Creating streaming video "learning objects" for an online course

Alan Carswell
University of Maryland

Follow this and additional works at: http://aisel.aisnet.org/amcis2004

Recommended Citation
http://aisel.aisnet.org/amcis2004/359

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2004 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.
Creating streaming video “learning objects” for an online course

Alan D. Carswell, Ph.D.
University of Maryland, University College
acarswell@umuc.edu

ABSTRACT

For a graduate-level online course, we created a series of CIO (Chief Information Officer) roundtables, discussing current issues with three senior IT executives. Starting with a vague vision of videotaping a conversation with the subjects, our project evolved into a full-blown enterprise with broadcast-level production values. We learned valuable lessons about justifying and designing such a project, the technical and mechanical aspects of taping and post-production work, and plans for deploying and using the learning objects. The amount of work required was far more than we anticipated, but positive student response indicated that it was a worthwhile endeavor. While it may be difficult to justify this level of effort in all cases, we believe that the project generated a number of ideas to consider when planning a project of this type.

Keywords
Distance learning, multimedia, video

INTRODUCTION

It has become clear that course delivery via the World Wide Web is taking the educational world by storm. Indeed, Web-based distance education is proving itself to be one of the main growth areas in the use of the Web. Such efforts are variously known as distance education, distance learning, technology-mediated learning (Alavi and Leidner, 2001), distributed education, and virtual learning environments (Piccoli, Ahmad and Ives, 2001).

Our school has been a pioneer in Web-based course delivery. It was acknowledged years ago that distance education is intimately tied into our school’s mission of delivering instruction at times and places convenient to our student body of full-time workers. Our technology for delivering distance education has evolved from a text-based DOS package, through Windows-based software, to its present form based on Web standards. Still, much of our content has remained text-based with some supplementary graphics. In recent years we have joined the trend of exploring alternate modes of content delivery (Kaplan, 1997). Such explorations are starting to accelerate, motivated by a desire to take advantage of technological trends:

- The multimedia capabilities of the Web, with its abilities to deliver sound, graphics, pictures and video,
- More powerful technologies on both the client and the server-side, including faster computers, more user-friendly software, and compression and streaming schemes for audio and video, and
- A faster and more robust Web infrastructure.

This paper details our efforts in creating a series of streaming-video “learning objects” for an MIS course. The genesis of the idea came when one of our adjunct faculty had a CIO as a guest in a session of his graduate-level class, “Information Technology, the CIO, and Corporate Transformation.” The class session went very well, but the faculty member was concerned about wearing out his welcome if he asked the CIO to visit his class every semester. It occurred to the faculty member that if he could videotape the CIO, he could preserve what was said and re-use it in later classes. As an extension of the idea, he realized that recording several CIOs could provide a variety of perspectives and make for a more broadly applicable presentation. Although the initial CIO visit was to a physical classroom, videotaping the presentation could also make the material available to our online students.

The faculty member requested our assistance in creating a “CIO Roundtable,” a video interview of 2 to 3 local CIOs to use in his class. Since we offer several sections of the course each semester taught by different instructors, there were clear advantages to offering the roundtable as a common “learning object” available to all who taught the course. In addition, we
saw opportunities for delivering this roundtable to both our classroom and online students. It was quickly recognized that this learning object could be beneficial in the following ways:

- It would provide practitioners’ perspectives on course issues like new information technologies, applying technology to business problems, and career choices,
- It would provide a richer online student experience beyond text and graphics,
- It would demonstrate our school’s bold use of technology to enhance distance education, and
- It would validate the course's subject matter by incorporating outside recognized experts.

The remainder of this paper describes the process of planning and producing the videos, student reactions the first time we used them in a class, and lessons learned.

**PLANNING**

Although we were content experts, our knowledge of the practical realities of producing video content for the Web was limited. Fortunately, our institution has a department that specializes in video production, and we were able to take advantage of the knowledge of experts in this area. Our content expertise was complemented by their production and delivery expertise as we planned the production.

