

**Developing Digital Literacies and Professional Identities:
The Benefits of ePortfolios in Graduate Education**

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Recently, groups such as the American Association of Colleges and Universities and EDUCAUSE have addressed ePortfolios in documenting university-level learning outcomes, and university writing program administrators have similarly focused on portfolios and ePortfolios in course, program, and student self-assessment. Yet less emphasis has been placed upon the role of ePortfolios in graduate education, whether it be to help either business-industry or academy-bound graduates form a professional profile online. An ePortfolio, as Yancey (2004) has suggested, helps to “remediate” the self, allowing the student designer to use multimodal literacies to construct a relationship between technology and identity. For Yancey, an ePortfolio supplies an expansive space for students to develop into professionals “who can make multiple connections and who create depth through multiplicity and elaboration...who can work in visual and verbal and aural modalities...” (p. 751). Similarly, these latter goals of working with multimodal media to produce equally multimodal genres typically reflect programmatic objectives in both technical communication and rhetoric, though the audience for these genres may differ significantly between the workplace and the academy.

Undoubtedly, many graduate students struggle to balance their duties as students, research assistants, teaching assistants, and with jobs outside academe. In addition, they construct professional identities by becoming members of disciplinary organizations, conference participants and attendees, as well as authors of publications. Because of the visibility afforded by ePortfolios in students’ job searches and the many roles they play within an academic setting, we advocate ePortfolios as a powerful way to profile these professional roles for both academic and professional audiences. To document the role ePortfolios can play in graduate student professional development, we rely on a case-

study approach of several graduate student portfolio developers in our Master's Program in Scientific and Technical Communication as well as in our Ph.D. in Rhetoric and Writing and have received permission to discuss artifacts and include screen captures. To ground these possibilities in practice, we will examine these students' rhetorical choices and expansion of their technological literacy through the process of portfolio design and development, as well as their development of a professional identity for both academic and professional audiences. As Selfe (2004) argues, teachers of writing are "paying increased attention to new media texts because students are doing so—and their enthusiasm about reading/viewing/interacting with and composing/designing/authoring such imaginative texts percolates through the sub-strata of composition classrooms" (p. 44). The attention to this new media in the form of an ePortfolio not only serves a professional development function but also enhances students' technological literacy through the design and development process. Given the equally multi-faceted role of ePortfolios, we shall also discuss the implications of ePortfolios in program-based advising and assessment within graduate programs, including documenting achievement of learning outcomes and inevitably becoming tools for placement and overall student success.

Portfolios, Identity Formation, and Multimodality

Given our status as English faculty, we rely primarily on research within the area of technology and writing studies to guide our discussion, but also upon other resources that equalize emphasis on the need for multimodal literacy acquisition and the role ePortfolios play in graduate student professional development and identity formation. In this context and in others, the concept of portfolios in general and ePortfolios in

particular is not new, as many disciplines have experimented with this genre at the course and program levels (B. Cambridge, et al., 2001, D. Cambridge, et al., 2008). Such academic contexts include tenure and promotion review processes that often dictate a portfolio-driven approach to documenting teaching, research, and service achievements. Other academic spaces for portfolio development include the undergraduate writing curriculum, including first-year composition and technical communication, the latter stressing the application of various project management and document design competencies to specific business and industrial settings. These and other contexts for portfolio development suggest that graduate students with a range of career goals can also benefit from a portfolio's abilities to foster the types of self reflection and assessment that they will encounter as future faculty likely to use such portfolio processes with their own students.

Given these diverse contexts, Kimball's (2003) delineation of portfolio types into *working, professional, academic, and presentation* represents a continuum that moves from the private to the public. We rely on Kimball because we believe it important to view these portfolio types as recursive stages along a continuum (Siemans, 2005) rather than as classifications. Yet while these stages are useful in identifying the primary function of a portfolio, the purposeful sampling of artifacts and reflections that define a portfolio are seldom so singular in purpose, and in fact, the ePortfolios we profiles in this article in varying ways address all four of Kimball's types. Nevertheless, a portfolio's purpose drives not only content but also format and delivery. For instance, despite the ability to digitize all aspects of the academic job market search, much of the "portfolio" process continues to be primarily print-based, from the initial cover letter and *curriculum*

vitae to the submission of a dossier—references, transcripts and other artifacts—with the inclusion of an electronic portfolio still an “optional” part of the application. But regardless of the hybrid aspects of academic and professional job market protocols, there are clearly benefits to electronic portfolio development: work can be viewed in its original medium, there exist a wider range of performance indicators, and there are multiple and more immediate audiences.

