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A Hypertext Authoring Course, Portfolio Assessment, and Diversity

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THE GOAL WAS TO PRODUCE A STUDENT-AUTHORED ELECTRONIC HYPERTEXT about issues of diversity at the University of North Carolina at Charlotte (UNCC) and to assess the course work by means of portfolios. The products included over one hundred and twenty linked screens of information, nine 100-page plus course portfolios, four one-hour long videotaped oral presentations, and three grades of "incomplete." The process entailed small group development of discrete electronic documents that were subsequently linked into a large common document. It was an ambitious and arduous task for many of the students. And yet the outcomes of this curricular experiment, as assessed by me and by my students, seem to warrant a claim of "success." That is the subject of this chapter—portfolio assessment of the design and value of a hypertext development course for advanced professional writing students. Here I will describe and critique my plans and materials for the course, the students' efforts, and the documented outcomes—especially the portfolios. I argue that a hypertext development course does have a place at an advanced level in a professional writing curriculum. Moreover, I contend that a course design that integrates discrete group-authored documents into a single large linked file series best serves the rhetorical (collaborative/ social constructionist) and political (democratic pluralist) aims that underpin much current hypertext development theory. I also argue that portfolio course assessment practices

provide the best means of assessing students' work in authoring hypertexts while portfolios also support a curricular emphasis upon issues of diversity.

The Theory

I first argued for including a course in hypertext authoring in UNCC's Professional Writing curriculum because I was convinced of hypertext's potential for changing educational norms and classroom cultures. Theorists and practitioners of writing with computers have come to recognize the power of educational computing technology and the concept of hypertext. Edward Barrett, Jay David Bolter, Paul Delany, Nancy Kaplan, George Landow, and John Slatin among others have written of the ways that electronic hypertext challenges many print culture assumptions about texts and authoring. The very processes of authoring and reading are being redefined by online text, and hypertext technology proponents have even called into question the status of the published book (Bolter 1991; Landow 1992b; Coover 1992). Rhetorical critics now analyze the design of computer interfaces. Henrietta Shirk (1991b), Janet Eldred and Ron Fortune (1992) have analyzed structural metaphors that support specific hypertext systems, and they've written about the implications of those metaphors for constructing knowledge in an electronic rather than a print culture. Other rhetoricians (Bolter 1991; Landow; McDaid 1991) have argued that hypertext embodies and tests poststructural theories of textuality, narrative structure, and reader/writer relations because electronic reading tasks may be so much less sequential and hierarchical than work with some types of printed matter. Stuart Moulthrop has argued that there are clear political implications in cultivating an electronic discourse community within the larger print culture (Moulthrop 1991). Hypertext applications have also led to the creation of experimental interactive fictions and the development of new literary genres (Bolter 1992; Joyce 1988; Coover 1993; Moulthrop and Kaplan 1991). Computer classrooms used to teach writing have been redefined by the concepts of electronic hypertext and networking (Hawisher and LeBlanc 1992; Holdstein and Selfe 1990).

Professional Writing is a developing field and one that can accommodate the study of hypertext as an authoring technology (Sullivan and Porter 1993). Composition instructors have experimented with hypertext in limited ways (DiPardo and DiPardo 1990), and the potential of the medium has been widely acknowledged at all educational levels (McDaid 1991). But hypertext creates new challenges for training authors. The plurality of

choices afforded by authoring electronic hypertext does not guarantee an effective document design, but instead, creates opportunities for confusion for the novice (Shirk 1991a). Yet hypertexts remain a viable option to many forms of print including reference manuals and tutorials, simulations, and textual databases. Hypertext structures have been used for presenting online instructions and help files, for employee training in Fortune 500 companies (Thé 1992), for educational course materials, and for interactive museum exhibits (Shneiderman et al. 1989). But each of these uses varies rhetorically. Authoring hypertext allows students to create electronic documents with types of variety, accessibility, and use that differ greatly from printed matter or word processor files.

Despite the claims of proponents, hypertext technology does not make the processes of reading or writing inherently easier, faster, or more natural. Reading and writing are complex learned skills in any medium. The challenge I faced as a teacher was to train students to become literate across several media and to do so in a context that was sensitive to "differences," both cultural and technological. This was a challenge I took quite seriously as I drew up plans for a course that was focused around hypertext development and that employed portfolio assessment.

