

## Reflections on Reading and Evaluating Electronic Portfolios

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WITH THE SHIFT FROM PRODUCT TO PROCESS APPROACHES IN TEACHING writing has come the shift from indirect to direct procedures in evaluating writing quality. As a result, portfolios have become a widely accepted evaluation method which focuses on process over product, often assessing the development of written proficiency over time. Within classroom contexts, the form and function of portfolios are generally determined by teachers or administrators hoping to assess the written proficiency of students through the evaluation of academic essays. While students may have control over which essays go into their portfolios, their control over the form and purpose of their portfolios is limited in such an instance. However, the role students play in determining the form and function of portfolios may be influenced by the increasingly prevalent and important role of computer technologies in support of writing instruction. In this chapter, we reflect on the potentials and implications of what we have come to term the “electronic portfolio,” a HyperCard project in which one student created an on-line (as opposed to hard copy) portfolio of her course work.<sup>1</sup>

Portfolios created and read electronically can differ from traditional hard copy portfolios in a number of ways. Comprised of more than static words on the page, electronic portfolios can include images, graphics, sound, and motion. Rather than constructing a set, linear path through numbered pages, electronic portfolios offer multiple paths readers might

follow, depending on which direction they chose to go. Portfolios created and read electronically may thus blur boundaries between writer and reader by allowing readers to play more active roles in the construction of the text. As we will indicate in this chapter, such fundamental differences in the writing and reading of electronic portfolios necessitate changes in the ways we conceive of and evaluate these “radical departures from our linear notions of text” (Hawisher and Selfe 1991a, 173). Through an examination of one student’s electronic portfolio, we argue that electronic portfolios may support and encourage the development of reflection and understanding in student writers about their writing processes, the relationship between the parts of those processes, and the fluidity of writing processes. These potential benefits pose several problems for evaluation, however, for electronic portfolios broaden notions of literacy as something at once visual, verbal, and aural. In order to support student writers negotiating these changes and develop evaluation strategies which respond to these changes, teachers must recognize the ways these changes effect their own notions of textuality and literacy. By exploring the example of an electronic student portfolio we received in a Computer-Aided Publishing class, we show how our own notions of textuality were revealed in our grappling to evaluate this new text form.

## Hypertext

Many writing theorists consider hypertext to be a new form of writing which writers and readers must approach with different sets of conventions and rules for usage than those used with traditional printed texts. Part of this is a result of the physical nature of working in hypertext. Existing only online, hypertexts exist as an alternative to linear, sequential texts which are organized and predetermined for readers by writers. Hypertext might be thought of as a text of multiplicity: it is multilinear (readers must choose from multiple options which direction to take their reading), it is multivocal (with the opportunity for readers to add to the hypertext so that readers who follow will have previous readers’ ideas and comments), and it is multisequential (with different readers sequencing the text differently depending on their individual choices). Hypertext is truly electronic text, since print versions destroy the fluidity of its multiplicity. As John Slatin puts it, “Hypertext is very different from more traditional forms of text. . . . Both word processing and desktop publishing have as their goal the

production of conventional printed documents, whereas hypertext exists and can exist only on-line, only in the computer" (Slatin 1989, 870).

