. All four, panel members agreed the Collaborative Learning Scale is a valid measure of students' perceptions of Collaborative Learning.

**Satisfaction**

So and Brush (2008) developed The Collaborative Learning, Social Presence, and Satisfaction (CLSS) questionnaire to measure students' perceived levels of collaborative learning, social presence, and overall satisfaction. The Satisfaction Scale is a subscale of the CLSS and was modified for this research. The survey instrument was modified by changing the context of the instrument to the language used in the College of Agriculture and Life Sciences online courses. The words related to specific studies were replaced with language that would better reflect the College of Agriculture and Life Sciences online courses.

The researcher employed the use of the Satisfaction Scale to measure students overall satisfaction with the course, instructor, and learning activities. So and Brush (2008) reported a reliability of .85, using Cronbach's alpha for the satisfaction scale. Cronbach's alpha was also calculated on data obtained from the respondents in the study. The coefficients were .90 for face-to-face courses and .93 for online courses. However, validity was not reported for the scale. A panel of experts, consisting of three Iowa State University professors from the department of Agricultural Education and Studies and one Iowa State University professor from the department of Statistics examined the instrument for construct validity. All four, panel members agreed the scale is a valid measure of students' perceptions of Satisfaction.

## Data Collection

Students completed an online questionnaire, which answered questions regarding perceptions and experiences related to social presence, social interaction, and collaborative learning. All College of Agriculture and Life Sciences students enrolled in online courses during Fall 2010, Spring 2010, and Summer 2010 semesters were invited to complete an online questionnaire to assess their perceptions of social presence, social interaction, and collaborative learning, and satisfaction in online and face-to-face courses.

The College of Agriculture and Life Sciences online learners received a pre-notice email informing them of an upcoming important questionnaire regarding their participation in online courses. Three days later, students received an email highlighting the research specifics and encouraging the completion of the online questionnaire. The email contained a link directly to the survey. Approximately seven days after the release of the questionnaire, a reminder email was sent to the students. The reminder email politely brought the questionnaire to the attention of those who had not completed the questionnaire and encouraged its submission. A second reminder email was sent approximately seven days after the first reminder and included the link to the questionnaire. In an effort to collect a census, a final follow up email was sent to nonrespondents approximately seven days after the second reminder and included an attachment of the questionnaire. Participants were encouraged to complete the questionnaire and return via email. Participation in the research and completion of the questionnaire were completely voluntary. As an incentive to encourage participation, entry for a chance to win one of two $25 gift cards was also employed in this study. After the completion of the questionnaire, students were prompted to enter their name and mailing address for a random drawing for the gift cards.

Using Dillman's Tailored Method Design (Dillman 2000), all efforts were made to have a 100% response rate. The researcher did not obtain an 85% or above response rate. Therefore, mean responses for social presence, social interaction, collaborative learning, and satisfaction in online and face to face courses of the early respondents were compared to late respondents. Late respondents were identified as the later 50% of responses to the questionnaire. No significant differences were determined in their responses (Linder, Murphy, & Briers, 2001).

## Data Analysis

SPSS was used to generate descriptive statistics, such as frequencies, percentages, means, modes, medians, ranges, and standard deviations. SPSS was also used to generate inferential statistics such as t-test and Mann-Whitney U test. Pearson's product moment correlations were used to assess the degree of relationships among the variables.

# CHAPTER 4. FINDINGS

The purpose of this descriptive survey research study was to describe and compare students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. The findings are organized by research objectives. Research objectives are used as section headings.

## Research Objectives

1. Describe the characteristics of students in online courses in the College of Agriculture and Life Sciences at Iowa State University.
2. Describe students' perceptions of their online learning experiences in the College of Agriculture and Life Sciences at Iowa State University.
3. Describe and compare the students' perceptions of social presence in online and face-to-face courses.
4. Describe and compare the students' perceptions of social interaction in online and face-to-face courses.
5. Describe and compare the students' perceptions of collaborative learning in online and face-to-face courses.
6. Describe and compare the students' perceptions of satisfaction in online and face-to-face courses.
7. Describe the relationships among social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.
8. Describe the relationships between the characteristics of the students in online courses in the College of Agriculture and Life Sciences and their perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

## Research Findings

One hundred and fifty-nine of the 1182 College of Agriculture and Life Sciences online learners responded to the questionnaire. Due to the low response rate (13.5%), it was decided not to generalize the findings of this study to the total population, only to the College of Agriculture and Life Sciences online learners, who responded. The data were analyzed using SPSS version 17.0.

### Objective 1

**Describe the characteristics of students in online courses in the College of Agriculture and Life Sciences at Iowa State University**

College of Agriculture and Life Sciences online learners participating in this study were predominately (63.8%) female (Table 1). An overwhelming majority of the online learners were Caucasian (95.1%). African American (2.8%), Latino (1.4%), and Asian/Pacific Islanders (.7%) comprised the remainder of the online learners. The race distribution of participating online learners is presented in Table 2.

Table 1
*Participants by Gender*

| Gender | Frequency | Percent |
|---|---|---|
| Female | 97 | 63.8 |
| Male | 55 | 36.2 |

Table 2
*Participants by Race*

| Race | Frequency | Percent |
|---|---|---|
| Caucasian | 137 | 95.1 |
| African American | 4 | 2.8 |
| Latino | 2 | 1.4 |
| Asian/Pacific Islanders | 1 | .7 |

The mean age of the online learners was 30.15 years with a standard deviation of 10.39. Ages ranged from 18-61 years. The range of ages was divided into increments of eleven years. Nearly 60% of the online learners were 28 years of age or younger. The age distribution of participating online learners is presented in Table 3.

Table 3
*Participants by Age*

| Age | Frequency | Cumulative Percent |
|---|---|---|
| 18-28 | 88 | 59.1 |
| 29-39 | 31 | 79.9 |
| 40-50 | 21 | 94.0 |
| 51-61 | 9 | 100.0 |

Almost half of the online learners (48%) were earning a Master's degree, while 2.7% were pursuing a Ph.D. The undergraduate respondents (49.3%) rounded out the remainder of the online learners. The distribution of classifications for participating online learners is presented in Table 4.

Table 4
*Participants by Classification*

| Classification | Frequency | Percent |
|---|---|---|
| Freshman | 5 | 3.4 |
| Sophomore | 3 | 2.0 |
| Junior | 20 | 13.5 |
| Senior | 45 | 30.4 |
| Master's | 71 | 48.0 |
| Doctoral | 4 | 2.7 |

Online learners, who responded to the questionnaire, were studying in a wide range of majors. Slightly more than 24% of the online learners identified their major as "other." These "other" majors included Anthropology, Chemical Engineering, Criminal Justice, Design, Dietetics, Kinesiology, Mechanized Systems Management, Pharmacy, Political Science, Pre-Optometry, and Psychology. Agricultural Education was the only major accounting for more than 10% of respondents. Table 5 displays the range of majors identified in this study.

Table 5
*Participants by Major*

| Major | Frequency | Percent |
|---|---|---|
| Other | 35 | 24.8 |
| Agriculture Education | 19 | 13.5 |
| Agriculture | 13 | 9.2 |
| Agronomy | 13 | 9.2 |
| Animal Science | 13 | 9.2 |
| Biology | 13 | 9.2 |
| Community Development | 11 | 7.8 |
| Food Science | 8 | 5.7 |
| Seed Technology | 7 | 5.0 |
| Ecology | 5 | 3.5 |
| Professional Agriculture | 4 | 2.8 |

**Objective 2**

**Describe students' perceptions of their online learning experiences in the College of Agriculture and Life Sciences at Iowa State University.**

This section provides data on perceptions of online learners' most recent online learning experiences. The online learners were asked to respond to eleven statements regarding their online learning experience in the College of Agriculture and Life Sciences. Along with perceptions of

online experiences, online learners also were asked to identify the number of online courses they had taken and their opinion as to whether the College of Agriculture and Life Sciences should offer more online courses. Table 6 shows the College of Agriculture and Life Sciences online learner's responses to statements regarding their most recent online learning experience. This table displays the frequency and percentage of respondents who strongly agreed or agreed with the statements regarding students' perceptions of online learning.

As a result of experiences with online courses, 71.8% of respondents would like to participate in online courses in the future. The majority of the online learners (83.5%) felt comfortable conversing through text-based mediums and agreed that using online course messages is a pleasant way to communicate with others (68.3%). However, only 5.9% of the online learners agreed that online courses allowed them to build more caring social relationships than face-to-face courses.

Table 6
*Frequencies and Percentages Based on Participants' Perceptions of Online Learning*

| Statement | Frequency | Percent |
|---|---|---|
| I felt comfortable conversing through text-based mediums. | 126 | 83.5 |
| Online courses are technically reliable. | 117 | 77.5 |
| As a result of my experience with online courses, I would like to participate in online courses in the future. | 109 | 71.8 |
| The language that I used to express myself in online communication is easily understood. | 102 | 68.9 |
| Using online course messages is a pleasant way to communicate with others. | 101 | 68.3 |
| The language people use to express themselves in online communication is stimulating. | 75 | 50.7 |
| I put a great deal of effort to learn WebCT in order to participate in the course. | 74 | 49.0 |
| Online course messages convey feeling. | 53 | 35.1 |
| Online course messages convey emotion. | 47 | 31.1 |

In terms of the College of Agriculture and Life Sciences online learner's exposure to online learning, 19.7% had taken only one online course (Table 7). Interestingly, more than half of the online learners (54.1%) had taken three or fewer online courses. Table 8 shows that 90.8% of online learners participating in this study would like to see the College of Agriculture and Life Sciences offer more online courses.

Table 7
*Number of Online Courses Taken by Participants*

| Courses | Frequency | Percent | Cum. Percent |
|---|---|---|---|
| 1 | 31 | 19.7 | 19.7 |
| 2 | 29 | 18.5 | 38.2 |
| 3 | 25 | 15.9 | 54.1 |
| 4 | 23 | 14.6 | 68.8 |
| 5 | 10 | 6.4 | 75.2 |
| 6 | 8 | 5.1 | 80.3 |
| 7 | 5 | 3.2 | 83.4 |
| 8 | 4 | 2.5 | 86.0 |
| 9 | 6 | 3.8 | 89.8 |
| 10 | 6 | 3.8 | 93.6 |
| 11 | 2 | 1.3 | 94.6 |
| 12 | 6 | 3.8 | 98.7 |
| 14 | 1 | .6 | 99.4 |
| 15 | 1 | .6 | 100.0 |
| Total | 151 | 100.0 | |

Table 8
*Participants Who Would Like to Take More Online Courses*

| Response | Frequency | Percent |
|---|---|---|
| Yes | 138 | 90.8 |
| No | 14 | 9.2 |

Table 9 indicates College of Agriculture and Life Sciences online learner's responses to statements regarding the use of educational technologies in their most recent online course and whether the use of the technology was beneficial to learning in the course. This table displays the frequency and percentage of online learners, who indicated the use of educational technologies in their courses, and the frequency and percentage of learners who indicated the use of each technology was beneficial to learning. The majority (81.9%) of online learners used threaded discussions in the course and believed the tool was beneficial (73.8%). PowerPoint appeared to be heavily used in online courses, but learners perceived the use of video with PowerPoint to be more beneficial to learning. Keyboard chat, live real time audio, live real time video, and audio only were used less often than threaded discussions, audio with PowerPoint and video with PowerPoint in the online courses. Keyboard chat, live real time audio, live real time video, and audio only were also viewed as less beneficial to learning than the other educational technologies.

Table 9
*Frequencies and Percentages of Online Learner's Use and Perceived Benefit of Selected Educational Technologies*

| Statement | Used in Course? | | Beneficial to your learning? | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| Threaded discussions | 122 | 81.9 | 93 | 73.8 |
| Audio with PowerPoint | 106 | 71.1 | 96 | 82.1 |
| Video with PowerPoint | 102 | 67.5 | 102 | 89.5 |
| Keyboard chat | 48 | 32.4 | 42 | 45.7 |
| Live real time audio | 39 | 26.5 | 42 | 44.2 |
| Live real time video | 33 | 22.4 | 38 | 41.3 |
| Audio only | 32 | 21.8 | 34 | 37.4 |

**Objective 3**

**Describe and compare students' perceptions of social presence in online and face-to-face courses.**

This section provides data on the perceptions of College of Agriculture and Life Sciences online learners about social presence in online and face-to-face courses. The online learners were asked to respond to nine statements regarding their perceptions of social presence in online and face-to-face courses.

Table 10 presents College of Agriculture and Life Sciences online learner's responses to perceptions of social presence in online and face-to-face courses. The table displays frequencies and percentages of College of Agriculture and Life Sciences online learners, who strongly agreed or agreed with statements, based on their perceptions of social presence in online and face-to-face courses.