I knew from experience that portfolio assessment would support my course goals well. Course portfolios that showcased polished products and that demonstrated development across the term through a series of exhibits would help to assuage students' anxieties about the need to rapidly develop computer skills and to publish a useful product. The portfolios would also provide me with a structured way to require reflection upon readings, exercises, and the overall project while also giving me a method of assessing the work of collaborating writers individually.

The Background

I came to the course with some background in hypertext authoring and several years of experience teaching technical communications courses. More specifically, I had taught hypertext authoring as a two- to three-week unit in advanced undergraduate computer-aided publishing classes for more than three years before designing an entire course around hypertext authoring (Wickliff and Tovey 1995). Those earlier efforts had been limited by the short time frame I afforded to a hypertext authoring assignment in a broader course syllabus. Instead of producing a fully working hypertext, my students were required to design an entire document structure, but

produced only a portion of that structure—usually eight to ten linked screens. We had used *HyperCard* as the authoring tool. The students' products included documents designed to solve local information needs such as a guide to regional law schools, a directory of local Habitat for Humanity volunteers, and part-time job search directories. As useful as these assignments were for introducing the basic concepts of hypertext development to students, I was repeatedly frustrated by the extremely fragmented and partial nature of the written products. Nevertheless, even the partially completed stacks were polished enough to be exhibited on a computer at our annual departmental Technical Writing Fair. Faculty from across the curriculum as well as technical communicators from the community were intrigued and, in moments, impressed by the students' early efforts. After several semesters of this approach, I spoke with a colleague at another university who had designed an entire English course around the concept of hypertext authoring. His enthusiasm was contagious. I proposed a similar course to my fellow technical communications faculty under the rubric of "Topics in Advanced Technical Communications."

By the spring of 1994 I was ready to offer the course at the 4000 level—our undergraduate/ graduate student bridge level. While I conceived of and introduced the class as an experimental one, my specific goals for the course were explicit: 1) to construct a large working educational hypertext on the issues of diversity on campus; 2) to allow students working in small groups to define the writing problems in ways they chose; 3) to assess the outcomes through portfolio course evaluation; and 4) to explore the limits of the hypertext authoring hardware and software thoroughly. By contrast, I believe most of the students, both undergraduates and graduates, approached the class with little or no experience in authoring hypertext, and with few clear goals other than the obvious one of gaining computer-aided writing experience—a marketable skill. For example, one of the students had worked in the computer industry since 1973 and been a technical writer for the last twelve years, yet she was apprehensive about the class. In her portfolio, she reflected upon her initial attitude toward the class: "I signed up for this class to help me take my first steps into the multimedia world. If I am going to be on the 'bleeding edge' [*sic*] of technical communication, I would prefer to do it in a classroom rather than on the job. I approached the task of learning hypertext with eagerness and apprehension: eager to learn the new wave of communication and apprehensive about my skills."

At yet another level, the course was designed to serve the goals of the department and the university through its emphasis upon the issues of

diversity. The UNCC English Department distributes to all its students each semester a copy of our multicultural policy that states in part, "we will make a genuine effort to heighten, in any works we teach, our students' awareness of tendencies to stereotype differences in culture, religious beliefs, gender, class, age, race, and sexual orientation, and we will at the same time encourage understanding of the above differences." At the university level, the issue of "Diversity" was selected as the theme for the annual university forum that semester, and Ben Chavis, a UNCC graduate and at that time director of the NAACP, was to be the keynote speaker. So in the spring of 1994, the vectors for the authoring technology and the topic of diversity seemed to be converging in fortunate ways.

The setting for the course was a networked Macintosh computer classroom equipped with twenty Classic II microcomputers, an Apple Scanner, and an Apple Laserwriter IIg printer. As an authoring tool, we used HyperCard v. 2.1. For graphics manipulation we also made use of Aldus SuperPaint v.3.0 and Ofoto v. 2 for scanned images. For word processing tasks, we used WordPerfect v. 2 for the Macintosh. We met one evening per week for a three hour session. The students had access to the same facility whenever classes were not being taught there, Monday through Sunday, approximately 8:00 A.M. to 11:00 P.M. The texts we used were Jay David Bolter's (1991) *Writing Space: The Computer, Hypertext, and the History of Writing* and George H. Culp and G. Morgan Watkins's (1993) *The Educator's Guide to HyperCard and HyperTalk.* I also recommended, but did not require, Theodor Nelson's (1992) *Computer Lib: Dream Machines,* as an example of a printed hypertext and as a source for reflections upon computing technology itself. And I secured for the students copies of the Winter 1994 issue of the *National Forum: The Phi Kappa Phi Journal* devoted to a discussion of multiculturalism and diversity.