Besides these audience-based advantages, graduate student professional development in technology-based literacy and communication is significant, not merely because of the need to document technical competencies--web-authoring, digital imaging, and related skills--but also because of the communicative contexts that allow graduate students to view technological documentation as a rhetorical choice that impacts *ethos* and professional identity. Combining the idea of remediated self and identity, Bolter and Grusin (2000) note that “New media offer new opportunities for self-definition” and that when identity is remediated it allows us to “understand a particular medium to other past and present media” (p. 231). They explain that “The remediated self is also evident in ‘virtual communities’ on the Internet [or in an ePortfolio], in which individuals stake out and occupy verbal and visual points of view through textual and graphic manifestations, but at the same time constitute their collective identities as a network of affiliations among these mediated selves” (p. 232). Such a remediated self is increasingly evident through various digital tools that allow users to not only construct a personal identity but also establish connections with other members of the discourse communities. For example, in providing synonyms for ePortfolios, Skiba (2005) refers to these digital dossiers as “virtual identity collections” (p. 246), promoting the idea that through the

gathering, reflecting, and assessing one's own work, an identity emerges. Supporting Skiba's idea that the collection reflect the identity of the creator, St. Amant (2002) claims that the first commandment in his article "The Ten Commandments" is "Thou shalt have a portfolio" (p. 10) and concludes that "until the interviewer meets you in person, you are your portfolio" (p. 12). While St. Amant uses humor to express his point, the necessity of a portfolio is clear from his perspective as a technical communication scholar.

Similar to discussions in technical communication, the National Council of Teachers of English approved guidelines developed by the Multi-Modal Literacies Management Team (2005). Two particular statements are particularly relevant to our support for ePortfolios:

1. Integration of multiple modes of communication and expression can enhance or transform the meaning of the work beyond illustration or decoration.
2. With the development of multi-modal literacy tools, writers are increasingly expected to be responsible for many aspects of the writing, design, and distribution processes that were formerly apportioned to other experts.

In applying these statements to ePortfolios, we see a strong connection between ePortfolios and multimodality, equally well represented by Kimball (2003):

Using the Web as a portfolio medium builds on some of the key strengths of portfolio pedagogies. Most obviously, whereas traditional, paper portfolios have concentrated on presenting written work, web technologies allow portfolio authors to include graphics, audio, and video, giving them

more options for showing what they [students] have accomplished. But even more importantly, the linking inherent in the web matches the goal of tightly integrating the elements of a portfolio and adds opportunities to connect the portfolio to the rest of the world. (p. xvi)

As we stress within the remainder of this article, ePortfolios certainly helped to foster multimodal literacy acquisition among our students. Although students have been able to employ all four of Kimball's portfolio functions—working, professional, academic, and presentation—we foreground the professional and academic functions in the following student portfolios to document how ePortfolios can showcase (or, based on Kimball's language, “present” disciplinary outcomes in both technical communication and rhetoric programs.

Professional Portfolios Models

One distinct advantage of ePortfolios is that their artifacts, if updated and revised, maintain an existence that extends beyond the context that led to their creation, even as we acknowledge the importance of that original context. Notable examples for us include two Master's students in our Scientific and Technical Communication program, Li Yue and Wei Cen. For both international students, there were exigencies that led to their electronic portfolio development. Their program required students to produce a portfolio based on both projects produced in coursework and during an internship experience. Similar to a thesis defense, degree completion culminated in a practicum where in addition to an oral presentation to peers and faculty advisors, each student submitted their portfolios in both print and electronic form. To prepare for the electronic part of this process—one that included web-authoring, flash animation, digital image editing, and

general online design skills—both students enrolled in a three-unit independent study with co-author #2. In addition to the portfolio itself as a final product, each student completed an annotated bibliography of portfolio development research within the field of technical communication; a series of workshops on various technical skills required to complete the portfolio (e.g., Adobe Acrobat, Dreamweaver, Flash, and Photoshop); a review of sample portfolios on the web to determine common design features and artifact choice; and a final reflective essay to overview design choices and how they contributed to the overall portfolio quality.

In this sense, the independent study functioned as a capstone experience for both Yue Li and Cen Wei in ways that are consistent with Johnson-Eilola's and Selber's (2001) recommendations for the role of portfolios in graduate education in technical communication. Although the grade that was attached to the independent study certainly created a sense of exigency and motivation to succeed, equally important was the sheer opportunity to develop the portfolio in a one-semester or, for Yue Li, twelve-week summer session timeframe. This process included developing color schemes, visual themes, and navigation structures. In the case of Yue Li, her portfolio (Figure 1) relies on side and top navigation that is consistent in placement, color, and type. Particularly significant about Yue Li's portfolio is her clear self-identification as a technical communicator.



Figure 1. Yue Li Portfolio Interface.

Throughout the portfolio development process, co-author #2 served as a consultant, meeting with each student to discuss progress and receive status reports similar to the project management cycles common to the technical communication curriculum. And because both co-authors had team-taught a computer utilization course for undergraduates, co-author #1 also served as an advisor, working individually with Wei Cen as she developed familiarity of sophisticated applications that allowed her to develop a consistently and easily navigable digital presence (see Figure 2).

