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Half-Full or Half-Empty: Educational Applications of a Free Videoconferencing Software

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ABSTRACT

This paper describes the author's experiences, processes, methods, successes, failures, challenges, and recommendations regarding the creation, implementation, and support of a low-cost desktop videoconferencing system for distance learning. He used a free desktop videoconferencing software on a desktop computer in a faculty member's office in Chicago, IL, and a desktop computer in a classroom in Athens, Greece, in order to facilitate the conversion of a quarter system course into a semester system course. He sought to do so in both a pedagogically sound and cost-effective manner. This case study's primary focus is on the educational applications of the free desktop videoconferencing software, iVisit.

KEYWORDS

blended course delivery, desktop videoconferencing, hybrid course, online education, web-based instruction, distance learning, e-learning

INTRODUCTION

During a discussion with a faculty member at a faculty development workshop in the Autumn 2001 quarter, I proposed to create and implement a low-cost desktop videoconferencing system for distance learning. This was an attempt to solve the problem of converting a 30 contact hours quarter system face-to-face course into a 45 contact hours semester system blended course; and to do this while not compressing the instructional face-to-face time period and not extending the Chicago-area instructor's 10-week stay in Athens, Greece. This had to be achieved in a pedagogically sound and cost-effective manner.

This project originated with the request of [College Year in Athens \(http://www.cyathens.org\)](http://www.cyathens.org) that DePaul University convert its *East West Church: An Inquiry of Catholicism and Orthodoxy* course. This course, a 30 contact hours quarter system course, was to be converted into a 45 contact hours semester format course. This would allow students from semester-based institutions attending the

College Year in Athens program to take the course within their customary system. Thus they would be able to receive the appropriate semester credit that would be accepted by their home institutions. Dr. John (Jack) Leahy, a faculty for over 30 years in DePaul University's Religious Studies Department, and Joseph Kinsela, the Director of DePaul University's Study Abroad Program, both accepted my proposal.

This course had **four components** in its blended delivery: a **live face-to-face** component (30 contact hours) in Athens, Greece; an **asynchronous online component** (various contact hours per student throughout the entire course) via [Blackboard](http://www.blackboard.com) <http://www.blackboard.com>; a **course management system**; and a **synchronous online component** (15 contact hours) via interactive desktop videoconferencing using a free desktop videoconferencing software, [iVisit](http://www.ivisit.com) <<http://www.ivisit.com>>. This case study will focus on the educational applications of the free desktop videoconferencing software that was used to create a low- cost interactive desktop videoconferencing system for the above course.

OVERVIEW OF THE PRIMARY TOOLS USED

Before describing my experience, I will discuss various aspects of the primary tools used to create, implement and support this low-cost desktop videoconferencing system:

First, videoconferencing desktop systems often reduce the need for special high-cost equipment or special networking. Desktop [videoconferencing] systems use personal computers to connect local and distant learners." (Simonson, et. al., 2000). For more information and a list of other resources about videoconferencing, see the [Video Conferencing Cookbook](#). The desktop videoconferencing software used in this project was **iVisit**, which at the time of this project was beta, or concept phase. I was introduced to iVisit by my Masters Project committee chairperson/advisor and professor, Dr. Bruce Harris of [Western Illinois University's Instructional Technology and Telecommunications Department](http://www.wiu.edu/itt) <http://www.wiu.edu/itt>.

Dr. Harris used iVisit in a graduate level instructional theories seminar course to deliver the course to my classmate and I from Macomb, IL to Chicago, IL--over 200 miles away. Some of the core features of the iVisit include:

- multi-party color video
- flexible quality settings for video
- multi-party voice/audio
- call screening
- multi-party text chat
- built-in directory service that helps you find other users, conferences, forums, etc.
- Windows 95/98/Me/NT/2000/XP and Macintosh environment compatible

First, the **instructor's** videoconferencing system included the iVisit desktop videoconferencing software, a video capture card, a camcorder, a multimedia computer, 2 external speakers, a microphone headset and a 1.5 Mbps T1 connection to the Internet via DePaul University's campus network in Chicago.

Second the **classroom's** videoconferencing system included the iVisit desktop videoconferencing software, a web cam, a multimedia computer, 2 external speakers, a PC mini boom microphone, a computer to television converter that supports PAL, or European TV formats, and a 128 kbps ISDN connection to the Internet via the College Year in Athens' campus network.

