CHAPTER 12.

BALANCING LEARNING AND ASSESSMENT: A STUDY OF VIRGINIA TECH'S USE OF EPORTFOLIOS

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This chapter explores the case of ePortfolio adoption at Virginia Tech. The idea that ePortfolios are useful reflective devices is a well-explored concept. The impact of ePortfolios on assessment of student learning is becoming an important ground for new research in ePortfolio usage. At Virginia Tech, we are finding ways to work on ePortfolios, both as a reflective medium for learning and as a tool for improving assessment of that learning, in order to deploy this learning technology across a large and varied student and faculty population.

Portfolios in educational settings are certainly not a new concept. Many disciplines, including English, art, and education, have made portfolios integral to their pedagogical process for years (Devanney & Walsh, 2002, Greenberg, 2004, Weimer, 2002); however, a number of technological innovations, as well as specific trends in academic and programmatic assessment, have brought ePortfolios to the forefront of recent discussion in higher education.

Like traditional portfolios, ePortfolios contain students' work collected over time (Hutchins, 1990). They foster dialogue and "interaction with teachers, mentors, peers, colleagues, friends, and family" (Greenberg, 2004, p. 30). This process and resulting product of co-working provide a context and opportunity for student reflection and revision and results in behaviors that are

related to deep learning. The key difference between traditional and electronic portfolios, then, is the use of technology to collect, organize, manage, store, retrieve, and share a variety of information, including artifacts of learning, audio/visual files, and student reflections. In an ePortfolio, "all artifacts have been transformed into computer-readable form. An electronic portfolio is not a haphazard collection of artifacts (i.e., a digital scrapbook or multimedia presentation) but rather a reflective tool that demonstrates growth over time" (Barrett, 2000). Because of this archival nature, however, a new interest in ePortfolios has emerged from a variety of institutional stakeholders (Batson, 2009, Lorenzo & Ittleson, 2005).

In addition to encouraging students' reflection and learning, ePortfolios are currently celebrated as a way to facilitate and document more authentic forms of assessment. With increased calls for accountability at the state, regional and national workplaces, the collection and management of student learning outcomes has emerged as a complex and immediate challenge for colleges and universities. As a result, many programs see ePortfolios solely as an archival tool to document student learning which can then be mined for assessment purposes to respond to the aforementioned assessment pressures. The question then becomes how programs or institutions can structure their activities to take advantage of the learning benefits of the ePortfolio process yet meet the assessment needs best met by a product approach to ePortfolios. This chapter describes these two seemingly opposing ePortfolio approaches and suggests a method for putting the two in balance in order to achieve the best outcomes from both approaches.

EPORTFOLIO: PRODUCT VS. PROCESS

With electronic portfolios gaining more and more national and international attention in the field of higher education, many valuable questions concerning challenges and implications of ePortfolio adoption need to be addressed. Amongst these questions lie issues of standardization, ownership, and perhaps at the heart of the debate: the tension between process- and product-orientated portfolios. Shavelson, Klein, and Benjamin (2009) have argued that ePortfolios lack standardization, scalability, and objectivity. Batson, a stout proponent of ePortfolios, has also acknowledged that one factor preventing ePortfolio adoption is the "lack of standards for the data being maintained in the ePortfolio repository" (Batson, 2009a). Additionally, Batson has argued that for students "portfolio-for-the-matrix has left them estranged from their own work and the student-centered technology that was supposed to be has lagged behind ac-

creditation management technology ... If there is only one ePortfolio platform on campus, it is bound to become an institutional ePortfolio" (Batson, 2009b). Some of these issues stem from the tension between process- and product-oriented portfolios and the pedagogical values and concepts different people attach to these various types of portfolios.