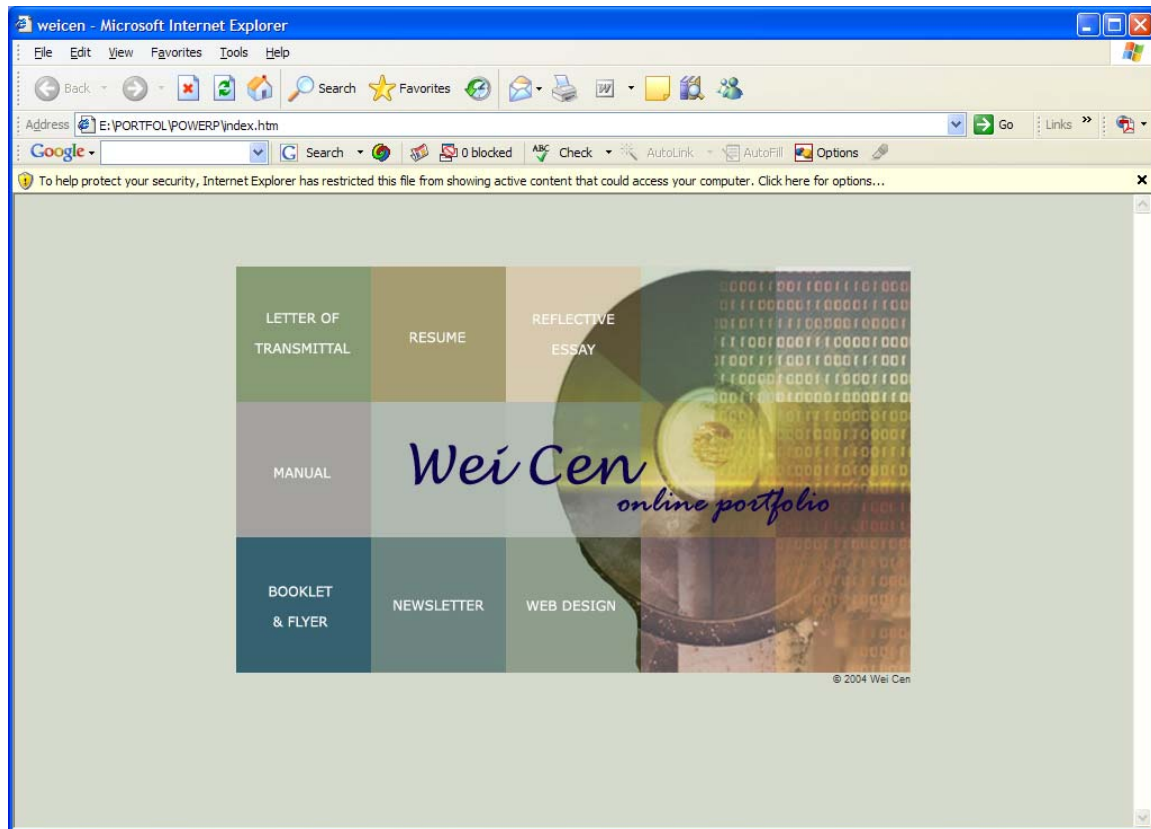


Figure 2. Wei Cen Portfolio Interface.

Although the portfolios differ in design in that Wei Cen relies on a “splash page” navigation into her ePortfolio, there exist similarities in the technological themes, represented by the computer image for Yue Li and a CD for Wei Cen. Also consistent in both portfolios is the emphasis on professional writing genres and audiences. Because the program focused on workplace as opposed to teacher preparation, both students highlighted administrative and research responsibilities, as well as internship experiences that required the development of web sites, brochures, proposals, and manuals. Given the important function of self-reflection within a portfolio—print or electronic—each student also included statements about how her work reflected development as a technical communicator (see Figure 3).



Figure 3. Wei Cen's Reflective Essay.

As Wei Cen notes:

Since the first day I arrived [from China], I have been learning new aspects about technology, communication, technical communication and American culture everyday, absorbing knowledge like a dry sponge absorbing water. The classes I took were interesting and the professors were knowledgeable and eager to shape the students into competent technical communicators. Although I felt a little frustrated at the beginning of my first semester due to the fact that I was thrust into a totally new environment with so much to learn, the frustration gradually turned into confidence. With the help of my professors and thanks to the wonderful technology support on campus, I successfully completed many technical communication projects, including course projects and service-learning

projects, in a variety of genres. In addition, my internship in the Office of Marketing and Communications was a great experience. It provided me with a chance to apply what I had learned in the real work place and test my abilities as a technical communicator.

As Wei Cen's comments suggest, the combination of excitement and anxiety can be challenging for graduate students who add technological literacy acquisition to their many lists of tasks during their degree programs. And very often an ePortfolio helps to document a series of digital skills sets by sheer virtue of its production. Yet for Selber (2004), technological literacy should go beyond skills to intertwine functional, critical, and rhetorical literacies: "There are three subject positions connected to the literacy landscape: students as users of technology [functional], students as questioners of technology [critical], and students as producers of technology [rhetorical] (p. 25). If we apply Selber's literacy landscape to both Yue Li and Wei Cen's ePortfolios, their digital literacy development and their reflection about that development certainly better prepare them to "participate fully and meaningfully in technological activities" (p. 24), particularly given Yue Li's initial hire as a technical communicator for an Ohio company and Wei Cen's return to China as a business writing instructor more familiar with the genres and technologies of the workplace.

