

May 2010

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Recommended Citation

Vélez, Alejandro; O'Connor, Robert B.; and Candia, Rubén A. (2010) "Surfing the Net with a Mini-Cam: A Low Tech Approach to International Audio-Visual Communication at St. Mary's University of San Antonio," *Global Business Languages*: Vol. 3 , Article 11. Available at: <http://docs.lib.purdue.edu/gbl/vol3/iss1/11>

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SURFING THE NET WITH A MINI-CAM:
A LOW TECH APPROACH TO INTERNATIONAL
AUDIO-VISUAL COMMUNICATION AT
ST. MARY'S UNIVERSITY OF SAN ANTONIO

The Internet's full capabilities are still being developed. It seems that each day brings a new discovery and new applications for this marvel of communication brought about by the technological revolution that is sweeping our world today. Even very young children can surf the net. Web pages and chat rooms covering all interests and ages are available and used by total strangers sometimes from all parts of the globe. These conversations often take place in languages other than English. Also many foreigners use the Internet to practice their English skills.

For most teachers, however, the application of the new technology in the classroom may be difficult. The dearth of equipment and support is daunting. For example, hardware and software resources are particularly expensive to purchase and maintain over a long period of time. Rapid technical change also makes implementation risky. Training personnel can be expensive and frustrating. Good projects become embarrassingly obsolescent very quickly.

At St. Mary's University, a small, liberal arts, Marianist institution, the opportunity to utilize effectively a multimedia application of the Internet in a classroom setting was undertaken in the Spring, 1997 semester. The authors, three professors from very dissimilar disciplines (Economics, Theology, and Languages), set about carrying out the project during a Foreign Languages Across the Curriculum (FLAC) class conducted in Spanish. The three participated in the project in a partnership with Ing. Miguel Barranco, Director of Communications of the Iberoamericana University in Puebla, Mexico.

Global Business Languages (1998)

The FLAC course was EC 3315 Interamerican Economic Problems. The FLAC Program has been in existence at St. Mary's University for five years and grew out of similar projects at the University of Minnesota and St. Olaf College in Northfield, MN. Funded originally with a grant from the National Endowment for the Humanities (NEH), the program at St. Mary's offers courses in French and Spanish with teachers from such diverse disciplines as English Literature, World Literature in Spanish and French, Engineering, Mathematics, Computer Science, Drama, Music, Philosophy, Theology, and Economics.

FLAC is basically a program designed to help both teachers and students retain hard-won foreign language skills in college after core curriculum requirements have been satisfied. By applying the language to their disciplines and teaching the courses in the language, the teachers continually retain and upgrade their skills. Students who have completed the core curriculum language requirement may also use these courses to retain and continue to improve their language skills. For the student there is an added benefit. Those who complete six semester hours under the program are awarded the "Advanced Foreign Language Competency in French or Spanish" certificate and notation on their official transcript, which enhances their chances in the job market after graduation.

Given that the FLAC program is, by definition, an internationally focused endeavor, it was natural to seek students in other countries with whom to establish contact. For several years, we have had an exchange program with the Iberoamericana University in Puebla, Mexico. Each spring semester, a contingent of around twenty students and two teachers spend the semester at the "Ibero" campus. As part of the exchange, a contingent from the Mexican campus spends the spring semester at this campus. So, wishing to give our students a unique experience, we decided to implement procedures for establishing a new kind of contact with our sister university. The convergence of five conditions influenced the conception and direction of the project. These were:

- The mature relationship between the two universities provided the proper framework for the joint venture.
- Dr. Vélez had acquired a considerable expertise in distance learning in an international setting.
- A new computer-communications lab had been established at the School of Humanities and Social Sciences and had all the

necessary equipment, both software and hardware to do the binational video conference. The Iberoamericana University had recently acquired compatible equipment and the sufficient technical expertise to participate in the project.

- Students enrolled in the FLAC had enough preparation in Spanish and Economics to conduct meaningful discussions with Mexican students.
- Video conferencing was considered an important curricular tool by both Universities. Though novel to them, it was a proven way¹ to provide students on both campuses with many of the benefits of a field trip to each other's campus, but without leaving the classroom. Much like e-mailing, video conferencing permits students to interact with peers in other parts of the city, or of the world, simultaneously.

The instructor of the FLAC course, Dr. Vélez, an economist, set the objectives for the course and Dr. O'Connor, the instructional laboratory faculty coordinator, researched the needs, purchased and installed the equipment for the project. These aspects of the project follow.

EDUCATIONAL OBJECTIVES

The eight learning objectives of the project were to:

1. Develop student and faculty proficiency in electronic communications, including e-mail, video conferencing, and the use of the Internet.
2. Enhance the student's employability by exposing them to office telecommunications techniques now being used in the work and professional worlds.
3. Assess Mexican attitudes among students' peers about such international businesses topics as the North American Free Trade Agreement (NAFTA).
4. Develop greater proficiency in the use of technical and professional terminology in Spanish through contacts with native, college-level speakers.

¹There is ample literature on the benefits of the 'virtual university.' One of the best sources for documentation is the Home Page "www.syllabus.com" on the Internet.

