

Synchronous E-Learning: Proven Strategies for Teaching at a Distance

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As more courses are offered online, the search for tools and techniques that can be used to enhance learning continues. Synchronous software is a relatively new technology that offers great potential for distance education. Synchronous tools that are common in synchronous software include Voice Over Internet Protocol (VOIP) to conduct two-way audio conversations, electronic chat rooms or instant messaging for text-based communications, polling and feedback tools for instructors and students, presentation areas for PowerPoint®, group break out rooms, and application sharing. Although challenges exist for using synchronous software in an online course, these tools can enhance the distance learning experience by increasing interactivity, immediacy, social presence, group work, and collaboration.

Learners throughout the world stand to benefit as optimal strategies for teaching in this environment are developed, tested, enhanced, and shared. This research investigated synchronous online learning classrooms as a means to allow distance educators to build connections by increasing the potential for interaction. Research of this nature is very important to the distance education communities in higher education, K-12.

Theoretical Framework

Distance Education research emphasizes the importance of interactions (among students and between students and instructors) for effective distance teaching (Garrison, Anderson, & Archer, 2001; Harasim, 1990; Hillman, 1999; Moore, 1989; Moore & Kearsley, 1996; Vrasidas & McIsaac, 1999; Willis, 1995;). Review of this literature provides insight into two major issues facing distance educators; 1) challenges in providing optimal interaction and 2) a lack of confirmed strategies conducive to learning in synchronous environments. Both of these issues need to be addressed by educational researchers.

Using synchronous software can be a daunting task for even an experienced distance educator, however, learners throughout the world stand to benefit from the use of such tools. Therefore it is important that methods are tested and guidelines created to assist the distance educator in successfully implementing these tools. The data provided in this study offer an initial framework for the development of a set of guidelines to support the planning and use of synchronous software in higher education instruction.

Methods

This study employed a rigorous blend of research methods that examined instructors, students, and support personnel to gain an understanding of how they used the synchronous software. The university licensed versions of both Elluminate Live and HorizonLive software packages

Prior to implementation, instructors were trained in the use of the synchronous software and provided with a technical support assistant (producer) to help with technology issues encountered during “live”

classroom sessions. All sessions were recorded for later observation. The instructors' uses of the system were not limited by the study; rather each instructor used the system in a way that supported his or her teaching style as well as the learning styles of their students.

Data Collection

This study examined five different cases in which instructors used a Synchronous Web Based Course System SWBCS to enhance the learning experiences of their students. Students were surveyed twice, once after initiating the synchronous software and again at the end of the semester. The first survey provided a baseline on students' experience as well as demographics. The second survey examined student perceptions after using the synchronous software throughout the semester. Each instructor was interviewed prior to course delivery. Questions focused on the anticipated advantages, challenges, and concerns with implementation of synchronous software. Instructor surveys examined the faculty's perspectives at the end of the semester as well as how they ultimately utilized the synchronous environment.

A minimum of three synchronous class sessions was recorded for each instructor. Through an extensive iterative process, an instrument was developed to document direct observations as well as subjective interpretations of the synchronous classroom events that occurred during the sessions. The primary categories included pedagogy, interactions, structure, learner autonomy, and tools used. Using a checklist and guidelines, independent reviewers rated the recorded class sessions.

Thematic analysis of additional data from documents of faculty, students, producers, and the researchers were used to triangulate and validate the other data collected. These documents included positive aspects as well as problems and troubleshooting incidents contained in email, discussion board postings, training materials, support documentation, and a researcher's journal.

Results

Results were analyzed qualitatively based on a theoretical framework that examined interactions, structure, learner autonomy, and the success of the pedagogical strategy used, as well as the perceptions of those involved. The results support the use of SWBCS to enhance distance courses, showing educators were able to build connections more efficiently and increase the potential for interaction in the online classroom.