Academic Portfolios

Within the Rhetoric and Writing program, portfolio development is initially course-based, helping to combine theory and practice, to align coursework with professional development, and to align ePortfolios with Selber's functional, critical, and rhetorical literacy continuum. A significant example of this process occurs within the

academic portfolio of doctoral candidate Sergey Rybas. Because Sergey came to the program with a degree in Scientific and Technical Communication, he already had a range on online document skills prior to his enrollment in co-author #2's doctoral seminar "Computer-Mediated Writing Theory and Practice," a rhetoric and writing course designed to fulfill a particular outcome of the doctoral program: "Graduates are prepared theoretically and practically to work in computer environments." Because the course is focused on the teaching of writing with computers, Sergey's portfolio (Figure 4) has a more academic teaching emphasis than do Yue Li's and Wei Cen's. But despite the differences in content and in program outcomes, there were definitely similar development processes. As with Yue Li and Wei Cen, Sergey and other students in Computer-Mediated Writing were first asked to locate the web-presence (blog, portfolio, home page, *vitae*, etc.) of a professional in rhetoric and writing studies whose work they admired or whose digital identity intrigued them, in part because of the portfolio or web design itself and also in part because of the content and format conventions specific to the discipline.

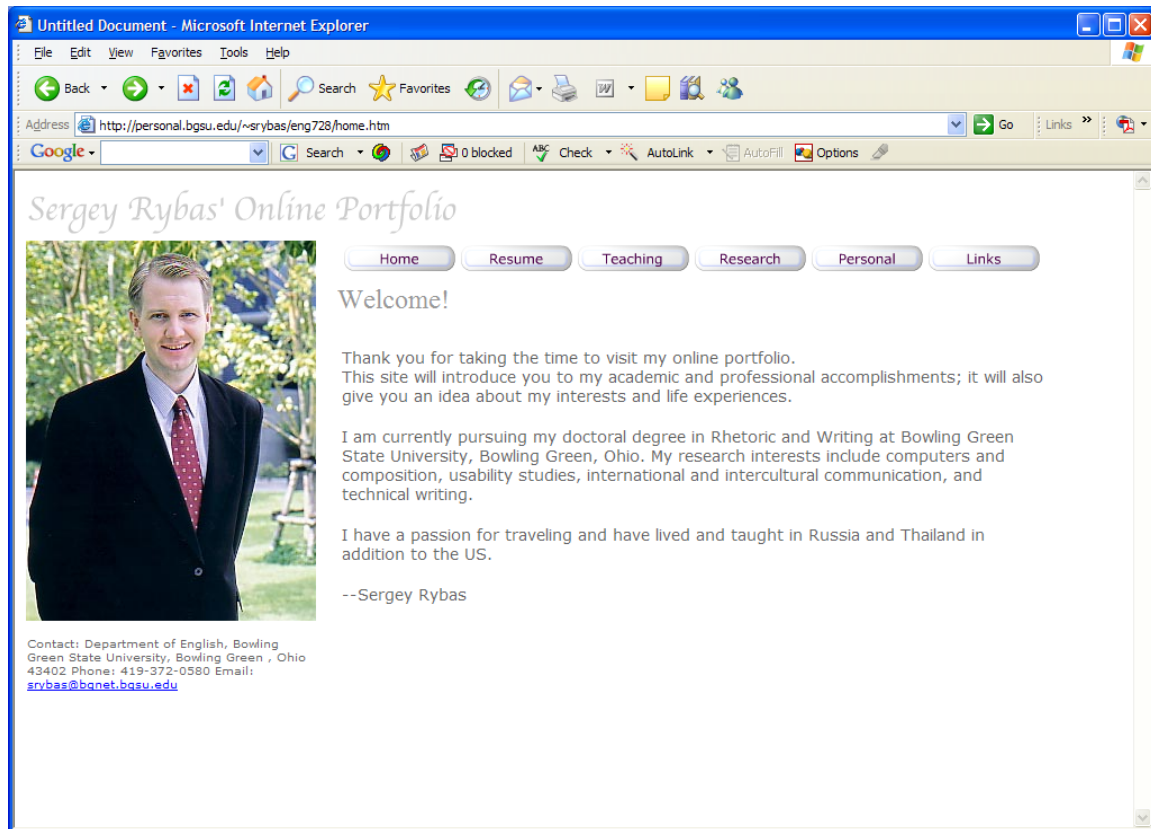


Figure 4. Sergey Rybas Portfolio Interface.

Admittedly, because of their lack of multimedia authoring skills students may not all equally be able to develop as polished a digital identity as Sergey. To equalize the digital skills set, the course provided a more communal opportunity to develop a range of technological literacies. Other forms of development and assessment of design included a physical and virtual peer evaluation process referred to as “Studio Review,” in which students display their work on screen, develop questions about content and form related to a specific document, and provide feedback online to each other as they move around to different computer stations. Once students have returned to their own stations and have reviewed their feedback, they write a “revision plan” for the document that they post to the discussion forum used for the course. What is significant about this process is that the criteria for assessing the portfolios become more collaborative. Online users are often

highly intuitive, even though Padilla (2006) states that what may seem instinctive is actually an evaluative process based on the user's related experience and acquired knowledge. Thus students are encouraged to consider what aspects of a site are working to foster overall accessibility via content and format, not to mention the ways familiar rhetorical principles of audience, purpose, organization, development, and style manifest themselves in multimodal documents. In addition to collaborative forums, co-author #2 continued the individual conference format used with Yue Li and Wei Cen, in this instance at mid-term to help students assess their own progress and set goals for further technological literacy acquisition. During this conference, students share the working version of the portfolio to date, with a focus on the general interface, including navigation and design schemes, along with progress on more sophisticated documents such as a video observation.