Third, the **course management system** (CMS) is a tool that serves as a portal, interface, and hosting site for online materials and communication. A CMS also includes facilities to enable instructors to collect information from or about students regarding their progress in the course

structure, and to permit/deny access to course resources for course material that can be used in both online and web-enhanced courses. For a list of reviews, comparisons, and links to major providers of course management systems, see the [comparative analysis of online educational delivery systems](http://www.c2t2.ca/landonline/index.html) <<http://www.c2t2.ca/landonline/index.html>>. The CMS used in this distance learning project was Blackboard v5.5. Some of the core features of Blackboard v5.5 include:

- Personal information management tools
- Course content management tools
- Course communication and collaboration tools
- Assessment tools
- Academic Web resources
- Course management tools
- System management tools

Fourth, since iVisit was in beta at the time of this project, I recommended that we use AOL's (America Online) **AIM (American Online Instant Messenger)** tool as a backup synchronous communication tool in case the desktop videoconferencing system experienced technical difficulties. AIM is available for free in both Windows and Macintosh versions. Also, AIM has a java based web version, [AIM Express](#), which does not require downloading or installing any software. Some of the features of AIM and AIM Express include:

- Exchange instant messages free
- Share photos and other files
- Send instant messages without downloading any software
- Audio conferencing

EDUCATIONAL APPLICATIONS OF IVISIT IN THE COURSE

There were two primary educational applications of iVisit in the distance learning component of this course: **course delivery** and **conferencing**. A seminar course is typically defined as a course in which participants carry out a study/project on a topic (usually selected by the teacher) and present their findings to the group. This is followed by discussion (usually teacher-led) of the findings in order to reach a general conclusion (Olson, Dorsey and Reigeluth, 1988). Due to the fact that this course was basically structured as a seminar, and that distance learning session objectives were to build the foundation for the face-to-face component of the course, a synchronous format seemed to be more appropriate than asynchronous as the primary method for delivering the distance learning sessions. However, an asynchronous component *was* used in support of the synchronous distance learning sessions, such as distributing handouts and agenda for the synchronous sessions, submitting assignments, and conducting a survey on the distance learning component.

The **course delivery** of the distance learning sessions included the following: an introductory discussion between the instructor and the class about the topics for the current session; viewing a video tape on a VCR at the classroom site regarding the topics of the current session; answering and discussing the questions on the handouts regarding the topics in the video tape; and an additional question and answer period regarding the current session's topics and the course in general. The instructor and class could see and hear each other via the low-cost desktop videoconferencing system described earlier in this paper. Thus the discussions were live and interactive. The distance learning sessions facilitated the secondary educational application of iVisit in this project.

Since the distance learning sessions were making significant use of iVisit, it was logical to use iVisit for **conferencing** with students, staff and faculty about logistical and other items related to the course and the study abroad program. There were a number of informal conferencing sessions that followed the distance learning sessions. These conferencing sessions included: instructor and student conferences, staff and student conferences, and instructor and staff conferences. For example, the

instructor for the course had conferences with the students who were assisting him in coordinating local guest speakers in Athens, Greece for the face-to-face sessions prior to the instructor's return to Athens. The Executive Director of the College Year in Athens and the Director of DePaul University's Study Abroad Program participated in one of these conferences via the desktop videoconferencing system using the iVist desktop videoconferencing software. Although this low-cost desktop videoconferencing system for distance learning was effective, it was not perfect.

CHALLENGES AND ROADBLOCKS

There were a number of challenges and roadblocks in creating, implementing and supporting a low-cost desktop videoconferencing system for teaching and learning at a distance via using free desktop videoconferencing software, iVisit. These included the **budget, network conditions, timing, configuration, and freezing**:

The **budget** for this project supported the purchase or rental of a data image projector, such as an LCD projector. An alternative solution was used to enable the class to see the projection of the remote instructor during the distance learning sessions. The next solution was to have each student in the class participate in the distance learning sessions via one-way video and two-way audio, each from a separate computer with a earphone and microphone headset, but without a camera, in a College Year in Athens' computer lab. In the one-way video and two-way audio solution, the instructor could not see the students, but the students could see the instructor, and both the instructor and students could hear each other. Unfortunately, not only was this format undesirable, but the demand for using College Year in Athens' computer lab by the other students in the College Year in Athens made this solution inadequate. However, the 3rd solution was for the class to view the instructor via a desktop videoconferencing system using iVisit desktop videoconferencing software that was connected to a large screen television using a computer to television converter that supported European PAL televisions.

Another challenge and roadblock proved to be the **network conditions**.

"The primary problem with desktop videoconferencing using the Internet is poor quality of the video and the limited capacity of the Internet to carry video signals. Since the Internet is a "packet-switched" network, a video signal is broken into packets that are disassembled and then sent to the distant site where the packets are reassembled into a signal. Obviously, this approach is a limiting factor when live interactive video is sent." (Simonson, et. al., 2000)

College Year in Athens' 128 kbps ISDN dial-up internet connection was used, with all of the computers accessing the Internet. Unfortunately, the **timing** of the distance learning sessions--15:30 – 17:00 GMT on Tuesdays--was during the peak Internet usage time for Chicago's time zone, Central, or GMT – 6. The solution to this roadblock was to use small video windows (i.e. 160 pixels x 120 pixels) and, when necessary, for the students to pause their outgoing video in order to obtain better incoming video and/or audio.

