

Journal of the Association for Communication Administration
29(2000), 293-303

Multimedia as Persuasive Agent: Using Visual Metaphors to Establish the Rhetorical Agenda in a Communication Department Video

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VIRTUALLY every academic discipline has adopted computer-mediated communication technologies. At the very least they use electronic mail and Web resources for both research and teaching. However, communication scholarship differs from other academic disciplines in that it doesn't simply *use* these new communication technologies. Instead, it involves teaching and research on the nature and social impact of emergent information technologies; the process, policy and impact of their mediated nature is vital to our discipline.

While the recognition of the usefulness of communication technologies is growing, there is still little sense of what makes the communication discipline's claims in relation to them special. The accelerating speed of change of technological innovations in communication channels contributes to the confusion. Barbara Warnick, (former Chair of the Department of Communication at the University of Washington) notes that misperceptions are not surprising "because communication is one field in which 'what is studied' is changing as fast as the methods used to study it."¹

The fact that few within the University or outside it understand the study of communication has negative material consequences. The budget cuts that all higher education institutions faced in recent years have been especially harmful at times to the communication field (Seiler, 1995; Stone, 1995). The discipline of communication across the nation has faced a range of pressures, from operating with inadequate resources to defending against threats to the future of whole departments.²

Nelson (1995), Seiler (1995), and Stone (1995) identified building external relations with the University campus, with alumni, and with the larger community as primary strategies that help departments when they come under the pressures resulting from financial crises in the institution. Building those relations is dependent, in part, on becoming more visible within the university and with external publics. The communication department at

North Carolina State University, in which I am a faculty member, decided to begin that process by making a video documenting its research and teaching. My initial goal in this essay is to discuss the grounds for that decision, the conceptual and practical problems encountered in the making of the video, the successful uses made of the completed video, and the unanticipated consequences that viewing the video had for the department itself. A second goal is to examine the development of visual metaphors that served as rhetorical devices within the video, a topic of growing interest in visual communication studies. As a result this essay has both practical relevance and theoretical import. It speaks directly to other communication departments confronting much the same pressures for higher and more positive visibility in their institutions, and it contributes to further our understanding of visual rhetoric. Specifically, this article examines how computer-generated graphics, digital special effects, and multimediated juxtapositions function semiotically. In the process of doing so this essay examines how the use of visual rhetoric produced a serendipitous recognition of intra-departmental cohesion.

BACKGROUND

The field of communication studies has experienced difficulty over the years in being perceived as a coherent academic discipline. The broad diversity of theory and method encompassed by many communication departments with multiple concentrations—often referred to as umbrella departments—has at times been regarded as a liability by other academic disciplines and publics.

North Carolina State University's Department of Communication is typical of umbrella departments. It consists of five diverging concentrations: public and interpersonal communication, public relations and organizational communication, mediated communication (including media production), communication disorders, and theatre. The department is located within the College of Humanities and Social Sciences (CHASS). The College itself is one of eleven in a Research I land-grant university that bases its reputation on its science, technology, and engineering programs. The humanities and social sciences programs are funded at a significantly lower level than the hard sciences and engineering, and communication has historically been funded at the lowest level within humanities and social sciences. This has made it difficult to increase faculty lines, expand physical space, upgrade and procure new computer-based systems for research and teaching, and increase administrative operating budgets. At the same time, the Communication department has nine hundred majors, and graduates more undergraduates per year than all but two other programs on campus.

The department head and full faculty met to define the underlying causes of the inequities in support and to recommend tactics to address the problems. They agreed to address one critical issue: the fact that the department's scholarly research, professional activities, and teaching practices were too little known beyond the department walls. The strengths of the department needed to be made more visible within CHASS, throughout the university campus, and to the larger community of North Carolina. Included in this challenge was the need to represent the benefits of an umbrella department structure. The decision to produce a video arose out of the desire to find a single public relations strategy to address both our internal and our external needs.

RATIONALE FOR THE MEDIUM

The choice to produce a video about the department had distinct advantages. Video is an immediate and familiar medium with which to address diverse audiences, academic and non-academic alike, calling on a common visual vocabulary. The fast-paced editing style

of popular televisual forms, made possible by new digital editing systems and computer-generated animation, is very effective at capturing and holding viewers' attention. Moreover, our discipline's capacity to represent new digital forms on-screen while discussing their significance to the larger world and to do so through the use of the very digital modalities being examined, is a powerful demonstration of the centrality of communications in contemporary society. This perspective had the potential to open up dialogues with other academic disciplines and to allow the communication department to align itself with the University's stated focus on technology.

