

DOC@DISTANCE

Immersion in Advanced Study and Inquiry

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The purpose of this study was to examine student satisfaction with a doctoral degree offered at a distance based upon the constructs of immersion in advanced study and interaction with and through technology. The study used qualitative methods to collect, analyze, and interpret data gathered through interviews with 18 students in a doctoral cohort. Immersion in graduate study with mediated communication and access to educational resources can provide a substitute for traditional residence requirements. There was a need for more training for faculty and students on the technology interface to improve interactions with and through technology.

INTRODUCTION

Responding to the changing landscape of higher education, Texas A&M University and Texas Tech University have developed and delivered the first doctoral degree in agricultural education offered entirely at a distance. The Doc@Distance is an Ed.D. Program that provides specialized curriculum designed for agricultural professionals in Texas; a high-quality learning environment that encour-

ages discovery, integration, and application; expertise from two nationally recognized universities in agricultural education; skills necessary for agricultural professionals to advance in their current positions; degrees awarded jointly from both institutions; and opportunities to further professional preparation while continuing a career.

Immersion in advanced study and inquiry cannot occur at a distance without consideration of mediated communication to enhance

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dialog and access to educational resources (faculty, library, etc.). Thus, interactions through and with technology are a supporting construct of immersion and instructional delivery (Lindner, Kelsey, & Dooley, 2002).

THEORETICAL FRAMEWORK FOR THE STUDY

Study in residence has its roots in the European universities of the 1600s. The university practice was based on models established in monasteries of the early church. Many universities modeled their curriculum from European counterparts. A major purpose of the residence requirements for graduate degrees is to ensure that the student has an opportunity to benefit from the advantages of a university environment. These advantages include not only the accessibility of library, laboratory, and other physical facilities, but also the opportunity to participate in seminars and a variety of cultural activities. Equally important to the graduate student are the advantages of becoming acquainted with the faculty and other students on both a personal and a professional basis (Shinn, 2002).

Today, doctoral degree programs anchor the practice of study in residence in five value constructs: immersion in advanced study and inquiry, interaction with faculty members and peers, access to the educational resources of the university, interchange of knowledge with the academic community, and broadening of educational and cultural perspectives. These traditional doctoral degree programs often require two consecutive semesters of full-time course work on a campus to operationalize the concept of residence. However, distance education methodologies and digital technologies have made significant advances within the past decade, with the result that the spirit of residence can be achieved in "distance" settings. The trend toward electronically distributed education will make college a network of resources, rather than a place, while the widespread use of new technologies can be

expected to improve the quality of instruction and alter the roles and responsibilities of faculty (Shinn, 2002).

Distance educators have researched and discussed interaction as an important component for effective teaching and learning (Kelsey, 2000; Hillman, Willis, & Gunawardena, 1994; Wagner, 1994; Moore, 1989). In establishing a guiding definition of interaction in distance education, Wagner (1994) stated,

... when distance educators discuss interaction, often their focus is on the attributes and outcomes of a real-time, two-way exchange of information. Interest in technologies should focus on this ability to expand opportunities for interactive communications; however, fascination with what the technologies do often supersedes the broader issue of teaching and learning dynamics. (p. 7)

She distinguishes between interaction as a function of effective instruction, and interactivity as a function of telecommunications. This builds upon the pioneering work of Moore (1989) in his description of types of interaction (learner-content, learner-instructor, and learner-learner). Hillman, Willis, and Gunawardena (1994) contributed a fourth interaction, learner-interface, to mediate communication for the other three types of interaction.

For the Doc@Distance program, part of the "residence" requirement included interaction with faculty members and peers. Distance education technologies expand options for interaction among faculty and students. Kochery (1997) noted that by creating an environment that advocates peer interactions, social support, and interpersonal communications, cooperative learning models can help attain the sense of a learning community that is frequently lacking in distance education experiences.

Little is known, however, about immersion in advanced study in distance education, and the role that interactions with and through technology play in sustaining a graduate degree program at a distance. The research

presented here is an attempt to gauge how well the Doc@Distance program has been addressing these issues. The data for this research are part of a larger formative evaluation conducted half way through the program (Kelsey, 2001).

METHODS

The study used qualitative methods to collect, analyze, and interpret the data (Patton, 1990). The data consisted of telephone interviews with all participants and historical documents provided by the program planners.