Participants believe communication in online courses (34%) was more impersonal than in face-to-face courses (16.8%). The majority (85.3%) of respondents were able to form distinct

impressions of some students in face-to-face courses, but fewer than half (47.7%) were able to do this in online courses. While 84.3% of the online learners strongly agreed or agreed instructors facilitated discussions in face-to-face courses, 65.8% strongly agreed or agreed with the statement regarding online courses. In face-to-face courses, 76.5% of participants felt comfortable participating in course discussions compared to 71.3% in online courses. Overall, online learner's perceptions of social presence in face-to-face courses were higher than perceptions regarding online courses.

Table 10
*Frequencies and Percentages for Perceptions of Social Presence*

| Statement | Online Courses | | Face-to-Face Courses | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| I was able to form distinct impressions of some students in the courses. | 73 | 47.7 | 75 | 85.3 |
| The instructor facilitated discussion in the course. | 102 | 65.8 | 75 | 84.3 |
| I felt comfortable introducing myself in the courses. | 114 | 74.0 | 69 | 77.5 |
| I felt comfortable participating in course discussions. | 109 | 71.3 | 68 | 76.5 |
| I felt comfortable conversing in the courses. | 110 | 71.0 | 67 | 75.3 |
| The instructor created a feeling of community. | 87 | 56.5 | 61 | 68.5 |
| I felt that my point of view was acknowledged by other students in the courses. | 88 | 57.5 | 55 | 61.8 |
| The course introductions enabled me to form a sense of the community. | 64 | 40.2 | 54 | 60.6 |
| Communication in the courses was impersonal. | 53 | 34.0 | 15 | 16.8 |

Table 11 displays online learner's perceptions of whether social presence was accounted for in online and face-to-face courses. In comparison, almost half of the respondents (47%) were undecided about the statements regarding social presence in online courses, while the majority agreed (65.9%) with the statements for face-to-face courses.

Table 11
*Online Learner's Perceptions of Whether Social Presence Was Accounted for in Online and Face-to-Face Courses.*

| | Online | | Face-to-Face | |
|---|---|---|---|---|
| Level of Agreement | Percent | Cum. Percent | Percent | Cum. Percent |
| Strongly Disagree | 0.0 | 0.0 | 0.0 | 0.0 |
| Disagree | 11.3 | 11.3 | 2.3 | 2.3 |
| Undecided | 47.0 | 58.3 | 29.5 | 31.8 |
| Agree | 39.0 | 97.4 | 65.9 | 97.7 |
| Strongly Agree | 2.7 | 100.0 | 2.3 | 100.0 |

Table 12 shows means, standard deviations, and dependent samples t-test results for online learner perceptions of social presence in online and face-to-face courses. There was a significant difference in the overall mean scores for online courses (M=3.27, SD=.68) and face-to-face courses (M=3.58, SD=.53).

Table 12
*Means, Standard Deviations, and Dependent Samples t-test Results for Perceptions of Social Presence*

| | Mean | SD | t | p |
|---|---|---|---|---|
| Online | 3.27 | .68 | -4.02 | .00 |
| Face-to face | 3.58 | .53 | | |

**Note. Scale: 1= Strongly Agree, 2=Strongly Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree**

**Objective 4**

**Describe and compare students' perceptions of social interaction in online and face-to-face courses.**

This section provides data on the perceptions of College of Agriculture and Life Sciences online learners about social interaction in online and face-to-face courses. The online learners were asked to

respond to six statements regarding their perceptions of social interaction in online and face-to-face courses.

Table 13 shows College of Agriculture and Life Sciences online learner's responses to statements regarding perceptions of social presence in online and face-to-face courses. The table displays frequencies and percentages of College of Agriculture and Life Sciences online learners, who strongly agreed or agreed with statements based on their perceptions of social interaction in online and face-to-face courses.

In response to the statement "courses are an excellent means for social interaction," 80% of the online learners strongly agreed or agreed to this statement in regards to face-to-face courses compared to 26.9% for online courses. More participants felt comfortable interacting with students in face-to-face courses (83.1%) than in online courses (68.8%). Respondents strongly agreed or agreed the amount of interaction with instructors was more appropriate in face-to-face courses (79.7%) than in online courses (64.1%). Also, respondents strongly agreed or agreed that the amount of interaction with students was more appropriate in face-to-face courses (77.5%) than in online courses (56.5%). Additionally, online learner's perceptions of social interaction in face-to-face courses (77.5%) were higher than perceptions regarding online courses (44%).

Table 13
*Frequencies and Percentages for Perceptions of Social Interaction*

| Statement | Online Courses | | Face-to-Face Courses | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| I felt comfortable interacting with other students in the courses. | 106 | 68.8 | 74 | 83.1 |
| The quality of interaction with instructors in the courses was appropriate. | 103 | 66.4 | 73 | 82.0 |
| Courses are an excellent means for social interaction. | 42 | 26.9 | 72 | 80.0 |
| The amount of interaction with instructors in the courses was appropriate. | 100 | 64.1 | 71 | 79.7 |
| The amount of interaction with other students in the courses was appropriate. | 87 | 56.5 | 69 | 77.5 |
| The quality of interaction with other students in the courses was appropriate. | 92 | 60.5 | 66 | 74.2 |

Table 14 displays online learner's perceptions of whether social interaction was accounted for in online and face-to-face courses. In comparison, online learners (38.8%) responded undecided to the statements regarding social interaction in online courses, while the majority agreed (65.7%) to the statements for face-to-face courses.

Table 14
*Online Learner's Perceptions of Whether Social Interaction Was Accounted for in Online and Face-to- Face Courses*

| Level of Agreement | Online | | Face-to-face | |
|---|---|---|---|---|
| | Percent | Cum. Percent | Percent | Cum. Percent |
| Strongly Disagree | 2.7 | 2.7 | 1.1 | 1.1 |
| Disagree | 14.4 | 17.1 | 1.1 | 2.2 |
| Undecided | 38.8 | 55.9 | 20.1 | 22.5 |
| Agree | 41.3 | 97.4 | 65.1 | 87.6 |
| Strongly Agree | 2.7 | 100.0 | 12.4 | 100.0 |

Table 15 shows means, standard deviations, and dependent samples t-test results for online learner perceptions of social interaction in online and face-to-face courses. There was a significant difference in the overall mean scores for online courses (M=3.39, SD=.80) and face-to-face courses (M=3.60, SD=.64).

Table 15
*Means, Standard Deviations, and Dependent Samples t-test Results for Perceptions of Social Interaction*

| | Mean | SD | t | p |
|---|---|---|---|---|
| Online | 3.39 | .80 | -5.99 | .00 |
| Face-to face | 3.60 | .64 | | |

*Note*. Scale: 1= Strongly Agree, 2=Strongly Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree

**Objective 5**

**Describe and compare students' perceptions of collaborative learning in online and face-to-face courses.**

This section provides data on the perceptions of College of Agriculture and Life Sciences online learners about collaborative learning in online and face-to-face courses. The online learners were asked to respond to seven statements regarding their perceptions of collaborative learning in online and face-to-face courses.

Table 16 shows College of Agriculture and Life Sciences online learner's responses to statements regarding perceptions of collaborative learning in online and face-to-face courses. The table displays frequencies and percentages of College of Agriculture and Life Sciences online learners who strongly agreed or agreed with statements, based on their perceptions of collaborative learning in online and face-to-face courses.

Almost 72% of the online learners strongly agreed or agreed they were able to develop problem-solving skills through peer collaboration in face-to-face courses compared to 28.2% in online courses. In face-to-face courses, 67% of participants believed part of a learning community compared to almost 50% in online courses. When asked if collaborative learning in my courses was

effective, 67% strongly agreed or agreed for face-to-face courses and 41.3% for online courses. Additionally, a higher percentage of online learners strongly agreed or agreed to all statements regarding perceptions related to face-to-face courses were higher than perceptions regarding online courses.

Table 16
*Frequencies and Percentages for Perceptions of Collaborative Learning*

| Statement | Online Courses | | Face-to-Face Courses | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| I was able to develop problem-solving skills through peer collaboration. | 42 | 28.2 | 63 | 71.6 |
| I was able to develop new skills and knowledge from other members in my courses. | 79 | 52.7 | 62 | 70.4 |
| I actively exchanged ideas in my courses. | 87 | 57.7 | 59 | 67.0 |
| I felt part of a learning community in my courses. | 75 | 49.0 | 59 | 67.0 |
| Collaborative learning in my courses was effective. | 61 | 41.3 | 59 | 67.0 |
| Overall, I am satisfied with my collaborative learning experience in the courses. | 74 | 49.7 | 55 | 62.5 |
| Collaborative learning in my courses was time consuming. | 62 | 41.9 | 47 | 53.4 |

Table 17 displays online learner's perceptions of whether collaborative learning was accounted for in online and face-to-face courses. Of the online learners who responded to the study, 42% strongly agreed or agreed to the statements regarding collaborative learning in online courses, while 62.5% strongly agreed or agreed to statements regarding face-to-face courses.

Table 17
*Online Learner's Perceptions of Whether Collaborative Learning Was Accounted for in Online and Face-to-Face Courses.*

| | Online | | Face-to-face | |
|---|---|---|---|---|
| Level of Agreement | Percent | Cum. Percent | Percent | Cum. Percent |
| Strongly Disagree | 6.1 | 6.1 | 2.3 | 2.3 |
| Disagree | 24.4 | 30.4 | 5.6 | 8.0 |
| Undecided | 27.8 | 58.1 | 29.5 | 37.5 |
| Agree | 39.2 | 97.3 | 55.7 | 93.2 |
| Strongly Agree | 2.8 | 100.0 | 6.8 | 100 |

Table 18 shows means, standard deviations, and dependent samples t-test results for online learner perceptions of collaborative learning in online and face-to-face courses. There was a significant difference in the overall mean scores for online courses (M=2.92, SD=.93) and face-to-face courses (M=3.56, SD=.75).

Table 18
*Means, Standard Deviations, and Dependent Samples t-test Results for Perceptions of Collaborative Learning.*

| | Mean | SD | t | p |
|---|---|---|---|---|
| Online | 2.92 | .93 | -5.56 | .00 |
| Face-to face | 3.56 | .75 | | |

*Note*. Scale: 1= Strongly Agree, 2=Strongly Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree

**Objective 6**

**Describe and compare students' perceptions of satisfaction in online and face-to-face courses.**

This section provides data on the perceptions of College of Agriculture and Life Sciences online learners concerning their satisfaction with online and face-to-face courses. The online learners were asked to respond to 11 statements regarding their perceptions of satisfaction in online and face-to-face courses.

Table 19 shows College of Agriculture and Life Sciences online learner's responses to statements regarding perceptions of satisfaction in online and face-to-face courses. The table displays frequencies and percentages of College of Agriculture and Life Sciences online learners, who strongly agreed or agreed with statements based on their perceptions of satisfaction in online and face-to-face courses.

Respondents strongly agreed or agreed they were able to learn in both face-to-face (93%) and online (89.3%) courses. There was also strong agreement (85.9%) with the statement "the courses were a useful learning experience" in both face-to-face and online courses. In online courses (60.8%), respondents were more likely to be stimulated to complete additional reading or research on topics discussed in the courses than in face-to-face courses (55.3%). Generally, online learners' perceptions regarding statements related to face-to-face courses were more favorable than their perceptions regarding online courses.

Table 19
*Frequencies and Percentages for Perceptions of Satisfaction*

| Statement | Online Courses | | Face-to-Face Courses | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| I was able to learn in the courses. | 133 | 89.3 | 80 | 93.0 |
| The courses were a useful learning experience. | 128 | 85.9 | 73 | 85.9 |
| I was able to learn from course discussions. | 99 | 67.8 | 73 | 85.9 |
| Overall, the instructor for this course met my learning expectations. | 110 | 73.8 | 73 | 85.9 |
| Overall, this course met my learning expectations. | 116 | 77.8 | 72 | 84.8 |
| Overall, the learning activities and assignments of this course met my learning expectations. | 113 | 75.9 | 72 | 84.7 |
| Discussions assisted me in understanding other points of view. | 98 | 67.6 | 71 | 83.5 |
| My level of learning that took place in this course was of the highest quality. | 84 | 56.7 | 56 | 65.8 |
| I was stimulated to do additional reading or research on topics discussed in the courses. | 90 | 60.8 | 47 | 55.3 |
| The diversity of topics in the courses prompted me to participate in the discussions. | 70 | 48.3 | 46 | 54.1 |
| As a result of my experience in the course, I have made acquaintances from other parts of the world. | 49 | 33.3 | 36 | 42.4 |

Table 20 displays online learners' perceptions of whether satisfaction was accounted for in online and face-to-face courses. The majority of the online learners agreed to the statements regarding satisfaction in both online (50.7%) and face-to-face (67.1%) courses.

