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In this issue:

## Challenges in Delivering Distance Education

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# Challenges in Delivering Distance Education

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## Abstract

Despite the challenges that exist with DE (Distance Education), university and faculty can provide a strong learning environment for their students if they understand and mitigate the challenges of the DE program. This paper describes a case study of a DE program that offers classroom instruction for multiple sites that are connected using a telecommunication medium. Additionally, the paper describes challenges that are encountered with DE classes and how faculty can improve these classes by understanding and mitigating these challenges. These challenges include institutional support, student interaction, and quality of instructional information, content delivery, and technology. The paper concludes with a discussion of the case study and recommendations for improving DE.

**Keywords:** University, Faculty, DE, Classroom, Telecommunication, learning

## 1. INTRODUCTION

Distance Education (DE) has been a hot topic for educators and universities. However, many challenges exist on how DE should be delivered (Egbert, 2000). Faculty are tasked with converting their traditional classroom instruction into one that is delivered to two or more classrooms that are connected using telecommunications. In addition to this, both students and faculty need to overcome these challenges to ensure that the DE is equal to or more effective than traditional classroom education. The issue leading to this case study was that university administrators, faculty, and students were not familiar with the various challenges of Interactive television (ITV) DE and how to overcome these challenges. Once the university, faculty, and students understand these challenges, they can plan to mitigate these challenges and afford an effective educational opportunity for their students.

This case study was conducted on a small rural university located in the mid-Atlantic area. This university utilized various technologies for DE including blackboard and ITV. For this case study, the author chose to focus on DE at the university under study in the form of ITV. The paper will provide a

detailed description of the DE environment, with DE, and methods on improving DE.

## 2. DISTANCE EDUCATION

### Classroom Format

Universities that offer DE utilize two or more sites with unique technological configurations. However, each configuration follows a basic environment setup and incorporates additional technology to enhance the learning experience. In recent years, technological improvements have helped faculty and universities to improve the delivery of classroom instruction and improve the communication channel among remote sites. A site where the professor is located are called the local site and the other site(s) are referred to as the remote site(s).

A mid-Atlantic University deployed a revised DE landscape that replaced one that was in use for approximately 10 years. The previous technology connected two campuses that existed over 30 miles from one another. Each site had five televisions that displayed the teacher and the students at the site, the whiteboard at the site, an overhead projector, and the instructor computer at either site. Students were seated at a table that

accommodated 6-8 students. A microphone was placed on each table between every two students. The microphone was only operational when the student held in the button. After a few second delay, the microphone became active and the camera refocused on those two students so anyone at either location could see and hear that student. The instructor had a microphone on his desk that was active throughout the class so that the students could hear the teacher without interruption. A pictorial touchpad was given to the instructor to control the volume, camera adjustment, and input selection. While the system was pivotal to provide DE, it posed concerns with audio / video communication and equipment malfunction.

After 10 years of utilizing this system, the university upgraded the DE environment with new and upgraded equipment that resolved the issues identified in the previous system. This landscape replaced the CRT televisions with LCD televisions to reduce any glare and improve the video quality. The touchpad was replaced with a touch screen display that provided the same functionality as the previous touchpad with upgraded features including one that allowed the instructor to control what input was displayed on each individual television. Additionally, the individual microphones were removed and replaced with microphones strategically installed in the ceiling. These microphones were continuously active throughout class unless they were muted from the instructor's touch screen display. Lastly, the system incorporated a computer as an additional input for the instructor that could also be chosen displayed on the televisions.

### **Challenges of Distance Education**

A DE system can encounter numerous constraints and challenges if the system is not used properly or malfunctions. If these challenges are not properly considered, then classroom instruction will not be effective and will pose a risk on the student learning. The challenges can be categorized as faculty challenges or content delivery challenges.

The first faculty challenge is associated with the level of Institutional support. In some cases, universities do not provide proper salary compensation, promotion, workload adjustment, or formalized training. A survey conducted by the National Education Associa-

tion (NEA) in 2000 reported that 63% of instructors are not given additional compensation for teaching a DE class (Bower, 2001). Faculty are sometimes required to teach DE learning without this activity counting towards a promotion or tenure. The additional time needed to teach this class takes away from the available time that faculty can perform activities that count towards tenure. The NEA concluded that 84% of faculty did not receive some form of workload adjustment for teaching DE, which also reduces the time needed to perform other job required duties (Bower, 2001). Lastly, the National Center for Education Statistics reported in 1997 that 40% of universities do not provide training on DE for their faculty (Bower, 2001). Without proper training, faculty will not utilize the DE technology to its maximum benefit.