The population for the study included all students who had completed the inaugural year of the Doc@Distance program ($N = 18$). The program leaders initially solicited the participants by sending them a letter informing them of the study and asked for their participation in a telephone interview with the researcher. All 18 students agreed to participate in the study by engaging in a one-hour telephone interview.

Interviews were collected during July and August 2001. The interviews were audiotaped and transcribed. Copies of the printed transcripts were mailed back to participants for verification of accuracy. 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 and then loaded 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 the data.* Specific statements that fell into like clusters were

examined 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, in which conclusions and recommendations were drawn based on the data presented.

Merriam (1998) recommended six strategies for enhancing validity in qualitative research. Students' claims were triangulated with program planners' claims regarding certain facts pertaining to 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.

Draft copies of the findings were also mailed to program planners for peer examination and feedback. The study was conceptualized with program planners, 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) suggested different terms for discussing research reliability in qualitative studies: *dependability* and *consistency*. The question then becomes whether the results are 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 appli-

cable 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 collected 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.

IMMERSION IN ADVANCED STUDY

One concern that the joint doctoral program faced was communicating how to immerse the learners in the academic culture that a residency requirement would satisfy in a traditional doctoral degree program. The students defined academic culture as being challenged to seek out research-based information and to think critically by solving problems using the scientific method versus using folk knowledge (3, 4). Sixteen of the 17 students who responded to this question said yes, they felt they were getting immersed in an academic culture provided by the program, but not necessarily by a campus.

Students were asked if they missed the campus environment. Only one did (8). For them, the campus environment was important during their undergraduate experience, but they had transitioned into a different life phase and were more interested in maintaining their adult responsibilities such as parenting, working full-time, and engaging with their communities (3, 10). Some addressed the reality that even if they were in residence, they would not necessarily become more academically immersed than they were in their current situation. The one student who missed being on campus said,

... but is it a necessity? No. But it would make it more fun, more interesting, more interpersonal, all of those things. But no it is not a necessity [in order to] get a [doctorate degree] and like I said, this is my only chance of doing this, and I'm very grateful (8).

She reflected that being on campus was very important to her during her freshman year of college, but not a necessity for learning and earning an advanced degree.

For this cohort, campus was a collection of buildings and meant easier access to faculty and library resources, not a place to attend cultural events, distinguished lectures, and other special events, as family and work responsibilities overshadowed this need (3). Even if the students lived in the community, they would not do more to immerse themselves in the academic culture than they had done already by attending professional conferences and engaging with the faculty in the program.

Students were asked if the program had challenged them to seek research-based information to help solve their clients' needs, knowing that most students were Cooperative Extension agents/educators or public educators who worked as high school teachers, community college instructors, or administrators. Fourteen students responded to this question; 11 said that yes, the program had taught them how to use the literature; two said that they already knew how to use the literature; and one said he would use it in the future.

Having access to the Internet has been beneficial for the distant students in accessing research-based information (3, 4). They have learned how to search more effectively the Internet for high quality information, and they also have access to the university library system where many journals are available online. Fourteen students had access to a college or university library within 60 miles of their community (1, 2, 3, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 18); however, three students (11, 12, 17) reported that they had difficulty with accessing materials from a local library due to inadequate collections and the fact that they were

more than 60 miles from a college or university library.

At the time of the interviews, the cohort and faculty had met twice as a group—once at each of the university campuses. Students were asked if they would be interested in attending more face-to-face meetings at their expense. Twelve students responded to the question and recommended between one and four meetings per year (1, 3, 4, 5, 6, 7, 11, 13, 14, 15, 16, 18).

In line with the theme of immersion in advanced study, students were asked if they had broadened their cultural perspectives while participating in the Doc@Distance program. Ten of the fifteen students who answered this question said yes (1, 3, 7, 9, 10, 11, 12, 13, 15, 18), while five said no, the program did not enrich them culturally (2, 4, 6, 8, 16).

Many university students find that interaction with peers can be as educational as with faculty. Many clubs and activities on campus facilitate student-to-student interaction. In order to simulate as much student-to-student interaction within the Doc@Distance program, students were admitted as a cohort group.

Because the students were not in residence on a university campus where they would have access to student clubs and activities, they were asked if they desired interaction with traditional on-campus students. Of the 15 students who answered this question, 11 reported that they were satisfied with their cohort group interactions and did not feel a need to interact with traditional students (1, 6, 7, 8, 9, 10, 11, 12, 14, 16, 17). One student reported that he was unsure if he wanted more interaction with traditional students (2), and three were positive about including traditional on-campus students in courses (3, 13, 15).