5. Gain a better appreciation of and facility with idiomatic and other characteristics of modern Mexican Spanish.
6. Develop skills in collaborative learning with students from another country and culture via team problem-solving.
7. Deepen the use of critical thinking skills, especially within a bilingual, bicultural context, involving complex, controversial issues.
8. Gain a better appreciation of the university training of Mexican college counterparts.

Although formal evaluation procedures were not designed into the demonstration project, the professors concluded from observation that goals 1, 3, 4, 5, 6, and 7 were met. This informal evaluation resulted from both the interaction with, as well as observation of, the American students. Goals 2 and 8 can be known only later and imperfectly. The professors have not formally polled their Mexican counterparts about their observations/conclusions.

EQUIPMENT

The equipment used to establish video communication with La Universidad Iberoamericana in Puebla, Mexico from the US side were Pentiums² 133 MHz with 32MB RAM, grey-scale³ Connectix QuickCams,⁴ Connectix Video Phone 2.0, microphone, speakers or headset, and full-duplex sound cards.⁵ The Puebla site was equipped similarly except with a Pentium 100 Mhz.⁶

²Two different systems, similarly configured, were used throughout the investigation.

³There are no compatibility issues between grey-scale and color connections. They interact with no adverse effects.

⁴Connectix's QuickCam is recommended because it eliminates the need for adding a video capture card.

⁵A full-duplex sound card allows for simultaneous transmission and reception, thus omitting the "over and out" communications made famous by the movies.

⁶Although earlier advertising suggested that a 486/50 could serve as a minimum processor, subsequent literature (and conversations with Connectix technical support) indicated that these early estimates were too optimistic. In conjunction with this, the temptation is to think that more RAM (because RAM is currently inexpensive) will compensate for a substandard processor. This is not the case and the 100MHz Pentium, it is now agreed, is the minimum processor for adequate performance.

VideoPhone 2.0 is downwardly compatible, i.e., with earlier Connectix VideoPhone versions,⁷ but is not compatible with other video conferencing products at this time. The software allows manipulation of camera and transmission settings quite easily. Adjustments to the former include whiteness, brightness, and contrast both manually as well as automatically. Under most circumstances one can probably take advantage of the automatic setting, although peculiar lighting (strong back lighting, e.g., daylight through a window may force the user to experiment with manual settings).

Transmission adjustments include audio and video compression as well as bandwidth. These adjustments can be critical, because they affect the bandwidth of the signals being sent and received. Connectix recommends a small video image to conserve bandwidth and increase transmission and frame rates. We found that using the automatic bandwidth setting was not as useful as setting the bandwidth manually to "128."

The audio component was more of a persistent problem than was the video. Apparently, video signals have priority in transmission. Since both users were striving to overcome language as well as technological barriers, the efforts were generally successful.

We began using Windows 3.x but quickly concluded that more success would result by using a Windows 95 environment. Installation through the CD was gentle and straightforward, although it appears that Windows 95 users should restart Windows 95 after installing or removing software or devices.⁸

The original cameras were bundled with VideoPhone 1.0, but downloading the most current version was easily accomplished by following the directions on Connectix's home page (www.connectix.com). The downloaded file, a self-extracting compressed file, might best be downloaded at night to preclude "time outs."⁹ Many attempts were made during heavy traffic times but all failed.

⁷Earlier versions, naturally, have fewer "bells and whistles," but the connection itself is not impaired. On a status bar where the IP address of the other caller would normally be present, the message, "earlier version," appears.

⁸For various reasons it became necessary to reinstall the software several times. In such circumstances the benefits of CD ROM installation more than compensate for the cost of the CD ROM player.

⁹During a download, servers are sometimes set to "time out," and interrupt a transmission after a certain amount of time has elapsed with no traffic occurring. If the network is exceedingly busy, these "time outs" will eventually force the transmission to cease.

Connection was made through dedicated, static IP addresses. No connections were tried through a modem, but Connectix recommends no less than a 28.8 bps connection for satisfactory performance.

The project with Puebla was well worth the effort. Video conferencing holds much promise for low-cost, effective, virtually real-time communication. Technique alone, however, will not solve all educational problems, including teacher ineffectiveness.

But, as the software and hardware mature, so will the "peopleware." We plan to use this technique in a more transparent fashion. Someday we shall all see video conferencing as we now see the telephone, a medium through which the business of living can be conducted.

CONCLUSIONS

The three authors will continue the communication with the Iberoamericana, and also expand contacts to include other Mexican universities, notably the Instituto Tecnológico de Monterrey and the University of Guadalajara.

The establishment of "sister" relationships with Mexican universities is not a difficult proposition due to the very strong desire of Mexican universities to establish "fraternal bonds" with United States universities. Many of them have web pages and are easily accessible through e-mail or other more traditional means such as telephone or fax.

A project such as this one is an inexpensive first step towards international communication for classroom application and can also establish a relationship that can be expanded into other areas. Keeping costs to a minimum is of the utmost importance to our international partners, given the disparities in currency exchange rates. The experience can be easily duplicated from any part of the United States; language teachers and other colleagues can add this exciting dimension to their teaching tool kits.