An important aspect of this development process is the self-assessment narrative that students complete in the course. Along with scholars that include Kitalong, et al. (2003), we have both assigned a technological literacy biography, an online self-assessment of access to and comfort with computers. This first document helps students to experiment with composing in a digital environment and to consider the differences between print and electronic writing forums. The document is continuously updated during the semester and serves as an audience orientation to the portfolio as students reflect on the artifacts developed and included within it. For Kitalong, et al., this autobiography not only reveals "both idiosyncratic and culturally embedded responses to technology" (p. 220) but also "provides a convenient and non-threatening context within which students can practice software skills and explore typical genres" (p. 224).

An excerpt from Sergey's technology literacy biography (Figure 5) suggests the extent to which such growth is developmental, from his first two years as a Technical Communication student to his current status as a doctoral student:

The three years I have now spent ... have been the time of my continuous exploration and application of computer technology. In May 2004 I received my Master of Arts Degree in Scientific and Technical Communication. Almost all the courses I competed [sic] as part of the program had a computer component to them. I became proficient in using several word processing, image editing, and web-editing software (e.g., Microsoft Office, Adobe Photoshop, Macromedia Dreamweaver, etc.) and had a few chances to try my hand at developing the web, not only using it... Quite recently, I heard some of my fellow students jokingly call me "computer savvy," and I had to almost protest against such a title. Though I can no longer imagine my life without computers, and I rely on them in numerous instances ranging from shopping to researching, I still consider myself a novice user whose experience is limited by a vague and unstable knowledge of nothing more than a tiny fraction of what the new world of computers is hiding. I feel excited to explore this world, ready to withstand the multiple difficulties, and thrilled to embrace the multiple advantages it contains.

Clearly, Sergey's ePortfolio represents the results of his technology-based studies in both technical communication and rhetoric, particularly through its flash button navigation and the use of appropriate image placement for thematic emphasis (Figure 5). His portfolio, along with Yue Li's and Wei Cen's, are strong models in terms of navigation, theme, and aesthetics. As part of the criteria for ePortfolio development in Computer-Mediated

Writing, the class also relied on Huntley's and Latchaw's (1997) "Seven Cs of Interactive Design": *Clarity, Consistency, Curiosity, Coherence, Consideration, Creativity*, and Correctness, along with an "8th C" of our own—*Context*.

