

AGRICULTURAL EDUCATION AT A DISTANCE: LET'S HEAR FROM THE STUDENTS

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Abstract

The purpose of this study was to describe student satisfaction with Texas A&M and Texas Tech University's joint Doc-at-a-Distance program. Using qualitative methods, it was found that all 18 students were satisfied with the program for various reasons. The convenience of the program allowed students to maintain their lifestyle while earning an advanced degree. The instructional design, faculty, and cohort group were all very satisfying to the students. Students were dissatisfied with isolation, inaccessible resources and educational materials, lack of an agricultural communications curriculum, registration and technology problems, and amount of time required to complete course requirements. Five students specifically mentioned that technical difficulties were problematic and called for improvements. Students reported they received excellent support from their employers and families. Community support was less important or measurable. Students' recommendations to improve the program included making the technology more user friendly and increased training for managing the technology. It was concluded that student-identified variables for satisfaction and dissatisfaction were consistent with the literature. Although not mentioned in the literature as a variable for satisfaction, convenience of the program was especially important to this cohort.

Introduction

As distance education becomes more accepted as a legitimate form of education, colleges and universities have attempted to meet the growing demand for courses, curriculum, and programs offered to distance learners (Lindner, Dooley, & Murphy, 2001). The National Center for Education Statistics (1999) reported that more than 50% of higher education institutions offer courses at a distance. More institutions are projected to offer such courses in the future. Distance education technology is changing how university and college instructors teach. Dooley and Murphy (2001) noted that future success of Colleges of Agriculture would be dependent on faculty members' ability to use technology (both hard and soft) to enhance the teaching and learning process.

Responding to the changing landscape of higher education, Texas A&M University and Texas Tech University developed and delivered the first doctoral degree in agricultural education offered entirely at a distance. The joint Doctor of Agricultural Education program was approved by the Texas Higher Education Coordinating Board in 2000. The first cohort (18 men and women who were place or time bound) was admitted and began course work during fall semester 2000. The program is referred to as Doc-at-a-Distance (D@D). D@D is an Ed.D. program that provides specialized curriculum designed for agricultural professionals in Texas; a high quality learning environment that encourages discovery, integration, and application; expertise from two nationally recognized universities in agricultural education; the skills necessary for agricultural professionals to advance in their current

positions; a degree awarded jointly from both institutions; and opportunity for learners to further their professional preparation without disruption of career activities.

Theoretical Framework

The student satisfaction construct is

concerned with students' contentedness with several components of a course and can be used as a measure of effectiveness of distance courses (Biner, Dean, & Mellinger, 1994). Twelve variables have been shown to predict student satisfaction with a distance education course (Table 1).

Table 1

Variables That Predict Student Satisfaction with Distance Education Courses

Variable Studied in Predicting Student Satisfaction	Research Supports Prediction	Authors
Cognitive learning style	No	Miller & Pilcher, 2001
Motivation	Yes	Shih & Gamon, 2001
Support services	Yes	Tallman, 1994
Social presence	Yes	Gunawardena & Zittle, 1997
Technology	Yes	Pilcher & Miller, 2000
Interaction with faculty and other students	Yes	Miller, McKenna, & Ramsey, 1993; Murphy, 2000; Ritchie & Newby, 1989
Student perceptions of interaction	Yes	Fulford & Zhang, 1993
Willingness to enroll in a 2 nd DE course	Yes	St. Pierre & Olsen, 1991; Tallman, 1994
Course management	Yes	Biner, Dean, & Mellinger, 1994
At-site personnel	Yes	Biner, Dean, & Mellinger, 1994
Promptness of material delivery	Yes	Biner, Dean, & Mellinger, 1994
Instructor/Instruction	Yes	Biner, Dean, & Mellinger, 1994
Out-of-class communication with instructor	Yes	Biner, Dean, & Mellinger, 1994

Research on cognitive learning style indicated that it was not helpful in predicting student satisfaction. Miller and Pilcher (2001) showed that cognitive learning style and student satisfaction in distance courses did not differ from that of on-campus students. There were several factors; however, that were clearly shown to underlie student satisfaction with televised courses, such as motivation of the learner (Shih & Gamon, 2001), course management, at-site personnel, promptness of material delivery, the instructor and the quality of instruction, and out-of-class communication with the instructor (Biner, Dean, & Mellinger, 1994).

