Evaluation of Student Perceptions of Technologies Used in the Delivery of an Online Course Preparing Students for International Development

Theresa Pesl Murphrey
Visiting Assistant Professor
Department of Agricultural Education
Texas A&M University
229 Scoates Hall
College Station, Texas  77843-2116
979-458-2749 (phone)
979-458-2698 (fax)
t-murphrey@tamu.edu

Kelly Jett Murphrey
Director, Center for Western Hemispheric Trade
Mays Business School, Texas A&M University
College Station, Texas  77843-4116
979-845-1683 (phone)
979-845-1710 (fax)
kjett@tamu.edu

Abstract

The graduate course, Methods of Technological Change (AGED 640), is one of several courses taught at Texas A&M University that prepares students to manage international development projects. It was taught in Spring 2003 for the first time as an interactive online course. Only limited information is available documenting student perceptions of the different technologies being employed to deliver online courses. In order to determine how online courses can be better designed and delivered, this study evaluated student perceptions of the fourteen technologies (Centra, WebCT, video clips, audio lectures, moderated PowerPoint, audio unit introductions, text on screen, self-tests, graded quizzes, static graphics, animated graphics, page-turner educational pieces, Adobe Acrobat handouts, and discussion board) used to deliver AGED 640 online. Identification of the technologies that students perceive to be useful is essential to the development of effective online courses. Evaluation and synthesis of student responses reveal that the students found some of the fourteen technologies to be more useful than others in helping them to understand the course content. The informational technologies (i.e., page-turner educational pieces, text on screen, and audio lectures) were considered very useful for the majority of the students. In addition, students indicated that audio lectures were preferred over video lectures. The response to technologies that allowed interaction among students (i.e., Centra, Discussion Boards) was mixed.
Introduction

Delivery of courses online is becoming a common occurrence. Each day new courses are offered online in both traditional educational settings and in the area of continuing education. Individuals can merely logon to the Internet to locate a multitude of courses that are available for completion. Yet, the quality of online courses varies considerably depending not only on the content provided but also based on the way in which they are designed and delivered. Multiple studies have reported “no significant difference” between distance and traditionally taught courses (Russell, 1999). However, as with any course, regardless of whether it is delivered face-to-face or online, it should be designed and delivered in a way that matches the needs and preferences of the learners.

The graduate course, *Methods of Technological Change* (AGED 640), is one of several courses taught at Texas A&M University that prepares students to manage international development projects. It was taught during Spring 2003 for the first time as an interactive online course. The design and delivery of the course incorporated three tools to encourage social activity (e.g., e-mail, discussion board, and Centra) and eleven technologies to present course material. Moore and Kearsly (1996) noted that a course is good or poor depending on how well it is designed, delivered, and conducted. This distinction is not a result of students being either face-to-face or at a distance. Given that only limited information is available documenting student perceptions of the different technologies being employed to deliver online courses, this study seeks to reveal that information.

Identification of student preferences for online learning technologies and design is an important component of effective online course development. Creating a learning environment that is satisfying and effective is a challenge faced by instructors in the delivery of instruction online (Aragon, 2003). Encouraging social presence, a feeling of belonging to a group or community of learners, is one method of creating a more satisfying environment. Social presence can assist in initiating learning online by providing student-student and student-instructor interaction. Online tools that encourage interaction such as the discussion board, Centra, or e-mail can assist in creating social presence.

Motivation to engage in learning is just as important in online courses as it is in the traditional classroom and has been written about extensively. While much research has been conducted on learners in traditional classrooms, only limited research has been conducted on learners engaged in nontraditional online classrooms. Laszlo and Kupritz (2003) found that undergraduate students enrolled in online courses identified course relevance, self-competence, and reinforcement to be primary motivators for learning. The study further found that students “seemed to prefer course materials that arouse individual curiosities” (p. 71). In a study conducted by Ku and Lohr (2003) on student’ attitudes toward online learning, it was found that students liked the convenience, flexibility, and self-regulated learning of their online course. “Students’ interaction with technology has been cited as one of the critical dimensions of online interaction” (Yoon, 2003, p. 24). Yet, few studies have focused on the perceptions of students on the various technologies used in online courses.
Identification of the technologies that students perceive to be useful is essential to the development of effective online courses. In order to determine how online courses can be better designed and delivered, this study evaluated student perceptions of the fourteen technologies used to deliver AGED 640 online.