Table 20
*Online Learners' Perceptions of Whether Satisfaction Was Accounted for in Online and Face-to-Face Courses.*

| | Online | | Face-to-face | |
|---|---|---|---|---|
| Level of Agreement | Percent | Cum. Percent | Percent | Cum. Percent |
| Strongly Disagree | 2.1 | 2.1 | 3.5 | 3.5 |
| Disagree | 8.4 | 10.4 | 1.2 | 4.7 |
| Undecided | 26.6 | 36.8 | 15.5 | 20.0 |
| Agree | 50.9 | 87.5 | 67.2 | 87.1 |
| Strongly Agree | 12.6 | 100 | 13.1 | 100 |

Table 21 shows means, standard deviations, and dependent samples t-test results for online learners' perceptions of satisfaction in online and face-to-face courses. There was a significant difference in the overall mean scores for online courses (M=3.49, SD=.91) and face-to-face courses (M=3.81, SD=.63).

Table 21
*Means, Standard Deviations, and Dependent Samples t-test Results for Perceptions of Satisfaction*

| | Mean | SD | t | p |
|---|---|---|---|---|
| Online | 3.49 | .91 | -3.34 | .01 |
| Face-to face | 3.81 | .63 | | |

*Note*. Scale: 1= Strongly Agree, 2=Strongly Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree

**Objective 7**

**Describe the relationships among social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.**

To determine relationships among perceptions of social presence, social interaction, collaborative learning, and satisfaction, Pearson correlations were calculated. The variables were the overall scale scores for social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. The magnitude of all correlations was interpreted using Miller's (1998) descriptors: negligible equals .00-.09, low equals .10-.29, moderate equals .30-.49, substantial equals .50-.69, very high equals .70-.99, and perfect equals 1.0.

Table 22 displays a summary of the relationships among social presence, social interaction, collaborative learning, and satisfaction in online courses. Very high correlations were detected among all variables (Miller, 1998).

Table 22
*Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Online Courses*

| Variable | Social Presence | Social Interaction | Collaborative Learning | Satisfaction |
|---|---|---|---|---|
| Social Presence | - | .73 | .76 | .73 |
| Social Interaction | | - | .76 | .71 |
| Collaborative Learning | | | - | .71 |
| Satisfaction | | | | - |

Table 23 displays a summary of relationships between social presence, social interaction, collaborative learning, and satisfaction in face-to-face courses. The correlations were similar to those found with online courses. Very high correlations were discovered between social presence and social interaction and collaborative learning, social interaction and satisfaction, and collaborative learning and satisfaction (Miller, 1998). Substantial correlations were determined between social presence and satisfaction and also social interaction and collaborative learning (Miller, 1998).

Table 23
*Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Face-to-Face Courses*

| Variable | Social Presence | Social Interaction | Collaborative Learning | Satisfaction |
|---|---|---|---|---|
| Social Presence | - | .73 | .77 | .65 |
| Social Interaction | | - | .69 | .75 |
| Collaborative Learning | | | - | .70 |
| Satisfaction | | | | - |

**Objective 8**
**Describe the relationships between the characteristics of the students in online courses in the College of Agriculture and Life Sciences and their perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.**

A comparison of means scores was used to determine if differences existed in online learners' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses, based on selected learner characteristics.

Females provided higher perception scores on social presence, social interaction, collaborative learning, and satisfaction in face-to-face courses. Males provided higher perception scores on social presence, social interaction, collaborative learning, and satisfaction in online courses. There was no significant difference between females and males in the overall mean scores for social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

Table 24
*Gender and Perceptions of Social Presence, Social Interaction, Collaborative Learning, and Satisfaction*

| | | Female | Male | t | p |
|---|---|---|---|---|---|
| Social Presence Online | Mean | 3.37 | 3.45 | -.76 | .44 |
| | Std. Deviation | .70 | .62 | | |
| Social Presence Face-to-Face | Mean | 3.65 | 3.51 | 1.13 | .26 |
| | Std. Deviation | .56 | .47 | | |
| Social Interaction Online | Mean | 3.30 | 3.42 | -.89 | .37 |
| | Std. Deviation | .87 | .67 | | |
| Social Interaction Face-to-Face | Mean | 3.9 | 3.78 | .95 | .34 |
| | Std. Deviation | .71 | .52 | | |
| Collaborative Learning Online | Mean | 3.08 | 3.15 | -.45 | .65 |
| | Std. Deviation | .94 | .86 | | |
| Collaborative Learning Face-to-Face | Mean | 3.60 | 3.48 | .70 | .48 |
| | Std. Deviation | .78 | .69 | | |
| Satisfaction Online | Mean | 3.58 | 3.66 | -.53 | .59 |
| | Std. Deviation | .84 | .80 | | |
| Satisfaction Face-to-Face | Mean | 3.87 | 3.66 | 1.37 | .17 |
| | Std. Deviation | .72 | .58 | | |

Although the number of respondents from races other than Caucasian was low (n=7), the findings were included as a reference point for future researchers. It is important to recognize the findings from this study can only be generalizable to the study's respondents. When compared to Caucasian learners, the perceptions held by learners from a combined group of all other races were higher for satisfaction in online courses. In addition, the mean scores for differences in collaborative learning in face-to-face courses should also be noted for Caucasian (M=3.62) and other races

(M=2.42). Since the response was low for races other than Caucasian, the Mann-Whitney test was used as an additional test for differences. The data from the Mann-Whitney test concluded that there was a statistical difference in the races for perceptions of social presence, social interaction, and satisfaction in online courses.

Table 25
*Race and Perceptions of Social Presence, Social Interaction, Collaborative Learning, and Satisfaction*

| | | Caucasian | All other races | U |
|---|---|---|---|---|
| Social Presence Online | Mean | 3.36 | 4.30 | 1214* |
| | Std. Deviation | .65 | .50 | |
| | N | 133 | 4 | |
| Social Presence Face-to-Face | Mean | 3.59 | 4.00 | 365 |
| | Std. Deviation | .54 | .48 | |
| | N | 77 | 3 | |
| Social Interaction Online | Mean | 3.33 | 3.60 | 1268* |
| | Std. Deviation | .80 | 1.10 | |
| | N | 133 | 5 | |
| Social Interaction Face-to-Face | Mean | 3.89 | 4.16 | 316 |
| | Std. Deviation | .65 | .72 | |
| | N | 78 | 3 | |

| | | | | |
|---|---|---|---|---|
| Collaborative Learning Online | Mean | 3.89 | 4.16 | 1087 |
| | Std. Deviation | .65 | .72 | |
| | N | 78 | 3 | |
| Collaborative Learning Face-to-Face | Mean | 3.62 | 2.42 | 263 |
| | Std. Deviation | .73 | .51 | |
| | N | 78 | 3 | |
| Satisfaction Online | Mean | 3.56 | 4.54 | 1264.5* |
| | Std. Deviation | .82 | .47 | |
| | N | 131 | 5 | |
| Satisfaction Face-to-Face | Mean | 3.80 | 4.24 | 342.5 |
| | Std. Deviation | .69 | .46 | |
| | N | 78 | 3 | |

*p<.05

In regards to comparing face-to-face and online learning perceptions, overall mean scores for participants in Agriculture and Life Sciences majors had higher mean scores for social presence face-to-face, social interaction face-to-face, collaborative learning face-to-face, and satisfaction online and face-to-face (Table 26). Mean scores were higher for other majors in social presence online, social interaction online, and collaborative learning online. There was no significant difference for majors in the overall mean scores for social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

Table 26
*Major and Perceptions of Social Presence, Social Interaction, Collaborative Learning, and Satisfaction*

| | | Agriculture and Life Sciences | Other Majors | t | p |
|---|---|---|---|---|---|
| Social Presence Online | Mean | 3.39 | 3.44 | -.65 | .51 |
| | Std. Deviation | .69 | .59 | | |
| | N | 91 | 44 | | |
| Social Presence Face-to-Face | Mean | 3.62 | 3.52 | .80 | .42 |
| | Std. Deviation | .56 | .48 | | |
| | N | 57 | 25 | | |
| Social Interaction Online | Mean | 3.32 | 3.43 | -.59 | .55 |
| | Std. Deviation | .81 | .70 | | |
| | N | 93 | 43 | | |
| Social Interaction Face-to-Face | Mean | 3.93 | 3.74 | 1.10 | .27 |
| | Std. Deviation | .68 | .59 | | |
| | N | 58 | 25 | | |
| Collaborative Learning Online | Mean | 3.10 | 3.11 | .02 | .98 |
| | Std. Deviation | .92 | .83 | | |
| | N | 92 | 43 | | |
| Collaborative Learning Face-to-Face | Mean | 3.60 | 3.46 | .82 | .41 |
| | Std. Deviation | .77 | .73 | | |
| | N | 58 | 25 | | |
| Satisfaction Online | Mean | 3.61 | 3.58 | .27 | .78 |
| | Std. Deviation | .84 | .86 | | |
| | N | 92 | 43 | | |

| | | | | | |
|---|---|---|---|---|---|
| Satisfaction Face-to-Face | Mean | 3.83 | 3.71 | .68 | .49 |
| | Std. Deviation | .69 | .70 | | |
| | N | 58 | 25 | | |

When comparing undergraduates and graduates (Table 27), the overall mean scores were higher for graduate students than undergraduate students. There was a significant difference for classifications in the overall mean scores for social presence online, social interaction online, collaborative learning online, and satisfaction online. Graduate students had a higher overall mean score for social interaction in face-to-face courses.

Table 27
*Classification and Perceptions of Social Presence, Social Interaction, Collaborative Learning, and Satisfaction*

| | | Undergraduate | Graduate | t | p |
|---|---|---|---|---|---|
| Social Presence Online | Mean | 3.24 | 3.57 | -2.98 | .00* |
| | Std. Deviation | .66 | .63 | | |
| | N | 67 | 74 | | |
| Social Presence Face-to-Face | Mean | 3.56 | 3.67 | -.88 | .38 |
| | Std. Deviation | .48 | .61 | | |
| | N | 51 | 32 | | |
| Social Interaction Online | Mean | 3.20 | 3.51 | -2.37 | .01* |
| | Std. Deviation | .82 | .73 | | |
| | N | 68 | 74 | | |
| Social Interaction Face-to-Face | Mean | 3.83 | 3.94 | -.77 | .44 |
| | Std. Deviation | .65 | .66 | | |
| | N | 52 | 32 | | |

| | | | | | |
|---|---|---|---|---|---|
| Collaborative Learning Online | Mean | 2.87 | 3.34 | -3.14 | .00* |
| | Std. Deviation | .90 | .86 | | |
| | N | 68 | 73 | | |
| Collaborative Learning Face-to-Face | Mean | 3.54 | 3.61 | -.36 | .71 |
| | Std. Deviation | .70 | .84 | | |
| | N | 52 | 32 | | |
| Satisfaction Online | Mean | 3.37 | 3.83 | -3.37 | .00* |
| | Std. Deviation | .83 | .77 | | |
| | N | 66 | 74 | | |
| Satisfaction Face-to-Face | Mean | 3.75 | 3.90 | -1.00 | .31 |
| | Std. Deviation | .68 | .69 | | |
| | N | 52 | 32 | | |

*p<.05

Pearson correlations were computed to test the relationship between online learner's age and social presence, social interaction, collaborative learning, and satisfaction. The results indicate a low but significant correlation between age and social presence in online courses (.19), social interaction for both online (.16) and face-to-face (.23) courses, and satisfaction in online courses (.19) (Miller, 1998). There was no significant correlation between age and social presence in face-to-face courses, collaborative learning in online or face-to-face courses, and satisfaction in face-to-face courses.

Table 28
*Correlations Between Online Learner's Age and Learning Constructs*

| Learning Construct | Online | Face-to-face |
|---|---|---|
| Social Presence | .19* | .17 |
| Social Interaction | .16* | .23* |
| Collaborative Learning | .10 | .13 |
| Satisfaction | .19* | .13 |

*p<.05

# CHAPTER 5. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

## Discussion

Many researchers and educators have compared online learning to teaching and learning techniques developed for traditional, face-to-face courses. This study sought to determine student perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. Therefore, relevant research on these constructs was consulted for comparison. The results of this study showed a positive trend toward the use of online learning, educational technologies, and perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

### Online learning

As a result of advancing educational technologies hosted by the Internet and World Wide Web, online learning environments have provided learners with the ability to socially engage in the learning environment, participate in learning communities, and construct knowledge socially. The results of this study found that 68.3% of the respondents believed using online course messages is a pleasant way to communicate with others and 50.7% of online learners believed the language people use to express themselves in online communication is stimulating. The findings of this study are reinforced by other research that found that despite its lack of social cues, CMC can engage, interest, and stimulate students (Gunawardena,1995; Tu, 2000).