The sentiment among several members of the group was that the program had transformed the two campuses into a microcosm of 18 students and 11 faculty members interconnected through interactive videoconferencing and Internet-based communication. In fact, several students stated that they had not thought about interacting with on-campus stu-

dents since entering the program. The students saw themselves very differently from traditional students: as older, more mature working professionals with multiple roles and responsibilities. "I really do like this group. I feel like each one of us can relate to each other. I feel like part of it is that we are all professionals holding down jobs and at the same time going to school, and I think that makes us a little more unique in understanding of one another" (12).

Factors that directly contributed to a sense of being immersed in academia were as follows: the faculty (1, 4, 10, 12, 13, 16); attending professional research conferences (1, 4, 17); reading research-based peer-reviewed journal articles and dissertations (2, 9, 11); access to the university library and its resources online (7); getting community or work support for being in the program (9, 15); interacting with the cohort group in a scholarly fashion (10, 12); living near a university (15); and working for a university (9, 10, 16).

One student summed up the situation by stating,

... to say that we are not a research-type culture I don't think is true. Is it the same as a residency; probably not. Is that good or bad, I don't know. You know it is hard to make that kind of a comparison. But my stand is that I'm a lot more aware of the fact that this is not business as usual (5).

INTERACTIONS THROUGH AND WITH THE TECHNOLOGY

Learning at a distance requires an added layer of technical competence. Within the program, students spent approximately three hours per week involved in a synchronously delivered telecast lecture delivered through the Trans-Texas Video Network (TTVN). The students were able to interact with the professor and other students to a limited degree. Students were also required to engage in a discussion group with peers and professors through an Internet-based program called Web Course Tools (WebCT).

Students were asked whether or not they felt the balance between their synchronous and asynchronous learning time was appropriate. Thirteen felt that the balance was about right (1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14), two wanted more time for synchronous interaction with faculty and peers (15, 16), and one student was uncertain about the balance (18). Reasons cited for the good balance included the logistical complications of learning synchronously as well as the difficulty of watching the TTVN for several hours at a time.

Two of the twelve who reported that the balance was right stated that watching the broadcast on the television monitor was "exhausting" (9, 13). "We are just maxed out in three hours trying to get that sucker [TTVN] to work and talk over it" (9). "Three hours on TTVN, when you get through with it, you feel like you have just been beat" (13). One student mentioned that a few vocal individuals monopolized the TTVN time; thus, she enjoyed using the discussion group for expressing her ideas and interacting with peers and faculty (12).

Texas A&M University and Texas Tech University provided a short training session to students during the initial meeting in Lubbock, Texas, on August 8-10, 2000. During the morning session, students were introduced to WebCT and asked to send an email, take a quiz, and practice using various features of the program through guided practice with a professor. During the afternoon session, another professor presented lessons on using the video conferencing equipment and Microsoft PowerPoint. Students were required to create a brief presentation that included formatted computer graphics. Students were also given a book describing the videoconference equipment, which was in place in about 80% of the receive sites.

Students were asked if they had received adequate training for using the technology prior to learning at a distance. Seven students reported that the training was sufficient as presented and required no further instruction (3, 4, 5, 12, 14, 15, 17). "I felt like I knew a lot about technology before I went in there" (12).

Eleven students, however, reported that they had received enough training to start the program, but wished that they had received more training as time was lost during the first course when fumbling with the technology (1, 2, 6, 7, 8, 9, 10, 11, 13, 16, 18). Simple problems such as saving all files prior to attaching them in Rich Text Format (RTF) to email took weeks to solve. Several students were using WordPerfect and could not interface with Microsoft Word users. "I couldn't open a file during the first half of a semester that was not a PDF file. I couldn't trade information with my class. But I learned how to do that [in time]" (2). "[After the training] there was a pretty steep learning curve during the first couple of three weeks... things we trained on were over simplified portions versus something in the real world" (6). Other students were working with older versions of software and could not open files saved with more recent versions. Students reported that, upon reflection, they could have received more training in using the various aspects of the technology than they did.

Students were asked if they were having any difficulty managing the technology on a daily basis. At the time of the interviews, students had used the technology for 10 months and were comfortable with it. They reported that they had learned how to use WebCT to complete their assignments and had few difficulties on a daily basis (1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 14, 15, 16, 17, 18). "I've gotten better at it, and I'll tell you once you experience it, you will really like it" (5). "Once we got the kinks worked out, it has been OK" (10). At the time of the interview, one student reported still having difficulty managing the technology due to self-reported computer illiteracy (11).

