Student Perceptions of Web-conferencing in Hybrid Classes

Action Research Project

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Introduction

Learners have begun demanding ubiquitous, on-demand and quality e-learning opportunities with enough support services in recent years (Khan, 2005; Grant & Cheon, 2007). To meet these demands, there is need for developing "affordable, efficient, easily accessible, open, flexible, well-designed, learner-centered, distributed, and facilitated learning environments" (Khan, 2005, p. 137). With rapid growth in web technology, it becomes more possible to fulfill these demands.

The higher education institutions are increasingly employing web-conferencing systems in their educational settings (The Horizon Report, 2006). According to the National Center for Education Statistics (2008), 31% of the postsecondary institutions offering online courses in 2006-2007 are using synchronous Internet-based technologies in online courses. Instructors have also used the web-conferencing systems to simulate face-to-face classroom experiences (Skylar, 2009). Adult learners in higher education, professional development and continuing education form the main contingent of learners who prefer web-based online courses because of their advantage (Kalk, 2009) of eliminating time, money and travel expenses (The Horizon Report, 2006).

Research has been done on web-conferencing in fully online courses, but not much research has been done on hybrid classes which are a combination of face-to-face meetings and online instruction (Grant & Cheon, 2007).

Purpose and Research Questions

The purpose of this study is to examine student perceptions of using the web-conferencing system as an alternative to face-to-face meetings in hybrid classes in higher education. Two graduate level hybrid courses including synchronous interactive web meetings and asynchronous discussion forums were evaluated for the study.

The research presented in this study addresses the following questions:

1. What are the web-conferencing practices and findings in literacy?

2. What are the students' perceptions of the usage of web-conferencing?

3. What are the issues surrounding the use of web-conferencing systems?

4. How do the findings from this study relate to the previous studies?

5. What are the implications of this study for further research?

Review of the Literature

What is web-conferencing?

Web-conferencing is a system to perform live meetings between two or more participants from different locations over the Internet. The system could be a web-based application in which participants attend the meetings by clicking the website of the meeting room or could be a software required download (Wikipedia). There are assigned web pages to hold meetings in which participants can share audio, video, files and whiteboards. Participants can attend the meeting from their own computers via the internet.

Synchronous online meetings have been called various names in reviews: webinar (one way from the presenter to the audience with limited interaction opportunities),

virtual meeting, virtual conference, web conference (Stephens & Mottet, 2008; Wikipedia), e-conferencing (Shi & Morrow, 2006), online conferencing, etc. Web-conferencing system include built-in audio conferencing and video conferencing tools, chat rooms or shared whiteboard (Reushle & Loch, 2008), which support real-time collaboration, instant interaction and feedback (Wilkinson & Hemby, 2000; Reushle & Loch, 2008). Synchronous web meetings with VOIP (Voice over Internet) or advanced video capabilities enable such interactions that resemble closely face-to-face class experiences.

According to the literature, web-conferencing can be either asynchronous or synchronous conferencing based on the tools employed. Asynchronous conferencing allows learners to access learning materials anytime and gives time to learners to response to questions or assignments before posting them to the discussion forum (Knapczyk, D., Frey, T.J., Wall-Marencik, W., 2005; Grant & Cheon, 2007).

On the other hand, synchronous conferencing provides immediate interaction between students and instructors with audio, video and chat features, but limited time flexibility (scheduled meeting times) is still an issue (Grant & Cheon, 2007). This study refers specifically to synchronous or live meetings.

History of Web Conferencing

PicturePhone was the first video conferencing system put into practice by AT&T in the 1960's (Grant & Cheon, 2007). As telecommunication technologies developed (Integrated Services Digital Network ISDN, and compressed video data transmission),

two-way video technologies for e-conferencing have become applicable (Grant &

Cheon, 2007).

In the early 1990s in higher education, the audiographic technology, included

bridged telephone lines and computers with modem, both of which were used for live

meetings. This video-conferencing system could only be set up in dedicated

classrooms, so both the instructor and students had to come to class (Rowe, Ellis &

Bao, 2006; Skylar, 2009). Because of the place and time limitations of the system

(phone line bridging and software restrictions), it was not possible to reach all

students, thus this technology was abandoned in the second half of the 1990s (Rowe,

Ellis & Bao, 2006). In the early 2000's, the Web 2.0, or second generation of web

services, took center stage and advanced web-conferencing systems were the results

which are available today (Rowe, Ellis & Bao, 2006).

The advanced web-conferencing systems have expanded their capabilities greatly

in ten years (Bentley & Collins, 2007). Communication attributes have especially been

improved (Bentley & Collins, 2007). Currently, a web-conferencing system is

generally offered as a web service and can be accessed from a web-server without

downloading any software (Bentley & Collins, 2007; Skylar, 2009). Meeting holder

and participants can join the meeting from any computer with internet connection.