Some view product-based portfolios as being purely assessment-driven, which can in turn inhibit reflective, authentic facilitation of learning. Others view process-based portfolios as being too loose, too flexible and hence preventing scaffolded, guided facilitation of learning. Opponents of ePortfolios claim that this can create a hodgepodge of standards, which lack coherency. Since types of electronic portfolios are as diverse as the people who create them, the suggestion that there is a bifurcation between portfolios that are adopted for the collection of assessment data, product portfolios, and those that are instituted for the facilitation of learning, process portfolios, should not come as a surprise. Additionally, these two types of portfolios can simultaneously be thought of as wholly different, serving different purposes and different audiences, and as being one and the same. For instance, each of us comes to the concept of portfolios with our own ideas as to what they are and what audiences and objectives they serve. Some view ePortfolios as nuanced educational tools, used for encouraging student growth and self-assessment, for assessing learning across groups of students, and for developing a culture of assessment between faculty, students, and administrators; however, all too often people develop one set opinion on what an ePortfolio is and how it can best be used to meet their needs. Because of this somewhat homogenizing approach, we often fail to see the value of utilizing electronic portfolios for different purposes. This perspective applies to the dichotomization sometimes existing between product and process portfolios. While these types of portfolios have been referred to under various terms—such as showcase and workspace (Barrett, 2009) and process and showcase (Abrami & Barrett, 2005), for example—from here on we will refer to them as product and process portfolios. When a curriculum or program only approaches portfolios from a product perspective, it runs the risk of turning a valuable learning tool into an electronic storage closet. At the same time, product-oriented portfolios can add a layer of qualitative richness to the types of information gleaned from student activity and applied to improvements in teaching and student learning. Therefore, it can be helpful to discuss the relevant merits in the academy and other workplaces of both process- and product-oriented ePortfolios.

This section will provide overviews of product- and process-oriented ePortfolios. Additionally, it answers a question posed by Helen Barrett: "How do we match the needs of the institution for valid and reliable data for accreditation

and accountability while still meeting the needs of learners for formative assessment to enhance and support the learning process?" (2004). At Virginia Tech we are able to engage in this process successfully, using a single ePortfolio platform system. Our system is one that embraces eFolio thinking as a way to synthesize process- and product-based portfolios. Whether a portfolio initiative places overarching value on product or process, as long as the project is imbued with "eFolio thinking," the process is likely to be successful and result in valuable learning.

Meyer and Tusin (1999) describe process portfolios as those that emphasize the learning of new skills, understanding, and progress. Students using portfolios for this purpose are more interested in improvement and learning from mistakes. Conversely, product portfolios have more emphasis on how outcomes reflect ability. Students using portfolios for this purpose are more interested in comparing themselves to and scoring better than others (Meyer & Tusin, 1999, p. 131). Helen Barrett (2009) describes process ePortfolios as being workspace portfolios, oriented to learning and reflection. With process portfolios, feedback is formative, assessment *for* learning. Product ePortfolios are described as being showcase portfolios, oriented to presentation and accountability. With product portfolio, feedback is summative, assessment *on* learning. Both types of portfolio have positive attributes they can bring to the classroom; both pose challenges as well.

While product-oriented portfolios hold value for the classroom, there is concern that when overemphasized, they can detract from the learning process. Johnson and Rose (1997) remind us, "When we only focus on portfolios as a product, we've missed their potential power, which comes from the process of creating them" (p. 8). In addition, Yagelski (1997) speaks of the integration of a reflective portfolio into a pre-service English course at Purdue University:

> Unwittingly, in trying to make the portfolio a comprehensive portrait of the students' work in high school classrooms over the semester, we had squelched the opportunity for careful reflection and ended up with what amounted to a collection of documents; moreover, what reflection did occur was largely ... students ... evaluating their work for the portfolio *after* the fact and not in an ongoing fashion. (p. 230)

Because course teachers initially asked for a collection of a series of documents, of which most were specified course assignments, they were unable to achieve their desired goal of critical reflection. These arguments are not without merit. Certain challenges exist within product-oriented portfolios. Because of

their product-based nature, these portfolios may allow more room for materials to be submitted at the last minute, and if this happens, students may not have as much critical reflection on how their materials meet their different learning outcomes. Wagner and Lamoureux (2006) note when implementing their outcome-based assessment ePortfolios, that "while students are currently encouraged to begin uploading to their ePortfolios early ... many seem to 'wait until the end'" (p. 545). An additional complication to assessment-driven, product-based portfolios is the fact that many students feel little ownership over their portfolios. This is a challenge Wagner and Lamoureux (2006) faced when a focus group student stated "We know it will help the program, but what's in it for us?" (p. 548). There is potential, with these types of portfolios, to place so much emphasis on the outcomes that students lose the importance of progressive reflection and engagement with their own learning processes.