**Purpose**

The purpose of this study was to determine student perceptions of the overall course and the fourteen technologies (*Centra, WebCT, video clips, audio lectures, moderated PowerPoint, audio unit introductions, text on screen, self-tests, graded quizzes, static graphics, animated graphics, page-turner educational pieces, Adobe Acrobat handouts, and discussion board*) used to present course materials and encourage interaction. The goal of the study was to reveal perceptions to help online course designers and developers select appropriate technologies to meet the needs of students.

**Methods and Data Sources**

A combination of qualitative (interviews) and quantitative (survey) research methods were used to guide the study which was designed to solicit student perceptions of the fourteen technologies used to present course materials and encourage interaction online. The majority of the students enrolled in the graduate course, *Methods of Technological Change* (AGED 640), were interviewed (twelve of the fourteen) and completed the online survey (eleven of the fourteen). A researcher conducted phone interviews using an interview protocol that had been reviewed by experts in the field. The phone interviews lasted approximately twenty minutes and consisted of seven open-ended questions. Questions included items such as, “What did you like best about the course?” and “What did you like least about the course?” The interview protocol involved using the open-ended questions to conduct the interview followed up with general probes such as “How is that?” or “In what ways?” to enable the person being interviewed to be as informative as possible in his/her responses. At the conclusion of the interview, interviewees were asked to complete an online survey at a designated URL. Eleven of the twelve students interviewed completed the online survey. The online survey consisted of twenty-nine Likert-type scale questions, seven open-ended questions, and nine multiple choice questions.

The interview and survey questions were categorized as: Technology Usefulness, Course Delivery, Course Access, and Personal Information. The online survey results were analyzed using descriptive statistics. Data collected from the interviews was examined to determine constructs, themes, and patterns. Reflective analysis was employed to attempt to depict and conceptualize the meaning conveyed by those interviewed. This research study was reviewed and approved by the Institutional Review Board – Human Subjects in Research at Texas A&M University.

**Findings and Conclusions**

Evaluation and synthesis of student responses reveal that the students found some technologies to be more useful than others in helping them to understand the course content. The data collected from both interviewing and surveying allowed the researchers to validate
and cross-check findings. Table 1 illustrates student responses to the question, "How would you rate the usefulness of the technologies used in the course? (e.g., Did the availability and/or use of the technology help you understand and learn the course material?)". Given the small population (n = 11) responding to the survey questions, responses have been reported as numbers rather than percentages in Table 1. The authors believe that the information presented in this manner will be more meaningful. As illustrated in Table 1, the informational technologies (i.e., page-turner educational pieces, text on screen, and audio lectures) were considered very useful for the majority (82%) of the students.

Table 1.

Student Response regarding Technology Usefulness, AGED 640 delivered Online, Spring 2003, Texas A&M University (n = 11)

<table>
<thead>
<tr>
<th></th>
<th>Not Useful</th>
<th>Useful</th>
<th>Very Useful</th>
<th>Useful &amp; Very Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centra – LIVE Online Classroom</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>WebCT – Online Classroom</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Video Clips</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Audio Lectures</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Audio Welcomes</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Moderated PowerPoint</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Text on Screen</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Self-test Activities</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>(i.e., Drag/Drop, Multiple Choice)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT Graded Quizzes</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Static Graphics (i.e. photos, images)</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Animated Graphics</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>(i.e., text or images moving on screen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page-Turner Educational Pieces</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>(i.e., Text and graphics presented together with arrows to see the next piece of information.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading/Handouts</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Textbook</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>WebCT Discussion Board</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

Overall, comments received from the students indicated that they liked the presentation of the course materials and the content covered. Delivery methods such as audio and video were mentioned by the students as being refreshing (P6, P12). As one student stated, “I didn’t have to go online and read my class (P6)”. The students indicated that audio lectures (64% very useful) were preferred over video lectures (27% very useful).

The response to technologies that allowed interaction among students (i.e., Centra, Discussion Boards) was mixed. A majority (72.7%) indicated that Centra, the live online classroom, was useful and received positive comments. One student noted, “Hearing other perspectives on Centra was very helpful.” Three students (P2, P5, P9) expressed strong support for the use of Centra. They liked “being able to communicate verbally” (P2) and
hear presentations (P9). However, two students (P3, P11) didn’t feel that the connections contributed to the course. The discussion board was articulated to have been less useful than Centra with 36.4% of the students reporting that it was “not useful.” As with Centra, the use of the discussion board received mixed reviews. Some students (P6, P8) expressed that they liked reading others posts and liked the fact that they had time to put together their thoughts and ideas before responding (P5), and could work at their own pace (P11). However, when asked what they liked least about the course, several students (P1, P2, P3) indicated that they felt posting to the discussions was “busy work” (P1). Students felt that they were merely filling a requirement and had to struggle to add something original to the discussion.