Allen and Seaman (2009) report that more than one in four higher education students take at least one course online. The findings of this study report that almost 20% of the online learners had taken only one course while more than half had taken three or fewer courses. Moreover, almost half of the online learners indicated that they put a great deal of effort to learn WebCT in order to participate in the course. The text-based format requires CMC users to possess some level of computer communication literacy such as typing, reading, and writing, people without these skills

develop communication anxiety when text-based communication is required (Gunawardena, 1991). Additionally, Tu and McIssac (2002) advocates for the need to train the students to use the medium comfortably, suggesting that perhaps the comfortability with the educational tool is crucial to the success of learning in new environments. This is consistent with Cain's (2005) reasoning that some of the possible explanations of why there is a positive association between the use of CMC and learning gains stems from the effectiveness and ease of use. The findings of the study are consistent with Gunawardena (1995) and Tu (2000) who developed research to explain how CMC in online learning environments can be very personal and social.

**Social Presence**

Social presence is regarded by Short, Williams and Christie (1976) as the most important perception that occurs in an environment and declared that it is fundamental to person-to-person communication. Meanwhile, online learning environments which feature mainly asynchronous text based CMC have been criticized for their lack of support for social presence, and this lack of support for social presence may impact the sense of belonging and acceptance in a group (Rovai, 2002).

In this study there was a significant difference in the overall scores for learners' perceptions of social presence in online and face-to-face courses. While the online learners in this study felt more comfortable participating and conversing in face-to-face courses, 72% felt comfortable in online courses. Online learners' perceptions of social presence favored face-to-face courses. However, results from this study found social presence to be very highly correlated with social interaction (.73), collaborative learning (.76), and satisfaction (.73) in online courses. These findings are in agreement with recent studies that have shown social presence is a significant factor to improve instructional effectiveness. Therefore, it is one of the most significant factors for distance education (Tu, 2000). Consequently, Russo and Benson (2005) assert that "more investigation of students' assessment of their own presence and its relationship to course outcomes is in order" (p. 60).

Jolivette (2006) suggests the generation of a new framework of knowledge to understand social presence and its relevancy to cognitive and affective learning in online environments will assist educators to determine the extent perception of social presence influences student's retention of knowledge (cognitive learning). This framework could also help educators provide information that will determine the extent perception of social presence influences student's satisfaction with the course (affective learning). As Jolivette (2006) recommended, the findings from this study contribute to the body of knowledge seeking to fully understand the role of social presence from an adult learner's perspective participating in online learning. In addition, Richardson and Swan (2003) posit it is important for researchers "to ask themselves if it is really the physical (social) presence of the instructor and students that is essential to the element of learning when considering the challenge of the effectiveness of online learning" (p. 69).

**Social interaction**

Many researchers believe interaction is a vital component of learning experiences in online and face-to-face courses (Jung et al., 2002; Moore, 1993; Vygotsky, 1978). Anderson, Rourke, Garrison, and Archer (2001) advocate that an asynchronous learning environment provides the assurance of equal treatment for the learner by providing the avenue by which they have the opportunity to interact with instructors and peers with little regard for race, sex, or disability. However, online learning has received many criticisms regarding the perceived lack of interaction and socialization (Aiken, 1993; Berge & Collins, 1993; Guzdial & Carroll, 2002; Li, 2007).

The findings from this study offer the online learners who responded to this study, that nearly 70% were comfortable interacting with other students and believed the quality of interaction with instructors in the course was appropriate in online courses. This supports the claim technology-based learning environments allow learners to engage in meaningful interactions (Oliver, 2000). Student's perception of the quality and amount of interaction with instructors and students in this study was

higher for face-to-face courses. Instructors were perceived to have facilitated fewer discussions and created less of a community in online courses. This finding is reinforced by other research conducted to compare the levels of quality in on- and off-campus courses in agriculture (Miller & Shih, 1999). Their study also found higher mean scores for on-campus courses. In both the current study and Miller & Shih (1999), students found instructors to be more available in on-campus courses.

The results from this study reveal a significant difference in the overall mean score for perceptions of social interaction in online and face-to-face courses. Almost 27% of online learners perceive online courses an excellent means of interaction; this is compared to 80% for face-to-face. The perceptions of social interaction in this study were higher for face-to-face than online courses. The findings in this study support research conducted by Miller and Pilcher (2001). These researchers used perceptions of students and faculty to compare the academic rigor of on- and off-campus courses in agriculture. Comparable to the current study, most students were working toward Master's degrees. However, the respondents were predominately male, in contrast to the current study. Miller and Pilcher also found most students favored on-campus courses. Similar to the findings in this study, students valued the importance of distance education, but referenced the seeming lack of interactions available in the distance education courses (Miller & Pilcher, 2001).

**Collaborative learning**

Historically, collaborative learning has been considered an effective instructional method in both traditional and distance learning settings (Bernard et.al, 2000). Learners in this study perceived collaborative learning to be higher for face-to-face courses than online courses. This is similar to findings presented by Meyer (2003), who reported students perceived online discussions to be slow, and lack the energy and spark of face-to-face discussions. In this study, there was a significant difference in the overall mean score for collaborative learning in online and face-to-face courses.

Learners in this study felt as though collaborative learning environments in online courses were less effective, but less time consuming than face-to-face courses. These findings indicate almost 60% of online learners actively exchanged ideas in online courses, while 52.7% were able to develop new skills and knowledge from other members in their course. These findings are similar to Hara, Bonk, and Angeli, (2000), who reported online collaborative learning strategies promoted the feeling of connectedness and belonging appeared to be critical for the learner. The importance of collaborative learning in online courses is clearly established by the responses of online learners in this study. The findings from this study contradict previous criticisms and support from other research (Rovai, 2002; Warschauer, 1997) assertions that the web is seen as an innovation tool to encourage students to think beyond their normal range.

When it comes to online discussion forums, almost 68% of online learners in this study felt discussions assisted in understanding others' points of view. This finding coincides with Scardamalia and Bereiter (1994), who noted in collaborative knowledge building communities, students increasingly take charge of their own learning, lead discussions, offer new perspectives, and learn in a dynamic social environment. These findings support research in online learning that shows new technologies allow course participants to engage in meaningful discussions so knowledge is not transmitted from the teacher to the students, but rather discovered as individual perspectives are shared in a collaborative learning environment (Harasim, 1990). These findings are also in line with the assertion by Wei, Chen, Wang, and Li (2007) that web-based discussion forums enable users to share knowledge in straightforward and popular platforms. Researchers contend online discussions and learning may be more supportive of experimentation, divergent thinking, exploration of multiple perspectives, complex understanding and reflection than face-to-face discussions (Parker & Gemino, 2001; Picciano, 2002) making participants in online courses better at critiquing, questioning, analyzing, making connections, and extending the content beyond the classroom through the use of asynchronous online discussion forums (Williams et al., 2001).

On the other hand, online learners in this study believed face-to-face courses allowed them to develop new problem-solving skills and knowledge through peer collaborations. When asked to respond to the statement "I felt part of a learning community in my courses," 49% responded strongly agree or agree to online courses, while 67% responded strongly agree or agree to face-to-face courses. Similarly, Watson and Rutledge (2005) asked students to respond to the statement "I felt as much a part of my online class as regular class" and reported that 30% disagreed with the statement.

**Satisfaction**

Satisfaction in a course is an important "intermediate outcome" (Astin, 1993, p. 278). Learners in this study were able to meet learning expectations, while having a useful learning experience in both online and face-to-face courses. Learning activities and assignments developed for both environments met the expectations of learners in this study. In similar findings, Allen, Bourhis, Burrell, and Mabry (2002) compared student satisfaction in online and face-to-face communications courses and determined students find online courses as satisfactory as face-to-face courses. Additionally, McFarland and Hamilton (2006), who surveyed MIS students enrolled in an e-business course, found no significant difference in the overall course satisfaction between course delivery formats. McFarland and Hamilton (2006) also add satisfaction is affected by student schedules, their level of experience, and the effectiveness of online discussion boards.

There was a significant difference in the overall mean scores for satisfaction in online and face-to-face courses. Generally, online learner perceptions of satisfaction were more favorable in face-to-face courses. This study finds 67.8% of online learners perceived to learn from online courses and 86% from face-to-face courses. This is consistent with Summers, Waigandt, and Whittaker (2005), who reported although statistics students enrolled in both online and face-to-face courses learned the content, those enrolled in the online course were less satisfied. It is important to

understand although students are learning in the course, this does not imply they are satisfied with the online learning environment.

Findings from this study coincide with Diebel, McInnis, and Edge (1998), who surveyed 103 on- and off-campus students enrolled in a wildlife conservation course. These researchers used computer discussions groups, two-way audio, and toll-free phone access to evaluate course content and perception of usefulness of the class. In both studies, students enrolled in the distance education section of the course were studying in a variety of majors, such as biology, zoology, engineering, history, English, geography, and agricultural economics/business. And although the study conducted by Diebel, McInnnis, and Edge reflects early comparisons of online and face-to-face learning, the students in the course clearly favored video lectures, similar to preferences identified in the current study. When asked questions regarding levels of interaction and satisfaction with the course, students in the wildlife course also found the on-campus course to be more satisfactory. These findings support existing research that most students, who reported high levels of interactions, also reported higher levels of satisfaction in the course (Swan, 2001). The findings from this study are similar to other research that found when comparing satisfaction with online and face-to-face courses, online learners tend to be more satisfied with face-to-face interactions (Hiltz 1999; Ponzurick, France, & Logar, 2000). However, research suggests pedagogical adjustments for online courses related to social interactions are in order (Ponzurick, France, & Logar, 2000).

Learners in this study believed the instructors in the course met their learning expectations. Previous research also revealed online learners whose perceptions of interactions with both instructors and students was also noted as an essential contributor to satisfaction in the course (Anderson & Harris, 1997; Eom, Wen, & Ashill, 2006; Frederickson et al., 2006; Gunawardena & Zittle 1997; Kanuka & Anderson 1998). Additionally, Keller advocates instructor feedback and reinforcement are important factors to learner satisfaction (2010).

Global awareness and recognition of international perspectives are now more than ever becoming a requirement for knowledge building and learning in our ever changing teaching and learning environments. Online learners in this study did not feel as though experiences in the courses afforded them an opportunity to make acquaintances with students in other parts of the world. International education is an area that could be utilized to demonstrate examples of collaborative learning methodologies. The development of online and face-to-face curriculum that combine access to educational technology could be integrated into activities to offer learning opportunities that would be cooperative in both settings. The standards for both settings should be similar and transferable instead of competitive and isolated. Additionally, Jung, Choi, Lim, and Leem (2002) found learner's satisfaction was more strongly related to student-student interaction than interaction with the instructor.

More learners in this study agreed that face-to-face courses were of higher quality and provided avenues to understand other perspectives. Almost half of the online learners believed the diversity of topics discussed in the class prompted discussion in online courses, while more than half believed the same for face-to-face courses. It is worth noting online learners in this study were more likely to be stimulated to complete additional reading or research on topics discussed in online courses than face-to-face courses. These findings support previous research that linked online collaboration through group discussions with better opportunities to promote quantity and quality of student interactions, engagement, satisfaction, and higher-order learning (Garrison, Anderson, & Archer, 2001; Hiltz, Coppola, Rotter, & Turoff, 2000).

**Relationships among social presence, social interaction, collaborative learning, and satisfaction**

This study revealed social presence, social interaction, collaborative learning, and satisfaction are all correlated in online and face-to-face courses. This supports prior research that found statistical relationships between social presence, collaborative learning, and satisfaction (So & Brush, 2008). In fact, the constructs in this study are very highly correlated in online courses. Collaborative learning in this study is very highly correlated with social presence and social interaction in online courses. This supports previous research that identifies social presence as being associated with enhanced online social interaction and collaboration (So & Brush, 2007; Tu & McIssac, 2002). In comparison, online learner's perceptions of social presence and collaborative learning in this study have a higher correlation in face-to-face courses. Collaborative learning provides students with the opportunity to think for themselves, compare their thinking with others, conduct small research projects, investigate subject matter with fellow students, and to practice using higher level cognitive thinking skills. These findings support prior research that argued for the importance of collaborative learning and social integration to enhance learning outcomes, increase learner satisfaction and promote the use of CMC (Jung et., 2002).

There was no significant difference in overall mean scores in females and males in online and face-to-face courses. Female online learners in this study have higher perceptions of social presence, social interaction, collaborative learning, and satisfaction in face-to-face courses. This finding is reinforced by research conducted by Richardson and Swan, who also found women to have higher perceptions of social presence than men (2003). Males tend to favor online courses. Female and male perceptions of collaborative learning in online courses scored lower than other perceptions. However, female and male perceptions of social interaction in face-to-face courses were scored higher than all other perceptions. Similar to the findings of the current study, Ponzurick, France, and Logar (2000) also found no significant differences in perceived satisfaction when comparing the gender of respondents.