The official course title was "Writing Hypertext" and sixteen students enrolled—six graduate students and ten undergraduates, all English majors. For a variety of reasons, primarily related to scheduling, four students dropped the course. Of the remaining twelve, nine would go on to complete the course work satisfactorily, and three students would request a grade of "incomplete."

Planning for Portfolio Assessment

I knew from the outset that I wanted to assess the course and the students' work with portfolios. My reasons were the same ones that had pushed me toward portfolios in my other computer-aided writing classes. I knew that

the students would have a varying range of experiences with computers, and that many would be apprehensive about the writing because of that. I knew that hypertext authoring would be new to almost everyone enrolled, further heightening that apprehension. I also anticipated that it would require the entire fifteen weeks of the term to produce a single large working hypertext. Portfolios addressed these issues directly. I told the students from the outset that part of their grade would be based on the argument they would make in the portfolio for development across the semester. I told them that they had the entire term to revise, reject, and rewrite the "final" documents that would be showcased in their portfolios. And because they were to work in small groups, the individual portfolios provided students with ways to distinguish their work from that of their peers, avoiding some of the fear of the "group grade."

I adapted the structure for the portfolios from those I had received from students in other classes. Each portfolio would contain a wide variety of exhibits—journal entries, planning memos, drafts, sketches, printed screens, progress reports, and electronic versions of the working hypertext with their own assessments. The journal entries provided a space for students to be expressive in an ungraded context (their frustrations, elations, and wit). The planning memos, drafts and sketches became the starting points for arguments of development. Without them, the nebulous beginnings of the project would probably have been masked from me and discarded as the litter of the workshop. The printed screens and written progress reports served as indices of measured progress while the electronic versions mutated with each passing moment, making any "draft" merely a morphological hiatus. But the structured reflection upon those ephemeral electronic drafts was "fixed" (in a photographic sense) in a final assessment memo in which the students commented upon the strengths and weaknesses in their own efforts and products. The effect of collecting all of these exhibits in a single portfolio was to give a definite structure to the students' arguments for development and for the overall quality of the final product. I told students from the first day of class that incomplete portfolios would not be evaluated. The threat worked. They went on to save versions of everything that they created.

The Chronology

The course began with the customary overview, a few Macintosh basics, and moved quickly toward a series of demonstrations of hypertextual documents—Apple's *Global Warming* HyperCard Stack, a self-running

demonstration of WordPerfect v. 3 for the Macintosh, and then, more realistically, demonstrations of several of the partial HyperCard stacks created by students enrolled in my previous courses.

The student reactions were primarily positive and predictable. They valued the aspects of the hypertexts that word processor files could not support—the animation, the sound, the well-integrated scanned and drawn still artwork, the plurality of reading choices from every screen. And yet I'm also certain that apprehensions rose among the students about the level of computing skill necessary to author such documents. They were not comfortable with the label of "programmers" or with writing in computer code, although they immediately recognized the hypertexts as documents that were rhetorically designed for particular audiences and purposes.

Setting Project Goals

Before the first class was over, we began our semester-long discussion of the issues of diversity on campus and worked through the first of many drill and practice exercises in the Culp and Watkins *Educators' Guide to HyperCard.* The standards I set for the students' hypertexts were 1) that they allow readers to contribute to the document in some way; 2) that they incorporate graphics into the document; 3) that they make some use of the audio capabilities of the Macintosh; and 4) that they produce a document useful to other students and faculty. In the week before our second meeting, the students performed additional HyperCard exercises, began their readings in Bolter's *Writing Space,* and started recording a series of reflections on the texts, the computer exercises, and the issues posed in the class. I collected these written reflections every three to four weeks during the course as a way to keep in touch with the undercurrents of the class, and they became part of the final course portfolio.

Student responses to the orientation to hypertext were wide ranging: One student wrote of her first experience with an interactive CD-ROM that presented *Cinderella* in several languages, "The word 'hairbrush' is unknown to me so I click on it. The word is then explained in Spanish both verbally and on the screen. I may even get lucky and have a picture. I'd like to write a book like this. Just think of the possibilities for a murder mystery!" Another student was less enthused by his first experiences with the medium, writing that "I don't particularly like the idea of hypertext. I question its ability to make information easily accessible. But while reading and working on the first tutorial, I found the concept of hypertext to be more appealing. I'll wait and see what happens when I acquire more knowledge."