On the contrary, product-oriented, assessment-based, and showcase portfolios can hold great pedagogical potential for courses, programs, and students alike. For students, showcase portfolios, which are also product-oriented, can facilitate ownership and engagement with programmatic outcomes and professional communities of practice. For example, when students are selecting their best pieces of work to showcase in a professional portfolio, with a prospective employer in mind as an audience, the student can feel more ownership over the materials and a stronger sense of involvement and value from the creation process. As they prepare these portfolios, students have the opportunity to see the connections between all they have learned in their courses and program and their intended professional communities. Additionally, in these types of portfolios, students also often have more opportunities to customize their portfolios and make them more personal, something that often contributes to ePortfolio motivation. As one student noted, "I also wondered if there was a way to make it more customized. I think that students are more attracted to things that they can make personal, as in color, font, background, etc" (Hakel, Gromko, & Blackburn, 2006, p. 395).

Beyond their ability to guide a student's professional development, product-focused ePortfolios are able to collect effective data that can give long-term, comparative information leading to curricular improvement. This can be done in ways that are more authentic and student-centered than traditional test-based assessment formats. In addition to some of the challenges of their outcomes-based assessment ePortfolio, Wagner and Lamoureux (2006) also note that faculty felt they were becoming more intentional in their assessment, and students saw the ways in which the assessment of ePortfolios contributed to the improvement of the program: "I see program changes as a reward. I'm only a sophomore and will reap the benefits from the revisions in the program" (p. 548).

Similarly, while product-focused portfolios have much to contribute to the pedagogical environment, the very process of creating these products that make up the portfolios, especially portfolios that emphasize learning-focused outcomes, can contribute to students making deeper connections between their programs of study and their professional communities of practice within various workplaces. Process-focused portfolios tend to be the ones most associated with reflection, self-assessment, and growth of learning. As Yancey (2001) states, portfolios make learning visible:

> Portfolios bring together visibility, process, and reflection as students chart and interpret their own learning. Students are responsible ... for explaining what they did and did not learn, for assessing their own strengths and weaknesses as learners, for evaluating their products and performances, for showing how that learning connects with other kinds of learning (in the classroom and without), and for using the review of the past to think about paths for future learning. (p. 19)

While process portfolios do not necessarily represent the type of presentation a student would want to introduce to a prospective employer, they do represent the types of learning and vehicles for authentic feedback that students would want to show their instructors, exam committees, and programmatic administrators. Additionally, there may be some documents within these portfolios that students might want to display within a showcase, and the progressive reflections embedded throughout such portfolios better help students to not only know which materials they might want to display, but also how they want to portray themselves to their intended audiences.

A useful way to think of these two ePortfolio paradigms is from a perspective that blends the two approaches. Meyer and Tusin (1999) say as much when they note that, "Within the average cases, we found preservice teachers' knowledge about and experience with portfolios to be complex mixtures of process and product" (p. 135). After studying the relationship between preservice and inservice teachers' pedagogical values, along with their knowledge of and experience with portfolios, Meyer and Tusin (1999) concluded that using portfolios in methods courses seemed to elicit more use of portfolios for professional development purposes, as opposed to the desired outcome of using portfolios for learning processes. They suggest that "Faculty must ask all preservice teachers to reflect upon all the different forms and purposes of portfolios, and to synthesize what is similar and different among their methods portfolios, students' portfolios, and professional portfolios" (p. 137). See also Carl Young's (2009)

more recent work. This advice is applicable to all who embark on an ePortfolio initiative: it is important to strike a balance between product and process portfolios in order to maximize their learning and professional potentials. David W. Denton conducted an Eportfolio study along these lines measuring writing reflection improvement after an intervention with preservice teachers (2012). See also C. E. Shepherd and M. Hannafin's (2011) work on the effects of ePortfolio development on preservice teachers' inquiry and growth in the *Journal of Technology and Teaching Education*.