This study revealed the scores for persons whose race was other than Caucasian as being higher for perceptions of social presence, social interaction, and satisfaction in online and face-to-face courses. Caucasians favored social presence, social interaction, and satisfaction in face-to-face courses, while persons of other races favored social interaction in face-to-face courses. Races other than Caucasian favored social presence, collaborative learning, and satisfaction for online courses. Caucasians favored face-to-face courses, while other races favored online courses. While it is important to highlight the perceptions of all races, it is imperative to understand these results can only be generalizable to the respondents of this study, due to the small number of responses from races other than Caucasian.

There was no significant difference for majors in overall mean scores of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. Agriculture and Life Sciences majors scored higher in face-to-face courses. This is consistent with other research that indicates agriculture students prefer face-to-face courses (Boyd & Murphy, 2001). All majors scored higher for social interaction and satisfaction in face-to-face courses than other perceptions. All majors favored social presence, social interaction, collaborative learning, and satisfaction in face-to-face courses.

Graduates student in this study had higher perceptions of social presence, social interaction, collaborative learning, and satisfaction for face-to-face courses. Undergraduate and graduate student scores were higher for face-to-face courses for all constructs. All majors had higher scores for social interaction in face-to-face courses than any other perception. The lowest scores were found in collaborative learning in online courses for both undergraduate and graduate students. There was a significant difference in the overall means scores for graduate and undergraduate students in social presence, social interaction, collaborative learning, and satisfaction in online courses.

In this study, social presence, social interaction, and satisfaction in online courses are significantly correlated with age. This is consistent with previous research that also found a significant correlation between social presence and age in an online course (Richardson & Swan, 2003). Older learners tend to have a higher perception of social interaction in face-to-face courses. The perception of social interaction in face-to-face environments in this study is also significantly correlated with age. Collaborative learning is the only construct not significantly correlated with age. The current research is similar to Frederickson et al. (2006), who reported in a study of online learners, younger students aged 16-25 reported they learned less and were also less satisfied with online learning. However, students, who ages ranged from 36-45, reported to have learned more and were more satisfied with online learning.

As online learning courses continue in popularity and course development becomes a priority for many educators, Rourke, Anderson, Garrison, and Archer (2001) suggest it is "important (a) to develop research methods that explore the nature of teaching and learning in these environments (b) to apply these tools in authentic contexts, and (c) to use the results to develop instructional models that use this technology effectively" (p. 51). In regards to previous studies, the findings from this study support the literature that acknowledges computer-mediated conferencing is now known to support high levels of responsive, intelligent interaction between and among faculty and students, while simultaneously providing high levels of freedom of time and place to engage in this interactivity (Rourke, Anderson, Garrison, & Archer, 2001).

While the field of distance education is still relatively new, for the past decade researchers and educators have continually compared distance learning to traditional, face-to-face learning when trying to establish standards and benchmarks of quality in distance courses. In an article titled "*Is As Good As Face-to-Face As Good As It Gets?,"* McDonald (2002) raises the question of whether we should consistently compare online courses to face-to-face courses. She suggests perhaps we are

overlooking or sacrificing the importance of a new phenomenon in online learning. Online learning provides continual opportunities for learning with advancing new technologies. How can we adequately compare new technologies to traditional linear models of teaching in classroom settings? In an effort to add consistency to the field, McDonald (2002) provides an overview of benchmarks deemed essential for any successful online education program. These benchmarks are divided into seven categories. A full listing of benchmarks and explanations can be found at (http://www.ihep.com/quality.pdf).

The review of literature identified a gap in knowledge of student's perceptions of social presence, social interaction, collaborative learning, and satisfaction for online courses in agriculture. Results presented from this study add to the growing base of research in distance education teaching and learning, educational technologies, and understanding the perceptions of social presence, social interaction, collaborative learning, and satisfaction in both online and face-to-face learning environments.

Findings from this study further emphasize the importance of social presence, social interaction, collaborative learning, and satisfaction in online courses. These findings indicate students are generally satisfied with their learning experience when social presence penetrates all aspects of the learning environment, the integration of social interaction in the learning environment is evident, and collaborative learning through group processing is used as a teaching and learning tool. This study contributes to the scholarship of teaching and learning in online and face-to-face courses, and should be used to support educators and instructional designers in the establishment of standards and benchmarks for distance education courses.

**Conclusions**

The purpose of this descriptive survey research study was to describe and compare students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. This study has implications for both face-to-face and online educators. The information from this study can be used to support pedagogy to increase social presence, social interaction, collaborative learning, and satisfaction in both educational settings. The following 14 conclusions were drawn from the findings of this study.

1. A typical College of Agriculture and Life Sciences online learner, who participated in this study, was a 30-year old Caucasian female working on a Master's degree.

2. College of Agriculture and Life Science online learners were studying in a wide range of disciplines, including majors outside the College of Agriculture and Life Sciences.

3. College of Agriculture and Life Sciences online learners, who responded to the survey, would like to see more online courses offered, plan to enroll in more online courses, and feel comfortable communicating in an online environment.

4. College of Agriculture and Life Science online educators use a variety of teaching methods.

5. Live real time audio and video, and audio only methods of instruction are used less frequently, and online learners perceive these methods as being less beneficial.

6. College of Agriculture and Life Sciences online learners, who responded to the survey, believe PowerPoint with Video, PowerPoint with Audio, and threaded discussions were the most beneficial educational technologies that contribute to their learning.

7. Face-to-face courses do a significantly better job of addressing social presence issues than online courses.

8. Face-to-face courses do a significantly better job of addressing social interaction issues than online courses.
9. Face-to-face courses do a significantly better job of addressing collaborative learning issues than online courses.
10. Face-to-face courses were significantly more satisfying to participants than online courses.
11. Social presence, social interaction, collaborative learning, and satisfaction are very highly correlated in online courses.
12. Female participants tended to favor learning in face-to-face courses, while males favored online courses.
13. Caucasians participants tended to favor face-to-face courses over online courses.
14. Graduate students perceptions of social presence, social interaction, collaborative learning, and satisfaction were higher than undergraduate perceptions in online and face-to-face courses.

**Recommendations for Practice**

1. Given the relatively high interests in enrolling in online courses, it is recommended departments in the College of Agriculture and Life Sciences encourage educators to develop more online courses.

2. While College of Agriculture and Life Sciences students are enrolling in online courses offerings in the college, it is students not pursuing majors within in the college who make up a considerable percentage of online learners. It is recommended that educators continue to develop and promote courses open to students from a variety of academic majors.

3. Given the high percentage of online learners who used threaded discussions in the online courses with a perceived benefit of learning, it is recommended online educators develop more curricula to promote interaction, collaboration, and learning via threaded discussions.

4. Online educators and researchers need to continue to participate in training and professional development opportunities that provide avenues for constant development and progression toward established and comparable benchmarks from the face-to-face learning environments.

5. It is recommended educators and online researchers continue to develop strategies to create online environments where students feel a greater sense of social presence, social interaction, collaborative learning, and satisfaction.

6. It is recommended that educators and researchers establish and implement best practices to increase social presence, social interaction, collaborative learning and satisfaction in online courses.

**Recommendations for further research**

1. A limitation of the findings in this study is only current College of Agriculture and Life Sciences distance education students were administered the survey. It is recommended further research be conducted with all College of Agriculture and Life Sciences students, who have taken online courses.

2. The number of respondents for this study from races other than Caucasian was significantly lower. It is recommended researchers continue to collect data related to these students in an effort to understand the perceptions for all races.

3. Additional research is needed to determine if the findings from this study are applicable to students who take online courses in other colleges, students who take a combination of face-to-face and online courses, and a possibility with courses offered as hybrids.

4. Longitudinal studies should be developed to document changes in students' perceptions of social presence, social interaction, collaborative learning, and satisfaction in online courses over time.

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# APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL LETTTER AND FORM

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Resear
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

**Date:** 3/17/2011

**To:** LaJoy R Spears
1045 Student Services Bldg

**CC:** Dr. Gregory Scott Miller
206 E Curtiss Hall

**From:** Office for Responsible Research

**Title:** Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Online and Face-to-face Courses

**IRB Num:** 10-574

**Submission Type:** New **Exemption Date:** 3/15/2011

The project referenced above has undergone review by the Institutional Review Board (IRB) and has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making <u>any</u> changes**, to determine if the project still meets the federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use only the approved study materials** in your research, including the **recruitment materials and informed consent documents that have the IRB approval stamp**.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

| For IRB Use Only | | |
|---|---|---|
| | Review Date: March 15, 2011 | IRB ID: 10-574 |
| | Approval Date: March 15, 2011 | Length of Approval: n/a |
| | Approval Expiration Date: n/a | FULL Committee Review: |
| | EXEMPT per 45 CFR 46.101(b): 2 Date: 3/15/2011 | Minimal Risk: ✓ |
| | EXPEDITED per 45 CFR 46.110(b) | More than Minimal Risks: |
| | Category _____, Letter _____ | Project Closed Date: |

# INSTITUTIONAL REVIEW BOARD (IRB)
## Application for Approval of Research Involving Humans

IRB
DEC 0 3 2010

### SECTION I: GENERAL INFORMATION

| | | |
|---|---|---|
| Principal Investigator (PI): LaJoy R. Spears | Phone: 859-329-1156 | Fax: |
| Degrees: M.S. | Correspondence Address: 1045 Student Services Building | |
| Department: AGEDS | Email Address: : lrspears@iastate.edu | |
| Center/Institute: Iowa State University | College: Agriculture and Life Sciences | |
| PI Level: ☐ Faculty ☐ Staff ☐ Postdoctoral ☒ Graduate Student ☐ Undergraduate Student | | |
| Alternate Contact Person: Greg Miller | Email Address: gsmiller@iastate.edu | |
| Correspondence Address: 206 Curtiss Hall | Phone: 515-294-2583 | |
| Title of Project: **Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Online and Face-to-face Courses** | | |
| Project Period (Include Start and End Date): [*12/10/10*] to[*05/15/12*] | | |

| **FOR STUDENT PROJECTS** | |
|---|---|
| Name of Major Professor/Supervising Faculty: Dr. Greg Miller | Signature of Major Professor/Supervising Faculty: [redacted] |
| Phone: 515-294-2583 | Campus Address: 206 Curtiss Hall, Iowa State University, Ames, IA 50011 |
| Department: Agricultural Education and Studies | Email Address: gsmiller@iastate.edu |
| Type of Project: (check all that apply)<br>☐ Research ☐ Thesis ☒ Dissertation ☐ Class project<br>☐ Independent Study (490, 590, Honors project) ☐ Other. Please specify: _____ | |

### KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project.

| NAME & DEGREE(S) | SPECIFIC DUTIES ON PROJECT | TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING |
|---|---|---|
| ✓ LaJoy R. Spears | Writing proposal, developing questionnaire, collecting and analyzing data, and writing dissertation. | Completed ISU Human Subjects Training in 2007. 8/22/06 |
| ✓ Dr. Greg Miller | Supervising complete research process including writing dissertation and its publication. | Completed ISU Human Subjects Training in June 2009 (OK) 7/20/00 6/17/09 |
| ✓ Dr. Gaylan Scofield | Developing web based survey, communicating electronically with participants of the research, collecting survey results and exporting survey data into the spreadsheet. | Completed ISU Human Subjects Training in March 2000. 3/12/02 |

| For IRB Use Only | | |
|---|---|---|
| | Review Date: March 15, 2011 | IRB ID: 10-574 |
| | Approval Date: March 15, 2011 | Length of Approval: n/a |
| | Approval Expiration Date: n/a | FULL Committee Review: |
| | EXEMPT per 45 CFR 46.101(b): 2 Date: 3/15/2011 | Minimal Risk: ✓ |
| | EXPEDITED per 45 CFR 46.110(b) | More than Minimal Risks: |
| | Category _____, Letter _____ | Project Closed Date: |

# INSTITUTIONAL REVIEW BOARD (IRB)
## Application for Approval of Research Involving Humans

IRB
DEC 0 3 2010

### SECTION I: GENERAL INFORMATION

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|---|---|---|
| Principal Investigator (PI): LaJoy R. Spears | Phone: 859-329-1156 | Fax: |
| Degrees: M.S. | Correspondence Address: 1045 Student Services Building | |
| Department: AGEDS | Email Address: : lrspears@iastate.edu | |
| Center/Institute: Iowa State University | College: Agriculture and Life Sciences | |
| PI Level: ☐ Faculty ☐ Staff ☐ Postdoctoral ☒ Graduate Student ☐ Undergraduate Student | | |
| Alternate Contact Person: Greg Miller | Email Address: gsmiller@iastate.edu | |
| Correspondence Address: 206 Curtiss Hall | Phone: 515-294-2583 | |
| Title of Project: **Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in Online and Face-to-face Courses** | | |
| Project Period (Include Start and End Date): [*12/10/10*] to[*05/15/12*] | | |

| **FOR STUDENT PROJECTS** | |
|---|---|
| Name of Major Professor/Supervising Faculty: Dr. Greg Miller | Signature of Major Professor/Supervising Faculty: [redacted] |
| Phone: 515-294-2583 | Campus Address: 206 Curtiss Hall, Iowa State University, Ames, IA 50011 |
| Department: Agricultural Education and Studies | Email Address: gsmiller@iastate.edu |
| Type of Project: (check all that apply)<br>☐ Research ☐ Thesis ☒ Dissertation ☐ Class project<br>☐ Independent Study (490, 590, Honors project) ☐ Other. Please specify: _____ | |

### KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project.

| NAME & DEGREE(S) | SPECIFIC DUTIES ON PROJECT | TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING |
|---|---|---|
| ✓ LaJoy R. Spears | Writing proposal, developing questionnaire, collecting and analyzing data, and writing dissertation. | Completed ISU Human Subjects Training in 2007. 8/22/06 |
| ✓ Dr. Greg Miller | Supervising complete research process including writing dissertation and its publication. | Completed ISU Human Subjects Training in June 2009 (OK) 6/17/09 7/20/00 |
| ✓ Dr. Gaylan Scofield | Developing web based survey, communicating electronically with participants of the research, collecting survey results and exporting survey data into the spreadsheet. | Completed ISU Human Subjects Training in March 2006. 3/12/02 |

**FUNDING INFORMATION**

| |
|---|
| ☐ Internally funded, please provide account number: |
| ☐ Externally funded, please provide funding source and account number: |
| ☐ Funding is pending, please provide OSPA Record ID on GoldSheet: |
| Title on GoldSheet if different from above: |
| ☐ Other: *(e.g., funding will be applied for later)* |
| ☒ Student Project—no funding or funding provided by student |

**SCIENTIFIC REVIEW**

Although the assurance committees are not intended to conduct peer review of research proposals, the federal regulations include language such as "consistent with sound research design," "rationale for involving animals or humans" and "scientifically valuable research," which requires that the committees consider in their review the general scientific relevance of a research study. Proposals that do not meet these basic tests are not justifiable and cannot be approved. If an assurance review committee(s) has concerns about the scientific merit of a project and the project was not competitively funded by peer review or was funded by corporate sponsors, the project may be referred to a scientific review committee. The scientific review committee will be an ad hoc and will consist of your ISU peers and outside experts as needed. If this situation arises, the PI will be contacted and given the option of agreeing that a consultant may be contacted or withdrawing the proposal from consideration.

☒ Yes ☐ No Has or will this project receive peer review?

If the answer is "yes," please indicate who did or will conduct the review:

The POS committee has reviewed and approved the proposed study.

If a review was conducted, please indicate the outcome of the review:

After reviewing the questionnaire for construct validity, the panel of experts, three professors from the department of Agricultural Education and Studies and one professor from Statistics concluded that the questionnaire was valid for accomplishing the objectives of the proposed study.

**COLLECTION OR RECEIPT OF SAMPLES**

Will you be: (Please check all that apply.)

☐ Yes ☒ No Receiving samples from outside of ISU? See examples below.
☐ Yes ☒ No Sending samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the identity of the samples you will be sending or receiving outside of ISU. If the outside organizations have not been identified, please check no for both questions above.

| |
|---|
| N/A |

Please note that **some samples may require a** USDA Animal Plant Health Inspection Service (APHIS) **permit**, a USPHS Centers for Disease Control and Prevention (CDC) Import Permit for Etiologic Agents, a Registration for Select Agents, High Consequence Livestock Pathogens and Toxins or Listed Plant Pathogens, or a Material Transfer Agreement (MTA) EH&S Website

**ASSURANCE**

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subject or welfare of animal subjects are protected. I will report any problems to the appropriate assurance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

**CONFLICT OF INTEREST**

A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook (http://www.provost.iastate.edu/faculty ) and have made all required disclosures.

☐ Yes ☒ No Do you or any member of your research team have an actual or potential conflict of interest?
☐ Yes ☐ No If yes, have the appropriate disclosure form(s) been completed?

**SIGNATURES**

[redacted] 12010
Signature of Principal Investigator Date

[redacted] Dec 2, 2010
Signature of Department Chair Date

The Major Professor/Supervising Faculty member must sign the cover page in the section entitled "For Student Projects".

**PLEASE NOTE: Any changes to an approved protocol must be submitted to the appropriate committee(s) before the changes may be implemented.**

**Please proceed to SECTION II.**

## SECTION II: IRB SECTION - STUDY SPECIFIC INFORMATION

**Please complete all of the following questions.**

### STUDY OBJECTIVES

Briefly explain in **language understandable to a layperson** the specific aim(s) of the study.

The objectives of this study are to:

1. Describe the characteristics of students in online courses in the College of Agriculture and Life Sciences at Iowa State University.
2. Describe students' perceptions of their online learning experiences in the College of Agriculture and Life Sciences at Iowa State University.
3. Describe and compare the students' perceptions of social presence in online and face-to-face courses.
4. Describe and compare the students' perceptions of social interaction in online and face-to-face courses.
5. Describe and compare the students' perceptions of collaborative learning in online and face-to-face courses.
6. Describe and compare the students' perceptions of satisfaction in online and face-to-face courses.
7. Describe the relationships among social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.
8. Describe the relationships between the characteristics of the students in online courses in the College of Agriculture Life Sciences and their perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses.

### BENEFITS TO SOCIETY AND PARTICIPANTS

Explain in **language understandable to a layperson** how the information gained in this study will advance knowledge, and/or serve the good of society. Please also describe the direct benefits to research participants; if there are no direct benefits to participants, indicate that. **Note**: monetary compensation cannot be considered a benefit to participants.

There are no direct benefits to participants. This study will serve the good of society by providing information that will advance knowledge in the comparison of face to face and online courses in the College of Agriculture. Educators will benefit from understanding the relationships between social presence, social interaction, collaborative learning, and satisfaction and student learning.

### PART A: PROJECT INVOLVEMENT

1) ☐ Yes ☒ No Is this project part of a Training, Center, Program Project Grant?
   Director Name: Overall IRB ID:
2) ☐ Yes ☒ No Is the purpose of this project to develop survey instruments?
3) ☐ Yes ☒ No Does this project involve an investigational new drug (IND)? Number:
4) ☐ Yes ☒ No Does this project involve an investigational device exemption (IDE)? Number:

5) ☐ Yes ☒ No Does this project involve existing data or records?

6) ☐ Yes ☒ No Does this project involve secondary analysis?

7) ☐ Yes ☒ No Does this project involve pathology or diagnostic specimens?

8) ☐ Yes ☒ No Does this project require approval from another institution? Please attach letters of approval.

9) ☐ Yes ☒ No Does this project involve DEXA/CT scans or X-rays?

**PART B: MEDICAL HEALTH INFORMATION OR RECORDS**

10) ☐ Yes ☒ No Does your project require the use of a health care provider's records concerning past, present, or future physical, dental, or mental health information about a subject? The Health Insurance Portability and Accountability Act established the conditions under which protected health information may be used or disclosed for research purposes. If your project will involve the use of any past or present clinical information about someone, or if you will add clinical information to someone's treatment record (electronic or paper) during the study, you must complete and submit the Application for Use of Protected Health Information.

**PART C: ANTICIPATED ENROLLMENT**

| **Estimated number of participants to be enrolled in the study** Total: 1400 Males: 700 Females: 700 | |
|---|---|
| Check if any enrolled participants are:<br>☐ Minors (Under 18)<br>Age Range of Minors:<br>☐ Pregnant Women/Fetuses<br>☐ Cognitively Impaired<br>☐ Prisoners | Check below if this project involves either:<br>☐ Adults, non-students<br>☐ Minor ISU students<br>☒ ISU students 18 and older<br>☐ Other (explain) |
| **List estimated percent of the anticipated enrollment that will be minorities *if known*:** | |
| American Indian: | Alaskan Native: |
| Asian or Pacific Islander: | Black or African American: |
| Latino or Hispanic: | |

**PART D: PARTICIPANT SELECTION**

**Please use additional space as necessary to adequately answer each question.**

11. Explain the procedures and rationale for selecting participants, including the inclusion and exclusion criteria (e.g., where will names come from, what persons will be included or excluded and why, etc.).

The target population for this study was students who were enrolled in College of Agriculture and Life Sciences online courses during the Fall 2010, Spring 2010, and Summer 2010 semesters. A complete listing of students enrolled in the College of Agriculture and Life Sciences online courses was obtained from The Brenton Center for Agricultural Instruction and Transfer Technology at Iowa State University. Since many students take several online courses, duplicate names were removed from the list. An email listing of enrolled students was compiled in a database. Due to the small amount of College of Agriculture and Life Sciences students who are younger than18, minors were excluded because the results would not be generalizable to the minors.

12. Describe the procedures for contacting participants (e.g., letter, email, flyer, advertisements, phone call, etc.). Attach copies of any letters, scripts, flyers, or advertisements that will be used. Recruitment materials should include a statement of the voluntary and confidential nature of the research.

Student contact procedures:
Pilot Study

1. Students selected for the pilot study will receive a brief prenotice email informing them that an important questionnaire will arrive soon and that their response is very important.
2. A detailed information email with a link to the questionnaire will be sent approximately 3 days after the prenotice email.

Research Questionnaire

3. Students will receive a brief prenotice email informing them that an important questionnaire will arrive soon and that their response is very important.
4. A detailed information email with a link to the questionnaire will be sent approximately 3 days after the prenotice email.
5. A brief reminder email will be sent to nonrespondents approximately 7 days after the detailed email including a link to the questionnaire.
6. A second reminder email will be sent approximately 7 days after the first reminder and will include the link to the questionnaire.
7. A final follow up email will be sent to nonrespondents approximately 7 days after the second reminder and will include an attachment of the questionnaire.

**PART E: RESEARCH PLAN**

Include sufficient detail for IRB review of this project independent of the grant, protocol, or other documents.

13. The information needed here is similar to that in the "methods" or "procedures" sections of a research proposal—it should describe the flow of events that will occur during your interactions with subjects. Please describe in detail your plans for collecting data from participants, including all procedures, tasks, or interventions participants will be asked to complete during the research (e.g., random assignment, any conditions or treatment groups into which participants will be divided, mail survey or interview procedures, sensors to be worn, amount of blood drawn, etc.) . This information is intended to inform the committee of the procedures used in the study and their potential risk. Please do not respond with "see attached" or "not applicable."

A. Before the collection of data from the study participants, a pilot test of the Social Interaction Scale will be conducted with twenty College of Agriculture and Life Sciences students who were enrolled in online courses during the Fall 2010, Spring 2010, and Summer 2010 semesters. Students will receive an information email explaining the purpose of the scale and the information they provide is important to determine the reliability of the instrument for the proposed study. If additional changes are required as a result of the pilot test, an updated questionnaire will be submitted to the Office for Responsible Research for approval.

B. Student contact procedures:

Pilot Study

1. Students selected for the pilot study will receive a brief prenotice email informing them that an important questionnaire will arrive soon and that their response is very important.
2. A detailed information email with a link to the questionnaire will be sent approximately 3 days after the prenotice email.

Research Questionnaire

3. Students will receive a brief prenotice email informing them that an important questionnaire will arrive soon and that their response is very important.
4. A detailed information email with a link to the questionnaire will be sent approximately 3 days after the prenotice email.
5. A brief reminder email will be sent to nonrespondents approximately 7 days after the detailed email.
6. A second reminder email will be sent approximately 7 days after the first reminder and will include the link to the questionnaire.
7. A final follow up email will be sent to nonrespondents approximately 7 days after the second reminder and will include an attachment of questionnaire.

C. Questionnaire

1. Undergraduate and graduate students will complete the same questionnaire.

14. For studies involving pathology/diagnostic specimens, indicate whether specimens will be collected prospectively and/or already exist "on the shelf" at the time of submission of this review form. If prospective, describe specimen procurement procedures; indicate whether any additional medical information about the subject is being gathered, and whether specimens are linked at any time by code number to the participant's identity. If this question is not applicable, please type N/A in the response cell.

N/A

15. For studies involving deception or where information is intentionally withheld from participants, such as the full purpose of the study, please explain how persons will be deceived or what information will be withheld. Additionally, a waiver of the applicable elements of consent will be needed. Please complete the "Waiver of

Elements of Consent" form (available at the IRB website). If this question is not applicable, please type N/A in the response cell.

| |
|---|
| N/A |

**PART F: CONSENT PROCESS**

A copy of any translated informed consent documents and an English version should be submitted with the application. Provide the name of the individual who translated the consent documents, their qualifications for translating documents, and in particular informed consent documents, below.