As was mentioned earlier, the iVisit desktop videoconferencing software was in beta at the time of this project. Thus there were some challenges and roadblocks associated with **iVisit** itself. First, it was a challenge to **configure** the audio settings on iVisit, because the level indicator was not always consistent with the audio quality. For example, the best audio during this project was consistently observed when iVisit's audio level indicator indicated that the audio level was too high (i.e. red levels). Thus, we configured the audio levels during our sessions' sound checks solely by our ears. Another challenge presented by iVisit was that it seemed to "**freeze**", or stop responding, a number of times during the duration of the project. This is one reason why I anticipated using a backup synchronous communication tool such as AIM. Thus, both sites had someone log into AIM during the distance learning sessions, and using AIM as a backup synchronous communications tool worked well to continue the communication when there were issues with the videoconferencing systems.

RECOMMENDATIONS

There are a number of **recommendations** that I would make to others who are interested in creating, implementing and supporting a low-cost desktop videoconferencing system for distance learning via using a free desktop videoconferencing software such as iVisit.

First, orient and train the instructors and learners who will be participating in distance learning via using a free desktop videoconferencing software in: the software and other tools used in the distance learning sessions, the class protocols, and the technical support process. Such training and orientation will promote the success of the project and help the instructors and learners to feel more comfortable with their distance learning experience.

Second, have technical support resources readily available in order to address and troubleshoot technical issues. For example, in this project I was in Dr. Leahy's office during the distance learning sessions, and I was therefore able to address and troubleshoot the technical issues immediately. Depending on the instructor, course, and students, technical support might also include having someone in a producer role to assist the faculty with various tools, such as the cameras and text chatting. I also served in this producer role, since this was the first project of this type at DePaul. However, a student assistant could also fill this producer role if given the appropriate training and coordination.

Third, even if the remote sites have a technical support person or staff, it is beneficial for the **project manager/technical advisor to visit and become familiar with all of the sites**. For example, my visit to College Year in Athens' facilities significantly helped me to provide better technical support, because I had first-hand knowledge of the computer lab, network, administration, technical support staff, and students' learning environment.

Finally, have some **trial**, or mock sessions with the tools, systems, and facilities that might be used in the distance learning project. This will provide a good opportunity to detect technical difficulties, and provide familiarity with the tools and systems prior to the actual sessions.

CONCLUSION

In conclusion, this experimental project of implementing and supporting a low-cost desktop videoconferencing system for distance learning in order to facilitate converting a quarter system course into a semester system course was both a successful and informative project. The total cost of the equipment that had to be purchased for this project was less than \$300, Dr. Leahy and the students were able to engage in live intellectual discussions and cover the foundational material of the course. Dr. Leahy will not have to extend his stay beyond the scheduled ten weeks, at which time he will return to Athens. The contact hours of the class sessions in Athens will not have to be increased to 4.5 hours. The Director of DePaul University's Study Abroad Program is hoping to offer a similar distance-learning program for DePaul University's Sheffield, England, Bonn, Germany and Osaka, Japan. The result of this project could be summed up by a quote from Dr. Alexis Phylactopoulos, the Director of College Year in Athens program, during one of the distance learning/conferencing sessions: "...one small step for DePaul University and College Year in Athens, one huge leap for international studies...".

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assistance as well (e.g. use of a video camera, tentatively scheduling the interactive video rooms, etc.), Dr. Bruce Harris or Western Illinois University's Instructional Technology & Telecommunications Department for offering a class to me and one other graduate student via the similar desktop videoconferencing system described in this paper, as well as my lovely wife and daughter, who were so very understanding and "allowed" me to go to Greece on such short (i.e. two days) notice.

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BIOGRAPHICAL STATEMENT

Brandon C. Taylor is the Instructional Technology Consultant and Part-time Faculty at DePaul University. In this role, Brandon is responsible for providing instructional technology consulting and training services for faculty, managing the loop campus' faculty technology lab and its staff and designing, and developing and teaching e-learning math and technology courses. In addition Brandon is an adjunct faculty member/instructional designer with the City Colleges of Chicago's Center for Distance Learning, and has taught at Illinois Institute of Technology, Chicago State University, the College of Lake County, various preK-12 school districts/offices and community technology programs. Brandon's primary research interests include bilingual and multicultural distance learning and instructional technology programming development.

Brandon has an M.S. in Instructional Technology and Telecommunications and Graduate Certificate in Distance Learning from Western Illinois University, a B.S. in Computer Science from Prairie View A&M University and is a graduate of the General Electric Company's (GE) Information Management Leadership Program (IMLP), a two year IT and business management development program. He also has completed the Illinois Online Network's Making a Virtual Classroom a Reality (MVCR) Master Online Teacher Certificate program. Brandon is a newly wed and a new father.

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