Based on the results of the student surveys and comments from the technical producers, the students had very few problems using the system. The students felt the system was of high quality and it assisted them in learning the materials presented in the class. More in-depth review of the student perceptions for each case helped identify the approaches that students felt were productive and useful for their learning environments. Positive student results include:

- Students had positive perceptions about the ability of the SWBCS to increase academic and social interactions with the instructor and others in the class
- Students felt that the added tools provided more opportunities for connections and decreased transactional distance
- Most saw the tools in the SWBCS as being very useful
- As the students became more comfortable with the new technology, they made comments about how well they liked this form of communication to support their learning
- Students stated that synchronous sessions helped to motivate them, enhanced their learning, and allowed them to demonstrate their knowledge

These positive results were not unanimous. Some students felt that the certain features of the system did not work as well as they would have liked and were therefore a bit frustrated. For example, the click to talk operation of the VOIP caused some frustration. Other difficulties included problems with the download of the Java client. In some cases, persistent cookies and firewalls made it cumbersome to get logged in, and some students experienced irritation with multiple windows that opened during the use of the web push.

The overall perceptions of the instructors were evident from the end-of-course survey. Generally, the five instructors that responded to the survey were positive about the experience both for themselves and for their students. Table 1 shows the summary of results for each category on the survey.

Table 1. *Summary of Results from Faculty End of-Course Survey*

Category	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
Perceptions of student outcomes	0	6% (n=2)	31% (n=11)	63% (n=22)
Overall systemic issues	0	13% (n=7)	37% (n=20)	51% (n=28)
Satisfaction with course as a product	0	3% (n=1)	17% (n=5)	80% (n=24)
Overall satisfaction	0	0	40% (n=4)	60% (n=6)

The instructors in this study used the SWBCS to enhance their courses in many ways. For the most part, each used the system to solve a problem or address an issue they saw in their current class format. The majority of the instructors implemented the synchronous tools to enhance the distance environment through:

- Increased interaction using audio and interactive tools such as hand raising, polling and emoticons
- Increased two-way dialog using both two-way audio and textual chat
- Added immediacy and feedback channels using tools such as emoticons and hand raising in conjunction with audio and chat
- Increased student comprehension using planned exercises, web content, questions and answer sessions and often breakout rooms
- Conducting more natural discussion using the audio feature of the system over the use of textual chat
- Connecting to students and have students connect to each other by offering multiple channels for communication in real time
- Group work using break out rooms and the communication tools available in the system

Overall, the instructors implemented teaching strategies that they were comfortable with and that enhanced their classes. They used the collaborative tools of the software to make the sessions active rather than passive. From the analyses of these five cases, a short list of successful teaching strategies was formulated. This list can be used as a starting point for further research on best practices in online synchronous learning environments. Those strategies used during successful sessions are listed below:

- Mini lectures combined with interactive exercises
- Structured group work
- Case study discussions

- Polling, quizzing and student interactions
- Dissemination of electronic content for immediate discussion, feedback or problem solving
- Reinforcement of ideas, concepts and knowledge
- Collaborative exercises
- Question and answer sessions

Overall the instructors successfully used the tools to meet the needs of their individual classes. Each instructor had a specific teaching style of his/her own and a specific goal in mind before beginning the sessions. Throughout the semester, most of the reasons stated for using the SWBCS were seen put into action in the sessions observed.

Conclusion

The focus of this investigation was on how and why instructors used the tools in a SWBCS to improve their distance courses. From this, many intriguing questions have arisen. The richness of data laid the groundwork for future investigations into the use of SWBCS in distance education from the perspective of effective teaching strategies and successful use of synchronous online tools.

This research has provided a glimpse into the complex nature of technology used for two-way communication in a learning environment that is real time and multifaceted. Hopefully these findings will lead us to additional discussions and research on best practices for using synchronous technologies for building learning communities and providing successful distance education courses.

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Acknowledgements

This work was supported, in part, by the University of South Florida and the Fund for the Improvement of Postsecondary Education, under Grant No. P339Z000006. \$2,774,950 in federal funds were provided for

the project, representing 50% of the total project costs. The remaining 50% of the project costs (\$2,774,950) were financed by nonfederal sources. The opinions expressed are those of the authors and do not reflect the views of the United States Department of Education or the University of South Florida.

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