In her "Balancing the two faces of ePortfolio," Helen Barrett (2009) systematically and thoroughly displays the differences and relationships between process and product ePortfolios, and suggests that balancing the two types of portfolios enhances learner engagement with the portfolio process. The challenge, of course, is finding a way to balance all that ePortfolios have to offer: immersion in learning processes, formative and summative assessment, curricular and programmatic development and improvement, and professional development. Each program must determine for itself its own needs and goals, priorities, resources, and timelines.

At Virginia Tech, the ePortfolio Initiatives office is working with faculty to slowly evolve a process in which ePortfolios can facilitate product-oriented collection of data *and* process-oriented critical reflections on growth over time. Through our use of the Open Source Portfolio tools in our instance of the Sakai collaborative learning environment, we have devised a way for faculty and program administrators to collect student documents for summative assessment of learning and of the overall program. In addition, we can embed reflection prompts and students are able to reflect on their progress in their courses and programs throughout their duration. Finally, through the flexible nature of our tool set, students are able to create ePortfolios for assessment that balance process- and product-oriented approaches. Additionally, students can also easily reuse specific documents to create professional ePortfolios that they then use to gain competitive jobs and internships. Though we are just at the beginning of these efforts, we have already seen exemplary levels of student engagement with this blended approach. Faculty are able to collect the data they need for assessment and accreditation purposes, and students are able to see the ways in which their learning and development as professionals have grown throughout their academic career. Students have additional ownership over their work and related reflections, as they are able to customize these pieces to further their professional development. In fact, many students are recognizing that even if prospective employers do not actually see their electronic portfolios, the very act of creating their portfolios helps prepare them for the rigorous process of acceptance and eventual membership in their professional communities. When

students see the connections between their learning processes and their outcomes, we have truly achieved a synthesis of process and product.

FOLIO V. EFOLIO THINKING: EXTENDING THE PORTFOLIO DISCUSSION

Much of this discussion, which emphasizes the blending of process and product, is encapsulated within the framework of "eFolio thinking." This is a notion that we extended from Chen and Mazow's (2002) "folio thinking." Their term focuses on the cognitive predilection of any type of learning-focused portfolio to "encourage students to integrate discrete learning experiences; enhance students' self-understanding; promote students' taking responsibility for their own learning; [and] support students in developing an intellectual identity" (Chen & Mazow, 2002, p. 2). Those goals are solid foundations upon which to build an ePortfolio program. On the surface, these principles seem fairly process-oriented. The focus is on students' processes of learning and growth, responsibility and understanding. However, in order to sustain these processes, student activities, complete with artifacts created along the way, will provide the touchstones needed to assess the growth and learning touted in each portfolio. Well-designed portfolio programs of any nature would do well to ground themselves in folio thinking.

1. To extend that, we offer four additional enhancements based on the electronic nature of ePortfolios:
2. ePortfolios can offer an easier management of the collection, selection, and reflection process for students;
3. ePortfolios can offer a greater variety of communication potentials—easier sharing with a greater variety of individuals in order to provide a greater breadth and depth of feedback;
4. ePortfolios can offer a method of gaining more meaningful data analysis for the student, instructor, and administrator; and
5. ePortfolios can offer a greater potential for long-term transportability, and more importantly, long-term growth and development.

Without reviewing the obvious details of the differences between paper- and electronic-based portfolios, the four propositions comprising "eFolio Thinking," highlight several significant differences.

First, online management of portfolios, including those centralized in learning management systems, encourage students to take a long-term focus on the collection, selection, and reflection on the contents of their portfolio. Centralized storage encourages students to reuse materials and to do so more easily,

extending initial reflections with deeper understandings at a later time. The integration of common blog-type elements, replete with full search engines greatly expands the "cataloging" capabilities of portfolio authors.

Second, as an extension of that concept, electronic environments offer portfolio creators a greater ability to share their work with audiences. Traditional audiences, such as instructors or academic committees, can be reached more easily, often with just an email containing a link. And that same email can simultaneously reach professionals working in the field, management considering applicant pools, family members, and interested other parties, all with the same amount of effort. With the integration of social networking tools, electronic portfolios can turn from pure product-oriented containers to discussion spaces surrounding touchstones of an individual or group's work, such as in the case of Margo Tamez' electronic portfolio created for her dissertation which quickly became a central point of focus in a national debate on immigration (Schaffhauser, 2009).