Our initial meeting with our production department was very educational. Our original nebulous idea of the final product was a half-hour videotaped roundtable with three CIOs and one or two faculty members in a freewheeling discussion of current topics in information technology. We were quickly disabused of that idea as we discussed our plans with our production department and received their (tactful) feedback. The most important consideration that we had to take into account had to do with differences between broadcast-based video and video delivered via the Web.

A video delivered online is not equivalent to a television talk show. Even with technological advances of the past few years on the Web, there is still a lot of unevenness at the client end. Given the worldwide nature of our student body, we had to plan for the lowest reasonable common denominator. A student viewing a long video via a 56k modem on an older computer with a small monitor would find the process quite painful. The image window might not be much larger than a postage stamp on their monitor, and five participants would not be individually recognizable on such a screen. In addition, a viewer’s attention span would be much shorter with the small online format. Because of these considerations, we significantly redesigned and refined our plans. The overarching concern was with using “video time” wisely.

Most importantly, we decided to break the video up into several segments. Our design became a series of segments as short as we could make them. In designing the video segments for conciseness, there were several measures we were able to adopt:

- Break up the subject matter into logical modules. Starting with a list of questions we wanted addressed by the CIOs, we grouped them into cohesive modules that could stand on their own. This modularization presented an added benefit in that the segments could be used in a variety of ways in the course. Also, any segment whose content was obsoleted by events could be individually withdrawn from the course.
- Keep out non-essential information. Envisioning the videos as being a part of a Webpage that could provide other information in text form, we designed the videos to minimize such information as the panelists’ biographies, small talk, introductions, and interview goals.
- Keep faculty face time down. The whole point of the videos was to garner the expertise of the panelists, so we minimized the role of the hosts to asking discussion questions.

In addition to length considerations, we received other guidance from our production department that affected our designs for the video segments.

Because of the small image that might appear on a student’s monitor, we designed the segments to have as few persons onscreen as possible. With too many individuals on the small screen, it might be difficult for the viewer to place a voice with a face. On the other hand, having the panelist alone talking to the camera might have turned out artificial and uncomfortable to the panelist.

Part of the information we wanted to elicit from each panelist was the career path they followed to get to their present position as a senior IT executive, the organization and reporting paths of their position, and specific aspects of their day-to-day work. We decided that each panelist could tell their story independently of the others, and thus decided that these segments would be one-on-one interviews. A more wide-ranging discussion on the future of the CIO role and perspectives on
emerging technologies would work better as an interplay between the panelists’ ideas, and thus would lend itself better to more of a roundtable format.

As the amount of work involved in creating these learning objects grew, we adopted another consideration in formulating the questions for the panelists: we wanted to “future-proof” the content as much as possible. By incorporating topics that would be relevant for a number of years, we hoped to minimize the need to re-do some of the segments. It would be impossible to totally avoid the technologies du jour, but segments that focused on more timeless management issues would hopefully have a longer shelf life.

Ultimately our design called for three major parts as depicted in Table 1. The first two parts would consist of individual one-on-one discussions with each panelist and a host. The third part consisted of two roundtable discussions including all panelists and a host.

<table>
<thead>
<tr>
<th>Part</th>
<th>Format</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Getting into the CIO Role</td>
<td>One-on-one</td>
<td>Describe your organization and how you arrived at the position of senior IT executive. What advice do you have for students who aspire to a CIO position?</td>
</tr>
<tr>
<td>II. CIO Contributions, Issues, Skills</td>
<td>One-on-one</td>
<td>What is the most important contribution you make to your organization? What issues keep you awake at night? In your job day to day, what are the relative amounts of effort required in technical, managerial, business, and political skills?</td>
</tr>
<tr>
<td>III. Future of the CIO Role (segment 1)</td>
<td>Roundtable</td>
<td>What do you see in the next 5 years for the Chief Information Officer role?</td>
</tr>
<tr>
<td>III. Future of the CIO Role (segment 2)</td>
<td>Roundtable</td>
<td>What technical trends do you see coming? How will they affect your work?</td>
</tr>
</tbody>
</table>
RECRUITING PANELISTS

Our goal in finding panelists was to have two to three CIOs from a variety of organizations, recognizing that this diversity would make for a richer video presentation. We were pleasantly surprised with how easy it was to recruit three panelists. With our limited budget, we knew that we would be unable to offer any meaningful compensation. Yet all the persons we contacted were more than happy to participate. One was actually flattered that we would consider him for this project. Our panelists consisted of the following persons:

- An IT director (effectively CIO) for one of the most populous counties in the United States,
- a CIO of a high-technology firm, and
- the president of an IT consulting company who recently served for four years as CIO of a Fortune 500 company.