If the consent process does not include documented consent, a waiver of documentation of consent must be requested. If any information about the study is intentionally withheld or misleading (i.e., deception is used), a waiver of the elements of consent must be requested. Forms for requesting waivers are available at the IRB website.

16. Describe the consent process for adult participants (those who are age 18 and older).

| |
|---|
| Subjects will receive an information email. This email will include all of the elements of consent. Participation is voluntary and consent will be assumed if subjects respond the questionnaire. |

17. If your study involves minor children, please explain how parental consent will be obtained prior to enrollment of the minor(s).

| |
|---|
| N/A |

18. Please explain how assent will be obtained from minors (younger than 18 years of age), prior to their enrollment. Also, please explain if the assent process will be documented (*e.g., a simplified version of the consent form, combined with the parental informed consent document).* According to the federal regulations assent "...means a child's affirmative agreement to participate in research. Mere failure to object should not, absent affirmative agreement, be construed as assent."

| |
|---|
| N/A |

**PART G: DATA ANALYSIS**

19. Describe how the data will be analyzed (*e.g. statistical methodology, statistical evaluation, statistical measures used to evaluate results*).

| |
|---|
| Descriptive statistics such as frequencies, percentage, means, modes, medians, ranges, and standard deviations will be used to summarize the quantitative data. Correlation coefficients will be used to assess relationships between the characteristics of the students in online courses in the College of Agriculture and Life Sciences and their perceptions of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. |

**PART H: RISKS**

The concept of risk goes beyond physical risk and includes risks to participants' dignity and self-respect as well as psychological, emotional, legal, social or financial risk.

20. ☐ Yes ☒ No Is the ***probability*** of the harm or discomfort anticipated in the proposed research greater than that encountered ordinarily in daily life or during the performance of routine physical or psychological examinations or tests?

21. ☐ Yes ☒No Is the ***magnitude*** of the harm or discomfort greater than that encountered ordinarily in daily life, or during the performance of routine physical or psychological examinations or tests?

22. Describe any risks or discomforts to the participants and how they will be minimized and precautions taken. Do ***not*** respond with N/A. If you believe that there will not be risk or discomfort to participants, you must explain why.

| |
|---|
| Participation is voluntary. We do not anticipate any risks or discomforts to the subjects involved in this study. The questionnaire asks respondents to provide non-sensitive information. Participants will have the option to stop any time without penalty or negative consequences. Students will be welcomed to ask questions at any time. |

23. If this study involves vulnerable populations, including minors, pregnant women, prisoners, the cognitively impaired, or those educationally or economically disadvantaged, what additional protections will be provided to minimize risks?

| |
|---|
| N/A |

**PART I: COMPENSATION**

24. ☐ Yes ☒ No Will participants receive compensation for their participation? If yes, please explain.

Do not make the payment an inducement, only a compensation for expenses and inconvenience. If a person is to receive money or another token of appreciation for their participation, explain when it will be given and any conditions of full or partial payment. (E.g., volunteers will receive $5.00 for each of the five visits in the study or a total of $25.00 if he/she completes the study. If a participant withdraws from participation, they will receive $5.00 for each of the visits completed.) It is considered undue influence to make completion of the study the basis for compensation.

| |
|---|
| Participants will not be compensated. However, I plan to randomly select two emails from those participants who completed the survey. These participants will receive a $25 gift card. I will send a message to the participants informing them that they have been selected to receive the gift card and request that they send an email with their mailing address. |

**PART J: CONFIDENTIALITY**

25. Describe below the methods that will be used to ensure the confidentiality of data obtained. (For example, who has access to the data, where the data will be stored, security measures for web-based surveys and computer storage, how long data or specimens will be retained, anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased, etc.)

| |
|---|
| Access to the data will be limited to lead researcher, major professor, and survey administrator (key personnel). Student response to the survey will be automatically generated into an Excel spreadsheet and uploaded into SPSS. Data will be reported in summary form so as not to identify any specific individual. Once the data collection is completed student email addresses will be deleted from the database. |

**PART K: REGISTRY PROJECTS**

26. To be considered a registry: (1) the individuals must have a common condition or demonstrate common responses to questions; (2) the individuals in the registry might be contacted in the future; and (3) the names/data of the individuals in the registry might be used by investigators other than the one maintaining the registry.

☐ Yes ☒ No Does this project establish a registry?

If "yes," please provide the registry name below.

**Checklist for Attachments**

**Listed below are the types of documents that should be submitted for IRB review. Please check and attach the documents that are applicable for your study:**

☐ A copy of the informed consent document **OR** ☒ Letter of introduction containing the elements of consent
☐ A copy of the assent form if minors will be enrolled
☐ Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility
☒ Data-gathering instruments (including surveys)
☐ Recruitment fliers, phone scripts, or any other documents or materials participants will see or hear

The original signed copy of the application form and one set of accompanying materials should be submitted for review. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

**FOR IRB USE ONLY:**

Action by the Institutional Review Board (IRB):

☐ Project approved. Date: _____
☑ Project is exempt. Date: 3/15/2011
☐ Project not approved. Date: _____
☐ IRB approval is not required. Date: _____
  ☐ Project is not research according to the federal definition.
  ☐ Project does not include human subjects as defined by the federal regulations.

[redacted]
IRB Approval Signature

March 15, 2011
Date

## SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized), or human blood components, body fluids or tissues?

### PART A: HUMAN CELL LINES

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized cell lines/strains) that have been documented to be free of bloodborne pathogens? If the answer is "yes," please answer question 1 below and attach copies of the documentation.

1) Please list the specific cell lines/strains to be used, their source and description of use.

| CELL LINE | SOURCE | DESCRIPTION OF USE |
|---|---|---|
| | | |
| | | |
| | | |

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Please list the specific precautions to be followed for this project below (e.g., retractable needles used for blood draws):

| |
|---|
| N/A |

**Anyone working with human cell lines/strains that have not been documented to be free of bloodborne pathogens is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual**
(http://www.ehs.iastate.edu/cms/default.asp?action=article&ID=214)

### PART B: HUMAN BLOOD COMPONENTS, BODY FLUIDS OR TISSUES

☐ Yes ☒ No Does this project involve human blood components, body fluids or tissues? If "yes," please answer all of the questions in the "Human Blood Components, Body Fluids or Tissues" section.

1) Please list the specific human substances used, their source, amount and description of use.

| SUBSTANCE | SOURCE | AMOUNT | DESCRIPTION OF USE |
|---|---|---|---|
| *E.g., Blood* | *Normal healthy volunteers* | *2 ml* | *Approximate quantity, assays to be done.* |
| | | | |
| | | | |
| | | | |

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Specific sections to be followed for this project are:

N/A

**Anyone working with human blood components, body fluids or tissues is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual** (http://www.ehs.iastate.edu/cms/default.asp?action=article&ID=214).

# APPENDIX B: APPROVED SURVEY QUESTIONNAIRE

**The following page is the online version of the Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in College of Agriculture and Life Sciences Courses questionnaire.**

## Instructions

The following questionnaire is designed to determine your perceptions of the level of social presence, social interaction, collaborative learning, and satisfaction in online and face to face courses. There is no right or wrong answer for each question. Your opinions are what really matters.

You must be 18 years of age to complete this survey. If you are not, please exit the survey. Thank You.

## Social Presence

**1. Please reflect on your most recent online and face-to-face course experiences then indicate the extent to which you agree with the following statements.**

**Key: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| | Online | Face to Face |
|---|---|---|
| Communication in the courses was impersonal. | | |
| I felt comfortable conversing in the courses. | | |
| I felt comfortable introducing myself in the courses. | | |
| The course introductions enabled me to form a sense of the community. | | |
| I felt comfortable participating in course discussions. | | |
| The instructor created a feeling of a community. | | |
| The instructor facilitated discussion in the course. | | |
| I felt that my point of view was acknowledged by other participants in the courses. | | |
| I was able to form distinct impressions of some students in the courses. | | |

## Social Interaction

**2. Please reflect on your most recent online and face-to-face course experiences then indicate the extent to which you agree with the following statements.**

**Key: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| | Online | Face to Face |
|---|---|---|
| Courses are an excellent means for social interaction. | | |
| I felt comfortable interacting with other students in the courses. | | |
| The amount of interaction with other students in the courses was appropriate. | | |
| The quality of interaction with other students in the courses was appropriate. | | |
| The amount of interaction with instructor in the courses was appropriate. | | |
| The quality of interaction with instructor in the courses was appropriate. | | |

## Collaborative Learning

**3. Please reflect on your most recent online and face-to-face course experiences then indicate the extent to which you agree with the following statements.**

**Key: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| | Online | Face to Face |
|---|---|---|
| I felt part of a learning community in my courses. | | |
| I actively exchanged ideas in my courses. | | |
| I was able to develop new skills and knowledge from other members in my courses. | | |
| I was able to develop problem solving skills through peer collaboration. | | |
| Collaborative learning in my courses was effective. | | |
| Collaborative learning in my courses was time-consuming. | | |
| Overall, I am satisfied with my collaborative learning experience in the courses. | | |

## Satisfaction

**4. Please reflect on your most recent online and face-to-face course experiences then indicate the extent to which you agree with the following statements.**

**Key: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| | Online | Face to Face |
|---|---|---|
| I was able to learn in the courses. | | |
| I was able to learn from course discussions. | | |
| I was stimulated to do additional reading or research on topics discussed in the courses. | | |
| Discussions assisted me in understanding other points of view. | | |
| As a result of my experience in the course I have made acquaintances from other parts of the world. | | |
| The courses were a useful learning experience. | | |
| The diversity of topics in the courses prompted me to participate in the discussions. | | |
| My level of learning that took place in this course was of the highest quality. | | |
| Overall, the learning activities and assignments of this course met my learning expectations. | | |
| Overall, the instructor for this course met my learning expectations. | | |
| Overall, this course met my learning expectations. | | |

## Your Online Learning Experience

**5. Please reflect on your most recent online experience then indicate the extent to which you agree with the following statements.**

**Key: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| | Online |
|---|---|
| As a result of my experience with online courses, I would like to participate in online courses in the future. | |
| I put a great deal of effort to learn WebCT in order to participate in the course. | |
| I felt comfortable conversing through text-based mediums. | |
| Online course messages convey feeling. | |
| Online course messages convey emotion. | |
| Using online course messages is a pleasant way to communicate with others. | |
| The language people use to express themselves in online communication is stimulating. | |
| The language that I used to express myself in online communication is easily understood. | |
| Online courses are technically reliable. | |
| Online courses allow me to build more caring social relationships than face-to-face course. | |
| Online learning environments are better than face–to-face learning environments. | |

**6. How many online courses have you taken so far?**

**7. To provide interaction, instructors often times utilize educational technologies to encourage student interaction. Please indicate the technologies that were used in your most recent online course and whether of use of the technology was beneficial to your learning in the course.**

| | Used in Course? | Beneficial to your learning? |
|---|---|---|
| Video with PowerPoint | | |
| Audio with PowerPoint | | |
| Audio only | | |
| Keyboard chat | | |
| Threaded discussions | | |
| Live real time video | | |
| Live real time audio | | |

**8. Should the College of Agriculture and Life Sciences offer more online courses?**

◯ Yes

◯ No

## Demographics

**9. What is your gender?**

- ◯ Female
- ◯ Male

**10. What is your age? (years)**

[ ]

**11. What is your classification?**

- ◯ Freshman
- ◯ Sophomore
- ◯ Junior
- ◯ Senior
- ◯ Masters Student
- ◯ Doctoral Student

**12. What is your major?**

[ ]

**13. What is your predominant ethnic background?**

- ◯ African-American
- ◯ Asian/Pacific Islander
- ◯ Caucasian
- ◯ Latino
- ◯ Other (please specify)

[ ]

Thank you for your participation.

**The following page is the email version of the Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in College of Agriculture and Life Science Courses questionnaire.**

**Social Presence, Social Interaction, Collaborative Learning, and Satisfaction in College of Agriculture and Life Science Courses**

**Instructions:** The following questionnaire is designed to determine your perceptions of the level of social presence, social interaction, collaborative learning, and satisfaction in online and face-to-face courses. There is no right or wrong answer for each question. Your opinions are what really matters.

Please reflect on your most recent online and face-to-face course experiences and then indicate the extent to which you agree or disagree with each of the following statements. Please indicate your response by highlighting your answer. Below I have provided an example of a highlighted response for your reference. After completing the questionnaire please save the file and email your completed response as an attachment to lrspears@iastate.edu.

