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Experiences with Establishing a Multimedia Infrastructure in an University Environment

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Introduction

This presentation describes the experiences at the Merrick School of Business, University of Baltimore (UB) regarding the establishment of a multimedia infrastructure. First the vision of what multimedia should be at UB and what it would take to get us there is discussed. The desired and actual hardware and software resources are examined and critiqued. Next, the issue of training is discussed in the context of the two most important user classes: faculty and students. Finally, the results of our experience at UB are described and evaluated. The objective of this report is to have others learn from our experiences -- to take what has worked, and avoid what has not.

The Vision

The vision of a group of senior faculty in the Merrick School saw multimedia as an important technology in several different applications: classroom teaching, distance learning, WWW home page design, etc. Therefore, it was viewed as necessary that all faculty develop a working knowledge of multimedia technology. This meant that faculty must have resources to both develop and apply multimedia presentations. Faculty desktop computer systems must be capable of multimedia development and be linked to other faculty workstations, Business School and University computing resources, video networks and the Internet. Training should be available in the form of workshops and instructional sessions, further, a help-line and help-providers must be available during normal faculty work hours.

The Merrick School of Business has a new building -- a smart building, that, in theory, provides the baseline of technology infrastructure on which to build. There are three organizational units that play a role in providing training and support for multimedia: 1) The Computing & Information Services group (CIS), (a university-wide organization that is charged to provide support for all academic and administrative computing); 2) The Business Information Center (BIC), (a joint University and Business School operation that provides and maintains open computer laboratories and training and consulting for faculty and students), and 3) The Information Systems Research Center (ISRC), (a Business School Center that provides support for faculty and student research using specialized, state-of-the-art technology). The bulk of the training, for all university faculty was to be provided by CIS, some specialized training by BIC, and specialized authoring languages and computer platforms would be addressed by the ISRC.

Student instruction and training would be carried out by formal classes and workshops as well as informal sessions at various levels. Student training was viewed as essential not only for student interest, but also to provide the "push" in a "push-pull" strategy for faculty training.

The Hardware Configuration

Computer Technology Committees at the School of Business and University levels agreed that it was time the Business School took a big step forward in computing upon opening the new building. The choice of platform for the new building -- faculty offices, classroom podium and labs (all networked) was SGI and Unix. This looked good for the future use of multimedia. All SGI faculty workstations:

came with a high powered and easy-to-use authoring tool for multimedia -- Showcase

came with digital TV cameras and microphones enabling:

-- video mail / conferencing

-- simple video capture and distribution

had high powered graphics and high resolution screens

came with a CD-ROM

had fully functional 64K of RAM.

This was the plan. Unfortunately, it did not come into being. CIS, who negotiated the purchase with SGI, made a number of decisions that proved very hurtful to making the multimedia vision a reality. Without consulting the two computer technology committees, CIS decided that to stay within budget and acquire the maximum possible number of machines, the capabilities of the faculty workstations would be reduced. The workstations that were sitting in their offices when faculty moved to the new building had:

14 inch, not 17 inch screens

32 K of RAM, not 64K

no CD-ROM, and

no video mail capability.

This condition combined with a "cold turkey" conversion from IBM/DOS to SGI/UNIX (faculty left their old machines in their old offices) left the faculty frustrated and angry. Their old programs either didn't work or worked poorly under emulation mode. They had received very little or no training on the use of the new systems. The faculty dissatisfaction was further exasperated by the timing of the move -- three weeks into a new semester. Regarding the eagerly awaited hardware, the next six months was spent, mostly unsuccessfully, attempting damage control. Less than a year after their arrival in the new building, the administration, responding to continual faculty complaints and the lack of problem resolution, agreed to replace the SGI/UNIX workstations with Pentium/Windows machines. Today, only a handful of SGI systems remain in faculty offices. Maintenance budgets for these machines is zero. SGI systems do remain in every classroom and in open and specialized computer laboratories.

The Software Resources

In the original vision SGI's Showcase was expected to be the principle authoring and presentation package at the Merrick School. With the changes in SGI hardware platforms and the subsequent changes in hardware, Showcase has not become the principle authoring tool. In fact, at this point in time it is fair to say that there is no principle authoring tool. The most frequently used tools are: Freelance Graphics, Powerpoint, Authorware, ICON Author and Showcase. Freelance Graphics and Powerpoint are the most popular with the faculty at this time, with Authorware the next most frequently used. Freelance Graphics is the most popular tool with the students because it is most readily available. ICON Author has been used most frequently in the preparation and presentation of Kiosk systems. Showcase is used by a few faculty for classroom presentations but its greatest use is in conjunction with the creation of home pages on the WWW. The lack of compatibility (migration ability) between Showcase and other authoring tools has been its greatest limitation despite its superior ability to provide a full compliment of components: text, graphics, images, audio, animation and video.

Currently, CIS supports Powerpoint Presenter under Softwindows on the SGI classroom platform. Freelance Graphics authoring tools are available on PCS and Indy machines in all labs and classrooms. Showcase is also available to faculty and students in the open laboratories and is used in distance learning applications. The ISRC's Multimedia Laboratory provides Showcase, Powerpoint, Authorware and ICON Author on a variety of hardware platforms. Additional authoring tools are currently under review.