Most web-conferencing systems in the market support real-time web-based

interaction and collaboration with added tools including private and public text chat,

VoIP (Voice over Internet) audio conferencing, video conferencing, shared

whiteboard, integrated survey tool, shared application, or desktop (Loch & Reushle,

2008; Kalk, 2009). With a microphone and a webcam, participants can share audio and video with each other (Bentley & Collins, 2007). Learners can communicate during web meeting via built-in chat room. Hosts and users can share their desktop, files, software and multimedia applications (such as PowerPoint), can work collaboratively on whiteboard with built-in tool sets (drawing, typing, etc.), and can even conduct a survey (Forrester, 2009). Furthermore, new web-conferencing systems allow instructors to pass the control to any participant.

The Advantages and Disadvantages of Synchronous Web-Conferencing

There are many advantages to employing web-conferencing system in higher education to increase student's satisfaction. Web-conferencing system is a remarkable opportunity for online courses within higher education. Faculty and students can make live presentations in addition to asynchronous communication settings through the online class. Some advantages are:

·It reduces travel time and money expenses (Grant & Cheon, 2007).

·It allows exchanging knowledge in real time and accessing the instructor immediately to ask questions and get prompt feedback (Grant & Cheon, 2007).

·"It provides a suite of tools within one environment" (Loch & Reushle, 2008, p. 565).

·The recording opportunity for these systems ensures access to any lecture, presentation or meeting that is over (The Horizon Report, 2006).

·It is a cost-efficient technology which is quite affordable (Grant & Cheon, 2007).

·It promotes student engagement with real-time discussion opportunities (Grant & Cheon, 2007).

·Synchronous conferencing generates an associated community with active interaction (Wilkinson & Hemby, 2000).

·It is an alternative to interrupted education due to emergency cases. For example, the instructor can hold a web meeting when s/he is not able to come to class or when the university is closed because of bad weather or other emergencies (Bentley & Collins, 2007).

However, as Skylar (2009, p. 71) notes "this type of environment requires a set date and time for meeting, and this contradicts the promise of "anytime, anywhere" learning that online courses have traditionally promoted". Also, typing is slower than speaking which can be a disadvantage. "Messages might be received out of order" (Wilkinson & Hemby, 2000, p.15). "Learners sometimes found it difficult to know when to interrupt to ask questions because they could not always see others preparing to ask questions" (MacIntosh, 2001, p. 263).

There are, however, some factors which can improve the success of implementing the web-conferencing system. Audio and video qualities are essential for quality meetings. It is crucial to have equipment and alternative ways in the case of overflowing data (Grant & Cheon, 2007).

Another factor is that both instructors and students need to be familiar with the technology. To meet this requirement, a basic training at the beginning of the course would be beneficial (Grant & Cheon, 2007). In addition, successful instruction with

web-conferencing depends on an appropriate pedagogical approach to the use of technology (Grant & Cheon, 2007; Reushle & Loch, 2008). "New approaches to instruction must accompany new technologies, adjusting to the changing teacher's role, motivating learners, and preparing learning materials to fit the synchronous conferencing" (Grant & Cheon, 2007, p. 214).

Review of Research

Learners have a positive impression of using virtual conferences (Wilkinson and Hemby, 2000). Jennings and Bronack (2001) examined the interaction between intern teachers and instructional designers through desktop video-conferencing with chat, whiteboard and document-sharing capabilities. The learners valued the authentic learning environment in which collaboration was supported, even though technical problems interrupted communication and interaction.

Another study on using two-way interactive video-conferencing technology in online classes for a nursing program resulted in the conclusion that using the video-conferencing technology with appropriate pedagogical techniques in the online class improved the learner interaction and engagement. (MacIntosh, 2001).

In their study of integrating synchronous classroom software into an ongoing online program, Little, Passmore and Schullo (2006) examined the way the instructors used the synchronous tool (VOIP) and the students' perceptions about synchronous classroom sessions. They found that the synchronous sessions used in addition to web-based course instruction improved learner satisfaction and learning because of increased interaction.

Grant and Cheon (2007) investigated the effects of synchronous conferencing technology on teaching and learning and the factors for success and failure of synchronous conferencing in hybrid classes in higher education. Active support and convenience are the advantages, and if technical quality improves, synchronous conferencing will be a convenient instructional method in hybrid classes.

Vitaras, Rowe, and Ellis (2008) conducted a study on using a web-conferencing system (Elluminate Live) in a business school to examine the early experiences of students with web-conferencing. The study reported that students felt they were part of a real classroom setting and were engaged with the instructor and their peers. However, students needed clear instructions on using the technology. Furthermore, the authors mentioned in their study that the instructor was the critical factor in developing student confidence and successful web-conferencing experiences, thus they concluded that professional development is important for instructors to be comfortable with the technology and integrate it into the curriculum in an appropriate way.

Reushle and Loch (2008) conducted an action research on the trial of web-conferencing system in a university. They observed that web-conferencing promoted student-centered learning and engagement of students and instructors. It is required that the software package should be available for all users and be compatible with different operating systems with minimized hardware and software requirements. Support and professional development are also important elements for successful applications of web-conferencing systems.

