A Case Study on Multi-Modal Course Delivery and Social Learning Opportunities

B. Oyarzun and F. Martin

Abstract—**This case study examines how students attending an Instructional Technology master's program met their program goals through an innovative multi-modal class delivery system and social learning opportunities. Multi-modal delivery is defined as face-to-face and simultaneous synchronous online delivery with supplemental asynchronous online materials. Social learning opportunities include private chat, social network groups, and social gatherings.**

I. INTRODUCTION

Higher education enrollment is steadily increasing according to the Institute of Education Statistics (IES). Currently, there are approximately seventeen million students enrolled in higher education institutions in the United States, that number is predicted to jump to over twenty million by 2021. Over 6.7 million students were taking at least one online course during the fall 2011 term, an increase of 570,000 students over the previous year. Online students account to 32 percent of students enrolled in higher education institutions [1]. Higher education institutions need to explore innovative learning environments that can accommodate the increase in learners without necessarily increasing space on campus. [2] investigated simultaneous delivery of face-to-face courses to on-campus and remote off-campus students for this reason. Their results indicated that each student population received a similar course experience and there were no significant difference in test scores [3].

The emergence of newer web-synchronous conferencing tools has provided the opportunity for a high level of students-to-students and students to instructor interaction which reduces the isolation that online student sometimes feel in an asynchronous course. These students feel part of the community and the level of interaction increases. Increased interaction during instruction results in increased student satisfaction in the course and learning outcomes [4].

The other concern about moving the program online either asynchronously or synchronously was the loss of social interactions which results in students feelings of isolation.

B. Oyarzun is with the Office of e-Learning, University of North Carolina Wilmington, Wilmington, NC, USA email: oyarzunb@uncw.edu

F. Martin is with the College of Education, University of North Carolina Wilmington, Wilmington, NC, USA email: martinf@uncw.edu

Research states that online students feel isolated and that faculty should encourage different types of interaction to build a learning community [5]. To combat this concern, they developed groups on several social networks, required group projects in classes, and developed a student group to organize social events for students. Bandura's Social Learning Theory [6] states that individuals learn from one another through observation, imitation, and modeling.

II. PURPOSE OF CASE STUDY

This case study describes the innovative methodologies implemented in an Instructional Technology master's program at a southeastern mid-sized four-year university. The setting of this innovative delivery, the technology, examples from the different social learning opportunities and student comments on using this delivery method are provided in the sections below.

III. THE SETTING

This southeastern mid-sized four year university is home to approximately seven hundred faculty and fourteen thousand students. The Instructional Technology master's program is housed within the college of education and currently has 40 students enrolled. Students enrolled in this program are of varying ages, backgrounds, and technical abilities. This program has been offered by the university since the fall of 1999. Initially, the program was only offered face-to-face, but as technology has evolved, so has this program's delivery strategies. During the early years of this century, the program was facing low enrollment issues. The faculty needed to come up with a solution that would increase enrollment or the program might have been cut. The faculty members were wary of moving the program fully online asynchronously because they felt there would be a loss of quality of instruction. They opted for the multimodal delivery where they will be able to reach a larger audience at the same time and maintain the quality of instruction. Multi-modal delivery is defined as simultaneous delivery of instruction both face-to-face and synchronously online with supporting asynchronous materials and activities.

This program is one of the first in the United States to offer its program and courses both face-to-face and in an online virtual classroom environment simultaneously. The option of attending classes in the traditional classroom while virtually communicating with students who are at distance using web conferencing technology has added a new dimension to the program and its courses and has offered further flexibility by allowing students to be at distance or be face-to-face on campus.

IV.   THE TECHNOLOGY

When a gap analysis was conducted it was found that to effectively deliver our courses face-to-face while transmitting it online to distance students, the program needed technology tools that could help achieve the following goals:

- Continue using a synchronous management tool with the following features: be able to archive, application sharing, use e-board, conduct text chat, use audio and video interaction, create breakout rooms for team collaboration, share content, communicate emoticons, conduct polling and use telephone dialing.
- Provide a secondary video transmission capturing the students in the face-to-face classroom in order to give the online students a feel of being with the other students in the class (social presence).
- Provide the video captures of the online students to the face-to-face students in order to connect students in different locations with the instructor and on-site students

The faculty evaluated various videoconferencing technologies as well as available synchronous and asynchronous management systems to deliver courses online and face-to-face simultaneously. The best solution for the program was the adoption of Cisco Telepresence along with using a synchronous virtual classroom (Webex training manager). Cisco Telepresence system allows the resident and distance students to feel as if they are all in the same room. It combines life-like ultra-high-definition video (1080p), quality audio, specially designed environment and interactive elements to create the feeling of being in person with students in distance locations.