We were pleased with the diversity of this panel, representing large industry, small high-technology, and government environments. Several considerations seemed to make the panelists positively predisposed towards our invitation:

- A desire to make a contribution, both socially and to their profession,
- The opportunity to network, not only with fellow senior IT executives, but with our institution and students who could be potential employees,
- A desire to see themselves immortalized (so to speak) in electronic form, and
- A feeling that this project would be “fun.”

With commitments from the panelists in place, our next task was to schedule the day for taping. Our goal was to accomplish all the recording in a single day to avoid repeat visits by the panelists. We carefully designed a timeline for the day to make the most efficient use of the panelists’ time. We allowed for time to get acquainted at the beginning of the day, preparation and rehearsal, multiple takes if necessary, and lunch. We staggered the arrival and departure times to minimize each panelist’s downtime as we were recording other panelists’ one-on-one interviews.

One important consideration that our production personnel made clear was that the panelists should be prepared. Spontaneity has a place in entertainment television, but not in a teaching video. The videos needed to be planned so that at the time of taping, there would be no surprises. To that end, we supplied each panelist with the questions beforehand and discussed their responses with them. As faculty members, we had a good idea of what the responses would be, but establishing a dialog and rapport before the taping helped make the actual taping go smoother.

Our video production personnel also provided advice to help us and the panelists prepare for the taping. Particularly valuable was their advice on wardrobe mistakes to avoid:

- Do not wear high-contrast colors, i.e., a white shirt w/ a black or dark blue jacket.
- White, in general, is a very difficult color for video as it looks "hot".
- **Stripes and small prints create a wavy or jumpy optical effect**, so solids are recommended.

PRODUCTION

With the extensive preplanning, the actual day of taping turned out to be fairly easy and remarkably stress-free. We allowed time upfront for the panelists to get acquainted face-to-face with us and each other, since most previous contact had been via email and phone. A coffee and pastry set up was available, and we planned for lunch in a restaurant in our building. Time
was also needed for our production people to set up the studio and do sound and video checks, as well as preparing the panelists for each taping segment.

One legal consideration: we had to secure a release from each panelist that allowed us to tape them for the learning objects. The release basically certified that the panelist relinquished any rights of ownership to the program and allowed our school to use the video as necessary without any further permission. The language of the release form was far-reaching, but our primary concern was a participant of a program would change his or her mind after the program had been completed, preventing us from using the program as intended.

Our school has a production studio with equipment that is available for producing content of this type. The studio includes lighting, furniture, cameras and microphones, editing equipment, and other apparatus one would expect to find in a professional-level operation.

Although time was budgeted for multiple retakes, it turned out to be unnecessary. Perhaps the extensive preplanning and rapport building with the panelists made everyone comfortable with the actual taping.

The production effort started at 8:15am, and the last taping was completed at about 2:15pm. A lot of work was crammed into those six hours, but the time was used quite efficiently.

Several pictures from the day of taping are shown in Figure 1.

![Figure 1: Video Production](image)

**POST-PRODUCTION WORK**

Once the segments were “in the can,” a fair amount of work remained to turn them into the learning objects we envisioned.

From the beginning, our goal was to deliver the videos to our online students via streaming media. The benefit of streaming media is that as it is downloaded from the Web to a client computer, it begins playing before the entire file is downloaded.
This eliminates long waiting times, particularly on a modem-connected computer. Video files are large, so streaming video is a practical way to make them accessible to the broadest variety of students.