"Initial evaluation findings reveal that through web-conferencing, external students feel engaged and connected, which may lead to better student evaluations, higher university ranking and additional government funding" (Loch & Reushle, 2008, p. 566).

Skylar (2009), explored the student performance and perception of a hybrid course, which employed both asynchronous text-based lectures and synchronous web-conferencing. She found that both asynchronous and synchronous online instructions are effective ways of teaching an online course. 75% of the students reported that they would prefer the online class with a synchronous web-conferencing system rather than asynchronous lectures.

Kalk (2009) examined peer interactions in an online course which included asynchronous forums and synchronous web-conferencing in the socio-constructivist framework. It was revealed from the study that the chat room in the web-conferencing system was an effective tool. Learners generated interaction and community.

Dimdim Web-conferencing System

Dimdim web-conferencing software is a powerful tool which allows live meetings through the web. During meetings, the presenter is able to browse the web with the participants, show his computer screen and designate any attendee as a presenter. Built-in chat, video and audio provide additional interaction opportunities for attendees. These features enhance student engagement and give a new impulse to online education.

Dimdim is a user-friendly technology: attendees are not required to download any software or program. They do not need to sign up to have an account either. They can attend the meeting instantly by going to the web address of the meeting room. Dimdim has built-in audio and two-way video, which is important to create a learning environment similar to face-to-face classes. Dimdim works with a variety of operating systems like Windows, Mac, and Linux. Web browsers like Firefox, Internet Explorer, and Chrome are also supported (Dimdim, n.d.).

What can be done with Dimdim?

- Audio and video conferencing (two-way video)
- One can share and co-browse web pages, computer screen, documents and whiteboard
- Public and private chat
- Recordings of the meetings
- Pass control to attendees with video and audio
- Add a survey or poll in a meeting
- Secure your meeting room
- Customize the teleconferencing
- Get a clear picture from the drawings on whiteboard with built-in laser pointers and zoom tools

Method

Settings of the Study

The study took place within two graduate-level courses at the University of Delaware during the Winter of 2010. The courses were *EDUC 639 Eportfolio Web Design* and *EDUC 818 Educational Technology Foundations*. Both courses were administered by the same professor in a hybrid format through the Sakai online course management system that is employed by the university. There were regular class meetings (live classroom sessions) for each class held on Tuesday and Thursday evenings. For these meetings, students had two options: they could come to the computer lab in which the classes took place or they could follow the class through Dimdim online web-conferencing over the Internet. The students who came to class were able to attend the online meetings via the computers in the computer lab. Besides these meetings, the students and professor continued the asynchronous online discussions related to course subjects and a variety of topics and issues through Sakai throughout the week. Furthermore, a web portal developed by the instructor including video lectures and text-based lectures about course content was provided to the learners.

The structure of both courses was mainly the same. The Web 2.0 social interaction tools within Sakai like discussion forum, blog, chat room, and wiki were used to provide communication as the online part of the courses. Blogs, wiki and forums were required tools to use by students. The chat rooms in Sakai were not as actively used as the chat function in the Dimdim because students have to enter the chat room to see who is in chat, so it was not common to enter chat simultaneously. Blog was used as a diary for the work students had made toward completing their

project goals to be reviewed by the instructor. Each student had their own blog which was assigned to their name in the Sakai and they were required to write the progress they made into the blog at least three times throughout the semester. Wiki was used for posting cool tools by students. The most used and important tool was the discussion forum, which promoted peer-to-peer support. Students played an active role in the forum by asking questions, and responding to the other posts. It was common to see that students were asking for peer review in the forum. The forum included two parts: *General Discussion* and *Dimdim*. A variety of discussions took place about final projects, and the problems students faced under the title of *General Discussion*. They were informing their classmates about their project, reviewing and critiquing others projects. *Dimdim* was placed in the forum to collect feedback and suggestions from students with respect to the use of Dimdim in the course and was not required. It was a learner-centered environment in which the professor participated and monitored developments.

The professor is in the Educational Technology department, and he is mostly teaching courses about web and eportfolio design, instructional design, and design with Web 2.0 tools. He is highly familiar with the technological tools and their applications in educational settings. He is confident using the technology.

Web Conferences with Dimdim

The live online meetings were conducted by using the Dimdim web-conferencing system at the times of face-to-face meetings. This was the first time in which the professor had ever used Dimdim, which was also new at the university. Audio and

video-conferencing tools, chat windows, desktop, and application-sharing were some of the tools of the system used during the meetings. The instructor shared his desktop with attendees, whether he was browsing the web, or sharing power point presentations or videos. Students were active in chat by posting questions and comments. The instructor read these posts aloud. In the chat window, the posts were flowing so quickly, that it was hard to follow. Until the end of the semester, the professor occasionally made some of the students presenter during meetings. The professor developed the way he used the system according to student feedback. In the beginning of the semester there were some minor technical problems with the system, but the professor dealt with these problems quickly. The professor encouraged students in the forum to provide their feedback on using Dimdim and made adjustments based on their demands and the problems they experienced.