Tallman (1994) reported that student support services were significantly related to satisfaction. Social presence was also found to be a significant contributor to student satisfaction (Gunawardena & Zittle, 1997). Technology, or rather the difficulty encountered by students when communicating through technology, was found to be a significant variable in determining student satisfaction (Pilcher & Miller, 2000).

Interaction was a significant predictor in determining student satisfaction. Learners preferred to interact with their instructor face-to-face rather than through technology (Miller, McKenna & Ramsey, 1993; Ritchie & Newby, 1989). Murphy (2000) found that

students collocated with the instructor and students located at a distance had similar levels of satisfaction with a distance education course. Perceived (vicarious) interaction was just as important in predicting satisfaction as was actual interaction (Fulford & Zhang, 1993).

The most important single variable for predicting student satisfaction was whether or not a student would enroll in another distance education course, accounting for up to 50% of the variance in determining satisfaction with a distance course (St. Pierre & Olsen, 1991; Tallman, 1994).

Understanding the variables that affect student satisfaction with a distance course can lead to significant program improvements. Other benefits identified through empirical data on student satisfaction include (Biner, Dean, & Mellinger, 1994):

- Lower student attrition. Satisfied learners may be less likely to withdraw for nonacademic reasons.
- A greater number of referrals from enrolled students. Satisfied students are more likely to refer distance courses to family and friends.
- Greater commitment to a distance education program. Satisfied students are more likely to enroll in another distance course and/or complete their chosen program of study (Biner, Dean, & Mellinger, 1994).

Collecting data about student satisfaction with distance education courses has the potential benefit of guiding decision-making with respect to planning and providing educational services. "Higher education managers who can clearly identify and subsequently measure client-centered quality will be able to capitalize on student-based information to support their claims for resources" (Mazelan, Green, Brannigan, & Tormey, 1993, p. 77). Resource allocation decisions should be based on targeted development efforts that improve program effectiveness for students and the institution simultaneously.

Much research has focused on student satisfaction with specific distance education courses. Little is known; however, about student satisfaction with a program delivered entirely at a distance. Murphy (1997) noted that distance education programs must be student-centered in order to be successful. Satisfying student needs in distance education is critical to the success of the program. Murphy further noted that distance education programs must systematically evaluate student satisfaction with the program. The research presented here is an attempt to gauge how well the D@D program has satisfied student needs. The data for this research is part of a larger formative evaluation conducted at mid-point of the four-year D@D curriculum (Kelsey, 2001).

Purpose and Objectives

Using the variables identified in the review of literature to predict student satisfaction this study sought to understand the holistic experience of the distance learners in the D@D program. Specific objectives for this study were to:

1. Determine the level of students' satisfaction with the Doc-at-a-Distance program.
2. Determine the impact of participating in the program on students' lives.
3. Garner student-directed recommendations for improving the program.

Methods

Qualitative methods were used to collect, analyze, and interpret the data. The data consisted of telephone interviews with all participants. The population for the study included all students who had completed the inaugural year of the D@D program ($N=18$). (To protect the identity of the subjects, they are identified by number.) The program leaders initially solicited the participants by sending them a letter informing them of the study and asked for their participation. After the initial solicitation, the program planners

gave the evaluator the names, addresses, and telephone numbers of the participants. All 18 students agreed to participate in the study by engaging in a one-hour telephone interview with the researcher.

Interviews were conducted during July and August 2001. The interviews were audiotaped and transcribed verbatim. Copies of the printed transcripts were mailed back to participants for verification of accuracy. Seven transcripts were returned for corrections (1, 4, 8, 9, 11, 15, 18). All interviews adhered to a flexible interview schedule that was developed in conjunction with the purpose and objectives of the study. The researcher engaged participants in probing questions, which evolved during the interview process to explore emerging themes.

The data were analyzed and reported using commonly accepted qualitative procedures (Creswell, 1998):

1. *Organization of Data.* The interviews were tape recorded and transcribed by a professional transcriptionist, cleaned by another individual who listened to the tape of the interview and read the document for accuracy, and then loaded it into a qualitative data analysis software program called ATLAS.ti.
2. *Categorization of Data.* Categories were identified (codes) and the data were clustered into meaningful groups using ATLAS.ti as the organizational tool.
3. *Interpretation of Data.* Specific statements that fell into like clusters were examined together for specific meanings in relationship to the purpose of the study.
4. *Identification of Patterns.* The data and their interpretations were scrutinized for underlying themes and patterns that characterized the program and allowed the researcher to draw conclusions.
5. *Synthesis.* An overall portrait of students' responses was constructed where conclusions and recommendations were drawn based on the data.

