# A Descriptive Evaluation of Agricultural Education eLearning Courses: Students' Perspectives

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## Abstract

There has been an increasing push to utilize eLearning resources as a more active component within agricultural education due to increased presence of technology in society. Instructors must overcome the barriers to social interaction and preserve the knowledge facilitated by traditional educational environments in using technology enhanced learning environments. Means of measuring and examining student satisfaction within these environments are necessary to ensure learning is taking place. This study used quantitative research surveys to evaluate the eLearning environment and provide descriptive statistics regarding the level of student satisfaction given the current curriculum. The data from this evaluation indicated that students valued instructor support, student interaction and collaboration, and autonomy as components of satisfaction more so than active learning. Students scored the areas related to instructor interaction most highly, seeking instructor facilitation and support. The areas related to engaging with other class participants also scored highly. The students were interested in collaborating and interacting with their classmates. Future research should address the relationships between the variables and student satisfaction. The relationships determined by further study will help shape appropriate practice in terms of increasing student satisfaction.

## Introduction

As research is conducted in the distance education environment, one of the key components to evaluate is student satisfaction. Rivera and Rice (2002) found that while student performance is an integral part of the eLearning experience, simultaneous student satisfaction with the experience is also crucial for the continued success of a program. Swan (2001) found strong positive linkages between the level of student satisfaction and the program design. Further research conducted by Richardson and Swan (2003) found interaction between participants can substantially improve the level of student satisfaction when utilizing distance education as an instructional tool. Student satisfaction is positively linked to perceived learning and the number of modules contained in the course (Swan, 2001). The content and interaction necessary to maximize student satisfaction can more accurately be established by describing a course and the resulting student satisfaction within that course.

Social presence is a key element of the distance instructional method. Short et al. (1976) define social presence as the amount of one individual's communication with other individuals and the interpersonal relationships that result from this communication. Social presence has been identified as critical for the successful absorption of knowledge within the distance educational framework. The quality of the interactions is as important as the quantity of the interactions (Garrison and Cleveland-Innes, 2005). Social presence approaches in learning are both a process that guides the student and also an outcome resulting from the student's engagement as higher levels of learning emerge from comfortable communities of inquiry (Cleveland-Innes and Emes, 2005). A high degree of correlation has been established between student performance on examinations and the student's social presence in the distance course, implying that stronger social presence is a significant factor in an eLearning environment (Picciano, 2002). Students are able to mature to higher levels of achievement with less instructor interaction as social presence in the course increases (Swan, 2001).

Another component of interest is the learning environment within the asynchronous distance educational framework. Students seeking the flexibility of eLearning courses to help accomplish their educational goals should enter the course with a positive attitude. The attitude developed by students

is a direct reflection of their experiences with their initial courses and positive experiences tend to lead to greater levels of learning maturation (Brooks, 2003). Confidence building techniques such as instructor guidance through sample assignments and clear and concise instructor expectations at the beginning of the course can aid in developing a positive learning environment (Mupinga et al., 2006). In addition to establishing positive expectations and appropriate guidance, the distance environment can successfully blend traditional teaching methods with the electronic distance delivery system to provide a positive educational experience by facilitating more interactive and flexible discussions, (Swan, 2002).

Distance learning is playing an increasingly larger role as a teaching component in the field of agricultural education. Research has demonstrated that many College of Agricultural and Life Sciences faculty members lacked sufficient knowledge of the fundamentals of distance education (Stedman et al., 2011). Literature indicates that the occurrence of distance learning instruction is ubiquitous in many agricultural education departments (Roberts and Dyer, 2005). Agricultural faculty are facing increased pressure to provide online courses. Classroom students are often more satisfied with instruction than students in an online environment (Wachenheim, 2004). Student satisfaction with these courses should be routinely examined in order to ensure maximum effectiveness (Murphy, 2000; Kelsey et al., 2002; Murphrey and Dooley, 2000; Roberts et al., 2004). Many online students seek to maximize interaction with instructors and fellow students in order to gain satisfaction (VanDerZanden and Woline, 2008). Online course evaluations have shown that students value frequent instructor feedback, clearly defined expectation, course guidance, and communication within in the framework of online instruction (Schroeder-Moreno, 2010). The study was conducted to acquire descriptive statistics on student satisfaction with eLearning courses.