Participants

Twenty one students were in Educational Technology Foundations and fifteen students were in the Eportfolio Web Design course: two students were taking both classes. Therefore, there were a total of 34 students in both courses. They were both Master's and Doctoral-level students, the majority of whom were staff and administrators at universities, colleges and public schools; teachers; and graduate assistants in the university.

Data Collection

The major data source used in this study was online discussion posts. In the discussion forum, the professor opened up a new discussion under the title of *Dimdim*

to collect students' feedback about using web-conferencing throughout the semester.

The data sources consisted of posts from both courses - 75 posts from *Eportfolio Web*

Design and 39 posts from *Educational Technology Foundations* related to the use of

Dimdim in the courses. These posts included learners' feedback and suggestions about

using Dimdim. Students mentioned their ideas about advantages of using Dimdim,

their demands, the problems and issues related to Dimdim, and the improvements

achieved in regards to the use of Dimdim throughout the class in the forum.

The number of posts in EDUC 818 was remarkably less than the discussion posts

of EDUC 639. Differences in the number of responses might have been due to the fact

that most of the students in EDUC 818 were not in the Educational Technology

program and, therefore, it was probably the first time they took this professor's class

and were not familiar with the course settings.

The professor requested feedbacks from students regarding the use of Dimdim,

and responses were posted in the discussion forum. He asked: "Did you think it got in

the way at all, or was it fairly transparent? If you were logged in to Dimdim during the

class, what did you think about the Dimdim experience? Did you find the controls

intuitive to use? Can you think of anything I could do better to improve the manner in

which I was using Dimdim in class?"

Data Analysis

Data analysis for this study focused on student reactions to web-conferencing

technology. The qualitative data (discussion posts) were analyzed by using coding

analysis via Nvivo (qualitative analysis software). I developed a coding scheme that

categorizes the similar reactions in four main themes: advantage, issues, student demands, and the adjustments the professor made. Because the study aimed to analyze the insights of students about using web-conferencing system, written reactions made by students throughout the courses were examined to learn how students benefited from the web-conferencing system that the professor used in his own way and to learn what the advantages and issues of the use of web-conferencing in these courses were. During the analysis of the data, I asked, what did students report about the advantages and issues of the use of the Dimdim web-conferencing system throughout the course? How efficient were the professor's ways of using the technology? How did the developments through the course effect the process?

Findings

The following part presents the student perceptions of web-conferencing that came up from an analysis of the feedback posted in the discussion forum by the students. Findings from the study showed that web-conferencing technology is efficient in terms of promoting interaction, composing an online community and engaging students. It brought flexibilities regarding reducing the commute time and monetary expenses which are emphasized by students as a key aspect of the web-conferencing. Dimdim was seen as user-friendly by students, even though some minor troubleshooting problems interrupted the class especially in the first few meetings. Many students wanted to have records for online meeting sessions and an alert feature in chat. A considerable point from the posts was the adjustments and arrangements made by the professor to improve the quality of web-conferencing sessions.

Advantages

This technology gave an alternative option to students in the hybrid class; students could attend the class meetings via Internet instead of commuting the class. Especially students in remote areas saved time and money which are important factors for higher education students who also work full-time. Many adult learners in the classes appreciated the alternative web meeting option:

> I really like this tool. I like having the option to either come to class or log in on-line. The flexibility works well with my schedule, my life. So, thank you for that. I was just curious as to why you didn't make this course 100% on-line? or maybe you will in the future. Either way, dim dim is a great tool and as I've stated somewhere in the forum, I would love to see it become more popular with classes as it might alleviate some missed class time for our student athletes.

> I am so appreciative that you are looking for ways to accommodate those of us who work full time and also have long commutes. With dimDim, I can use that time to work on my projects!

Due to working and studying at the same time, higher education students look for online class opportunities. They prefer flexible courses to make more time and ease their life and get their degree. From this perspective, Dimdim was used in the hybrid class converted it completely online course by giving web-conferencing opportunity to students instead of commuting to class. Some students in the class valued the web-conferencing technology in terms of eliminating commuting time:

As a downstate resident, I was very pleased with Dimdim, especially since I did not have to drive to Newark for a 1.5 hour class. The technology not only saved me time and money, but it was easy to participate in the class from home.

For time reasons but also for economic reasons, Dimdim is a terrific option for teaching/learning at a distance. I have been appreciating NOT using my EZPASS (and paying that bill), finding/paying for parking, filling up my gas tank several times a week, and the stress of dashing from southern DE right after work to barely make it to class on time.

In the above posts, typically, students express their appreciation of not commuting to school; saving time, and money; and getting rid of parking problems. I concluded that this tool is a good extension for distance education by providing qualified synchronous online communications besides asynchronous communications especially for adult learners with a busy life. In addition to these advantages, Dimdim is a user-friendly technology which is another advantage of web-conferencing mentioned by a student:

I think that Dim Dim is a wonderful idea. It is good for me because I live in Wilmington and work in West Chester. It is a 30 min drive home and then another 30 min to drive to class. Not only do I have to get out of work early and loose some hours of pay, but I feel rushed fighting traffic on 95. Being able to go home or to the Library and watch class via Dim Dim will be nice next week. I look foward to seeing how easy it is to access and listen to the class discussions on Tuesday.