Many computers-and-composition specialists (Moulthrop and Kaplan 1994; Charney 1994; Smith 1994; Dryden 1994) share a belief that hypertext brings with it a new potential for radically altering notions and acts of reading and writing. Hypertext, Johndan Johnson-Eilola writes, holds the potential for theorists and teachers to "remap their conceptions of literacy, to reconsider the complex, interdependent nature of the ties between technology, society, and the individual in the acts of writing, reading, and thinking" (Johnson-Eilola 1994, 204). Thus hypertext allows theorists and educators, through its newness, to see composition issues illuminated in new ways. Sherry Turkle, arguing that "the mechanical engines of computers have been grounding the radically nonmechanical philosophy of postmodernism" (Turkle 1995, 17) describes a student who dropped out of her postmodern theory course because Derrida was too difficult for him to comprehend. Turkle ran into this student semesters later to discover that he felt he now understood Derrida as a result of using hypertext on his roommate's computer. Turkle writes, "the student's story shows how technology is bringing a set of ideas associated with postmodernism—in this case, ideas about the instability of meanings and knowable truths—into everyday life" (Turkle 1995, 18). Much in the way hypertext made postmodern theories visible to Turkle's former student, hypertext makes recursive, fluid reading and writing processes visible. While Davida Charney points out some limitations of hypertext which future developers must consider<sup>2</sup>, she also holds this progressive belief in the illuminating effect of technology: "Hypertext has the potential to change fundamentally how we write, how we read, how we teach these skills, and even how we conceive of text itself" (Charney 1994, 239). Johnson-Eilola and Charney assume the radical newness of hypertext as a media, a newness that they argue will and does have a tremendous impact on the ways we write, read, and think, and thus, they teach these processes. The changes these theorists foresee for writing instruction as a result of hypermedia point also to the changes we must make in evaluation practices. How do we evaluate these new writing and reading processes? Should we respond to hypermedia and electronic writing according to the same standards we use for printed texts? If hypertext blurs the roles of reader and writer, how should our grading criteria account for our increased involvement in the creation of hypertext? Questions such as these arose for the two of us when

we read portfolios at the end of a Computer-Aided Publishing course we taught.

### Teaching Electronic Writing

Sullivan has described one effect of electronic writing as giving students and writers the possibility of “taking control of the page.” In an age of desktop publishing software, sophisticated word-and-graphic-processing software suites, and laser printers, the published page is more directly under the writer’s control. This increased control places new demands on writers and has serious implications for writing instruction as writers “must become sensitive to how pages look, attuned to how readers will see pages, and able to negotiate a look for pages that supports the aims of texts. Such activities add a new dimension to writing and call for pedagogy supporting the process of seeing the page” (Sullivan 1991, 56). These issues and questions played a role in decisions about our pedagogical goals and curriculum in Computer-Aided Publishing. For us, technology was a tool which students could use to take control of the page and their own design processes. Taking control of the page meant two things for us as teachers of this course: giving students theoretical knowledge necessary to design effective documents and encouraging in students positive, self-reliant attitudes toward technology. Further, we wanted students to see the interdependence of these two goals and to see them as existing in a dialectical relationship. Without theoretical knowledge, students would not be able to design effective pages simply because they knew how to use the technology and page design programs. Nor would effective documents come without a sense of control over the technology in order to make it support the document design goals students set for themselves. While textbooks and readings introduced students to page design theories, the application of those theories to real design situations and the teaching of technology pushed us to develop new classroom strategies and activities. At the heart of this task was a desire to encourage students to understand the application of technology not as learning every facet of individual software programs, a one-time acquisition process, but rather, as an ongoing, continually evolving process. Leaving our class, we wanted students to have the skills necessary for them to adapt when faced with new technologies in new situations and to have the confidence to know they could figure out unfamiliar technologies.

To support this learning attitude toward technology as a process, we asked student teams to be responsible for learning and teaching to the rest

of the class the software applications students would be required to use in their designs. Teams provided brief software presentations and supported those presentations with individual attention to students as they worked on their designs in class using the applications. Anticipating a lack of familiarity with HyperCard, we taught the HyperCard section of the Design Studio, providing students with sample HyperCard stacks, documentation, and discussion to assist them in this process of creating nontraditional texts in this nontraditional learning environment. All of these presentations were designed to encourage the attitudes of self-reliance, creative problem-solving, and confidence in exploration which we feel are necessary qualities for students moving into design situations outside our classroom. These pedagogical desires contributed to the shape of the assignments. Instead of structuring the class around exercises in using the technology combined with exercises in applying design theory, we asked that students use the technology to support their theoretical understandings of design principles. Given the nature of the course goals, we wanted to create a classroom environment in which students took control of their learning processes and felt comfortable taking risks and experimenting both with the design principles and the technologies. In support of these pedagogical goals, we arranged the course around two themes: 1) a Design Studio in which students learned computer applications and applied them to their own designs, and 2) a Speakers' Bureau in which student teams first arranged for a professional to speak to the class about computer-aided publishing and then engaged in a series of design assignments—business cards and logos, business letters, newspaper ads, and flyers—supporting the speaker. While the projects were grounded in work place communication situations and asked that students demonstrate responses to different design situations within the rhetorical process, we allowed for individuals to fashion their own responses to those requirements. For the Design Studio, for example, one student designed her wedding invitations while another student produced a flyer protesting a beauty contest on campus.