The theoretical framework for this study builds upon the seminal components of both social presence theory and motivational needs theory. McClelland (1987) asserts that life experiences provide the formative basis for needs, and that these generally are classified into three categories: achievement, power, and affiliation. Individual motives and behaviors are shaped by these needs. An individual seeking achievement will adopt practices that will facilitate achievement. An individual striving for power will assume behaviors that aid in the acquisition of power, while those requiring affiliation will work towards satisfactory relationships with others.

The individual usually strives for success in seeking to fill the need for achievement. An individual must be challenged while not pursuing tasks that present the probability of failure. The individual will seek constant improvement in the task to meet this need. A person with this set of needs does not work idly; rather this individual will actively search for additional challenges that will help them meet their need (McClelland, 1987).

An individual with a drive for power constantly works to direct others as a means of fulfilling their ambitions. These ambitions often consist of individual or organizational goals. The individual will look to exercise influence in accomplishing tasks and will seek out positions from which this power can be exercised. An individual will maintain the appearance of having influence in addition to pursuing their power goals (McClelland, 1987).

The last need addressed within the motivational needs framework is the need for affiliation. The individual must feel acceptance within the group by establishing positive relationships with others to fulfill the need. The individual will actively seek accord and commonality in interpersonal relationships within the group. The social acceptance and interaction component is the key to individuals with a strong need for affiliation. The ultimate goal of this need is to achieve social reciprocity between members of the group (McClelland, 1987).

Student satisfaction can be defined as the sum of individual subjective evaluation and experience, and the gap between expectations and realizations from the service received (Oliver, 1999). The innate complexity of student satisfaction means a great importance must be put on learning about its makeup. Researchers must understand the components that affect the satisfaction of students in the eLearning environment (Jurkowitsch et al., 2006). This component can most effectively be analyzed within the context of social presence theory. In order to appropriately understand and improve upon the existing eLearning framework, student satisfaction, the learning environment, and social presence must be evaluated to establish benchmarks for progress. The student's needs and satisfaction can be improved through this evaluation (Kara and DeShields, 2004).

Social presence theory provides insight into the student satisfaction component of the eLearning experience. Short et al. (1976) define social presence as the salience level of one person's communication with other people and the resulting interpersonal relationships. The three components of social presence in the eLearning environment are interactivity, social context, and online communication. The components

revolve around communication styles, activities, and the establishment of social identity within the context of eLearning (Tu and McIssac, 2002).

This study was a part of a larger study to assess graduate student's perceptions of the learning environment, social presence, and satisfaction with agricultural education eLearning courses at Texas A&M. More specifically, this study sought to:

1. Describe students' learning environment in eLearning courses;

2. Describe students' social presence in eLearning courses; and

3. Describe students' satisfaction in eLearning courses.

The existing framework for the eLearning environment can be validated and quantified by describing students' learning environment in eLearning courses. This aspect also provided benchmark measurements against which the social presence and satisfaction components could be evaluated. Social presence plays a vital role in students' learning abilities. The study sought to establish current levels of social presence and identify those areas in which it could be improved. The overall student satisfaction with eLearning courses was evaluated to determine the current status of the learning style and establish the need for further refinement.

An evaluation must be conducted that can provide the necessary information to document the students' experiences to properly describe the key elements of eLearning. When conducting this research it is also necessary to incorporate stakeholders into the process. Stufflebeam (1973) identified the stakeholders as individuals who both participate in the evaluation and also use the results. An objective evaluation based on the Context, Input, Process, and Product (CIPP) evaluation model was selected to accomplish this task (Stufflebeam, 1973). This model's goal is to collect data about a population and its surrounding environment while the input component will evaluate the program and its capabilities for achieving the objectives to address the context component. The process evaluation requires a constant evaluation of the experience for the duration of the process, thus capturing observable incidental impacts. The product evaluation will measure and assess the program's achievements (Stufflebeam, 2000).