It is important that user-friendly technologies ensure students and instructors are easily adapted to technology in the course settings. Dimdim does not require any technical or software knowledge. A few students reflected on their experiences using Dimdim:

> I found Dimdim to be very convenient and user-friendly. I wouldn't consider myself very experienced when it comes to new technology, however I was able to pick this up quite easily.

> Now that the kinks have been worked out with dimdim, I really do enjoy attending class in this way. The ease of use is outstanding and allows me to attend class without have (sic) to struggle to be there physically. I commend the University for taking this approach to expand their learning environment.

Web-conferencing also made students feel more in the class and part of the online community. Reflecting on how the technology provides associated learning community while removing physically attendance to class, a student explained:

> Dimdim is unique, and for me, I don't feel like I'm missing out too much by not being on campus. I do love being on campus, but it is an hour and a half from my home. Really though, with every class, I feel very much a part of the learning while at the same time a part of the group of distance learners.

Creating online community is an important part of online meeting to improve the quality of communication and interaction between students. The more students know each other the more they work collaboratively. A few students indicated the feeling of connection and working collaboratively in the course:

I feel like I have had a chance to meet classmates in a new way. It feels like

we are "connected" and somehow working together on discovering stuff.

I'm becoming more comfortable with Dimdim. I like how students can

help other students with answers or talk to other students during class that

aren't necessarily sitting next to them. I do like the face- to-face experience

more, but I am glad this is an option.

In addition to technology the instructor is also a crucial factor for forming online

community in which student engagement and collaboration are promoted. The

professor made an enormous effort to keep all students engaged and aware of each

other. He was calling the name of the students who asked questions, asking other

students whether they had solutions or comments for an issue that emerged in the

class. Sometimes he was also assigning as presenter students who have questions.

Also he was using a mirror to show students in class to online attendees. A few

students explained the effect of professor on promoting sense of being online

community:

The professor is doing a great job checking the chat-he really involves us-

mentioning student's names whether they are in class or on Dimdim while

addressing questions gets us noticed and keeps us involved in the discussions.

And little touches like the "mirror of Dimdim" so we can see the class- that

really helps to add a personal touch-I feel less and less like I am learning from

afar. Dimdim is logistically helpful and is even, for lack of a

better phrase, kinda fun. I find myself laughing (or chatting "ha ha") every so

often. The fact that Dr. Hofstetter works hard to keep everyone involved in

class and on Dimdim makes such a difference-he's not just on the camera, he's

interacting with everyone. On a more personal note, I continue to appreciate

the opportunity to chat with others-so we can help each other. I don't always

want to interrupt with what may be a minor question, and it's nice that we can

chat about our class related topics without disturbing the instructor. I am a

major multitasker (we probably all are, right!) - so listening to class and

working on a problem via chat at the same time is useful. It's like

simultaneous learning-if that makes any sense. And for those who are a little

nervous about piping up with a question, the chat is great. I always end up

noting questions during a campus class that I ask about later (maybe)...with

Dimdim, well-I can just type the question in chat. And the chat camaraderie is

thus far very positive and supportive-ideal.

Something as simple as holding up a handheld mirror to show the

classroom made me feel more integrated. I also thought the idea of assigning

someone with a headset was helpful especially if there were any questions or

alerts that needed to be communicated.

There were other factors that promoted the sense of being online community. First

Dimdim has built-in chat which was actively used by the students through web-

conferencing. Students were asking questions and discussing issues about their

portfolios (final project). Students in their responses below reflected that chat

promoted communication and collaboration between the students:

I don't feel that I'm missing anything by not being in class, since I get to hear

or see all of the questions, and I get to ask my own as well. One added benefit

is that, through chat, students can carry on side conversations without taking

up class time. I think we have created a community feeling, with students

helping each other through the problems we have encountered in our

portfolios. Sure, we've lost sound or connectivity a few times, but these have

been very minor inconveniences.

Regardless, having the chat available is great and certainly helps us to be

more involved with everyone. Of course, being in Milford makes Dimdim an

ideal way to learn-I can watch instruction and hear what's going on as it's

happening-I really appreciate the experience.

Current web-conferencing technology made a new difference by providing

communications like face-to-face classes. Especially built-in video makes

sophisticated synchronous discussions possible beyond asynchronous online

discussions. Students were able to see professor and hear him through video and

audio. Dimdim has built-in audio and two-way video which was important to simulate

face-to-face class experiences and gave various interaction opportunities to attendees.