The second faculty challenge encompasses the interaction with the students and the quality of information that is taught. When an instructor teaches from a remote site, they are restricted by the actions of the camera (Bower, 2001). The instructor will have limited or no knowledge of their remote site based upon the reach and span of the camera. The limited interpersonal contact can also create issues from the student's perspective that will be discussed later in this section. Many faculty struggle with the quality component of their instruction. The idea of distance learning is to ensure that the quality delivered in traditional classroom training is maintained or enhanced (Bower, 2001). In some cases, the quality of the lecture is compromised due to a lack of training or technical issues.

Spodick (1995) describes two challenges related to the content delivery and technology. The first is the loss of content using technology where an instructor simply uses PowerPoint slides to deliver the education (Spodick, 1995). In this situation, the instructor would simply provide information rather than provide education. A professor could rely on reading information from PowerPoint slides rather than provide concrete examples that help explain the course content. The second challenge is related to the technological illiteracy of the faculty and students. This challenge can lead to frustration on the faculty and students that causes delays in providing classroom instruction. Additionally, faculty who are not familiar with this technology

may not use it to enhance their lecture and in failing to do so, they jeopardize the quality of the lecture.

### **Improving Distance Education**

Willis (2009) discusses ways to overcome these challenges that can help improve the quality and effectiveness of DE classes. The first improvement is for the faculty to motivate the students. This goal is accomplished when faculty provide consistent / timely feedback, encourage discussions, are well prepared, and encouraging effective study habits (Willis, 2009). The second improvement is for the faculty to encourage students to share their learning goals and objectives, which will increase motivation and provide a more meaningful learning experience for the students. The third improvement is to maintain and increase the student's self-esteem. Since students may be fearful of not having an instructor at their local site, instructors need to reinforce their support by providing communication channels to ensure that student questions and concerns can be answered promptly (Willis, 2009). This support structure will reinforce that the students are not abandoned while an instructor is not physically present at their location.

The fourth and fifth improvements require the instructor to clarify the content and ensure the content relates to the students. Clarifying the content can be accomplished through examinations and in class presentations where the students illustrate their learned concepts. By doing this, the instructor can gauge if the students are grasping the course content and act accordingly to address any concerns. A method to clarify content is by providing examples for the students. Learning is enhanced when the instructor provides examples that relate to the students (Willis, 2009). Instructors can accomplish this by encouraging the students to develop examples that are relevant to them.

### **3. METHODOLOGY**

As mentioned earlier, this case study was conducted at a small rural university located in the mid-Atlantic region. The researcher chose to conduct this research on a DE class that was taught under the business discipline. The rationale for this decision was because the business department was one of the largest departments at this institution

and heavily used the DE format for its classes. The class itself was taught once a week on a weeknight for approximately two hours and 45 minutes. This university's DE is designed to connect a classroom at its main campus and a classroom at its branch campus. The main campus is primarily comprised of traditional students who are between the ages of 18 and 22 and have continued their education immediately following high school. The branch campus students are mostly non-traditional students who are over the age of 22 and did not continue their collegiate education pursuit immediately after high school. In some cases, these non-traditional students are also working while continuing their education.

In order to collect data for this study, the researcher took on the two roles: (1) an observer and (2) an interviewer. The researcher observed both campuses while the professor was teaching locally or remotely in relation to the researcher. During this time, the researcher took note of how the class was taught by the professor, the reaction of the students during the class, and any issues that arose during the class. In total, the researcher attended three sessions at each location under the following three conditions: (1) instructor at the local campus, (2) instructor at the remote campus, (3) and during a test.

Upon conclusion of the observations, the researcher then interviewed the instructor to gain a comparison on the current and prior environments used for DE and additional insight. This interview session lasted approximately one hour. The researcher broke the interview session into two parts which first presented the findings and probed the instructor for any additional details. The second part of the interview was to gather information about the instructor's experience teaching DE ITV classes.

### **FINDINGS**

The researcher conducted a total of six observations: three at the main campus and three at the branch campus. Of the three observations at each location, one was conducted while the professor was teaching at the local site, one while the professor was at the remote site, and one while the professor administered an exam. Each of these observations was conducted on the same class

that was part of the core business curriculum.

The first observation at the main campus was conducted while the professor was teaching at this site. In this session, the professor covered information from chapter 1 of the text. During this time, only one student from the main site asked a question related to the class material while two different students from the branch campus requested clarification on one of the professor's notes. Additionally, the professor asked both sites to read over a case and answer the case study questions. Four different students from the main campus provided input to the three case questions. The branch location had six different students who gave input to the three case study questions. Lastly, two students were missing from main campus and three from the branch campus.