## Materials and Methods

The term eLearning was to describe distance and online courses for the purpose of this study.

The study's objectives were analyzed through the use of descriptive statistics. Agresti and Finlay (2009) wrote that descriptive statistics display the characteristics of different groups and allow a determination of attitudes towards a specific variable. Descriptive statistics are an approach to arrange data into frequency distributions and deliver a picture of the data that can be used to perform quantitative analysis (Agresti and Finlay, 2009; Black, 2001). Further, descriptive statistics allow researchers to provide general information about a particular group using a dataset (Black, 2001). This study was deemed exempt by the TAMU Institutional Review Board, and was assigned protocol number 2010-0936.

Quantitative research served as the methodology used to assist the researcher in ascertaining the answer to the research questions. Fraenkel et al. (2012) indicated that quantitative research is developed prior to the study, utilizes deductive reasoning to examine theories, employs standardized measurements, and analyzes numerical data.

The population in this study was graduate students enrolled in agricultural education eLearning courses at Texas A&M. This study was conducted as a census, as the entire population (N = 164) was surveyed. Fraenkel et al. (2012) indicated that employing a census enables researchers to eliminate potential errors related to sampling. The results allow the researchers to generalize the findings to the target population.

Two previous surveys and demographic questions were used by the researcher to create a 48 item instrument to address the study's objectives. Graduate student satisfaction in eLearning courses was obtained by using the Distance Education Learning Environment Survey and the Social Presence Scale. A team of distance learning researchers at Texas A&M analyzed the content and face validity of the instrument. The combined instrument's reliability was calculated *ex post facto* to be α = .88, resulting in a high degree of internal consistency (Cronbach, 1951).

The Distance Education Learning Environment Survey was used in previous research to assess graduate student's perceptions of the learning environment in eLearning courses (Cuthrell and Lyon, 2007; Walker and Fraser, 2005). The Distance Education Learning Environment Survey (DELES) used the following constructs: instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy (Fraser, 2002). The Distance Education Learning Environment Survey was made up of thirty-four items for participants to assess the eLearning environment. The instrument had the following anchors: 5 = always, 4 = often, 3 = sometimes, 2 = seldom, 1 = never.

The Social Presence Scale contained fourteen items for participants to measure the instructor's immediacy. As such, it had the following anchors: 5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, and 1 = strongly disagree. Undergraduate and graduate students enrolled in online courses have been examined in studies using the Social Presence Scale (Cobb, 2009; Richardson and Swan, 2003) and its *ex post facto* internal consistency was calculated at α = .94 for this study.

Qualtrics™ was used to administer a web-based questionnaire. The Tailored Design Method for creating and disseminating an electronic survey was utilized by the researchers (Dillman et al., 2009). Initially, participants received an email notification of the study. Two days later, participants received an email that included a link to the questionnaire in Qualtrics™. Two different email notices, each one week apart, were emailed to non-respondents. One hundred sixty-four participants received the questionnaire, and 118 participants responded resulting in a 71.9% response rate (*n* = 118) in the study. Nine questionnaires were eliminated from the study due to incomplete information, reducing the number of usable responses to 109. Early and late respondents were analyzed to assess non-response error and no significant differences existed between the two groups. This allowed the results to be generalized to the target population (Lindner et al., 2001).

The objectives were examined through the use of descriptive statistics. Black (2001) stated that descriptive statistics allow researchers to provide general information about a particular group from the gathered data. The information given by descriptive statistics is not dependent on whether population inferences are pursued. Descriptive statistics create a picture of the data that researchers can use to form a basis for quantitative analysis (Black, 2001).