These features enhanced student engagement and collaboration. Some students wrote

about how video conferencing in Dimdim promotes engagement:

I think dim dim is great, it really gives someone the opportunity to participate

in class and feel part of the class when they are not in the same room. I am

facinated by how it works. Someone can be sitting in a different part of the

world or right down the hall and be part of the class that is going on. I really

like the video aspect of dim dim, because it gives the person from the computer

a view to the class. so not only do you hear the voice, but you can put a picture

with the voice. I am going to come to class next time, but i will use dim dim

again. This is great.

Today when I was on dim dim from home it felt as though I was in class.

The video is a huge help in making the experience more real. The only

problem I noticed (minor) is that sometimes there is a very small

synchronization lag between voice and visual ... on the whole dimdim is very

helpful and useful in making you feel that you really participated in class. Not

to mention that the professor is so incredible at keeping all the distance

learners involved as well!

Issues

One of the common issues for web-conferencing in the classes was managing the

chat window. It was hard for the instructor to keep up with all the conversation

flowing in the chat, while conferencing because the topic of students' posts could be

inconsistent with each other and chat was flowing quickly. Sometimes the questions

and comments were not related to the conversation that was going on in the chat; thus

it was possible that the questions could be missed by the professor. Two students

implied about missing questions in the chat:

Sometimes it took a while for a few of our questions to get noticed, but I

understand it must be challenging to teach and check out chat at the same time.

Multiple virtual students can ask questions at the same time. While this is

good because there's a lot of what needs to be answered, it also means that

some student's questions could move up and off the screen before being

answered. It would be fantastic if the questions could be organized by topic

somehow, or if there was a way to "raise your hand" and be called on... so

there was turn-taking.

There were some glitches that interrupted the course at the beginning of the semester.

A student mentioned about having the technical problems in early weeks:

The first few classes have taken class time away trying to get the glitches out,

and therefore, class has not been all that productive in that sense.

I was in class and had DimDim on - one other small problem that I noticed

was that there was a slight synchronization problem between action and sound

- could be a slow network problem?

One other issue in the class was about students who came to class physically. Most of

the students were attending the class online through Dimdim, while a few students

were coming to class. The professor with headset was mainly focusing on the Dimdim

setting because the majority of the class was attending the web meeting, but he was

repeating questions that students asked in the class to inform other students. Students

in the classroom were likely think that they were interrupting the class. However,

students in the class were able to sign in to Dimdim via the computers in the

classroom (computer lab) or their personal laptops. For this issue the professor

mentioned:

I truly value all this feedback, your point is well taken about students in the

classroom possibly feeling as though they are interrupting what is going on in

the Dimdim session. I need to do a better job of encouraging the students who

are in the F2F class to ask away, just as the Dimdim students are doing. In fact,

F2F students could even log on to the Dimdim session and put your questions

into the queue. Maybe that is a solution. We can discuss!

Student Requests

Dimdim allows recording meeting sessions, and it is a great opportunity for the

students who missed any class to have a chance to view it another time. Because of

technical problems, the professor could not use this feature. Recording sessions were

one of the most demanded issues by students:

I am on the road for work this week, and unfortunately, I could not log into

Dim Dim during class time last night because I was in a working session. I

thought that the class sessions were being recorded? If they are being

recorded, where are they posted because I can't find them! If they aren't being

recorded, can they be? you wanted to know what it was like from the road

(and I'm sorry I couldn't test it for you!) because it might be beneficial to

student athletes. Well, my thought was, if a class session can be recorded for a

SA to review later, that would be beneficial as well.

I just wish that DimDim could be recorded smoothly without any technical

delay with the sound recording so that those who can't be there during the

lesson both in the classroom and online, can still watch it some other time.

This is also useful if we want to review the lesson.

Another demand was an alert feature in chat. A few students stated in the discussion forum that an alert feature for questions in the chat could eliminate the interruptions in the conversational flow and attract the attention of the professor to the questions:

...would it be possible for a sound to go off when someone posts a question?

Or maybe have questions color coded? This way an instructor knows a

question was asked and the response can be more timely which may add to

the discussion at hand. This may help those who don't have the audio

component working and want to be a part of the discussion in 'real time.'

I would have to agree that one way to improve DimDim would be to install

an alert feature to address questions or comments from students. I think an

alert system feature is a good way to address issues and also to engage or spark

interest from fellow classmates.

Adjustments Made by the Professor

According to student feedbacks and his own evaluations, the professor was making new adjustments to figure the issues out and to enhance the web-conferencing experience. For example, he was testing new headset products to improve audio quality, making changes from wireless to wired option for internet connection to eliminate network problems, etc. He posted the adjustments he made in the discussion forum:

I spent some time tonight figuring out the audio options in Dimdim. It appears

that the presenter has 5 virtual microphones to hand out to participants. The

next time we try using audio in class, therefore, I need to assign you one of

those microphones in order for you to be able to talk out loud in class. When

you have one of these microphones, a mic icon appears in your participant bar.

To enable your mic, you need to click it. Actually, tonight when I did this, the

user had to click the black arrow to pull down the menu and choose Restart

A/V Broadcaster. Once this was done, it worked really well. We can try it out

Tuesday night.