Students that were self-directed seemed to dislike the discussion board activities more than others (P2). One student (P10) shared that while discussion is important in a traditional classroom, it is not necessarily beneficial in an online classroom. On the other hand, a lack of “social presence” was expressed by some students (P4, P12) to be what they liked least about the course. One student (P4) expressed that he/she would have liked to have gotten to know his/her classmates better.

Students expressed strong support for the content presented in the course. They liked how the course was organized (P3) and what was shared (P1, P2, P9). A few students (P5, P12) expressed that they enjoyed becoming acquainted with the different technologies available to use in an online course. In fact, one student (P9) selected to take the course online in order to experience what it would be like to take an online course.

The fact that the course units were posted weekly, preventing students from working ahead, caused problems for some students. They (P6, P7) felt the opportunity to work ahead was important because their schedules varied from week to week. One student (P11) expressed that having the material ahead of time would have allowed him/her to work at his/her own pace. Two students (P7, P11) indicated that they encountered technical problems with the course. Closer examination of these two students revealed that they used a dial-up connection to access the course which explains the technical problems.

For many of the students (P2, P3, P4, P5, P6, P7, P8), this course was not their first experience in taking an online course. Students expressed that this course was better than some they had taken because they liked the way the material was presented (P1) and the use of audio and video (P6, P8, P10). However, students expressed some concern about the amount of course material (P9) and the required live meetings (P6) which were not required in other online classes they had participated in.

When asked what they found similar about the course in comparison to what would be expected in a traditionally delivered course, it is interesting to note that several students (P1, P2, P4, P6, P7, P10, P11) expressed that the course content was similar to what they would expect in a traditionally delivered course. The work expectations, structure of the class, and materials were perceived to be the same as in a traditional classroom. Remarkably, the presentation of the course was also perceived to be similar to a traditionally delivered course. The speed with which the instructor responded, how the material was presented, and the discussion interactions were noted as similarities by the students. However, when responding to what they perceive as being different – many students (P1, P3, P4, P6, P7, P9,
P12) expressed concepts related to social interaction. While some students expressed the lack of human interaction as merely different, others expressed that they experienced better interaction in the online class than in traditional face-to-face classes (P12).

While this study focused on the technologies used to deliver the course, it is interesting to note that several of the students (P1, P3, P4, P7, P8, P11) expressed flexibility (both time and place) as the aspect of the course that they liked best. The fact that they could access the information whenever they wanted to (P3) and set their own schedule (P4) was important. Not being tied down was important (P5) because it was helpful for students who could not travel to campus (P10). When asked why students registered for the online section of the course (An identical course was taught the same semester in a face-to-face setting.), the primary reason expressed by the students was flexibility of time and place (P1, P4, P6, P7, P8, P10, P11, P12). Additional reasons provided included the instructor (P2, P3), a preference for online courses (P5), and a desire to experience an online course (P9). This finding lends further support to the findings from the study conducted by Ku and Lohr (2003) on student’ attitudes toward online learning, that found students liked the convenience, flexibility and self-regulated learning of their online course. This concept is highlighted even further when reflecting on the response of the students to the question of “when did you work on the course.” It is interesting to note that there were 2 distinct responses – at random times (P3, P4, P7, P11, P12) or on a schedule (P1, P2, P5, P6, P8, P9, P10).

**Educational Importance**

The educational importance of this study focuses on understanding the tools available for online courses and identification of the technologies that students perceive to be useful. Effective development of online courses requires that educators keep up-to-date on available technologies to deliver course materials. Understanding which technologies are most useful will help course developers create more effective learning materials. As online course development continues to advance, new technologies will surface with application for education and training. A few students (P9, P11, P12) specifically indicated that they liked being exposed to the different technologies used with online learning. It is up to educators, extension personnel, and trainers to continually seek to understand which technologies will be most beneficial to student learning. The selection of appropriate technologies is essential to the development of effective online courses; this can lead to better decisions by trainers and educators in preparing students for work in international development.

**Recommendations**

Given the small population of the study, it is recommended that further information be collected from future students enrolled in the online course. Obtaining input from a larger number of students will allow the findings to be more applicable to the larger population.
References