Third, electronic portfolios offer the ability for many different audiences to have access to an array of data for analysis of student learning. As we have known for years, ePortfolios offer individual students a way to track their development over time (Cambridge, 2001; Doig, Illsley, McLuckie, & Parsons, 2006; Hutchings, 1990; Michelson & Mandell, 2004; Steffani, Mason, & Pegler, 2007; Zubizaretta, 2004). In addition, ePortfolios that are designed well offer course instructors, program advisors, and academic assessment teams an enormous amount of direct evidence of student learning (Schneider, 2009), especially if the students' reflective voices are given a role in that assessment (Batson, 2009b). By carefully aligning the reflective learning process with the collection of artifacts that demonstrate that learning, students can measure their own progress against departmental or institutional requirements. At the same time, course instructors are gathering representative work from early, middle, and late in the term by which, with rubrics or other measuring scales, they should be able to detect the amount of growth that a student has undertaken in the course. Accumulating over several terms, departments can then assess the work that is being done in key courses by sampling from an array of students' portfolios demonstrating work and reflections on that work in those courses. This can be the grounding for continuous programmatic development. That sort of effort is one that the program or institution can use to demonstrate to accrediting bodies the on-going effort at programmatic improvement as well as achievements already made. Pure product-focused portfolios would not achieve these multi-layered goals. Institutions may collect key assessment data, but if they are only looking at lists of student-generated artifacts, they lose a significant voice in the assessment process: the student's own acknowledgement of

learning. Similarly, pure process-focused portfolios, those based only on reflection and not as interested in core, guided products for programmatic portfolios, can inhibit the student's ability to measure his/her own success at achieving departmental goals. The sheer collection of exemplars by promoting successful portfolios can enhance each student's ability to meet departmental learning requirements and to grow beyond them.

That last aspect, the ability to break out of guided learning and to take on values of lifelong learning is the fourth aspect of eFolio thinking. This aspect links back to the first, in that ePortfolios encourage the author to take a long-term view of their development, but it extends the first in the affordance of transportability and the facilitation of lifelong development (Barrett & Garrett, 2009; Cambridge, 2009). Cambridge (2009), in his analysis of the potential of electronic portfolios to offer lifelong and integrative learning, focuses on two types of "selves" that can be created more easily with electronic portfolios: the "networked" and the "symphonic" self. In each case, the portfolio author has the opportunity to use the materials and reflections created over years to build a growing picture of him/herself as a learner, as one engaged in growth. While not fully technologically resolved, many elements of a portfolio are transportable if created with "eFolio thinking," that is, if the artifacts and reflections of a portfolio are created using technologies that show promise for long term readability, such as the Portable Document Format, then there is a good chance that the electronic portfolio can follow the student throughout life, gathering significance and meaning as the author grows. With even a simple Internet search, one can find dozens of examples of portfolios begun as early as kindergarten. With a proper approach, these kindergarten authors can continue to set goals and to mature as learners throughout their lives. (See also Lunsford, 2006 on writing technologies and the fifth canon.)

The four elements of eFolio Thinking focus on the electronic portfolio's ability to connect, reflect, and synthesize students' learning so that different audiences can benefit from the work contained therein. By designing ePortfolio programs with the principles of Folio and eFolio Thinking at the center, we can all improve our learning, both as students and as instructors.

TOWARD A BALANCE: TWO EXAMPLES AND A CONCLUSION

In order to wrap up this chapter, two examples will be offered from work done at Virginia Tech, in two very different departments. Through these examples, we hope to show how eFolio Thinking can be put into the design of a

successful, and sustainable, portfolio program which meets needs of academic and workplace environments. Both departments are radically different in their needs and outlook, yet both departments were able to design a successful ePortfolio program.