One advantage of a video in presenting the department to outsiders is the video's agenda-setting capacity, in that both the faculty and the broad range of communication studies could be introduced, eliminating the need to begin with the basics of "what we do." The video was not conceived of as a stand-alone object; rather, it was designed to serve as an entry point for discussion upon which a department representative could build. An initial, widely accessible contact could thus be established that would avoid the specialized vocabulary of the field. The video was intended to act as a bridge to the wider social community, allowing internal audiences to be guided as to how they could relate to the communication program, and external audiences to focus on internships and corporate partnerships which might be fruitfully explored.

The economic advantages of video production provided another important motivation. Public relations efforts are costly, and even the expense of publishing and distributing a multicolor brochure can tax the reserves of some departments. Videotape is inexpensive and can bear repeated recordings. Most audience settings have easy access to a VCR and a television monitor, often more readily available than Internet access or a LCD projector required for PowerPoint presentations. Moreover, producing the video as the main project for an advanced production course had pedagogical value, and it allowed us to avoid the prohibitively expensive costs of hiring outside professionals. With the inclusion of computer-generated graphics and special effects, discussed in detail below, the final twelve-minute video would have cost from three to four thousand dollars per minute on the open market.

VISUAL COMMUNICATION STRATEGIES

Constructing the conceptual framework of the video involved representational strategies that have attracted increasing attention within visual communication studies. The conceptual challenges were multiple, beginning with how to present a balanced view of the five concentrations within the department. The difficulty of this was compounded by the need to keep the finished video within the ten to twelve minute length thought suitable to most presentational venues. In practical terms, this dictated less than two minutes of video time per concentration.

Departments with multiple concentrations confront issues sometimes difficult to resolve, not only in terms of external perceptions but also in terms of divisiveness within departments. Allocations of limited resources can fuel political tensions as can the ways the department represents itself to others. Casting communication as a central theme around which distinct research paradigms orbited seemed to be a good solution. This, however, led quickly to the next problem, that of countering critique of the discipline's apparent lack of coherency. As the students remarked after they finished taping the faculty interviews, "Everyone has a different definition of 'communication.'" The complexity of the discipline itself was encapsulated in that observation. Our challenge, as I conceived it, was to develop visual signs that would convey an underlying unity, while foregrounding the particular contributions of each concentration.

This concept clearly staked out an ideological position. There is ongoing debate about how communication departments should be structured; nationally, there has been a move toward umbrella departments for undergraduate education, while departments with a strong focus on graduate education have been shifting toward more specialized departments.³ In effect, the video was to be an argument for the advantage of an umbrella department. The visual signs that grew out of that conceptual framework would act as persuasive agents to advocate diversity in communication department structures.

Useful debates have taken place in recent years as to the legitimacy of visual arguments as a category distinct from verbal arguments, and these have produced deeper understanding of visual communication (see Fleming, 1996; Blair, 1996; Birdsell and Groarke, 1996). Sonja Foss (1994) proposed a rhetorical schema by which the quality of visual imagery could be judged in functional terms. Furthering these explorations, numerous scholarly investigations into visual metaphors have added to the literature on multimediated communications. Lakoff and Johnson (1980) define metaphors as expressions fundamental to thought processes that structure human conceptual systems, allowing us to experience and understand one kind of thing in terms of another (p. 5). Kress and Leeuwen (1996), Forceville (1995), Kaplan (1990) and Arnheim (1969) examine visual metaphors used as persuasive devices in still images. Miles and Huberman (1982, p. 252) have adopted visual metaphors to engage the interpretive capacities of audiences for qualitative data analyses, arguing that: "Because metaphors will not let you simply describe or denote a phenomenon, you have to move up a notch to a more inferential or analytical level."⁴ Radnofsky (1996) views sign complexes made up of visual and linguistic data as a way to construct and reconstruct understanding in "multiple layers to interpret the multiple realities therein" (p. 390). The visual dimension is not subordinate but "together, text and image create a new whole, whose components may be understood in isolation to some degree, but which, in complement, provide more potential for both researcher and reader inquiry through different ways of knowing and understanding" (p. 391).