Yet another student already had worked with multimedia computing and used his journal to vent his frustrations with our computer classroom: "As I sit here typing this response on my 486-33 DX, I cannot help but be disappointed at the quality of computers we are going to use in our class project. I almost didn't take this class because it focuses on the Mac. I hate Macs. . . . If I can overcome my prejudice toward the outdated technology, I think this will be a very interesting class." He did, and it was, for all of us.

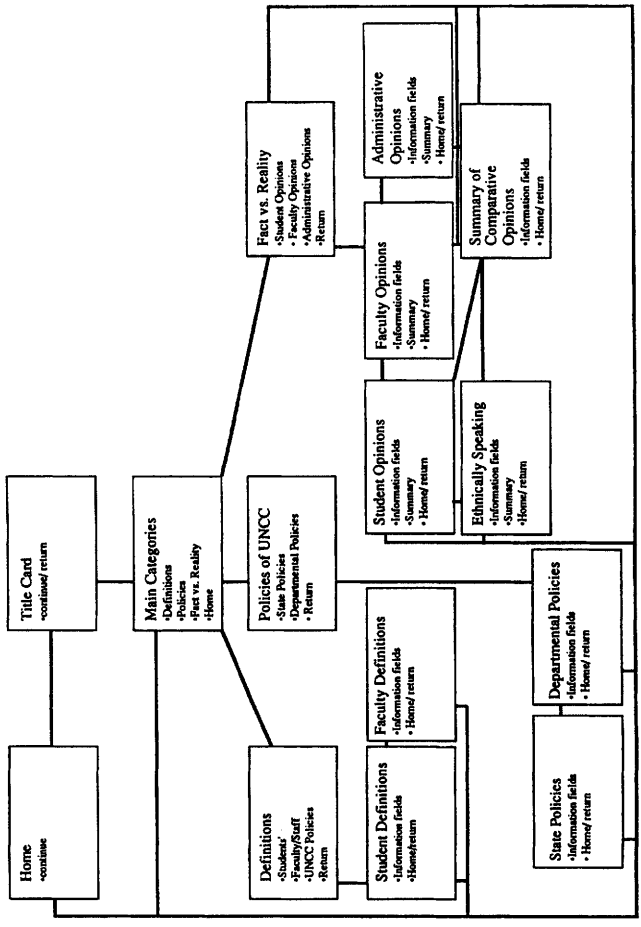
During our second class meeting, we began to probe through discussion the meanings of "diversity" and to raise issues of concern on campus—the underrepresentation of women and minorities among the faculty and administration, the retention of minorities on campus, the role of casual language in establishing cultural norms, the status of the disabled, religious freedom, the reception of older students by the campus youth, and the establishment of organizations for gays and lesbians. With a long list of these and related issues listed on the whiteboard, I collected the students' schedules and asked them to select topics they would like to write about. Then I formed groups of two to four students by their choice of topics with the provision that they have at least one free hour to meet outside of class each week. In retrospect, I see that on such a large project students need considerably more time than one hour per week to meet. (The dissolution of one group can be attributed primarily to the incompatible schedules of the group members and their failure to work out other, non face-to-face ways to exchange information.)

The students' reactions to working in small groups on the hypertext were positive. They saw their fellow group members as resources—visual artists, musicians, computer experts—and as members of other cultures—black, white, Jewish, Christian, older, younger. And, surprisingly enough, most groups moved quickly toward a written statement of their group goals: " 'Diversity at UNC Charlotte'—my group has decided to focus on three aspects of diversity. We are going to examine the policies at UNCC that support the ideas of diversity, the realization of these policies, and the perceptions of students. . . . For my section, I am going to create a questionnaire that will gauge exactly how students see the current state of diversity at UNCC."

Preparing Planning Materials

To formalize their plans, I required each group to submit a planning memo for their HyperCard stack, complete with a diagram of the stack structure, showing all the planned links between all the planned nodes (see figure 1).

Figure 1
Outline for a Hypertext on Issues of Diversity



These "maps" of the stacks proved invaluable as students divided writing tasks and cross-linked the nodes of information later in the process, while their planning memos helped them clarify their general goals: "First, we need to reveal the diversity found on the UNC Charlotte campus. On the same level, we should address the dangers and problems found in categorizing people. On a second level, we need to educate diverse groups about cultural heritages and how groups are viewed from other vantage

points (this discussion would get into stereotypes). Third, we need to show the benefits to everyone when we value all people equally."