I have been thinking about how my laptop, which I have been using to

host the Dimdim sessions, has both wired and wireless Internet connections. I

am wondering if some of the glitches we have had may be the result of those

two connections competing, so to speak, to answer the various requests that

come via the Internet during a Dimdim session. This week, therefore, I am

going to try turning off the wireless connection and see if it works better totally

wired. I have a feeling that may be what caused last week's glitch when I got

that "cannot connect" message and it hung and I had to restart everything.

He was involving students in any process of the experience which is also serving as a

model for educational technology students:

After two classes where Dim Dim is being used - I can't imagine the class

without it. It adds another layer of interaction to the time we are in the room. It

allows students to bring up points or issues that they think of while the

Professor is talking - and because they are typed in - the Professor can then

address the issue when it fits into the flow of the presentation. I feel that setting

it up while we are in the classroom is a valuable opportunity for students in

Educational Technology to experience how this is done and see how glitches,

etc... are handled in front of a room full of people. Talk about real world

experience!!

The student's post above shows that seeing how the instructor dealt with the technical

problems while teaching class is a sample for students who are majoring in the

Educational Technology program.

Limitations of the Study

One of the limitations of the study is that there were not enough posts about

perceptions of the students who were physically in the class during the Dimdim

sessions. Therefore, the aspects of these students about using web-conferencing could

not be evaluated. Also, this was the first time that the instructor and the majority of the

students used the web-conferencing technology and they were not able to compare it

with other experiences. The improvements for better experiences were developed

during the semester. Furthermore, the study relied on only self-reported posts. A

survey to determine students' overall satisfaction level at the end of the semester could

have been conducted to support findings from the coding analysis.

Recommendations and Conclusions

The findings revealed from this study indicated that students are favorable towards

the web-conferencing technology. Students who work full-time valued the

convenience of the technology in terms of eliminating travel time and costs and also being user friendly. Especially, web-conferencing technology enabled students to feel a part of the class. The sense of being online community was promoted with audio, video conferencing, chat and the professor's approach to use the technology. Also, two suggestions raised by students during the semester included recording the meeting sessions and having an alert system in chat for notifying the instructor.

Some of the findings from this study are similar to the results from previous studies: students felt part of the class (Vitaras, Rowe, and Ellis, 2008), students have positive perception of web-conferencing (Wilkinson and Hemby, 2000), and chat was an effective tool to improve the web-conferencing experience (Kalk, 2009).

Professor and students faced some technical problems especially at the beginning of the semester. However, the professor's high technological familiarity and students' Educational Technology background facilitated to overcome the problems. Professors and students with different technology backgrounds might experience different results.

For further research, the effect of web-conferencing systems on teaching and learning can be analyzed and the factors for successful experiences can be determined. The collaboration between students was mentioned by few students in the study but it needs to look more in-depth on whether this technology promotes peer to peer collaboration. An additional study might be conducted to examine what pedagogical methods work best with web-conferencing and promote student engagement.

References

Bentley, K., & Collins, S. (2007). *The evolution of web-conferencing*. Retrieved from

    http://net.educause.edu/ir/library/pdf/DEC0705.pdf

Dimdim. (n.d.). Retrieved from http://www.dimdim.com/

Forrester, B. D. (2009). Global connections: Web-conferencing tools help educators

    collaborate anytime, anywhere. International Society for Technology in

    Education ISTE.

Grant, M. M., & Cheon, J. (2007). The value of using synchronous conferencing for

    instruction and students. *Journal of Interactive Online Learning*, 6(3), 211-

    226.

Jennings, M., & Bronack, S. C. (2001). The use of desktop video conferencing as a

    medium for collaboration between beginning instructional designers and intern

    teachers. *International JI. of Educational Telecommunications*, 7(2), 91-107.

Kalk, D. (2009). Fostering Peer Support in e-Learning : A Socio-constructivist

    Approach. In G . Siemens & C . Fulford (Eds.), *Proceedings of World*

    Conference on Educational Multimedia, Hypermedia and Telecommunications

    2009 (pp. 1621-1624). Chesapeake , VA: AACE. Retrieved from

    http://www.editlib.org/p/31694.

Khan, B. H. (2005). Learning features in an open, flexible, and distributed

    environment. *AACE Journal*, 13(2), 137-153.

Knapczyk, D. R., Frey, T. J., & Wall-Marencik, W. (2005). An evaluation of web-conferencing in online teacher preparation. *Teacher Education and Special Education*, 28(2), 51-61.

Little, B. B., Passmore, D., & Schullo, S. (2006). Using synchronous software in web-based nursing courses. *Computers, Informatics, Nursing*, 24(6), 317-325.

Loch, B., & Reushle, S. (2008). The practice of web-conferencing: Where are we now? *Proceedings ascilite Melbourne 2008*. (pp. 562-571). Melbourne.

Macintosh, J. (2001). Learner concerns and teaching strategies for video-conferencing. *The Journal of Continuing Education in Nursing*, 32(6), 260-265.