Students were asked to discuss various features of the WebCT interface, such as the online discussion sessions, the ease of downloading materials and streaming video, and online exams. Students were also asked to appraise WebCT as a communication tool.

Eight students enjoyed participating in the online threaded discussion sessions (1, 2, 5, 8,

12, 13, 14, 18); four students clearly did not enjoy using the threaded discussions (6, 11, 15, 17); and five students were ambivalent about participating in the threaded discussions (3, 4, 7, 10, 16).

Those who enjoyed using the threaded discussion found that this medium provided them with added opportunities to interact with the cohort group and that they learned from the diverse viewpoints of fellow students, as long as the discussions were structured or monitored by a faculty member who kept irrelevant opinions from getting the discussion off task.

Those who did not enjoy participating in the discussions reported that they were time-consuming, confusing, impersonal, that a few students monopolized the discussion, that a few students were prone to making pronouncements unsupported by the literature, and that the technology was a barrier to participation. "It is probably one of the things that I get the least amount of satisfaction from" (17). "I find that method very, very confusing, trying to follow 17 or 18 people's thoughts on topics" (6). "They are not very personable for me" (11).

The students who were ambivalent reported that they resented the time it took to complete the required postings, but enjoyed reading some of the postings. "You may have 35 things to read... within the cohort, some people say the same thing over and over... there are a few people that dominate a little more than others" (7). "I enjoy threaded discussions, [however] I do not enjoy threaded discussion [using] WebCT" (13).

Eleven of the 18 students were asked if they were having any difficulty taking the online exams or submitting assignments through WebCT. All 11 students reported that they had no difficulty with this feature of WebCT (2, 3, 4, 5, 6, 7, 11, 12, 14, 16, 17). One student mentioned that he had difficulty until the group decided to use a common format (RTF) for submitting assignments. After that time, he had no problems downloading materials (4). Another student mentioned that initially the time allotted for taking online exams was insufficient; however, after discussing this

issue with the group, the time was extended for taking online exams (10).

Seventeen of the 18 students were asked if they used the streaming media resources. Ten reported that they did use the resources available (1, 3, 7, 8, 9, 10, 12, 15, 16, 17), and seven reported that they did not use them regularly (2, 4, 5, 6, 11, 14, 18).

Two students were very positive about using the streaming media resources (3, 7). "I found it very workable and a good break from the pure reading" (3). One student mentioned that the streaming media resources were the least educative element of the program. "As far as getting a lot out of the streaming media, I can't say that I have gotten a whole lot of what I've learned through streaming media. But it is a neat gadget" (1).

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

Although the Doc@Distance program is now beginning its third year, this formative evaluation was instrumental for the continued revision and refinement of the program. The results can serve other institutions that are developing and delivering advanced degrees at a distance.

The students in this program felt that they were immersed in the academic culture, but not with campus-based activities (clubs, organizations, cultural events). The inclusion of some face-to-face meetings and professional meetings provided appropriate interaction with faculty and peers, coupled with the use of interactive video and Web-based communication tools. The students' knowledge of and access to research-based materials was adequate for a doctoral degree program. An implication exists that residency on campus is not necessary for immersion.

Interacting with and through technology has been difficult for the students and the faculty. Interface interactions are critical for effective teaching and learning at a distance

(Hillman, Willis, & Gunawardena, 1994). The training on technology for faculty and students was not sufficient, but different hardware/software and variation in support personnel make this extremely difficult. Perhaps the program should specify certain hardware/software requirements and use assessment techniques to determine technical competence of learners prior to the start of the coursework. Although an introductory orientation program was conducted for the students, a more detailed and sustained training program is needed. This would allow students to become comfortable with the technology interface so that it is not a barrier to learning the course content.

As the current cohort is nearing completion, the Doc@Distance program is planning a new cohort in 2003. In planning for the next cohort, the program and faculty need to address the concerns and issues from this study in order to develop a sustainable program. Other areas that must be addressed are the need for dedicated time and support personnel to assist faculty and students. Ultimate success of the program may be contingent upon the ability of the program and faculty to immerse students into the academic culture, and to ensure appropriate interactions between and among students and faculty through the technology interface.

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