The planning memos also helped groups clarify more specific document goals and led some students to discover things of permanent worth in the otherwise ephemeral world of the computer: "One thing is certain. I want the user to be able to interact with my stack. I would like to have a 'hard copy' that contains the responses to the questionnaires in a field that cannot be changed. On another card, I want a field where students can add their responses to the questions or to the comments gathered by the questionnaire. In this way, the text will never stop growing. I like that idea. In effect, my work will never end."

Other students' planning memos revealed they were more cynical about relinquishing partial ownership or authorship of the document to their readers: "I'm not sure if people should be able to contribute to the stack. It might do damage to others' work. Perhaps one should be able to leave sound recordings or messages, but only the author would allow that into the stack. That way the information can be reviewed for derogatory remarks."

Students were also required to sketch their first three cards using a technology in which they were already literate—pencil and paper. Some students went so far as to create nearly full-sized mock-ups of screens on five-by-seven–inch index cards. These and other preliminary materials I commented on in class and the students retained them for their own planning and portfolios.

Drafting at the Computer

Within four weeks time, the groups were working toward computer-aided drafts and were facing problems with programming and with managing the group tasks. The gap between the students' tele-visionary concepts and the limitations of the authoring tools and computing environment was a great one. "I don't like being limited to black and white. With color, the [drawing] tools would be perfectly useful. I also feel that the fill patterns are much too limited. I would like to add my own types of patterns. My last complaint deals more with HyperCard. Only being able to Undo your last action is a nightmare. Accidentally hit the fill bucket twice and you have big, big trouble."

One of my most experienced writers took charge of her group, assigned specific drafting and editing tasks to group members, all to no avail. In her written reflections, she made a prescient entry: "I must complain about the group approach. I have grave concerns that my team members are fading

away. I, too, feel like it is very difficult to get started, but these guys don't seem to be working toward a common goal." Oddly enough, all three of her fellow group members dropped the course. She was forced to turn to another group already at work for support and to realize her stack goals with limited peer support.

And so the course went, week by week, and the students' hypertexts grew in design and complexity. As they became more confident with their authoring skills, they depended less and less upon the HyperCard exercises and grew more critical of unquestioning endorsements of hypertext as an authoring medium and of assertions of its superiority over print: "So he [Bolter] pooh-poohs print does he? Well, he seems to be doing an excellent job of building a linear argument on the wonder of the electronic text. He probably also considers himself an "authority' on electronic text. So, in essence, I could write Bolter and chide him for *printing* his information and opinions in ways that prevent the reader from interacting." Another student argued that an electronic culture would be slower to overcome print culture than Bolter seems to predict: "Bolter's book continues to attempt to prove his ideas about how hypertext is in the process of destroying all the basic ideas we have concerning text and author. . . . But Bolter's grand visions cannot occur until we have the common person in the street reading from a personal information device instead of a newspaper."

As the final month of the semester drew near, the students turned to the tasks of testing and revising their individual stacks. Students brought novice users into the classroom to work their HyperCard stacks and took notes on the problems and successes the users encountered. This proved quite valuable in guiding the students' revisions: "I am most pleased with the changes that I made after my user tests. As a result of those tests, I added the home icon, the intro screen, and changed the wording of the screens to keep the focus." The students continued to test and to revise their hypertexts up until the last day of classes, changing fonts for consistency, cropping and sizing graphics, repositioning text fields, and adding sounds and animated effects to their documents.

Presenting the Hypertextal Product

The final weeks of the course were given over to oral presentations of the students' final projects. Groups had one hour to summarize a vision of the rhetorical context for their hypertexts and to explain and defend their design choices before the rest of the class. This summative exercise set the tone for written self-evaluations included in the portfolios. Screen by screen, we saw the entire product of the class unfold, and began to take note

of connections between our efforts—how issues of slang were related to issues of racial diversity, how historical underrepresentation was connected to contemporary student attitudes as revealed through survey research, and how official policies on diversity could be at the same time perceived as both too stringent and too permissive. The students were frank and critical in their assessments of each other, but they were also appreciative of the efforts involved in hypertext authoring and vocally impressed by the range of issues addressed by classwide product.