This program's courses are all offered in the evening and are three hours in duration. The faculty members share a classroom that is outfitted with the Cisco Telepresence technology. The classroom also has an instructor station with a computer and dvd player that can be projected on to a screen. All students in the classroom have access to a laptop computer. Figure 1 is a picture of the classroom.

Fig. 1: The classroom

Students enrolled for the courses are given a choice of attending virtually or face-to-face. The initial decision is not a permanent one. The students can attend face-to face one week and virtually the next if they desire. Students have expressed positive feelings towards this ability to choose. The following quote is taken from a student survey inquiring about the benefits of the multi-modal delivery system.

"The option of learning face-to-face or synchronously online has been most helpful since I have a family and work full-time. If I am unable to attend face-to-face the instructors have done a great job designing their course for multimodal delivery."

The instructor, classroom students, and distance students all log into a Webex virtual classroom for the duration of the class.   The instructor can share files and websites with students as well as instant messages. Students can also private chat with one another in this program. Figure 2 shows some of the classroom technology in use.

Fig. 2: Cicso Telepresence classroom technology

Another benefit of using the wired classroom is the ability to record or archive the classes. This is done using a product called mediasite. The archive recording has a video screen and content screen so students can easily view the instructor or students talking as well as the content they are talking about. The recording is housed on a streaming media server and can be accessed via the web immediately after the course is complete. Students enjoy this feature because it gives them

ability to review difficult material more than once. It also gives them the ability to make up for a missed class. Figure 3 is a mediasite screenshot from an archive recording of a class.
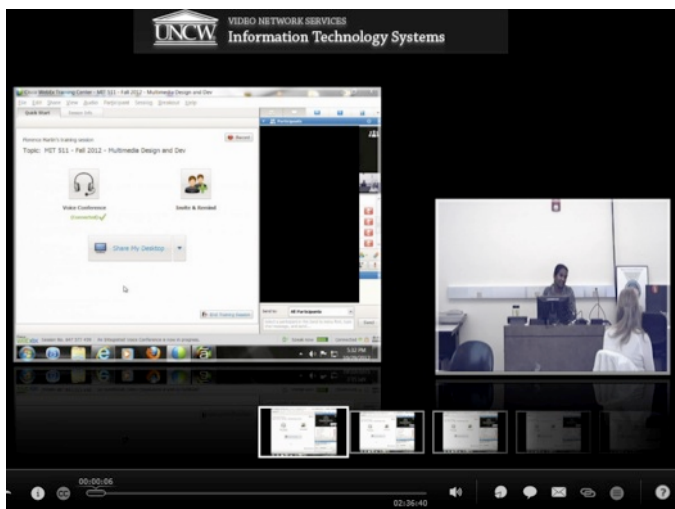

Fig. 3: Mediasite archive screenshot

Instructionally, the courses are delivered as a face-to-face class. The instructors are able to implement the same instructional strategies that they used when the classes were taught completely face-to-face. The only challenge was to learn to manage the new technologies. The students are able to communicate with one another and complete group activities during class time. The faculty and students have also had to adjust for sound delays and technical difficulties that arise on occasion, but there is a technician available to them during class time to help resolve these issues.

V. INFORMAL/SOCIAL LEARNING OPPORTUNITIES

Social learning opportunities can be defined as "learning by proximity or association". These opportunities often happen accidentally, but the faculty of this program wanted to create a digital and face to face environment that would be conducive to this type of learning and interaction.

Digitally, the students can interact via private chat messages during class or publicly in the social network groups. The private messaging is sometimes referred to as the back channel in literature. Students can use this back channel to clarify questions and communicate understanding of topics during class. This can also help build relationships with other students which in turn can facilitate the development of a learning community. The following student quote is from a survey inquiring about student use of private chat and if it helps their learning.

"Yes. Sometimes I have questions that a classmate could answer easily instead of interrupting the entire class. It also adds a social dimension to the class, allowing us to talk and get to know classmates we haven't met face to face."