Layers of meaning in different mediated forms are part of the complexity of visual language that communicate simultaneously with the more conventional oral language employed in filmed interviews (Messaris, 1994; Barry, 1997). The opening montage of the video was created to establish the sense Radnofsky described of multiple layers pointing to multiple realities. Brief statements about the nature of communication were collected from faculty members from all five concentrations. Some speakers appeared on-screen as they spoke, while others were heard only as voiceovers. The audio segments were then edited to overlap each other, so that each statement started just before another completed. The effect was as if the audience was overhearing an energetic and complex conversation, conveying the sense of a multiplicity of approaches and richness of perspectives.

The aural text was enhanced by the accompaniment of a synthesized percussion score and ran simultaneously with a fast-paced montage of communications-related images—broadcasting towers, cellular phone ads, television studio production shots, and so on—many of which were digitally manipulated with special effects, filters, and animation techniques. Rapid-fire images—common to the post-MTV era—have a galvanizing effect that holds viewer attention, and they were used effectively to that end in the opening montage.

All of these new forms of visualization are dependent on the evolving realm of computer-based multimedia technologies. As Birdsell and Groarke (1996) point out, visual culture is affected by changes in art, science and technology over time, and they in turn change cultural conventions of what is understood by the nature of "seeing" and representations of seeing. Noting the parallel of the quick-cutting conventions of 1990s' television with 1930s' Cubist attempts to convey multiple perspectives spatially, Birdsell and Groarke reflect on contemporary visual media's preference for several perspectives on a single shot: "The result is a combination of visuals that decenters a unitary perspectivalism. No one

camera is all-knowing and the subject is deliberately distorted with the use of negative effects or other filters that ‘reveal’ different elements of the subject-as-source for videographic play” (p. 6).

In similar fashion, the opening forty-five seconds of the video countered the convention of an easily grasped and unitary point-of-view, making a virtue out of the complexity of the conversation being conducted. It also mirrored the look and rhythm of much of the popular televisual material viewers are accustomed to, allowing us to keep audience interest high while providing a complex multimedia backdrop to the commentary of the faculty interviewed for the tape. Finally, the opening montage itself functioned metaphorically by suggesting that the sensory bombardment of rapid-fire multiple communication channels parallels the reality of our over-mediated cultural life. The play with layers of meaning in different message forms is part of a semiotic complexity characteristic of contemporary culture. The “noise” of the competing aural and visual channels undermine comprehension until the visual sign complexes—acting as organizing principles—emerge to bring clarity. Without such organizing principles—in this case the visual metaphors—the contemporary mediascape is often experienced as chaotic and disorienting. Thus, the visual metaphors function rhetorically on a micro level in the video akin to the commentary of a skilled rhetor on the macro level of society.

Producing a video of any complexity is a very demanding enterprise. While the students performed in key creative positions on the production, a production of this kind must have a faculty supervisor experienced in filmmaking for the duration of the project. My own professional experience before entering academia included twenty-five years in documentary filmmaking. I acted as director and producer on the video but included the student associate director and producers in each step of the process those roles demand. I laid out in our class discussions the rhetorical and political challenges that confronted us and introduced the concept of creating metaphors in visual form to respond to the rhetorical situation at hand. The primary visual metaphors—the sphere, the jigsaw puzzle and the brickyard “bulletin board”—were generated by the students out of these discussions.

Each of the visual sign complexes constructed for the video consisted of moving images and written text. Several of these computer-generated animated graphics were intercut throughout the video. The first graphic appeared in the opening montage, and resolved into the opening title of the video, “NC State Department of Communication.” The names of each of the department’s concentrations were animated and continually moved about on the screen as if on the surface of a three-dimensional spherical frame. The concentrations constructed a globe, with one of the names running along a longitudinal line, another along a latitudinal line, and the remaining three names bisecting these lines at diagonal angles. The names appeared singly at first, intercut into the fast-paced image and sound montage of the opening. Their coming together on screen signified a coalescence, out of which the title, “NC State Department of Communication,” emerged, spinning from the center of the globe to the foreground of the screen. The apparent three-dimensionality and globe-like structure formed of the interweaving and intersecting concentration names allowed for a much more complex view of the discipline’s foci than a standard two-dimensional chart or graph.