In addition, however, to ensure that all students would have access to the content of the learning objects, we also created two alternate versions for worst-case, lowest-bandwidth student scenarios:

- Streaming audio
- Text transcripts of the discussion

For each video segment, a Webpage was designed that encapsulated the video with other information to make a true “object” that could be referred to by an instructor in their syllabus as an assignment. The Webpage included:

- Text of the discussion question asked of the panelist(s),
- A picture depicting the video discussion,
- Links to bios of the panelist(s) and the host, and
- Options to view the video, listen to the audio, or view the transcript.

In addition, the Webpage included a link to download the free software for viewing the video or listening to the audio. We chose to encode the content as Real Media files (http://www.realnetworks.com/products/), a format that enjoys wide penetration in the market. Most students probably already have the viewing software (Real One player) installed on their computers.

STUDENT FEEDBACK

The video learning objects have been in use for about a year, and student reaction to the learning objects has been very positive. Students appreciated hearing outside experts reinforce the class material, and they remarked how much the video enriched their online learning experience. Some representative student comments:

- “I really felt that the use of the videos helps support some of the text and supplemental reading materials for the class. Sometimes in an online class, you miss the human interaction and I think the guest videos helped bring us back to a classroom feel.”
- “This is an excellent way to bring a live lecture type venue to online courses. I have only taken one course in person out of 8 and this type of conference is very helpful and breaks up the monotony of just reading and writing.”
- “Thanks for taking the time and making an effort to incorporate the roundtable discussions into our curriculum. While Internet classes are convenient, I really miss being able to hear and see experts discussing current issues.”

Most students have been able to view the videos without trouble; one known exception was a student in Germany. This reinforces the need to have lower-bandwidth alternatives available. In international contexts especially, the Internet infrastructure cannot be taken for granted.

COST CONSIDERATIONS

Most of the costs incurred in this project were “soft costs,” the time and efforts of school personnel for whom this kind of work was a part of their position responsibilities. We benefited from having an adjunct faculty member who put an enormous amount of energy and time into the project. His involvement stemmed from a desire to make more effective the teaching of his courses. We were also fortunate to have an in-house production department and facilities created by the school for this kind of endeavor.

Hard costs consisted of the following items:

- “Care and feeding” of the panelists. This included coffee and refreshments, lunch, a small gift, and copies of the videos,
- Extra camera operators for the day of taping, and
- A transcriber
CONCLUSIONS

Given the amount of work involved in creating these learning objects, a natural question is, “Was it worth it?” Perhaps had we known upfront the effort required, we would have had second thoughts about the project. Early in the project we received a caveat, a rule of thumb that it takes ten hours of work to produce one hour of video. In terms of our time, that estimate was probably on the low end.

Still, we were pleased with the result. The panelists were knowledgeable, well spoken, and interested in and comfortable with the videotaping process. This resulted in solid content that reinforces the subject matter of the course. In addition, the professional work of our production personnel contributed to a presentation with broadcast-level production values. Student feedback has been consistently positive.

So was it worth it? For this specific endeavor, I would say yes. This was a “high-impact” project, interviewing senior IT executives on subjects central to one of our courses. Also, as a beginning attempt, it showed us the possibilities when the highest level of quality is desired. Lessons were learned that will prove valuable as we seek to create more multimedia content. Such additional content, however, does not necessarily need to achieve quite the same level of quality (or the effort required to reach that level). It may well be that our next video project will make use of a simple digital camcorder and a conference room, and that will be appropriate for the particular context. But the lessons learned in this project can be applied to other projects, resulting in higher quality in future, less-lofty undertakings.

To view a sample of a learning object, you can browse to:
http://info.umuc.edu/de/ezine/features/jul_aug_2003/video_learning_objects.htm

ACKNOWLEDGMENTS

Many thanks are due to Jack Crosby, the adjunct faculty member who originated the idea for the video learning objects, Pat Johnson, our Distance Education Coordinator who kept us on track, and Evelyn Marren and Michael Smith of our production studios who gave us invaluable advice.

REFERENCES