The second observation was also conducted at the main campus, however the instructor was teaching from the branch campus. During this lecture, the professor concluded a discussion on material from chapter one and began a discussion on chapter two. During this time, none of the main campus students asked questions during the lecture while three students from the branch campus asked questions related to the material. The instructor asked both campuses to review a case and answer three case study questions. When the professor asked for responses to the questions, only one student from the main campus provided a response. All other times, the main campus remained silent until the instructor asked for a response from the branch campus. The branch campus had five different students who provided input to the three study questions. Lastly, five students did not attend class from the main campus and none were missing from the branch campus where the instructor was located.

The third observation was conducted at main campus, where the instructor was administering the exam in person. During this time, the students at the main campus remained silent and only two students approached the professor for clarification on exam questions. Two students from the branch campus requested clarification from the professor over the DE system. Additionally, both sites remained silent during the examination. One student from each campus was absent during the exam.

The fourth observation was conducted at the branch campus while the instructor was teaching from the branch campus. During this lecture, the instructor covered material from chapter three of the text. Additionally, the instructor assigned the students to review a case study and complete three case study questions. During the entire session, none of the students from the main campus site participated in the case study questions, nor did they provide any comments or pose any questions on the class materials. Two of the branch campus students had a comment and a question related to the class materials. Seven different students at the branch campus provided input to the three case study questions. Lastly, six students were missing from the main campus while two were not present at the branch campus.

The fifth observation was conducted at the branch campus while the professor was teaching remotely from the main campus. The instructor covered material from chapter four during this lecture. The students were requested to review a case and answer the three case study questions. During the lecture, three students from the main campus asked a question or provided a comment on the classroom material. Five students from the branch campus provided some comment or asked a question related to the class lecture. When answering the case study questions, five students from the main campus participated while only two from the branch campus provided responses. In this session, one student was missing from the main campus and four were missing from the branch campus.

The sixth session was also conducted at the branch campus while the professor was administering an exam from the branch campus. During this time, the branch campus students remained quiet while low volume whispers were heard from the main campus students. The professor noted this and asked the students at the main campus to remain quiet during the exam. Three students from the branch campus asked for some clarification on exam questions while none of the students from the main campus asked any questions. All students were present during the exams from both sites.

After completing the observations, the researcher noted a few comments related to the DE and its deliver. The first was that the

instructor had an issue with the volume of the remote site and what content was to be displayed on the remote site's televisions. The second observation was that less students attended classes during the weeks that the instructor was at the remote location. The third observation was that low volume whispers could be heard from the remote site from other students while the professor was at the local site. The fourth observation was that the professor continuously encouraged responses from his remote site and repeatedly asked them if they had any questions.

The last observation was that each site contained the same equipment. The classrooms had three LCD monitors mounted on the front wall, two on the back wall, a computer, microphones, speakers, and a digital overhead projector. Each LCD displayed information according to the professor's preference including a view of the students at the remote site, information on the computer or overhead projector, or a camera focused on the instructor.

While interviewing the instructor, the researcher shared his findings from the above observations. He noted that these observations were accurate because he found fewer students attended the class opposite where the instructor was. Additionally, the instructor found that the level of student involvement was always less on main campus and especially during classes where he was located at the branch campus. Lastly, the instructor noted that he never received formal training on the old system but did receive it on the new system. However, he had a technician assigned to the class, for both environments, to resolve any issues that arose.

During the second part of the interview, the instructor provided a comparison of the current DE landscape compared to one that was previously used. One of the challenges that was overcome in the new system was that the quality of the audio and video was improved drastically. Unlike the old system, very few students complained that they could not hear the instructor or see the materials clearly on the screen. The second challenge to the instructor was that the technology did not allow the instructor to share information that could be found on the internet or located on a computer. He had hard copies of any PowerPoint slides or handouts that he wanted the students to

view. The third challenge was that the old system had constant technology problems with the camera freezing or the equipment malfunctioning. The fourth challenge for the instructor was providing information and lecture that would engage the students at both locations. The last challenge was that the university did not provide a workload reduction so that the instructor could develop the course to be taught over DE. However, the institution did provide additional monetary compensation to the instructors when teaching DE classes.

The instructor utilized different methods to overcome the challenges he had in the old DE environment. To overcome the issue of poor audio and video quality, the instructor made sure that all of his notes and handouts were available in hard copy or on blackboard for more recent classes. By making these documents available, the students were able to review these documents outside of class and review any information that may have been missed because of audio or video technical difficulties. In recent years, the professor was able to share electronic content stored on the computer or information available through the internet by utilizing blackboard. Prior to the implementation of the new system, the professor would instruct the students to view the blackboard site so they could view any supplemental information that the professor was unable to share during the DE class. According to the professor, overcoming the technology malfunctions was difficult because the professor was unable to predict when these would occur. The instructor would always prepare his lectures in such a way that he could assign both sites some work to complete during these technological down times. Once an issue arose, the instructor would use the telephone and call the technician at the remote site to work on the problem and announce an assignment for the remote students to work on.