As was mentioned above, the political jockeying that can sometimes result in divisiveness in a diverse department had to be heeded in making the video. Five concentrations with their distinct faculty, research agendas and teaching methods had to be represented in an equitable manner. From a filmmaking perspective, a linear chronicle of the work of each faculty member and the theoretical foundations within each concentration can be tedious, as anyone who has seen corporate promotional videos can attest. Nevertheless, video *is* linear, inasmuch as it is viewed from the beginning to the end, thereby creating a sense of hierarchy. Politically, it was important to avoid privileging any one concentration over the

others, yet place of order conventionally indicates rank in our symbolic world. Ultimately, we had to introduce each concentration in a linear fashion, separated by a title between each segment ("Public & Interpersonal Communication" and so on). However, the earlier introduction of the visual metaphor of the spherical, interweaving concentration names resolving into the globe, whose centerpoint was the department's name, contextualized each research area and diffused the problem of hierarchy.

The visual motif of diversity within unity was re-enforced later in the video with another image/text sign working as a visual metaphor. This computer-generated graphic took the form of a jigsaw puzzle with five irregular pieces. The name of one of the concentrations appeared on each jigsaw piece. These pieces spun in a random fashion across the screen, until ultimately the five fit together seamlessly to form a circle, from the center of which emerged the word "Communication." As mentioned earlier, Communication as an academic discipline can seem to outsiders unwieldy and unproductive in its eclecticism. Rhetorically, the fitting together of the puzzle into the circle was designed to heighten the sense of common interface and of interconnectivity. Both visual tropes were designed to rhetorically re-frame communication's diversity as a strength, by showing individual foci intersecting and ultimately uniting into a complex whole.

Prospective students and parents often ask, "What can I do with a communication degree?" The answer was represented by the third visual trope. We created a visual metaphor tailored to NC State's population by designing a background matte to look like the red bricks of the "Brickyard," the campus student gathering place where flyers advertising jobs are posted. We then took the conventional employment list and converted it into an animated, cross-dissolving bulletin board appearing on the background "bricks." Names of communication-related professions appeared along the horizontal and vertical axes of the screen and melted one after another into other job names, each differing in color and font and size. The graphic design highlighted the interdependency and overlapping nature of jobs in an information society while again placing the discipline of Communication metaphorically in the center of student life at the university.

GOALS AND OUTCOMES

The goals set for the video encompassed both promotional and educational aims: (1) to serve as a promotional tool whose aim was to increase university and public awareness of the communication department, its faculty, and the range of scholarship and teaching; (2) to serve as an educational tool to increase understanding of communication studies in general; (3) to reframe our discipline in such a way as to make a virtue of its eclecticism; (4) to depict the new directions and methods communication studies is developing as we move into the 21st century; (5) to make use of the multimedia techniques so pervasive in our cultural media landscape, and in turn to make visible the artistic and technical capacities of the media production students, faculty, and facility; (6) to serve as a recruitment and orientation tool for prospective students and their families; (7) to serve as a fundraising tool for the department. Happily, the video fulfilled the majority of these goals.

The completed video ran just over twelve minutes. It has been used successfully in recruiting and freshman orientation sessions, where it has been very effective at introducing faculty and their research and teaching areas, as well as answering that important question as to the application of the communication degree. An international contingent viewed the video and finalized their decision to establish a student exchange program the department had pursued.⁵ Excerpts were screened for a panel presided over by the Dean of the College, in which various departments highlighted their engagement with educational technology and teaching in the twenty-first century for an audience of local business concerns.⁶ Out of that session, a number of promising internships for students were created,

including with SAS, the major software developer in the region and a site of some excellent employment opportunities for graduates. The video was screened again by the Dean for the College's Board of Advisors and University Board of Trustees, and the head of the Communication Department ran it for other CHASS administrators to introduce them to our expanding research agendas and multimedia production capacities. As a way to make a quick introduction to the department, a copy of the video was presented to the new Chancellor shortly after her arrival and garnered a note of praise. Every faculty member received their own copy and many have used it as an effective public relations tool. In addition, we have been able to capitalize on the capacity of the Internet by streaming the video onto the Web page of the Communication Department, thus increasing our audience far beyond the distribution of video cassettes. We anticipate further uses for the video, such as in the recruitment and orientation for our pending Masters degree program in communication.

The production of the video realized another goal, that of utilizing the cost-saving production capabilities within the department while making the project pedagogically valuable. Providing hands-on experience in message manipulation and multimedia technologies developed the technical skills of our production students. With the new emphasis in the motion picture industry on computer-generated special effects and digital post-production platforms, competency in systems like Media 100 nonlinear editing and the digital image manipulation software used for our video is increasingly necessary for employment.⁷

The students gained in analytical and critical thinking skills as well. Understanding the challenges in constructing a coherent narrative using non-scripted interviews and campus scenes provides training in logical sequence and narrative structure. Constructive critique, vital to the successful completion of any video, depends on the ability to analyze raw footage and edited scenes dispassionately. Producing the video involved intensive review of interview transcripts, repeated viewings of footage, a continual re-assessment of scene order and image and sound juxtapositions, and imaginative design of graphic metaphors—all of which demanded increasingly sophisticated understanding of verbal and visual rhetorical strategies.