Merriam (1998) recommended six *strategies* for enhancing validity in qualitative research. Students' claims were *triangulated* with program planners' claims regarding certain facts regarding the program structure and format. *Member checks* were accomplished by first mailing students a copy of their interview transcripts for verification of accuracy and, second, by mailing students a draft copy of the report for verification of findings and conclusions. No reports were returned to the researcher from students for clarification of facts. One student emailed the evaluator to express concern over confidentiality issues. One reference to this individual was removed from the report to further ensure confidentiality. Three students emailed the evaluator to report that the findings were accurate (6, 8, 11).

Draft copies of the report were also mailed to program planners for *peer examination* and feedback (P1, P2, P3, and P4). P3 telephoned the researcher on November 6, 2001 to clarify facts pertaining to the program structure presented in the report. P2 telephoned the evaluator on November 16, 2001 to discuss findings and then mailed a printed version of the draft report with minor corrections. P4 mailed comments written on the report to the evaluator on November 20, 2001. P1 mailed a printed copy of the report with corrections on November 27, 2001.

The study was conceptualized with program planners (P1, P3 and P4), adding an element of *collaborative research* to further enhance validity. *Researcher's bias* can never fully be removed from an individual; however, an awareness of personal biases was acknowledged during the study and analysis of results.

Reliability is the extent to which research findings can be replicated. Guba and Lincoln (1989, p. 236-243) suggested different terms for discussing research reliability in qualitative studies: *dependability* and *consistency*. The question then becomes whether the results were consistent with the data collected. Four criteria for judging a research study are credibility, transferability, dependability, and confirmability.

Member checking addressed *credibility* when copies of the transcripts and a draft of the report were sent to the research subjects and program planners to confirm or disconfirm emerging hypotheses. *Transferability* may be achieved by providing descriptive detail to allow others to decide if the findings are applicable to other cases. There is generally no attempt to generalize results of an evaluation study to other populations; however, some analytical generalizations can be drawn if other situations are similar to this one.

Dependability was addressed in the study by keeping detailed records of the data collection and analysis procedures. A transcript of each interview was created from the audiotape of the interview and provided to interviewees for verification or amendment. All documents and notes were retained for inspection. *Confirmability* was addressed in the study by including excerpts from the raw data that supported interpretations and conclusions drawn by the researcher.

Findings

Student Satisfaction and Dissatisfaction With the Program

All 18 students stated they were generally satisfied with the program. All but two were very satisfied, one expressing reservations that she was over-committed at work (8); thus, it was difficult for her to manage family, work, and educational responsibilities. The other student was very satisfied with the program but expressed reservations about the technology problems and the fact that this cohort was the “guinea pig” (13) group; hence, some technological and procedural problems needed to be worked out.

Reasons for satisfaction centered on the convenience of the program for students. Nine students specifically mentioned that they could maintain their current lifestyle while accomplishing their educational goals (1, 2, 3, 5, 7, 11, 14, 15, 17). Most students had children at home and needed to work to support their families, making a traditional, residence-based doctoral program an impossible dream for these students.

Eleven of the 18 students reported that the faculty at Texas A&M University (TAMU) and Texas Tech University (TTU) were critical elements of their satisfaction with the program (1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 15). Faculty were described as being enthusiastic, flexible, supportive, open, good communicators, responsive, upfront, honest, having a good rapport with students, very accommodating, willing to give of their time and attention, and helping the students feel that they wanted them to succeed in the program. The professors were credited with giving the program the “feel of education, not just the feel of a conference call” (13).

Two students specifically mentioned the cohort group as being a key component of the program for them (1, 7). Interaction and support from other students gave the program a feeling of comradeship to both students. “The cohort is trying to make sure we all get through it together” (7).