The Training Program

The original vision for multimedia had training occurring at multiple levels for students and faculty. Because of the hardware problems and tight University budgets, training for students and faculty has been minimal. CIS had zero dollars allocated to training in the year following the installation of the new hardware. The BIC has provided a limited number of workshops for both students and faculty and the ISRC makes resources and consulting services available to about a dozen faculty and students each semester. Additionally, students receive limited instruction in some classes focusing on project presentations, creation of home pages, etc. Both faculty and students are occasionally sent to vendor or third-party seminars and workshops, but funds for these activities are also limited.

Given the limited existing knowledge of multimedia -- the technology and the application, a basic "start-up" training program is required. While needs are similar, separate programs for faculty and students are recommended. The first topic in such a program is a general orientation of what multimedia is, its components, applications and effects. Understanding the need for planning a multimedia presentation is critical. Such training must include topics such as: assessing the target audience, determining if exposure is internal or external, is the presentation a "one time shot" or will it be reused? And if so, for how long? Will the application be interactive or linear, and who will make the presentation? The importance of keeping the objective of the presentation in focus throughout the development process must be emphasized. Only after these issues are covered should the training in a particular authoring tool begin. This topic will vary greatly depending on the tool selected. However, in all situations, instruction must be adequate to enable the student to fully utilize the basic capabilities of the authoring tool.

The Users

The two primary user groups, faculty and students, are currently under-supported in regard to multimedia. Faculty, who now use a variety of hardware platforms and therefore a variety of authoring tools, have not been aggressive in developing multimedia presentations for classroom use. Faculty engaged in distance learning or heavy Internet use are more aggressive. Students are aware of the expanding use of multimedia in business applications and view having a knowledge of multimedia as a competitive advantage in today's markets. Consequently, a significant number of students seek out access to authoring and presentation tools. Simply providing access to motivated students appears adequate to enable them to develop useful presentations. Both faculty and student presentations reflect a lack of support in regards to clip art, audio and video clips, etc. Both user groups have experienced dissatisfaction with the current support they receive. User groups have provided some relief, but additional support is clearly needed.

Another way to classify users is by the nature and objective of their presentations. Multimedia presentation to support lectures in the classroom, to support "one-time" project presentations, to support a WWW home page or to support a distance learning program, have different objectives, technical considerations, audiences, and return on investment. Bringing together users with similar needs and aspirations facilitates within group learning and may provide the foundation for developing user groups. Users need support to be effective. Under conditions where training is minimal and budgets are weak, users must look to each other for mutual support.

Results to Date

Our experience in implementing the multimedia vision for the Merrick School of Business has been mixed. We are still a long way from having all our faculty possess a working knowledge of multimedia technology. While student use of multimedia is quite common, it is not as integrated as we wish and the quality and complexity of presentations require further development. We have gained some knowledge of the process for implementing multimedia in an university environment. The remainder of this section will share our understandings.

To integrate multimedia into the fabric of an organization requires: 1) a felt need on the part of users to use their time and energy to exploit the technology, 2) a stable and powerful hardware platform, 3) selecting and standardizing of a widely used authoring tool that ensures portability of presentations and programs, 4) a basic, yet comprehensive, start-up training program, and 5) a user group and facility to support power users and explorers.

Our experiences indicate that the demands of industry, distance learning, and the Internet provide a "felt need" to use multimedia presentations in the majority of users. We think, in the majority of both faculty and student users, however, additional motivation and stimulation would undoubtably increase use. Because all classrooms in the new Business Center (BC) are equipped with smart podiums and projection equipment, and because students frequently use these resources in class, and because over 20% of existing faculty now use these resources in their classroom presentations, we have seen a slow but continual growth in the use of multimedia technology. Increasingly, the development of home pages on the WWW have further stimulated interest in multimedia. Finally, the increased use of distance learning and the new presentation skills required in this activity, also add to the interest in multimedia. User interest does not appear to be a problem. Nurturing and cultivating that interest may be a problem.

We have found that until users have stable hardware platforms, they are unable or unwilling to invest in developing multimedia skills and programs. If a reasonably uniform workstation environment is not provided multiple authoring tools and support software will add to the expense of training and use. Multiple platforms lead to multiple tools which lead to multiple problems and increase the cost of training and support. Multimedia ready workstations are standard fare in the PC market today. Pick one that meets your needs and try to standardize around it. Do not ask users to build multimedia presentations with inadequate hardware support.

Multimedia authoring tools vary a great deal in their power and the ease with which they facilitate using the full range of multimedia capabilities. There are evaluation being published regularly comparing features and cost. So, no selection discussion is provided here. But our experience has indicated that portability and compatibility are very important criteria. Faculty and students will want to use their presentations in many different environments. Selection of an authoring tool that will be fully supported and which is portable is most desirable. Multiple tools will always be present in a university environment, but having a tool available with the assurance of continued support motivates many users to action.

We have invested heavily in information technology, but to have that investment pay off, we must also invest in helping users use the technology. Training is absolutely required. Especially, training in the basics. Once users have grasped the fundamentals we find that collegial support and workshops work fine in expanding their knowledge. A laboratory or workshop is also necessary to provide specialized tools and technology -- video capture facilities, scanners, video and audio editors, etc. Structuring a user group is also valuable for sharing knowledge and experience in both the development and use of multimedia presentations.

Multimedia is a powerful vehicle for communicating information. It appears that it will become more powerful over time. The number of ways to implement multimedia are also expanding. Our vision for multimedia at the Merrick School is unchanged. Our respect for the difficulties in achieving this vision have increased. However, our resolve to reach our vision is strong. We believe that multimedia is a tool that must be in the skill set of educators.