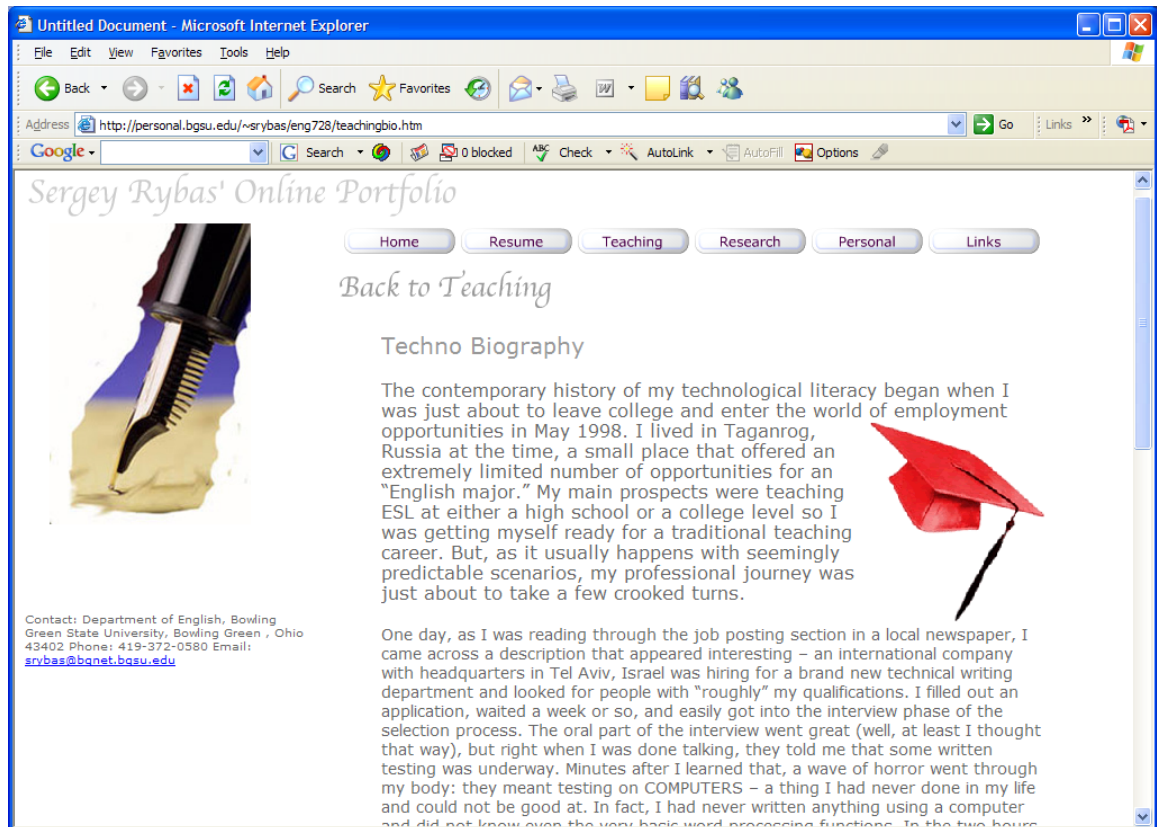


Figure 5. Sergey Rybas Technology Biography.

The Impact of Portfolios Upon Graduate Education

What should be evident from our overview of the portfolio development process both within both the Scientific and Technical Communication Program and the Rhetoric and Writing Program is that it is just that: A *process* that helps students develop the digital identities they often admired in the portfolios of scholars or working professionals within their disciplines. Yet this process is not without constraints. Common problems in requiring portfolios in coursework can include a fading skills set necessary to continue

literacy development and infrequent updating of documents once the external motivation of a grade is no longer there. Granted, some ePortfolios created within both the Scientific and Technical Communication program and the Rhetoric and Writing program suffer this fate and become less viable as digital profiles for both professional and academic job markets. To counteract such dilemmas, both programs have worked to develop ePortfolio initiatives that extend opportunities for development. The first has involved an effort by the Rhetoric and Writing program to better document its learning outcomes for graduates and to encourage the inclusion of artifacts that reflect those outcomes in the portfolios, a goal that is consistent with the recent Conference on College Composition and Communication (2007) Position Statement on Principles and Practices in Electronic Portfolios. Before the program's work with ePortfolios, students filled out a paper-based chart that aligned the outcomes with the artifacts produced in coursework and other forums (conferences, prelims, publications) that demonstrated success in meeting the outcomes. While this process certainly helped the program develop assessment reports and maintain records on doctoral student achievements, the private nature of the activity left the students with little to show. As a result, the program has encouraged the students to link artifacts and outcomes in a variety of digital forms; in addition to the portfolios developed in Computer-Mediated Writing, the program is currently piloting the ePortfolio tool Epsilen for internal assessment. In many ways, this tool (see Figure 6 for a sample student interface) serves a limited, but useful purpose—it provides a digital repository for work in progress, allowing students to upload files and organize them according to a matrix of the seven Rhetoric and Writing learning outcomes.