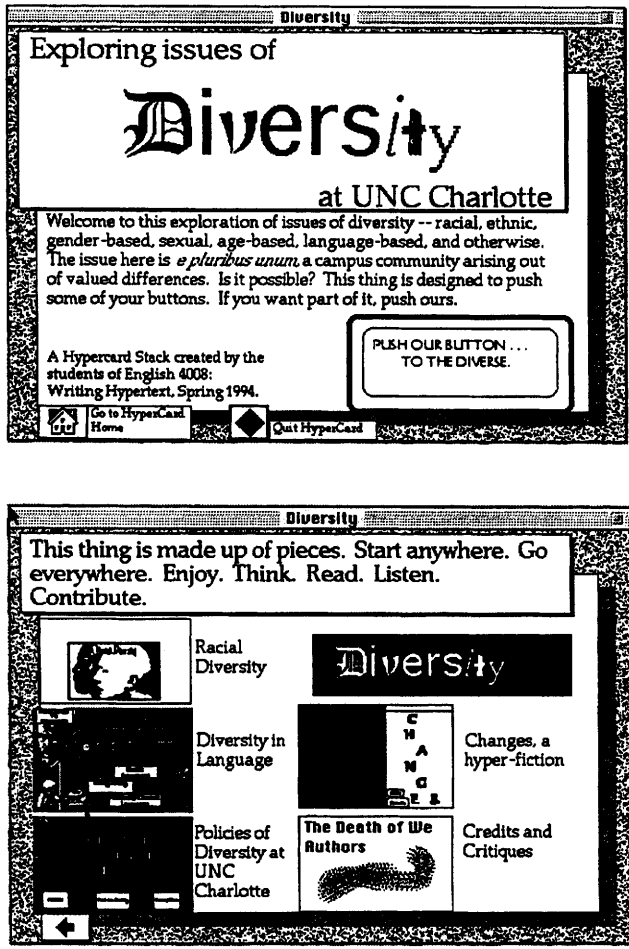
Our final class meeting was devoted to editing a parent HyperCard stack that would embrace and link together the efforts of the individual groups. "Diversity at UNC Charlotte" was the product (see figure 2). We decided to include the opening screen from each of the group stacks—"Racial Diversity," "Diversity in Language," "Policies of Diversity at UNC Charlotte," and "Changes, a Hyperfiction" as icons, and to make a space for "Credits and Critiques" of the product. Challenging in its tone, the parent stack was also designed to visually invoke the idea of diversity through the multiple font choices combined in the single word "Diversity." The parent stack was then tested, and an icon created for it that would make the entire product available over the local area network of the computer classroom.

Outcomes

The Course Portfolios

The course portfolios were, as a whole, a large and impressive demonstration of both the showcased final group products and the individual student's development across the semester. Divided into sections that include planning materials, sketches, computer-aided drafts, reflections, the final hypertext (on floppy diskette), and project and course assessment memos, the portfolios averaged over 100 pages. Bound in black, red, and green three-ring binders with colored tabs that marked section dividers, they collected together the bulk of the students' work over the fifteen week term. In the portfolios I found both unifying similarities (in the types of exhibits included) and useful differences, especially in the "final" assessment memos that highlighted the critical skills that the students developed: "I kept flipping from book to book, trying to get my arms around hypertext, and struggling with my desire to make chapter two follow chapter one and so on. At one point I had a revelation. I could see that I defined the text for this class myself. Indeed, it dawned on me that most of us have used educational material as a hypertext without ever realizing it." This was the type of structured reflection I had hoped this curricular experiment would inspire.

Figure 2
Opening Screens from Student-Authored Hypertext
"Diversity at UNC Charlotte"



The student had argued convincingly that she had synthesized the content and the methods of the course. In otherwise similar portfolios, I chose to reward more highly this level of reflection in the formal assessment memos.

The quality of the students' three- to four-page assessment memos was, surprisingly, uniformly high. I found much to praise and reward in their commentaries. I had guided their reflections with a large set of orienting questions, and it was revealing to see which students responded most strongly to which issues:

> How did you define your audience for the HyperCard stack? What are the purposes of your stack (primary and secondary)? What areas of expertise did the members of your group bring to the stack? What are the guiding metaphors or images for the design of the overall stack? What are the key terms in your organization of the stack or its divisions? Why is each type of card designed the way it is? What visual and aural effects did you succeed in including in the stack, and what is the rationale for each? How would you assess the quality of the final product you have produced? What consistent processes or practices governed the work of the group? What writing processes worked well, and what did not? Would you select HyperCard as a medium for this writing project if you had it to do over again? Why or why not? What concepts from the reading did you find to be more and less useful in the creation of your own hypertext?"