Students were required to submit a portfolio of work at the end of the semester which included two designs from the Design Studio portion of the course and a HyperCard stack. We asked that students put together the portfolio for our evaluation of their semester's work, but we also discussed the ways this portfolio might function outside the classroom context as a demonstration of their design abilities and a collection of their own work for potential job interviews and employers. One student, Patti, combined these requirements (the two designs and the HyperCard stack) by making

her mandatory HyperCard design a portfolio containing her two other design efforts. Through her unique approach, Patti demonstrated for us pedagogical potentials for electronic portfolios we had not seen, but she also raised several questions about the evaluation of this nonprint text.

### Patti's Portfolio and Its Implications for Electronic Portfolios

Overall, the construction of Patti's HyperCard portfolio is not unlike the construction of a prospective employee portfolio. It opens with an introductory welcome to her portfolio, followed with a copy of her resume, and then particular samples of her design work that she has copied into her HyperCard program. Technically, Patti's portfolio is competent though not outstanding—the nodes are connected in a straightforward fashion, and the scripting of the stack demonstrates only a basic level of knowledge about the working of HyperCard. Although we evaluated Patti's HyperCard portfolio favorably in terms of its originality, demonstration of knowledge, and ability to meet both informative and persuasive aims, while reading her portfolio it became clear to us that the construction of electronic portfolios requires a blend of print, pictures, and sound to achieve rhetorical effectiveness. In part, Patti was aware of this requirement. For example, although she did not include sound on her HyperCard portfolio, she acknowledged that sound messages would have complemented her welcoming tone and her designs by providing an explanation of the designs' rhetorical contexts. This failure to push the limits of rhetorical effectiveness was not a conceptual failure on Patti's part; rather, it might be seen as an instance of the demands this medium makes on new users who must learn how to use the technology to support their design goals (by the point in the semester when Patti realized she wanted sound, she had run out of time to teach herself).

On another level, though, the simplicity of Patti's portfolio indicates that the potential benefits HyperCard (and new technologies in general) offers students also create additional demands upon students' conceptual powers. For example, although hypertext theorists share a belief it is the nonlinear nature of hypertext which makes it revolutionary, Patti's HyperCard portfolio was very linear. In Patti's portfolio, users move throughout the document unidirectionally in an order set by Patti. The author in this case never relinquishes control of the user's ability to access information, nor does she allow for a multidirectional, multilinear reading. One advantage of HyperCard, as scholars such as Bolter and Landow have noted, is its ability to create a nonlinear environment that allows the user

to control the perspective of the information being presented in the hyperdocument and as a result to gain more control over her own reading and learning processes. Of course, there are limits to this claim, for even as Landow acknowledges, hypertext is sometimes used to merely reinforce existing hierarchical patterns of knowledge. Some texts put into hypertext format are only glorified versions of the hard copy text. With numerous scholarly secondary sources linked to the original text, some hypertexts serve to reinforce a belief in reading and writing as a knowledge transmission act, with readers reading in order to collect the knowledge writers merely organize and transfer to readers. As Patti's hypertext portfolio indicates, the potential for nonlinearity and nonhierarchical communication does not mean that HyperCard can't be used in traditional linear ways. Hypertext in and of itself does not displace traditional notions of textuality, including notions of linearity that limit the potential benefits to the use of such electronic texts.