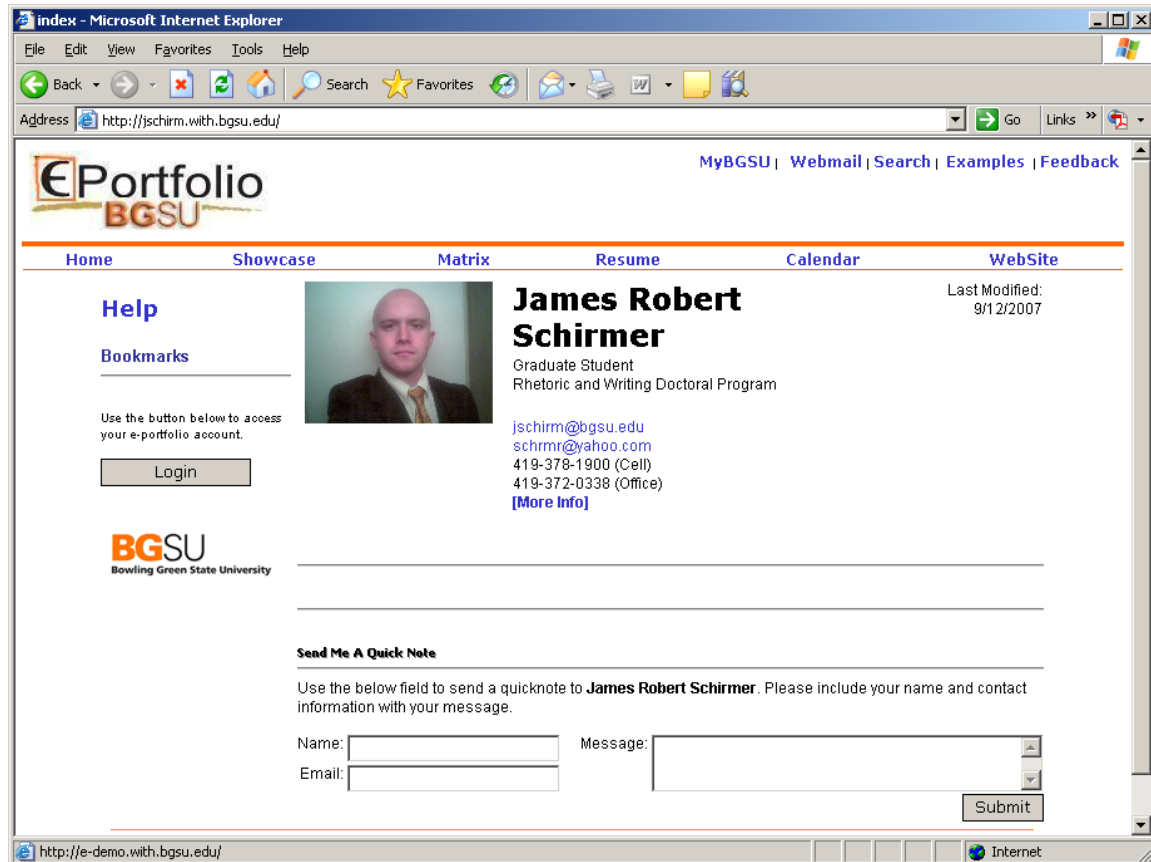


Figure 6. Sample Portfolio Interface in Epsilon.

As with any digital tool, however, there exist possibilities and constraints. All portfolios in Epsilon possess the same interface, limiting customization and inevitably ownership of one's online identity, something that graduate students have themselves noted. What is lost in a system such as Epsilon is the emphasis on rhetorical choice and reflections about those choices—from artifact selection, to design themes and color schemes, to navigation interface. Undoubtedly, these are the choices that empower graduate student portfolio developers and allow them to develop a unique, but professional digital identity. Within his chronicle of the latest trends of data-base driven portfolio systems such as Epsilon, LiveText, and Task Stream, Kimball (2005) contends that standardized systems, despite ease of use, reduce “power from the student as author

of her or his portfolio and toward the teacher or administrator. The student has decreased authorial control over how his or her portfolio will be structured, linked, or viewed. Even in systems that allow some customization, students are restricted to what the system will allow” (p. 442). For that reason, it is important for students to have the opportunity to continue development of digital skills sets required for the multimodal literacies advocated by both the National Council of Teachers of English (2005) and the Conference on College Composition and Communication (2004, 2007).

To address this need, the Scientific and Technical Communication Program and the Rhetoric and Writing program collaborated on a second project, a \$20,000 Ohio Learning Network grant to develop the “Digital Literacy and Communication Studio.” This professional development series for faculty and graduate instructors includes a significant ePortfolio dimension that includes workshops on portfolio design and development options through use of Adobe PhotoShop and Macromedia Dreamweaver. Rather than the three faculty investigators serving as the workshop facilitators, we have actively attempted to tap graduate students to lead these sessions, presenting not only their portfolios but also delineating the design choices that led to portfolio creation. These efforts are consistent with calls from multimedia scholars that include Wysocki (2004), who advocates opportunities for students to reflect upon and justify the visual choices made for their work, an activity that certainly helps unify graduate education in both technical communication and rhetoric. Similarly, in “Graduate Student Perspectives on the Development of Electronic Portfolios” (2004a, 2004b), doctoral students in educational technology discuss the process for creating and valuing portfolios in their graduate education. Their perspectives add to the dimension of identity and professional

development not only by their reflecting, creating, and designing their portfolios but also by their articulating these experiences in article form (MacDonald, Liu, Lowell, Tsai, & Lohr, 2004a, 2004). These articulations are a vital part of the professional development process. Sergey Rybas, for instance, has recently made a number of presentations on his own and others ePortfolio and blog development, and several screen captures of Yue Li's portfolio were featured in the seventh edition of the *Wadsworth Handbook* as models of effective web design. In this way, ePortfolios have a presentation and showcase function as well.

As we have acknowledged, although portfolios in general and ePortfolios in particular are not new to the discipline, they constitute curricular innovation in their ability to create a sustainable space outside of and beyond a particular course or programmatic affiliation for graduate students to develop digital literacies and professional identities. The portfolios we've profiled to this point are developed via .html and delivered via web or CD-ROM. Yet it is important to consider the role of newer web-based tools—including blogs, wikis, and podcasts—in developing an online presence, as former Rhetoric and Writing graduate student Dr. Lanette Cadle has done through her blog at Techsophist.net (see Figure 7). Cadle has developed a blog to include links to her *curriculum vitae* and the ePortfolio that has continued to evolve since her time in the Computer-Mediated class, where she developed a portfolio similar to Sergey Rybas.

Reflecting on the process, Cadle concludes that

I saw the ePortfolio project as a way to express my grad-school self using dimensional space while also being aware there would be a real audience through the web. Those who didn't believe in the audience's reality would soon, as that

first batch of portfolios were individually linked to the Rhetoric Program site, where they were accessed by future program applicants. In addition to that audience, as each of us entered our job search years, future potential employers also checked the e-portfolios, something I found out during campus visits. Unlike pre-packaged portfolio systems that use templates and ask for specific chunks of text, drafting an ePortfolio from the ground up gave students the freedom to choose categories, media, amount of information given, layout, and all other appearance/content details for the site. Rather than putting on an identity suit as in pre-packaged e-portfolio templates, this allowed the process itself to shape a much more nuanced identity through a repeated cycle: choices, added experience with software tools, and reflection. This cycle allowed each student to begin the project with their current abilities and knowledge while also, through the drafting process, increasing skills with many tools and in many directions. (Cadle, 2009)