**Key**
**SD=Strongly Disagree**
**D=Disagree**
**U=Uncertain**
**A=Agree**
**SA=Strongly Agree**

**Example:**

| **Social Presence** | **Online** | | | | | **Face to Face** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Communication in the courses was important. | SD | D | U | A | SA | SD | D | U | A | SA |

**Note: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| Social Presence | Online | | | | | Face to Face | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Communication in the courses was impersonal. | SD | D | U | A | SA | SD | D | U | A | SA |
| 2. I felt comfortable conversing in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 3. I felt comfortable introducing myself in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 4. The course introductions enabled me to form a sense of the community. | SD | D | U | A | SA | SD | D | U | A | SA |
| 5. I felt comfortable participating in course discussions. | SD | D | U | A | SA | SD | D | U | A | SA |
| 6. The instructor created a feeling of community. | SD | D | U | A | SA | SD | D | U | A | SA |
| 7. The instructor facilitated discussion in the course. | SD | D | U | A | SA | SD | D | U | A | SA |
| 8. I felt that my point of view was acknowledged by other students in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 9. I was able to form distinct impressions of some students in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |

| Social Interaction | Online | | | | | Face to Face | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 10. Courses are an excellent means for social interaction. | SD | D | U | A | SA | SD | D | U | A | SA |
| 11. I felt comfortable interacting with other students in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 12. The amount of interaction with other students in the courses was appropriate. | SD | D | U | A | SA | SD | D | U | A | SA |
| 13. The quality of interaction with other students in the courses was appropriate. | SD | D | U | A | SA | SD | D | U | A | SA |
| 14. The amount of interaction with instructors in the courses was appropriate. | SD | D | U | A | SA | SD | D | U | A | SA |
| 15. The quality of interaction with instructors in the courses was appropriate. | SD | D | U | A | SA | SD | D | U | A | SA |

**Note: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| Collaborative Learning | Online | | | | | Face to Face | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 16. I felt part of a learning community in my courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 17. I actively exchanged ideas in my courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 18. I was able to develop new skills and knowledge from other members in my courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 19. I was able to develop problem solving skills through peer collaboration. | SD | D | U | A | SA | SD | D | U | A | SA |
| 20. Collaborative learning in my courses was effective. | SD | D | U | A | SA | SD | D | U | A | SA |
| 21. Collaborative learning in my courses was time-consuming. | SD | D | U | A | SA | SD | D | U | A | SA |
| 22. Overall, I am satisfied with my collaborative learning experience in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |

| Satisfaction | Online | | | | | Face to Face | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 23. I was able to learn in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 24. I was able to learn from course discussions. | SD | D | U | A | SA | SD | D | U | A | SA |
| 25. I was stimulated to do additional reading or research on topics discussed in the courses. | SD | D | U | A | SA | SD | D | U | A | SA |
| 26. Discussions assisted me in understanding other points of view. | SD | D | U | A | SA | SD | D | U | A | SA |
| 27. As a result of my experience in the course I have made acquaintances from other parts of the world. | SD | D | U | A | SA | SD | D | U | A | SA |
| 28. The courses were a useful learning experience. | SD | D | U | A | SA | SD | D | U | A | SA |
| 29. The diversity of topics in the courses prompted me to participate in the discussions. | SD | D | U | A | SA | SD | D | U | A | SA |
| 30. My level of learning that took place in this course was of the highest quality. | SD | D | U | A | SA | SD | D | U | A | SA |
| 31. Overall, the learning activities and assignments of this course met my learning expectations. | SD | D | U | A | SA | SD | D | U | A | SA |
| 32. Overall, the instructor for this course met my learning expectations. | SD | D | U | A | SA | SD | D | U | A | SA |
| 33. Overall, this course met my learning expectations. | SD | D | U | A | SA | SD | D | U | A | SA |

Please reflect on your most recent online experience, and then indicate the extent to which you agree or disagree with each of the following statements. Please highlight your responses.

**Note: SD=Strongly Disagree; D=Disagree; U=Uncertain; A=Agree; SA=Strongly Agree**

| **Your Online Learning Experience** | **Online** | | | | |
|---|---|---|---|---|---|
| 34. As a result of my experience with online courses, I would like to participate in online courses in the future. | SD | D | U | A | SA |
| 35. I put a great deal of effort to learn WebCT in order to participate in the course. | SD | D | U | A | SA |
| 36. I felt comfortable conversing through text-based mediums. | SD | D | U | A | SA |
| 37. Online course messages convey feeling. | SD | D | U | A | SA |
| 38. Online course messages convey emotion. | | | | | |
| 39. Using online course messages is a pleasant way to communicate with others. | SD | D | U | A | SA |
| 40. The language people use to express themselves in online communication is stimulating. | SD | D | U | A | SA |
| 41. The language that I used to express myself in online communication is easily understood. | SD | D | U | A | SA |
| 42. Online courses are technically reliable. | SD | D | U | A | SA |
| 43. Online courses allow me to build more caring social relationships than face-to-face courses. | SD | D | U | A | SA |
| 44. Online learning environments are better than face–to-face learning environments. | SD | D | U | A | SA |

45. How many online courses have you taken so far? Please type your answer here:

46. To provide interaction, instructors often utilize educational technologies to encourage student interaction. Please indicate the technologies that were used in your most recent online course and whether of use of the technology was beneficial to your learning in the course. Please highlight your responses.

| Technology | Used in Course? | | Beneficial to learning? | |
|---|---|---|---|---|
| Video with PowerPoint | Yes | No | Yes | No |
| Audio with PowerPoint | Yes | No | Yes | No |
| Audio only | Yes | No | Yes | No |
| Keyboard chat | Yes | No | | No |
| Threaded discussions | Yes | No | Yes | No |
| Live real time video | Yes | No | Yes | No |
| Live real time audio | Yes | No | Yes | No |

47. Should the College of Agriculture and Life Sciences offer more online courses? Please highlight your response.
    Yes
    No

**Demographics**

48. What is your gender? Please highlight your response.
Female
Male

49. What is your age in years? Please type your response here:

50. What is your classification? Please highlight your response.
Freshman
Sophomore
Junior
Senior
Master's Student
Doctoral Student

51. What is your major? Please type your response here:

52. What is your predominant ethnic background? Please highlight your response.
African-American
Asian/Pacific Islander
Caucasian
Latino
Other

**Thank you for your participation. Please save the file and email your completed response as an attachment to lrspears@iastate.edu.**

# APPENDIX C: CORRESPONDENCE WITH PARTICIPANTS

ISU IRB # 1 10-574
EXEMPT DATE: 15 March 2011

**FIRST CONTACT-PRE NOTICE**
Email

Date

Dear Student,

Within the next couple of days you will be receiving a brief questionnaire for an important research project being conducted at Iowa State University by the College of Agriculture and Life Sciences. You must be 18 years or older to participate in this study. Data from this survey will be used by Iowa State University faculty in understanding key elements of online learning.

We are sending this email in advance because we know that many people like to know ahead of time that they will be asked to participate in a survey. Thank you in advance for your time and consideration. It is only with the generous help of students like you that our research can be successful.

By completing the questionnaire you will help ensure that we have the best information possible. At the completion of the questionnaire you will also be entered into a drawing for a chance to win 1 of 2 $25 gift cards.

For further information about the study contact LaJoy Spears, (859) 329-1156, lrspears@iastate.edu or Greg Miller, (515) 294-2583, gsmiller@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Responsible Research, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

Sincerely,

LaJoy Spears, Ph.D Student; Dr. Greg Miller, Professor
Iowa State University
Curtiss Hall
Ames, IA 50011

ISU IRB # 1 10-574
EXEMPT DATE: 15 March 2011

**SECOND CONTACT- Information Letter**

Email

Date

Dear Student,

I am writing to ask for help with a very important study being conducted at Iowa State University. The purpose of this study is to gather data that will be used by Iowa State University faculty in understanding social presence, social interaction, collaborative learning and satisfaction in online and face to face courses at Iowa State University.

You were selected to participate in this study because you were enrolled in a College of Agriculture and Life Sciences online course in Fall 2010, Spring 2010, or Summer 2010. However, you must be 18 years or older to participate in this study. Your experiences and perceptions related to online and face to face courses will be highly valuable to the improvement of courses in the College of Agriculture and Life Sciences. Your response is very important and will be used to inform future decisions regarding course development. Please feel free to skip any questions that you are not comfortable answering.

Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. This questionnaire is voluntary. However, you can help us very much by taking a few minutes to share your experiences and perceptions. As a token of our appreciation for completing the questionnaire, your email address will be entered into a drawing for 1 of 2 $25 gift cards.

If you would like to participate in the questionnaire please click on the following link: http://www.surveymonkey.com/s/9KFLHNK.

Thank you very much for helping with this important study.

For further information about the study contact LaJoy Spears, (859) 329-1156, lrspears@iastate.edu or Greg Miller, (515) 294-2583, gsmiller@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Responsible Research, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

Sincerely,

LaJoy Spears, Ph.D Student; Dr. Greg Miller, Professor
Department of Agricultural Education and Studies
Iowa State University

209 Curtiss Hall
Ames, IA 50011

ISU IRB # 1 10-574
EXEMPT DATE: 15 March 2011

**THIRD CONTACT- (Reminder)**
Email

Date

Dear Student,

About a week ago I sent you an email requesting your participation in a web based survey designed to gather data that will be used by Iowa State University faculty in understanding social presence, social interaction, collaborative learning and satisfaction in online and face to face courses at Iowa State University. You must be 18 years or older to participate in this study.

If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please do so today. In case you no longer have the link to the questionnaire, I have included it again.

Link to the questionnaire: http://www.surveymonkey.com/s/9KFLHNK

For further information about the study contact LaJoy Spears, (859) 329-1156, lrspears@iastate.edu or Greg Miller, (515) 294-2583, gsmiller@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Responsible Research, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

Sincerely,

LaJoy Spears, Ph.D Student ; Dr. Greg Miller, Professor
Department of Agricultural Education and Studies
Iowa State University
209 Curtiss Hall
Ames, IA 50011

ISU IRB # 1 10-574
EXEMPT DATE: 15 March 2011

**FOURTH CONTACT (Reminder)**
Email

Date

Dear Student,

A few days ago I sent an email to that asked about your experiences and perceptions related to online and face to face courses in the College of Agriculture and Life Sciences. To the best of my knowledge, my records indicate that you have not completed the questionnaire. Because you are a student in the College of Agriculture and Life Sciences, your response is very important. You must be 18 years or older to participate in this study. I am writing again because of the importance that your questionnaire has for helping to get accurate results.

Your answers to the questionnaire will remain confidential. All results will be reported in summary form only. You will not be identified in any way. Protecting the confidentiality of your responses is very important to us and to Iowa State University. We hope that you will complete the questionnaire today. As an incentive to complete the questionnaire your email will be entered into a drawing to win 1 of 2 $25 gift cards.

I hope that you will complete the questionnaire (http://www.surveymonkey.com/s/9KFLHNK) soon.

For further information about the study contact LaJoy Spears, (859) 329-1156, lrspears@iastate.edu or Greg Miller, (515) 294-2583, gsmiller@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Responsible Research, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

Sincerely,

LaJoy Spears, Ph.D Student; Dr. Greg Miller, Professor
Department of Agricultural Education and Studies
Iowa State University
209 Curtiss Hall
Ames, IA 50011

ISU IRB # 1 10-574
EXEMPT DATE: 15 March 2011

**FIFTH CONTACT -(Final Reminder)**
Email

Date

Dear Student,

Over the course of the past few weeks I have sent you several emails about an important research study being conducted at Iowa State University. I am interested in your experiences and perceptions related to online and face to face courses in the College of Agriculture and Life Sciences.

The purpose of this study is to gather data that will be used by Iowa State University faculty in understanding social presence, social interaction, collaborative learning and satisfaction in online and face to face courses at Iowa State University. You must be 18 years or older to participate in this study.

The study is drawing to a close, and this is the last contact that will be made to those students who were enrolled in online courses in the College of Agriculture during Fall 2009, Spring 2010, and Summer 2010.

I am sending this final email because of my concern that people who have not responded may have had different experiences than those who have. This time I have attached the questionnaire in Microsoft Word format because I realize that there could be problems in connecting to the online version. Please indicate your response by bolding your answer. After completing the questionnaire please save the file. Please reply to this email (lrspears@iastate.edu) and attach the completed questionnaire.

I want to assure you that your response to this study is voluntary. If you decide to participate in the study and complete the questionnaire, your email address will be entered into a drawing for 1 of 2 $25 gift cards.

Finally, I appreciate your willingness to consider our request as I conclude this effort to better understand online learning. Thank you very much.

For further information about the study contact LaJoy Spears, (859) 329-1156, lrspears@iastate.edu or Greg Miller, (515) 294-2583, gsmiller@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Responsible Research, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

Sincerely,

LaJoy Spears, Ph.D Student; Dr. Greg Miller, Professor
Department of Agricultural Education and Studies
Iowa State University
209 Curtiss Hall
Ames, IA 50011