The majority of participants were female (*n* = 73, 66.97%), white (*n* = 97, 88.99%), between 25 to 34 years old (*n* = 69, 63.30%), and lived in the College Station area (*n* = 61, 55.96%). The study was as an evaluation of student satisfaction at a single institution's graduate eLearning program.

## Results and Discussion

The first objective of the study was to describe graduate students' learning environment, social presence, and satisfaction in distance courses. Instructor support (*M* = 4.28, SD = .63), student interaction and collaboration (*M* = 4.16, SD = .97), and student autonomy (*M* = 4.01, SD = .79) received the highest scores for learning environment. Active

learning (*M* = 2.92, SD = .53) earned the lowest score from participants (see Table 1).

**Table 1. Descriptive Statistics for Student's Learning Environment in eLearning Courses**

| Constructs | N | M | SD |
|---|---|---|---|
| Instructor Support | 109 | 4.28 | .63 |
| Student Interaction and Collaboration | 109 | 4.16 | .97 |
| Student Autonomy | 109 | 4.01 | .79 |
| Authentic Learning | 109 | 3.86 | .90 |
| Personal Relevance | 109 | 3.43 | .63 |
| Active Learning | 109 | 2.92 | .53 |

Scale: 5 = *always*, 4 = *often*, 3 = *sometimes*, 2 = *seldom*, 1 = *never*.

Describing student's social presence in distance courses was part of the study's second objective (see Table 2). The items that received the highest scores were "instructor facilitated discussion in the course" (*M* = 4.44, SD = .75), "I felt comfortable interacting with other participants in the online course" (*M* = 4.37, SD = .82), "I felt comfortable participating in the course discussions" (*M* = 4.23, SD = .79), "I felt comfortable conversing through this text-based medium" (*M* = 4.19, SD = .92), "computer-mediated communication is an excellent medium for social interaction" (*M* = 4.14, SD = .95), and "the instructor created a feeling of an online community" (*M* = 4.04, SD = .76) earned the highest score of the items in the Social Presence Scale. The item that received the lowest score was "messages in the online course were impersonal" (*M* = 2.51, SD = .91).

**Table 2. Descriptive Statistics for Student's Social Presence in eLearning Courses**

| Items | N | M | SD |
|---|---|---|---|
| The instructor facilitated discussions in the course. | 109 | 4.44 | .75 |
| I felt comfortable interacting with other participants in the online course. | 109 | 4.37 | .82 |
| I felt comfortable participating in the course discussions. | 109 | 4.23 | .79 |
| I felt comfortable conversing through this text-based medium. | 109 | 4.19 | .92 |
| Computer-mediated communication is an excellent medium for social interaction. | 109 | 4.14 | .95 |
| The instructor created a feeling of an online community. | 109 | 4.04 | .88 |
| I was able to form distinct individual impressions of some course participants even though we communicated only via a text-based medium. | 109 | 3.96 | .76 |
| The introductions enabled me to form a sense of online community. | 109 | 3.91 | .62 |
| Discussions using the medium of computer-mediated communication tend to be more impersonal than face-to-face discussions. | 109 | 3.89 | .73 |
| I felt my point of view was acknowledged by other participants in the course | 109 | 3.68 | .74 |
| I felt comfortable introducing myself in the online course. | 109 | 3.63 | .70 |
| Computer-mediated communication is more impersonal than video teleconference discussions. | 109 | 3.41 | .59 |
| Computer-mediated communication is more impersonal than audio teleconference discussions. | 109 | 3.36 | .67 |
| Messages in the online course were impersonal. | 109 | 2.51 | .91 |

Scale: 5 = *strongly agree*, 4 = *agree*, 3 = *uncertain*, 2 = *disagree*, and 1 = *strongly disagree*.