The first example is from the Didactic Program in Dietetics, based in the Department of Human Nutrition, Food, and Exercise (see Figures 1 and 2). This program has approximately 80 majors, accredited by the Commission on Accreditation for Dietetics Education. In that capacity, they have had a long-standing paper portfolio process in their department. This portfolio was a "product-focused" portfolio, asking each graduating senior to submit a collection of 10 key assignments from their course of study, ranging from materials created in their sophomore year to assignments created in their senior year. These binders were collected, year after year. In January 2008, the program coordinator, Dr. Susan Clark, contacted the authors of this chapter, who all work for Learning Technologies, more specifically, for the ePortfolio Intiatives office. Dr. Clark was interested in the ePortfolio approach, initially to facilitate the easier collection and dissemination of the ten required artifacts. After recreating their paper-based, product-focused portfolio program in an electronic format, Dr. Clark recognized that there was a greater potential to the portfolio program

Student Portfolio Domains	Professionalism and Ethics	Multidisciplinary Teamwork	Multifaceted Communication	Disciplinary Knowledge	Systematic Analysis	Experiential Learning
Journal/Reflection						
HNFE 1004						
HNFE 2004						
HNFE 3025						
HNFE 3034						
HNFE 3114						
HNFE 3224						
HNFE 3234						
HNFE 4004						
HNFE 4125						
HNFE 4126						
HNFE 4624						
HNFE 4644						
Other Coursework						

Figure 1. Dietetics' Program Assessment Matrix.

if we adopted more of a process-focused stance and incorporated some more reflection and student-centered learning in the ePortfolios.

To accomplish this, we formed a student-led "Student Management team," which initially consisted of a dozen hand-picked students, chosen for their engagement with the dietetics curriculum and at least an initial interest in portfolios. For the most part, none of the team had a particular technological interest or ability, but all had basic capabilities with the computer. This team, again *led by the students*, helped to reshape the assessment-focus of the ePortfolio from the product-focused "10 artifacts in a binder" portfolio, to a process where the students can pick and choose which work of theirs best meets the national standards indicated by the professional accrediting agencies. Though the 10 artifacts are still collected, in order to provide some consistency among the portfolios, the students also outlined several options from the curriculum that each dietetics student should consider for inclusion as evidence for one of the six learning domains that they identified. The students also focused on designing a more satisfying and useful web-interface that the individual students could use for applying to internships, which most dietetics students do after their senior years. These internships are highly competitive, and the students all felt that an electronic, easy-to-access portfolio would give them a competitive edge in the application process.

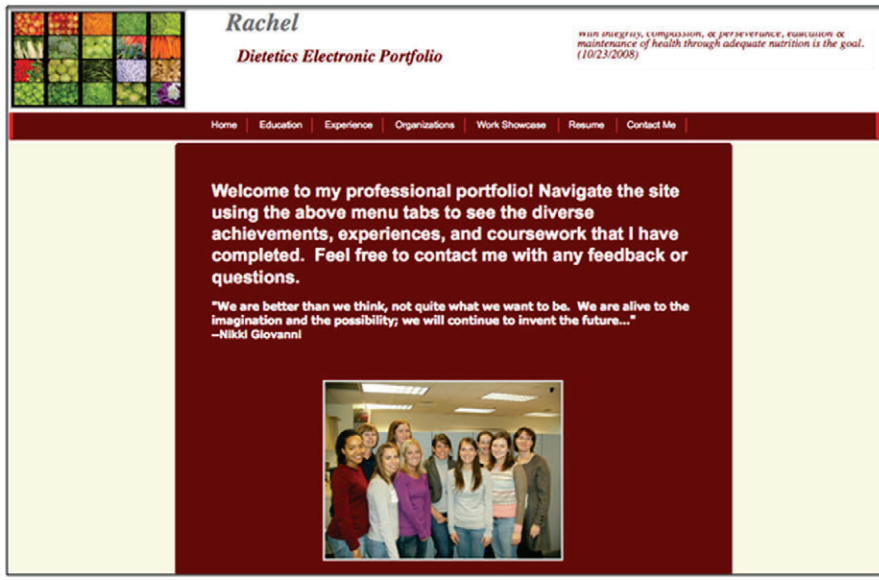

Figure 2. Sample Dietetics Student Presentation Portfolio.