There are private groups set up on one popular social network. The faculty members are the administrators of these groups and must approve membership requests. Students are using these venues to share conference experiences, graduation photos, ask questions, and share resources. Figure 4 is an example communication clipped from the social network group page.
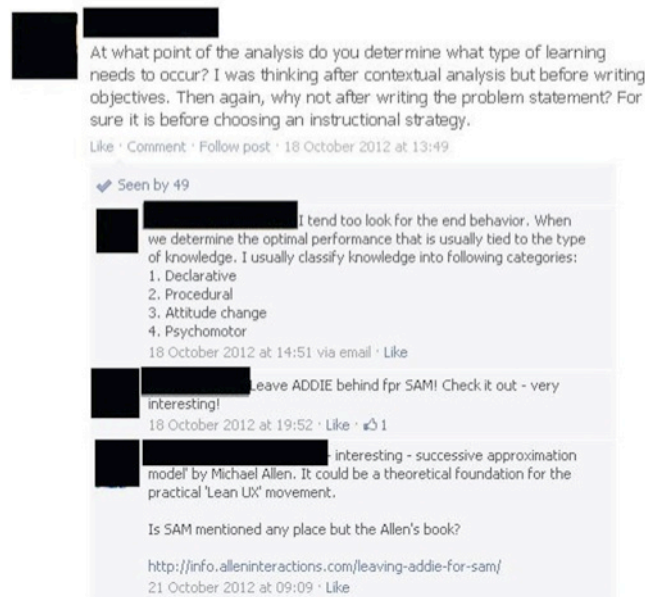

Fig. 4: Social network communication

There are also opportunities for students to gather face-to-face. The faculty members have charged several students to organize a social committee. These students plan several social gatherings throughout the academic year. The end of the semester socials are usually held at a faculty member's house and the mid-semester socials are usually held at a local restaurant. These do not typically involve faculty. Students that participate in these activities enjoy the opportunities to make connections with fellow students, faculty, and alumni. The alumni of the program are always invited to the socials and are part of the virtual activities as well. The current students express satisfaction with being able to interact with their peers and alumni in an informal/social manner. The following quote is from a survey inquiring if the socials benefit them.

"Yes, this builds community and an informal Q/A with peers helps to gain insight and build relationships with those who have similar interests within the field."

VI. STUDENT COMMENTS

Evaluation of student satisfaction with the new delivery system indicates that we have been able to address the needs of both online and resident students while maintaining a high level of interaction and quality instruction. The following student quote comes from the graduation exit survey that asks what students think of the program's technological and instructional resources.

"I think the program's technological and instructional resources are very good. Our classroom resources as well as the ones introduced to us through our coursework provide us with ample opportunity to be prepared for entering the instructional technology field upon completion of our studies."

VII. CONCLUSION

This state of the art classroom and the creative methodologies that have been implemented have helped this program achieve their goals of increasing enrollment while maintain the desired level of quality of instruction. The multi-modal delivery and social learning activities have created more learning opportunities for students. The archives from the classroom help students review complicated content or content they missed during an absence. Social learning opportunities help students and faculty build connections with other students and alumni to ease distance students felling of isolation.

REFERENCES

[1] Allen, E., & Seaman, J. (2012). Changing Course: Ten Years of Tracking Online Education in the United States. Babson Survey Research Group.

[2] White, C. P., Ramirez, R., Smith, J. G., Plonowski, L. (2010). Simultaneous Delivery of a Face-to-Face Course to On-Campus and Remote Off-Campus Students. Techtrends: Linking Research & Practice To Improve Learning 54, no. 4: 34-40. Academic Search Complete, EBSCOhost (accessed January 9, 2013).

[3] Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C. & Sun, P. C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, 45, 399–416.

[4] Hughes, J. E., McLeod, S., Brown, R., Maeda, Y., & Choi, J. (2007). Academic Achievement and Perceptions of the Learning Environment in Virtual and Traditional Secondary Mathematics Classrooms. *American Journal of Distance Education, 21*(4), 199-214. doi: 10.1080/08923640701595365

[5] Lee, Y. K., Tseng, S. P., Liu, F. J. and Liu, S. C. (2007). Antecedents of learner satisfaction toward e-learning. Journal of American Academy of Business, Cambridge, vol. 11, 2.

[6] Bandura, A. (1977). Social Learning Theory. New York: General Learning Press.

Beth Oyarzun is completing her docorate in Instructional Design and Technology at Old Dominion University. She holds a Master's degree in Instructional Technology from the University of North Carolina Wilmington (2005) and a Bachelor of Arts degree in Mathematics from the University of North Carolina Wilmington (1996).She taught high school mathematics for nine years prior to joining UNCW. She previously worked as a technology liaison in the college of education teaching undergraduate courses and assisting faculty with instructional technology. She currently is an instructional designer with the office of e-learning teaching undergraduate online courses and training faculty in online teaching best practices.

Dr. Florence Martin is an Associate Professor in Instructional Technology at the University of North Carolina, Wilmington. She received her Doctorate and Master's in Educational Technology from Arizona State University. Previous to her current position she has worked on instructional design projects for Maricopa Community College, University of Phoenix, Intel, Cisco Learning Institute, and Arizona State University. She teaches Multimedia Design and Development, Evaluation, Performance Improvement and Mobile Learning. Her current research focuses on designing mobile learning and using learning analytics to improve online and blended course design. She is the outgoing president of the Multimedia Production Division at Association for Education Communications Technology.