## A Descriptive Evaluation

| Table 3. Descriptive Statistics for Student's Satisfaction with eLearning Courses | | | |
|---|---|---|---|
| Items | N | M | SD |
| I am satisfied with this program. | 109 | 4.54 | .58 |
| Distance education is worth my time. | 109 | 4.23 | .62 |
| I enjoy studying by distance. | 109 | 4.09 | .66 |
| Distance education is stimulating. | 109 | 3.67 | .73 |
| Distance education is exciting. | 109 | 3.56 | .84 |
| I look forward to learning by distance. | 109 | 3.42 | .75 |
| I prefer distance education. | 109 | 3.18 | .79 |
| Scale: 5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, and 1 = strongly disagree. | | | |

The third objective of the study sought to describe student's satisfaction in eLearning courses (see Table 3). The items that earned the highest scores were "I am satisfied with this program" ($M = 4.54$, SD = .58), "distance education is worth my time" ($M = 4.23$, SD = .62), and "I enjoy studying by distance" ($M = 4.09$, SD = .66). The item that earned the lowest score was "I prefer distance education" ($M = 3.18$, SD = .79). Participant demographics were not found to be significant regarding their satisfaction in distance courses. The findings of this evaluation were limited in scope and were therefore not generalizable. The results do offer insight on the variance to explain graduate eLearning student satisfaction.

## Summary

The findings of this study support the application of both McClelland's Motivational Needs Theory and Social Presence Theory as presented by the researchers. McClelland (1987) hypothesized needs are developed throughout an individual's life and fall into three main areas, achievement, affiliation, and power. The resulting scores for multiple areas were consistent with the three needs: achievement, affiliation, and power.

The desire for instructor support aligned with the need for achievement. McClelland (1987) wrote those with a high need for achievement will seek to improve on tasks. A student's desire for instructor support is part of the process on improving on course tasks. The scores for interaction and collaboration with students supported McClelland's theory of need for affiliation.

The need for affiliation is typified for a desire to work together in a mutually beneficial relationship (McClelland, 1987). The desire for student autonomy sustained the need for power. A need for power is marked by a need for an individual to have the power to direct the individual or others to achieve a goal or goals (McClelland, 1987). The scores for student autonomy indicate that the student needs to maintain a certain amount of power in a distance learning course.

The students' scores also supported social presence theory. This theory evaluates the salience of an individual's communication with other individuals and their interpersonal relationships (Short et al., 1976). Tu and McIssac (2002) wrote that three dimensions of social presence theory in distance learning environments are interactivity, social context, and online communication.

Distance learning students' scores for instructor support and student interaction and collaboration lined up with the interactivity dimensions. The interactivity dimension deals with communication styles and engaged activities (Tu and McIssac, 2002). The interaction with the instructor and fellow students supports the communication aspect of this dimension. Social context encompasses such areas as privacy, relationships, and social processes (Tu, 2001).

The scores for instructor support and student interaction and collaboration align the areas of relationships and social processes within the context of social presence theory. The scores for student autonomy follow the privacy aspect of this dimension. Walther (1992) wrote that online communication can be furthered for an individual by developing an identity and connection with online participants. The scores for student interaction and collaboration support the connection aspect of this dimension while student autonomy scores support the identity development aspect.

Future research should address the relationships between the variables discussed in this study in order to improve and streamline the eLearning framework. Research should be designed to determine if an increase social presence in eLearning environments leads to an increase in student satisfaction. The increasing use of eLearning environments in agricultural education implies that instructors will need to be cognizant of the effects of social presence on student satisfaction. Instructors in eLearning environments must utilize appropriate methods at their disposal to increase student satisfaction.

Future practice should include an emphasis on the constructs that received higher student scores. Instructor involvement in the eLearning environment received high scores from students in terms of student satisfaction. Instructors should ensure that they are available for student support and interaction. Students also derived satisfaction from collaborating with other students. Instructors in eLearning courses should seek to ensure and increase student collaboration and interaction. An eLearning course with an emphasis on these aspects should achieve a significant degree of student satisfaction. The results of this study offer agricultural faculty an idea of what drives student satisfaction in an eLearning environment. The information gathered from this study can help in

creating eLearning environments that support learning through student satisfaction.

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