The difficulties in the shooting conditions of the video were equally valuable pedagogically. The constraints generated by the complexity of student and faculty schedules and the organizational quagmires of a twelve-person production team were reflective of the realities of the film industry and required logistical communication strategies to manage.⁸ Several of the students who were centrally involved in the video's production secured jobs with production facilities following graduation, including positions at television stations in Seattle and Nashville.

UNANTICIPATED RAMIFICATIONS

As can be seen from the discussion above, the completed video met with considerable success, fulfilling most of the goals for its undertaking. One area that was less clearly affected was fund-raising, as no direct campaigns have been mounted in which the video could be put to use. However, in the larger sense of fund-raising where improving the profile of the department within the College and the University results in better operating budgets and inter-disciplinary grant projects, the video has made a contribution.

An *unanticipated* use of the video warrants discussion; it arose out of the first departmental screening of the completed video. The department head and most of the faculty had participated in the production, had been kept abreast of progress over the nine months to its completion, and were very enthusiastic about the video's final form. However, when they viewed the video from the perspective of the audience rather than as participants, they found that it created a reflective space in which intra-disciplinary commonalities became

evident. A number of people remarked on an apparent unity among the concentrations and faculty that many had not previously perceived. The discussions that followed acknowledged that an apparent unity can be artificially constructed by the juxtapositions of interview statements and images forged in the editing process. There was recognition, however, of another possibility: that the video had helped *uncover* previously undetected commonalities that have existed among different factions. Several faculty members subsequently suggested future colloquia for research presentations within the department and began investigations into potential projects with colleagues across concentrations.

Three faculty who had served as department heads in the past ten years commented on this revelation of a greater unity than was often perceived. They noted that the administrator's role had allowed them to see the underlying unity of an umbrella department such as ours, and to understand the potential strengths within the complexities that constitute it. They remarked on a sense of frustration at times with the frequent inability of individuals—inside and outside the department—to see what was visible to the former administrators, particularly when theoretical and methodological grounds were far apart. In this sense, the video performed a bridging function in revealing unrealized intersections of interest and research. While the video was conceived as a way to promote the department outwardly to the larger university community and beyond, we found that the process of making the video promoted the department to itself. The creative process opened a space for acknowledgment of collective theoretical affinities and provided a forum for greater self-recognition and consensus about future directions.

CONCLUSION

As stated earlier, the goals for the production of a video included promoting the Communication Department within and outside the university, educating viewers' as to the study of communication and its role in an information society, and advocating implicitly for the benefits of umbrella departments. The development of visual metaphors came as an unexpected by-product of grappling with those three challenges.

The process of developing visual tropes in this case began with the need to represent the diversity of an academic department without negating a sense of its integrative qualities. Meeting that challenge metaphorically proved to be an effective strategy, as the inferential level of thinking engaged in understanding metaphors allowed for the development of more complex representations beyond the simple denotative level.

Making the video also highlighted the tension that exists between technological demand and communication imperatives. Information technologies are influencing the objects of study and the research methods and channels of transmission in every facet of the Communication discipline. In popular motion pictures, for example, the creation of special effects and computer-generated animations has become so ubiquitous that there is pressure to add them automatically to any production. We certainly felt this pressure in producing our video; a general awareness of the visual expectations of our audience "demanded" that we use cutting-edge computer-generated graphics. However, once we began working with the new digital special effects, we found we could create visual signs that functioned powerfully as metaphors, and that worked far better than older two-dimensional representational strategies to portray a complex departmental structure.

On a macro level, the video itself replicated the function of these visual metaphors. The video functioned as a rhetorical space for the department as a whole to consider the way that the agendas of the five concentrations intersect and interconnect. Functionally, the attempt to represent department-wide unity led us into exploring and in some ways strengthening that unity.

As a whole, the Communication discipline needs to take stock of the changes multimedia technologies are rendering in our cultural landscape, and to rethink certain representational strategies. In the face of an increasing demand for the World Wide Web as a platform for multiple communication modalities, the study of visual communication is becoming more urgent. The more intricately constructed visual metaphors in the video raise questions about the applicability of older metaphorical forms such as bar graphs and two-dimensional maps. The greater overlapping and interdependent nature of contemporary social and economic systems makes dynamic three-dimensionality in rhetorical tropes seem crucial.