National Center for Educational Statistics. (2008). *Distance education at degree-granting postsecondary distance education: 2006 – 07*. Washington, DC: U.S. Department of Education. Retrieved from http://nces.ed.gov/pubs2009/2009044.pdf

Reushle, S. & Loch, D.B. (2008). Conducting a trial of web-conferencing software: Why , how , and perceptions from the coalface. *Turkish Online Journal of Distance Education-TOJDE*, 9(3), 19-28.

Rowe, S., Ellis, A., & Bao, T. Q. (2006). The evolution of audiographics : A case study of audiographics teaching in a business faculty. *Proceedings of the 23rd annual Ascilite conference: Who's learning? Whose technology?* (pp. 707-716). The University of Sydney, Australia. Retrieved from

Shi, S., & Morrow, B. V. (2006). E-conferencing for instruction: What works? *Educause Quarterly*, 4. Retrieved from

http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMag
azineVolum/EConferencingforInstructionWha/157428

Skylar, A. A. (2009). A comparison of asynchronous online text-based lectures and
synchronous interactive web-conferencing lectures. *Issues in Teacher
Education*, 18(2), 69-84.

Stephens, K. K., & Mottet, T. P. (2008). Interactivity in a web conference training
context: Effects on trainers and trainees. *Communication Education*, 57(1), 88-
104.

The Horizon Report. (2006). Stanford, CA. Retrieved from
http://www.nmc.org/pdf/2006_Horizon_Report.pdf

Vitartas, P., Rowe, S., & Ellis, A. (2008). Student' s first experiences with a web-
conferencing system – preliminary findings. Retrieved from
http://ausweb.scu.edu.au/aw08/papers/refereed/vitartas/paper.html.

Wilkinson, K. L., & Hemby, K. V. (2000). An examination of perceptions of the use
of virtual conferences in organizations: The organizational systems research
association (OSRA) and the association for business communication (ABC)
members speak out. *Information Technology, Learning, and Performance
Journal,* 18(2), 13-23.

Wikipedia. (n.d.). *Web-conferencing*. Retrieved from
http://en.wikipedia.org/wiki/Web_conferencing

Appendix A

Coding Scheme for Data Analysis

1. Advantages

    a. Reducing commute time and monetary expenses

    b. Being user friendly

    c. Creating online community

2. Issues

    a. Conversational flow/interruptions

    b. Technical problems

3. Student Requests

    a. Recording sessions

    b. Alert feature

4. Adjustments made by the professor to improve the experience

Appendix B

Coding Examples Based on the Coding Scheme

1. Advantages

a. Reducing commute time and monetary expenses

I think that Dim DIm is a wonderful idea. It is good for me because I live in

Wilmington and work in West Chester. It is a 30 min drive home and then another 30

min to drive to class. Not only do I have to get out of work early and loose some hours

of pay, but I feel rushed fighting traffic on 95. Being able to go home or to the Library

and watch class via Dim Dim will be nice next week. I look foward to seeing how easy it is to access and listen to the class discussions on Tuesday.

b. **Being user friendly**

I found Dimdim to be very convenient and user-friendly. I wouldn't consider myself very experienced when it comes to new technology, however I was able to pick this up quite easily.

c. **Creating online community**

I don't feel that I'm missing anything by not being in class, since I get to hear or see all of the questions, and I get to ask my own as well. One added benefit is that, through chat, students can carry on side conversations without taking up class time. I think we have created a community feeling, with students helping each other through the problems we have encountered in our portfolios. Sure, we've lost sound or connectivity a few times, but these have been very minor inconveniences.

2. Issues

a. Conversational flow/interruptions

It would be helpful if everyone who was present in class had a microphone so that when they ask a question, we can hear them. Otherwise, it requires the professor to repeat everything a student says.

b. Technical problems

I tried using dimdim from work today and have had some problems getting sound to come out. In addition, the internet has kicked me out from time to time, saying their is an error. I'm not sure if it was a problem with my computer or dimdim.

3. Student Requests

a. Recording sessions

    I just wish that DimDim could be recorded smoothly without any technical delay with the sound recording so that those who can't be there during the lesson both in the classroom and online, can still watch it some other time. This is also useful if we want to review the lesson.

b. Alert feature

…would it be possible for a sound to go off when someone posts a question? Or maybe have questions color coded? This way an instructor knows a question was asked and the response can be more timely which may add to the discussion at hand. This may help those who don't have the audio component working and want to be a part of the discussion in 'real time.'

4. Adjustments made by the professor to improve the experience

I spent some time tonight figuring out the audio options in Dimdim. It appears that the presenter has 5 virtual microphones to hand out to participants. The next time we try using audio in class, therefore, I need to assign you one of those microphones in order for you to be able to talk out loud in class. When you have one of these microphones, a mic icon appears in your participant bar. To enable your mic, you need to click it. Actually, tonight when I did this, the user had to click the black arrow to pull down the menu and choose Restart A/V Broadcaster. Once this was done, it worked really well. We can try it out Tuesday night.