After the initial development process, the student-led team continued to expand the culture of eFolio Thinking within their student body. They published papers and attended conferences to make presentations to other dietetics faculty about the significance of their work (Clark & Bailey, 2008; Clark et al., 2008, 2009a, 2009b). They also began a "Peer Mentoring" program that provides new dietetics portfolio students to gain advice and technological support from the students that have been engaged in eFolio thinking already. In this, they have created a student-centered, sustainable model for ePortfolio adoption in their program. In addition, their ePortfolios have shifted from one of pure product-gathering to one that incorporates reflections on key aspects of the dietetics professions and allows student choice of artifact to guide the collection and "evidence" of assessment that the program is using to gain accreditation.

The second program that we wish to discuss took a similar approach, in that it included student voices in the creation and adoption of the ePortfolios early on in their process. In this case, however, the Department of English at Virginia Tech does not have a professional accrediting agency to which they have to report. They had to begin by defining learning outcomes for their three primary options to the major: Creative Writing, Professional Writing, and Literature, Language, and Culture, in the process of outlining reasonable student learning outcomes, mostly to stay ahead of the curve of assessment that was gaining hold on campus. They wanted to be a department that took seriously the charges of a culture of assessment, namely that of a mode of continuous curricular improvement. To this end, they also began with a product-focused portfolio, centered mostly on programmatic assessment (see Figures 3 and 4).

However, early feedback from students indicated that they had no interest in or understanding of the dimensions of programmatic assessment, and their reflections made this clear. At this point, the English Department engaged a "Student ePortfolio Leadership team," whose task it was to consider what it would take for English majors to build more successful ePortfolios. For the various creative outputs of the students, a student-focused process ePortfolio was developed. Though anchored by key assignments throughout the English major's three years (beginning in the sophomore year with a course entitled "Introduction to English Studies," and which has now been renamed the "English Studies ePortfolio), the focus of this portfolio was on the learning processes that were central to the English degree. See Schnurr (2013) for more examples of leadership discourse and interaction cases through media (pp. 150-174).They created spaces for students to reflect on why they picked a particular option out of the three, on what they planned to do with the degree after graduation, on

how they use the skills of an English major outside of the classroom (perhaps in a service learning or internship experience), and on how they see the synthesis of the English skills culminating in a picture of themselves as an English major (this last is accomplished through a synthesis reflection in the student's senior seminar). The students also are able to provide examples of artifacts that meet the six learning outcomes for graduation. The department uses these submissions for their annual "assessment day" activities, where they get a chance to look across the curriculum to see how their students are self-identifying the learning outcomes that they are achieving. This gives the department a chance to review curricular design, and to plan for a continual mode of improvement of their curriculum. However, this is no longer the only activity of the ePortfolio. Students are engaged in conversations about the curriculum and their individual plans with advisors, course instructors, and peer mentors. They are engaged in long- and short-term planning, and focused on the learning they are doing in the department. All of those are facilitated by new technology-enhanced assignments, such as a digital narrative, that take the students to new understandings of the contemporary English major. Similar to the dietetics group, this program shifted their focus from one of pure product-based assessment to include more eFolio thinking on synthesis, reflection, and connection between the curriculum and their lived experience.

Both of these examples show that ePortfolio projects need to balance priorities of learning and assessment, in-the-moment experience with archival records, needs of students with those of faculty and administrators. Following the

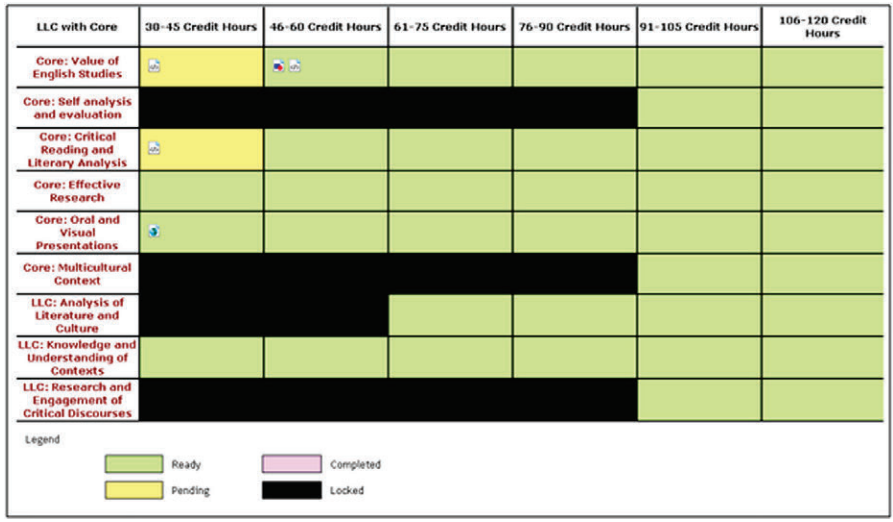

Figure 3. English Department Assessment Matrix.