What is impressive about Patti's electronic portfolio is that the parts of the portfolio were not just put together in one folder, but they were conceptually connected in a way that demonstrated her knowledge of their relationship with one another beyond the evaluation situation. Conceptually, though, the sophistication of her HyperCard stack both impressed us and forced us to think about the implications of this new medium for portfolio reading and evaluation. In embedding two of her designs within a third design—the required HyperCard stack—Patti recognized the extent to which hypertext could help fulfill a rhetorical need, in this case creating a portfolio of classroom work for use by both teachers and prospective employers. Additionally, Patti made these decisions about her electronic portfolio on her own. To paraphrase Sullivan, Patti had “taken control of the portfolio” and made the technology support her own conceptual goals. She answered our call for students to demonstrate a solid knowledge of course content (design principles and a use of technology), but further, she creatively and thoughtfully used the technology to support self-defined project goals based in those principles. Conceptually, she demonstrated an understanding of the effectiveness of technology in supporting her rhetorical goals and a willingness to engage with the portfolio at a level beyond the required classroom evaluation. Patti's electronic portfolio allowed her to have control over the organization of her portfolio. Working in HyperCard, Patti was forced by the technology to think about the relationship between the parts of her portfolio. The technology required that she consciously write the links between the parts, and thus, connect them in some sort of order. Patti

could not just dump them into a three-ring binder with no organizational strategy. In this way, the design and implementation of a HyperCard presentation demanded the kind of reflection and metacognitive awareness we shared as a theoretical goal for using portfolios.

As teachers reading an electronic portfolio for the first time, we were not prepared to deal with these requirements of the new medium, in part because of a lingering conception of student portfolios as written documents organized in a traditional academic format and aimed at one audience, the evaluator. While we were prepared for the use of electronic media in creating documents, it was only after the assignments were completed and the portfolios were submitted that we realized our evaluation must take place electronically. The HyperCard portfolio, for example, would have to be read electronically in order to see what the writer had intended in using this medium. This, in turn, required that we change our ways of engaging with text. In a sense, we became more than mere graders of the work; we became actual users of the work, a real-life audience interacting with the document. Our standards for grading had to shift not only to account for the expanded capabilities of this medium but also to account for its different conceptual requirements. How well did the parts relate to one another? Were the parts arranged in a way that reflected some concept on the writer's part of the text as a whole? Did the text reflect audience awareness on the writer's part; did she account for the ways readers would approach her text? Patti had gone beyond our expectations for the assignment and required us to develop different evaluative criteria, a situation which teachers working in these environments must be prepared to address. Patti's work in hypertext represents a student's control over the form and function of her portfolio, linking visuals and text in a way to suit her professional and academic needs as well as to gain further access to an emerging technology that changes the way both students and teachers think about writing.

### Evaluating Electronic Portfolios

Electronic portfolios offer several benefits for student writers: 1) they accommodate an expanded notion of literacy which incorporates words, images, graphics, sound, and motion; 2) they allow and encourage myriad ways of organizing thinking: "Hypertext's metaphor is, after all . . . a web which acknowledges the myriad of associative, syllogistic, sequential, and metatextual connections between words, phrases, paragraphs, and episodes" (Douglas 1992, 15); and 3) electronic portfolios support pedagogical goals



of students' control over the organization of their portfolios and the kind of metacognitive awareness often associated with the reflective material found in traditional writers' portfolios.

John Slatin conceives of hypertext as "[a] new medium [which] involves both a new practice and a new rhetoric, a new body of theory" (Slatin 1989, 70). As we discovered in reading and assessing Patti's electronic portfolio, a new medium and rhetoric must also involve new approaches to evaluation. Indeed, while demonstrating some of the potential strengths of this forum for students, Patti's portfolio also posed interesting problems for us as evaluators. At a fundamental level, hypertext requires new ways of reading. Davida Charney believes that "[h]ypertext has the potential to change fundamentally how we write, how we read, how we teach these skills, and even how we conceive of text itself" (Charney 1994, 239). Even theorists who do not necessarily see hypertext as a new text form acknowledge that hypertext *does* require readers to develop new reading and writing conventions. David Dobrin, for example, agrees that users will need to learn new strategies to be literate in the hypertextual medium although he does not see hypertext as a new text: "Hypertext is . . . made unique by the text conventions it has, conventions that guide the reader's attention and allow him or her to navigate through the text. . . . you have to teach how the conventions work, and, once you do, you've taught people to be literate in hypertext" (Dobrin 1994, 308). Both Charney and Dobrin agree that hypertext requires new understandings of conventions and new reading strategies to negotiate those conventions. Certainly, as our reading conventions and strategies change, our evaluation conventions and strategies must change too.