The tension discussed above extended to the practical dimensions of the video project in that the students were required to understand both new technologies and organizational issues. They were taught technical skills but were also immersed in the subtleties of metaphor formation. The students were thus offered a visceral experience of the tensions that embody the role of the communication department in the information age. In looking at the work of contemporary Web page designers, for example, we can see they need to understand not only the design factors but also the organizational and rhetorical communication situations involved.

As discussed earlier, the video played an unanticipated role in the department in revealing commonalities among disparate approaches to the study of communication. That recognition has relevance in pondering the future of the discipline as well. Communication departments initially developed with speech and rhetoric as primary foci, only later moving to umbrella departments that encompassed a range of qualitative and quantitative research agendas. Currently the value of more specialized departments is being discussed, suggesting a move away from the umbrella departments.

However, both the process and the content of this video production seem to argue that as the changes wrought by the emerging information society and computer-mediated communications increasingly occupy communication scholars, an umbrella department provides—at least at the undergraduate level—the most appropriate educational response to a rapidly changing communications environment. Specialized departments may find that they are enacting categorical distinctions that are not realized in the corporate world or in the evolving mediated environment. Students graduating with highly specialized communication degrees at the undergraduate level and even the Masters level may be under-equipped to meet the demands of employment in any arena. This may prove particularly true if they are not versed in experiential practices related to new technologies (such as Web design or multimedia production) in addition to the theoretical and methodological frameworks of a particular research agenda (Rakow, 1995). The rising interest in the post-baccalaureate certificate programs is an indicator of the greater educational needs both employees and employers are facing.⁹

As tools of communication converge, this may force a concurrent convergence of the discipline into a community of scholars creating an environment where dialogue, partnership, and cross-stimulation of ideas occur. This has been a frequent theme at the annual conventions of our national organizations and remains a vital concern for communications departments who wish to maintain their vitality into the next millennium.

REFERENCES AND NOTES

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¹ Personal communication via electronic mail, June 28, 1999.

² The September 1995 (No. 3) issue of *Journal of the Association for Communication*

Administration has several useful articles reflecting on the state of communication disciplines and departments.

³ The move toward more specialized departments for doctoral programs may be justified by changing conditions in the academic employment picture. Thanks to Bill Eadie of the National Communication Association office in Allendale, VA and to Robert Schrag of NC State University's Department of Communication for their insights in these areas.

⁴ Quoted in Radnofsky (1996, p 388).

⁵ One of the group commented favorably on the sophistication of the production equipment and curriculum after learning the video had been produced entirely within the department.

⁶ NC State University is part of the University of North Carolina system that resides within the "Research Triangle," a cluster of biotechnology and telecommunications corporations who have aimed at establishing themselves as a second Silicon Valley.

⁷ Our department has a relatively well-equipped production facility. In particular, digital nonlinear editing systems are both cost-effective and extremely sophisticated. Editing on a digital system is far more intricate than that which is possible on video editing decks. Even without digital cameras, the visual material taped by a relatively inexpensive Super VHS camcorder can be enhanced and manipulated, giving it a quality often higher than its original state. One of the departmental Media 100 nonlinear digital editing systems was dedicated exclusively for the use of our production, and ultimately we filled all thirty-four gigabytes of hard-disc storage available. The Media 100's features were extended by the addition of an animation and special effects software application purchased at reduced educational rates. We were able to create advanced special effects that further heightened the visual interest and quality of the end product.

⁸ The coordination of faculty schedules and student class schedules presented thorny problems at times and delayed completion of the production into the middle of the second semester. This delay meant that not all the original students were available to finish the film, and that some of the post-production team of editors and graphics animators had to work for much greater time periods than the other students. The associate producers put in most of their hours in the first half of the semester, while the camera crews worked mostly in the middle eight weeks of the semester. The editing team worked primarily through the last half of the semester, putting in an average of fifteen hours a week in total. The scope of the production and the limitations on students' time resulted in the finished production taking almost eight months, and the final weeks of its completion required twenty to twenty-five hours each week of editing.

⁹ A helpful website for research on post-baccalaureate certificate programs and for the trends in graduate education can be found on the Council of Graduate Studies' Virtual Research Center web page at www.cgsnet.org.

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