One astute and honest student pondered her own feelings of ownership for the hypertext she had helped to author, and questioned in a public and theoretical way her responsibility to her readers:

> Apparently, then, I too am locked in the printed text world. As a writer of a HyperCard stack, feelings of ownership run strong. The possibilities of reader interaction excited me because of the potential of maintaining the reader's attention, but I also limited where the reader could directly influence the stack's contents. . . . Again, the question arises 'How holistic can a hypertext be when the writers limit the choices the reader may make?' . . . I learned to be aware of the limitations a writer puts on a reader regardless of the media.

This sort of self-awareness of language, media, and responsibility, prompted by structured written reflection, is perhaps the greatest product that such a course can foster among students. After working for weeks in hypertextual ways, the students all became more critical both of the limitations of print and of electronic documents. They developed new skills, giving them a measure of control over the electronic environment that steadily encroaches on their and our own work and living spaces. And, they prepared a document that is of use to an audience outside of the class itself—the

successive generations of students and teachers working in our Macintosh computer classroom who just might be curious enough to double click on the networked icon "Diversity at UNC Charlotte."

I believe the student stack could be of great use to faculty teaching introductory composition courses in the computer classroom, especially to those who might be using a multicultural reader. If so, their students will be able to analyze and critique the information in this electronic document, and to add to it, and to comment on other students' additions and annotations. The limits to this program's future use include its size (over three megabytes of hard disk storage) and the great number of fonts used by the groups. The effect of its large size is to limit the life of the stack to users of our local area network. And since the classroom is not yet connected to the larger universitywide network, the size of its audience is extremely limited until such connections are made.

Graduate Student Papers

The graduate students in the course were also required to write a term paper on an aspect of electronic authoring that intrigued them. The papers became discussions of the contemporary electronic writing space—copyright law and digital media, usability testing for online documents, commercial applications of hypermedia, and a characterization of network writing spaces. Here, even more than in the reflective entries in the portfolios, the graduate students made perceptive critiques. In a discussion of copyright law and digital media, one student wrote that electronic texts were redefining the role of the author in ways that Michel Foucault had predicted—the author being considered not as a person but as a function in society. He also cited David Lange's claim that there will be "no moral rights of authors save one: that anyone who wishes will be free to play in the fields of the word" (Lange 1992, 151). But then he noted with irony that "Foucault's works are copyrighted and the first page of Lange's article announcing the end of an author's 'moral rights' contains the copyright symbol followed with 'by David Lange' " (Lange 1992, 139). He concludes by asserting that the author as owner of a copyright is an institution that will continue across media because of its economic and social roots, in American culture at least.

The Hypertext

The hypertext itself is an impressive student-authored product. It contains, among other things, some 120 screens of information, survey results

from more than 100 students about issues of diversity and language, self-tabulating quizzes and ongoing surveys about policies of diversity on campus, music, narration, audio clips from contemporary films, animation, a short hyperfiction about a first year college student who wants "to belong," historical information, scanned photographs and images from recent newspapers (used with permission), bibliographies, and comment boxes. It is truly an engaging if at times incongruous product that does meet the standards that I set for it at the beginning of the course—it is a large working educational hypertext on the issues of diversity on campus that explores the limits of the hypertext authoring hardware and software that we used. And it cannot be conveyed well here, in print.

Conclusions

I believe designing and teaching a course in authoring hypertext is an investment in developing new kinds of critical sensibilities among students, an investment made possible by the flexible nature of portfolio assessment. An advanced Professional Writing course, driven by portfolio assessment that rewards both developmental and summative exhibits, is an appropriate setting for encouraging student authors to explore and critique new media. Perhaps this is hypertext's importance as an authoring medium, that it demands more kinds of skills than print alone. Hypertexts pull from other artful media, like video, that invoke images from many cultures; and structured portfolio assessment memos encourage students to be critical of design elements from several media and of elements of electronic culture itself. My students' work with hypertext shows that complex electronic documents can be at least as inclusive and pluralistic as print in form and theme. Their portfolios also demonstrate that work in this nascent medium can be assessed well. A hypertext course in a Professional Writing curriculum, when coupled with a portfolio approach to the course's assessment, provides a rich field for cultivating students' study of language, culture, and technology.