Part of this changing evaluation process must include an awareness of the ways teachers must negotiate shifting roles as readers in the hypertextual environment. As readers of hypertext, we become co-writers. The text becomes our version of the text, depending on which direction we take our reading and on how much the writer involves us in our role as reader and coproducer. Thus, our evaluation becomes wrapped up in our creation of the portfolio as we make choices in our reading. With the hypertext portfolio, the blurring of roles of reader and writer significantly blurs the evaluation process as well. The teacher/evaluator no longer evaluates only the individual writer and static text, she also must acknowledge the role her own reading processes and conceptions of the text play in that evaluation. In evaluating hypertext, it is not possible to ignore the role of the reader in the construction and meaning-making of the text.

As we mentioned in the beginning of this chapter, however, this blurring together of writing and reading may prove to be a strength of hypertext for writers and readers in writing classes. Along with this blurring of the acts of writing and reading comes a similar blurring of the dichotomy of process and product. As Johndan Johnson-Eilola points out, computers were originally introduced as a support for process-based pedagogy. However,

the move from written page to the more malleable computer memory/display often serves only to make the dichotomy between process and product more pronounced than when the intermediate product was pen and paper rather than virtual text. . . . [T]he virtual, fluid computer text is never delivered because, in most cases, the text will be frozen into print as a final step of the sculpting. (1992, 100)

For many students, seeing a clean, laser-printed copy of their draft often seals it with a certain finality, as though the physical product signifies the end of the process. Patti, on the other hand, submitted her portfolio in hard copy and on a disk. Given the nature of HyperCard stacks, however, we decided that those portions of the portfolios (and in Patti's case, her whole portfolio) needed to be read online. In this way, Patti's portfolio involved us as evaluators in a nonstatic text in ways which we had not previously experienced. Even within process-centered pedagogies, evaluation strategies are largely based upon final products turned in at the end of the semester. In our own process-based classrooms, for example, we had written into the syllabus a requirement that students submit process work (invention notes, drafts, responses from peers, revision plans) with final versions. But we suspect that the hard copy form of these stages in the process served to mark that stage for students as completed and discrete from the writing process as a whole. Electronic writing, on the other hand, emphasizes the fluidity of writing processes and constructs a vision of writing as an ongoing process—"a seamless flow of prose which culminates in a final piece"—with the resulting effect that "the segmented stages that have contributed to our linear writing paradigm of prewriting, writing, and rewriting begin to dissolve in the electronic classroom" (Sullivan 1991, 48). In this dissolving of processes lies an example of how changes in technology necessitate changes in theory. The shift in how "draft" is defined in electronic writing processes indicates the level at which evaluation methods might need to shift as well. The ability to follow the stages of writing by reading drafts and examining them in relation to one another is a key element of process-based

pedagogies and portfolio evaluation. What happens when those drafts are not clearly marked in the way we used to understand them?

The “first draft” and the “second draft” or the “revised, final version” all suggest that there is some process students go through to end up with a series of products which culminate in one bigger, more important final product. The fluidity between invention notes, a rough draft of a paper, and the version turned in for a grade is emphasized in an electronic environment where students can cut and paste and carry over from one document to another easily. Within an electronic portfolio, these issues might be addressed by the metacognitive aspect of portfolio evaluation—students might be required to write a self-evaluation of their processes and the relationship between the process work and the final versions. Within the context of theorists who argue for electronic writing’s potential to break down the dichotomies between process and product (Johnson-Eilola 1992) and to create a seamless flow of prose (Sullivan 1991), however, this might be seen as further entrenching old ways of looking at writing rather than capturing the potentially new visions electronic writing offers and seeing computers as agents of change. As Sullivan points out, “one reason the dominant forces have not confronted the consequences of electronic writing for composition theory (and its teaching) can be traced to the accommodation strategies used by advocates of computers in the English curriculum. . . . most computer-writing discussions have sought to fit electronic writing into currently accepted writing theories” (Sullivan 1991, 45).