The structure of the program was an important satisfier for five students (11, 13, 14, 15, 16). One student mentioned that he liked having the program predetermined. “I don’t have to decide what class I am going to take this semester. I just send them the check” (11). Another student liked the fast pace of taking courses and working full time (13). Another student enjoyed having classes only once per week (15). Two students mentioned being able to remain gainfully employed while earning the degree as being very important to them (14, 16).

Students were asked what elements of the program were dissatisfying for them. Conflicts with work, feelings of isolation, inaccessible resource and educational materials, the lack of an agricultural communications curriculum, registration and technology problems, and the amount of time required to complete course requirements were all mentioned.

One student stated that he felt professors were “unaware that we all have full time jobs” (15) when scheduling meetings and activities for the group, causing conflicts with work. One student reported difficulty in obtaining the necessary course materials from online booksellers (12). One student expressed a need for more agricultural communications curriculum content to be offered in the program (13). One student

expressed frustration at the registration process in having to register for courses at two universities (13).

Six students mentioned the technology as being a significant dissatisfier for them (2, 7, 9, 10, 17, 18). One student explained that the professors were inexperienced at effectively using the technology and teaching at a distance; thus, the level of rigor was inconsistent from course to course (2). The other five students stated that technical difficulties and failures were problematic. Student presentations made over the Trans-Texas Video Network (TTVN) system were of inferior technical quality; submitting test questions took from 30 seconds to a minute for one student (hence, eating up his one-hour time slot for the exam); and connection failures all frustrated students.

Six students mentioned the difficulty of maintaining a full time job, a family, and earning a doctorate degree simultaneously (4, 8, 10, 11, 17, 18) as a dissatisfier; however, they were not dissatisfied with the program. One student stated that it was difficult to do the "mom detail, the wife detail, and the extension agent detail" (8).

The Impact of Participating in the Program on Students' Lives

Students were asked about the impact of participating in the Doc-at-a-Distance program on their lives. They were asked if they received adequate support from their employer, their communities, and from their families.

When asked about support from their families 13 of the 14 responses (not all 18 students responded to all of the questions) were positive (1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18). Responses ranged from a simple yes to more enthusiastic responses such as, "you bet, big time!" (4). The one negative respondent cited time away from family as a hardship that eroded the family's enthusiasm for his participation in the program (15).

The students were also asked about their perceptions of support from employers and coworkers. Thirteen of the 14 respondents stated that they were getting good support from their employers and coworkers (1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 16). Of the 13 who responded positively, most were more positive about support in the work place

than they were about support at home. One student indicated that his employer was supportive and that they took an interest in the program (14). However, one student indicated that, although her employer tried to reduce her workload, it remained a problem (8).

Thirteen respondents perceived that community support was not as important or measurable as family or employer support (1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 18). Two students stated that their communities did not know that they were in the program, so could not be supportive of their efforts (3, 6).

Sixteen of the 18 students discussed unique coping strategies they had developed to succeed in the program. These included:

- Increasing time management and organizational skills (1, 3, 5, 7, 8, 9)
- Having modern computer technology and high speed Internet access (5, 7, 9, 13)
- Having a relationship with other cohorts for support (1, 4, 12)
- Avoiding procrastination (1, 14)
- Taking a laptop computer when traveling (1)
- Asking the professors for clarification on assignments as soon as necessary (1)
- Prompt feedback from professors (1)
- Being able to be honest with the faculty about frustrations without fear of reprisal (1)
- Giving children a concrete time when mom or dad would be available for play (2)
- Overcoming perfectionism and accepting a less than perfect score on an assignment (10)

Student Recommendations for Program Improvement

Students were asked, 'if you could change one thing about the D@D program what would it be?' Thirteen students responded with a variety of suggestions for improving the program.

- Increased training using WebCT (1, 2, 8)

- Adding a live chat room to WebCT (1)
- Separate email box from WebCT (1)
- Quicker response from faculty and other students to email messages (1, 14)
- More timely feedback from faculty on assignments (7)
- Advanced notice on required course textbooks (15)
- More frequent face-to-face meetings (3)
- Reduce the length of the program from four years to two years (4)
- Reduce the cost of the program (6, 8, 11)
- Spend the last 15 minutes of the TTVN time for open discussion and question and answer (8)
- Reducing technical failure with TTVN (10, 12)
- Create a unique policy for the program so students don't have to adhere to policy from two universities (12)

Students purposely gave many recommendations for improving the program throughout the interviews. Students specifically recommended that:

- The professors should post all necessary handouts for class by at least 1:00 p.m. the day of the telecast and preferably 24 hours in advance (1, 15)
- Students should be instructed in how to use the necessary technology (WebCT and the TTVN system) in more detail prior to participating in the program (1, 3)
- The program planners should require standardized software for all participants (1, 8)
- The program planners should require standardized presentation methods for all participants (1)
- The professors should teach students how to use advanced Internet search techniques for finding and accessing appropriate literature required for course assignments (4)
- The research methods course should be taught incrementally during the

first year as mini-seminars where students are gradually introduced to concepts rather than offered as a full course (4)

- The professors should provide more structure and direction for online assignments such as appointing students to lead discussions for a predetermined amount of time (5)
- The professors should spend less time with roll call during the telecast lectures (TTVN) (6)
- TAMU and TTU should create a separate policy and infrastructure for the program to reduce red tape and assist students with meeting institutional requirements such as student loan deferments (7)
- The professors should spend the last 15 minutes of each TTVN class for unstructured discussion among the group (8, 13, 14, 15)
- The program planners should provide students with guidelines that outline the program's expectations that are not institution specific (15)

At the end of the interview, all 18 students were asked if they had any final comments. Nine students provided unsolicited feedback regarding the program. All of the comments were positive and reiterated students' appreciation for the opportunity to earn a degree at a distance (1, 2, 3, 6, 7, 8, 12, 14, 16). "It's a real privilege to be a part of the program" (1). "I think that it is one of the best thought out programs that I have ever been associated with... I do appreciate it" (6). "I think it is a very innovative program and I'm glad we have the opportunity to pursue a degree and not abandon my family and job" (7). "I do appreciate the effort that everybody is putting into this so that those of us who are out in the field... can better ourselves through a program like this" (16).

Conclusions and Recommendations

The results of the study illustrate the D@D program was effective in reaching students who were place or time bound and

offered them a highly satisfying experience. This study also confirmed findings from the majority of the literature cited. Students were very satisfied with the instructional design of the program and support from the faculty, cohort group, families, and employers (Biner, Dean, & Mellinger, 1994; Miller, McKena, & Ramsey, 1993; Ritchie & Newby, 1989; Tallman, 1994).

Significant dissatisfiers for the program were also consistent with the literature. Poorly functioning technology and inaccessible resources and educational materials served to aggravate students. Five students specifically mentioned that technical difficulties and failures were problematic and called for improvements in this area (Pilcher & Miller, 2000).

In addition, this study went beyond the literature base by adding convenience of the program as an important satisfier in distance education courses. The convenience of the program allowed students to maintain their current lifestyle while earning an advanced degree. Biner, Dean, and Mellinger (1994) reported that smaller site sizes contributed to satisfaction. This cohort preferred an ideal number of three peers present at the learning site, citing isolation as a significant dissatisfier. Although not a reflection of the program, six students were burdened by maintaining responsibilities at work, home, and earning a doctoral degree simultaneously.

Formative program evaluation should be an interwoven component of the program. Collecting periodic data will further strengthen this program and provide timely feedback to program planners and instructions regarding student satisfaction.

Students reported that the cohort dynamics were positively related to student persistence. Cohort structured adult distance education programs are rare in the literature. Gunawardena and Zittle (1997) reported on social presence as variables for student satisfaction. Future studies should more closely examine the relationship between the cohort learning environment and retention in a distance education program for adults.

A longitudinal study should be planned to examine the impact of earning a terminal degree at a distance on students' career success versus students who earned their

degree on campus. Although it may be difficult to control for age and work experience, it is important for program planners to understand the implications of earning a terminal degree at a distance on career success, assuming students are earning the degree for career advancement. Along these lines, employer perceptions of D@D graduates should be examined. Is there a perceived difference in quality of education among employers? The value of the program to the professional community should be determined.

Finally, a cost-benefit analysis should be conducted from an institutional perspective. Although the mission of the land-grant university is to serve students and provide educational access, there are real costs involved in offering degrees at a distance. What is the cost of faculty time invested in serving distance students versus the return to institutional good? Is the program disproportionately consuming resources in terms of serving all students equally? Both TAMU and TTU need to fully understand the benefits and consequences of offering a Doc-at-a-Distance.

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