Mitigating the fourth and fifth challenges required a great deal of collaboration from the instructor with his peers, according to the instructor. The instructor was able to improve the quality of his lecture and reduce the amount of time it took to prepare for his class when he spoke to his peers. They were able to provide him with best practices and lessons learned. For example, the instructor learned to utilize PowerPoint slides as a frame of reference for the students and pro-

vide additional auditory notes beyond what was written on the slides. Additionally, the instructor utilized case studies and other examples to engage the students in the learning process by sharing their answers and thoughts on various topics. The last best practice that the instructor used was to continuously reassure the remote location they were not alone. His method was to continuously refer to them during lecture by asking them questions and engaging them in the conversation. The instructor felt this motivated them and built up their self-esteem, which allowed many students to feel comfortable speaking during a DE class.

#### 4. DISCUSSION

With DE, the professor is tasked to convert his traditional classroom lecture into one that is taught over a telecommunication media. During this time, the professors face challenges such as institutional support, quality lectures, engaging students, and technological concerns. In doing so, the researcher has developed the following five recommendations to professors who are tasked with teaching DE.

- Motivate and encourage students to participate.
- Provide quality lectures.
- Always plan for the unknown.
- Leverage what is already known.
- Provide a central place for students to view course content.

It is a difficult task to motivate and encourage students to participate. The best way to accomplish this is to encourage discussions and have the students share personal experiences or thoughts (Willis, 2009). Students can be more committed and apt to participate if they feel the education relates to or interests them. If the student feels committed or engaged, they will be motivated and comfortable with talking and discussing class related information using a DE class.

The second recommendation is to provide a quality lecture which goes beyond reading PowerPoint slides. The instructor can utilize the PowerPoint slides as a frame of reference for the students but the professor must enhance his lecture with additional examples that are realistic and relate to the students.

Additionally, the instructor should leverage cases or other examples where the students can illustrate their learned concepts (Willis, 2009). By doing this, the professor can assess if the students have grasped the lecture.

Unfortunately technology can always fail on us when we least expect it, which leads to the third recommendation that we should always plan for the unknown. At any time, two sites can be disconnected or have malfunctions with the audio or video equipment. Because of this, professors should plan what work could be done independently by both sites so that they can maximize their downtime. This could include completing a case analysis or assigning homework that reinforces the learned concepts. Therefore, the professor reallocates wasted downtime as productive time where the students are applying any learned concepts.

Many instructors before us have taught some form of DE in some format. It is important to leverage any best practices that they utilize. This transferred knowledge can reduce the amount of time a professor needs to teach a new course using the DE media. Additionally, since some universities do not compensate or provide a workload equivalent for teaching these DE classes, this will help the professor minimize the time needed to setup the class so they can continue to concentrate their efforts on other activities such as students or tenure related tasks.

The last recommendation is to provide a central repository where the students can access any class related information. Depending on the landscape of your DE classroom, you may not be able to share information in class or you may have some audio / video technical difficulties which cause the remote site to not grasp all the material in the lecture. The professor should use a central site, like blackboard, to upload any class notes, handouts, or external website links with additional information. By doing this, the students can print out the notes ahead of time and follow along in class or they can review the material at a later time to ensure they did not miss any information pertinent to the lecture.

#### 5. CONCLUSION

Universities and Faculty can provide numerous benefits to students by properly teaching

a DE class. Teaching for a DE program is more than just delivering course content that is used in traditional classroom training. It involves the faculty and students familiarizing themselves with the technology along with the Faculty maintaining a high quality of instruction for the students. Once the university and faculty understand the challenges that exist with the DE program, they can then mitigate these challenges to improve the class and provide a more effective learning environment. The result will be that the students retain as much or more information as a traditional classroom setting and the university can properly leverage the DE system to educate more students at the same time in different locations.

## 6. REFERENCES

- Bower, B. (2001). Distance education: Facing the faculty challenge. *Online Journal of Distance Learning Administration*. Retrieved on May 8, 2009 from <http://www.westga.edu/~distance/ojdla/summer42/bower42.html>
- Egbert, J. (2000). Review of teaching and learning at a distance: Foundations of Distance Education. *Language Learning & Technology*. 4, 18-21.
- Phipps, R., & Merisotis, J. (1999). What's the difference: A review of contemporary research on the effectiveness of distance learning in higher education. *Journal of DE*, 14, 102-114.
- Spodick, E (1995). The evolution of distance learning. Retrieved on June 8, 2009 from <http://sqzm14.ust.hk/distance/distance-6.html>
- Willis, B. (2009). Distance education at a glance. University of Idaho. Retrieved on May 10, 2009 from <http://www.uiweb.uidaho.edu/eo/dist8.htm>