Considering computers as agents of change and electronic writing’s revision of some of the ways we have conceived of writing contributes to different requirements for electronic portfolios. Rather than having students bind together the multiple stages of writing which led to the final, revised version, students in an electronic environment might be asked to submit portfolios like the one Patti submitted—electronic portfolios in which technology supports and emphasizes the connections between process work and final versions. Students might be asked to put together HyperCard portfolios where the versions are not ranked hierarchically (with the drafts marked first version, second version, final version, and so on) but where the writings are linked together according to their relationship with one another. For example, in Patti’s portfolio, she reconceived our requirements for the semester’s end portfolio by rearranging the implied hierarchy of the HyperCard stack and her Design Studio submissions; she did not treat the HyperCard and Design Studio as at the same level

of importance in relation to the other submissions in her portfolio, but she subsumed the Design Studio submissions into the HyperCard stack. The HyperCard stack became the organizing principle into which she fit the other designs as samples of her design ability. Similarly, students in composition classes might use a HyperCard stack as an organizing principle for their semester's writing. Rather than linearly connecting the stages of writing (prewriting, followed by drafts in numerical succession, followed by the final version), students might start at some other point than the end (the final version) and organize by some other format than a linear, temporal one. A student might start with the first draft, for example, and draw links between that writing and invention notes which influenced it, revised versions of sections of the writing, and responses by teacher and students to segments of the writing. Students might even draw connections between different submissions to the portfolio—between a first paper written for the course and a final paper which share similar ideas or approaches. As teachers using portfolios, we have sometimes found it difficult to assess the relationship between the drafts and the final versions. While students submit drafts and final versions in physical proximity to one another and write self-reflective memos about the process of producing the paper, it's not always clear exactly what the writer saw the parts contributing to the final version. Engaging students in electronic portfolios requires that students have a conscious conception of the relationship of the parts of the portfolio and that they make that relationship a structural part of the portfolio. By emphasizing processes over products and by requiring student self-reflectivity, electronic portfolios capture the potential electronic writing offers for supporting goals of portfolio evaluation.

In the process of evaluating Patti's portfolio, our own definitions of textuality in general and portfolios in particular were challenged, and we were forced to revise those definitions to better suit this situation. Patti's text reflected back to us our own constructs of text, writer, and reader—constructs based in print literacy and its attendant theories. As we found in this process, for teachers to develop evaluation strategies and approaches based in electronic writing, they must first shift their conceptions of text, writing, reading, readers, and writers.

From this position, we feel two questions need pondering: Are the potential benefits of hypertext promising enough to balance the investment such a shift necessitates? Are teachers and administrators prepared to make teacher training a form of technological training, introducing not just writing theory but technological literacy? It is important to emphasize

in discussions which raise these questions that the shift from traditional written notions of literacy to these more technological notions of literacy is an evolving one. If we think of the use of electronic portfolios and other such electronic documents merely as tools for teachers in assessing student work, then the result is clearly not going to be worth the investment of time and resources. However, if we recognize in electronic portfolios the potential for modeling literacy acts in ways which overcome the limitations of the print medium, then the call for evolving, shifting conceptions of evaluation is seen as better capturing the complex ways people read, write, and engage with text. The value in such a shift becomes evident when we view electronic portfolios as tools for students to increase their knowledge of the rhetoric of electronic environments and to develop literacies that are inclusive of the workplace contexts in which formats other than the academic essay and audiences other than the teacher prevail.

## Notes

1. The reflections we offer here on “electronic portfolios” are the result of working with a student portfolio which was produced and read using Apple Computer’s HyperCard application which allows users to link text and incorporate sound and images. There are software applications available now which assist in the putting together and keeping track of student portfolios which are different than hypertext. For the purposes of this essay, our interest lies in the potentials and problems posed by electronic portfolios which incorporate multiple media.
2. Charney argues that future developers of hypertext must consider the ways changes in reading processes demanded by the new medium inhibit as well as encourage readers. The new text form may make it difficult for some readers to make sense of the text or to find needed information there.