What Cadle's current professional identity suggests is the need for continued experimentation with the current range of Web 2.0 tools that allow for even more interactivity between authors and users. Given the free or open-source status of many Web 2.0 tools, there is increased potential for accessibility as well in that many of the more commercial, proprietary, and costly tools are less necessary to produce a viable digital presence. While Cadle's blog and portfolio to show continued growth in professional development, she also has explored the use of wikis for collaboration with colleagues, worked on conference presentation proposals and archiving workshop materials from her national conference presentations using wikis and other tools. From the inception of her original ePortfolio to her current web site as an Assistant Professor,

Cadle has been able to enhance the visual nature of her identity to demonstrate how portfolio and blogging tools can extend a person's reflection not only about pedagogical practices but also about research commitments for tenure evaluation.



Figure 7. Lanette Cadle Blog.

Cadle's current online presence confirms that digital literacy acquisition is a lifelong process that evolves as the tools themselves evolve. Similarly, both technical communication and rhetoric and writing specialists must evolve their curricular practices to acknowledging these shifts in tools and communication processes, learning from students such as Cadle as they begin to explore options for developing a professional identity. As a result, we have included more emphasis on blogs, wikis, and social networking tools in our respective classes as possibilities for ePortfolio development,

allowing for an integrated presence that fits with the types of communication and professional networking processes in both the academy and the workplace.

Ultimately, ePortfolios are a good fit not only with graduate student professional development initiatives but also with other student-centered models in which assessment is team-based and less hierarchical than with the traditional teacher-student relationship, including the studio model process we've profiled throughout this article. Within our context, ePortfolios positively contributed to the quality of graduate education and our students' ability to see themselves both as professional and as future faculty. Such models also better replicate the project management structures within business and industry, with positive implications for student success beyond graduation as students become accustomed to more real-world collaboration. As Gresham and Yancey (2004) articulate, studio models embody *learning spaces* as opposed to *teaching spaces*, something that we believe typifies ePortfolio development, foregrounding the composition, communication, and reflection vital to student-centered learning at both the undergraduate and graduate levels.

Equally important, Johnson-Eilola and Selber (2001) view the graduate student portfolio as a potential capstone activity in order to balance theory and practice:

This structured set of documents actively positions education as the confluence of thinking and doing: specific, concrete artifacts (proposals, websites, newsletters, etc.) are paired with rationales that provide theoretical considerations of audience and purposes, usability test results, ethical considerations, etc. (p. 415)

This exploration and union of “thinking and doing” is developed through the multimodal creation of an ePortfolio that admittedly not all audiences are as currently prepared to review and assess electronically because of differing expectations about genres, not to mention institutional application procedures in both the academy and the workplace that continue to privilege print submission, something Cadle (2009) notes in her concern that “my college within the university sees paper as the standard--efficient and portable, unless you are a scholar who does a fair amount of writing and editing on the web,” and when hiring committees are becoming more receptive to digital review. These constraints suggest that for the current time, the delivery of graduate student professional *ethos* will continue to be hybrid in form, despite the benefits we have overviewed in this article. To acknowledge these audience variables, we work with students in our own programs to determine what artifacts should be both online and print, what should be stored online, and what formats should be on CD or DVD-ROM. The Scientific and Technical Communication Program requires a print copy version of the portfolio for possible use with employers less able or willing to review digital formats, and the Rhetoric and Writing Program encourages student to craft material in both print and electronic formats to correspond with aspects of the academic job market that call for print distribution, such as the standard cover letter and *curriculum vitae*. Another continuing problem is the need for subject specialists in both disciplines with appropriate digital literacy and document design expertise to oversee the portfolio development process, suggesting a need for technological training to sustain the emerging emphasis on multimodal literacy acquisition within graduate programs. Even with these constraints, the Modern Language Association (2007) *Job Information List* features numerous positions calling for expertise

in “digital literacies, new media theory and production, and critical theories of technology,” emphasizing computers and writing as a “plus” or an ability to teach courses via distance or “hybrid delivery modes,” and ultimately suggesting a shift in the field to acknowledge the growing role of technology in both undergraduate and graduate instruction.

Despite constraints on ePortfolio implementation, Siemens (2005) contends that an ePortfolio can be looked at as a continuum bound by several factors, including “the changing nature of learning, and the changing needs of the learner.” Carliner (2005) also discusses benefits of ePortfolios; however, his angle privileges skills management for professionals:

As skills management gains importance, and as managers increasingly rely on skills management tools to identify and track the skills of their workforce, workplace learning and performance professionals need a tool that identifies the full range of skills possessed by workers. E-portfolios provide such a tool. (p. 74)

Through Carliner’s explanation, and through our own overview of ePortfolio development in our graduate programs, we stress the importance of the ePortfolio both inside and outside of academic circles. As we have argued, such a professional development process can prepare students to view themselves, and encourage others to see them, as both technical communicators and rhetoricians. For such development to thrive, however, digital literacy specialists clearly have much work to do in educating colleagues about the benefits of ePortfolios so that their impact may extend beyond individual courses and programs to our larger sub-disciplines.

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