principles of Folio and eFolio Thinking, this can be done through careful design and curriculum matches. Ultimately, this gives us all a win-win situation: students learn more, and we learn more about what and how students are learning. In addition to this sort of internal transfer of knowledge, such thinking is important for students matriculating to workplaces.

Programs such as these show that, through eFolio thinking, the notions of communication, dialogue, and synthesis are central to creating sustainable portfolio programs. At Virginia Tech, we have found that successful ePortfolio programs, in other words, those that embrace both process and product, reflect eFolio thinking. Through open dialogue with all participating parties, teaching faculty, assessment committees, advisors, administrators, and yes, even students

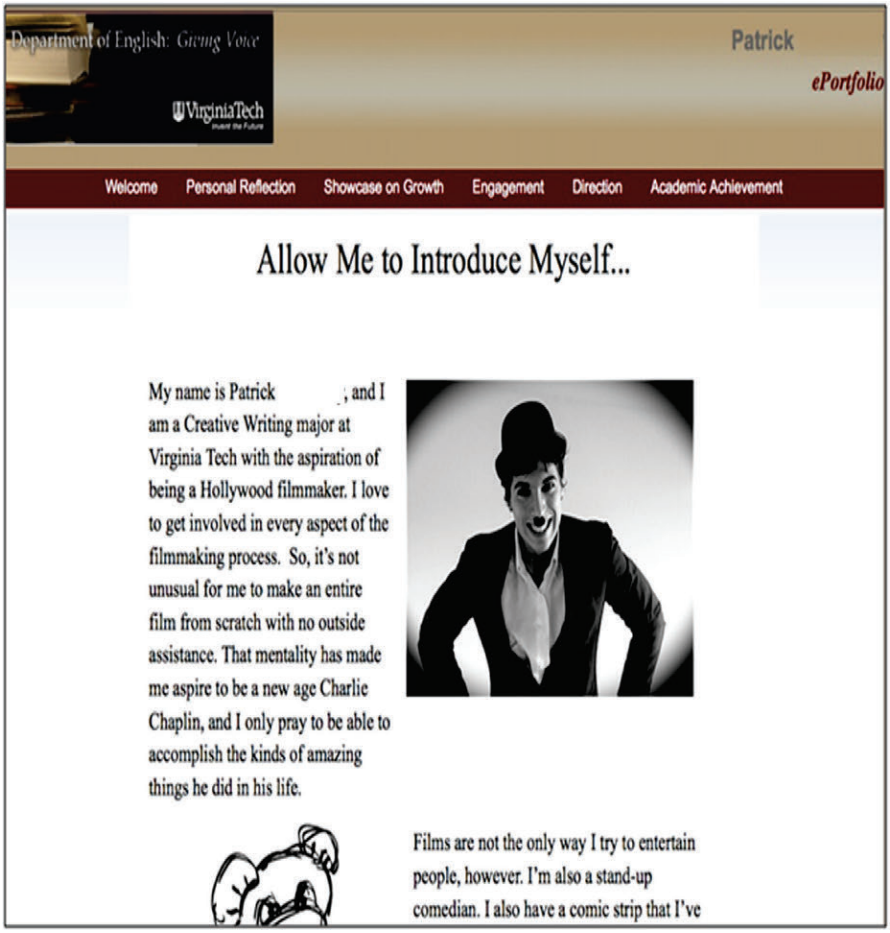

Figure 4. Sample English Major's ePortfolio.

are brought into dialogue through the ePortfolio development. Concerns revolve around capturing useful assessment data yet giving the students voice and room for authentic learning. However, if the dialogue is truly open and admitting, especially from the perspectives of the students who will be creating the ePortfolios, these concerns can be brought into balance. Additionally, the notion of synthesis between experience and learning or between artifact and reflection, which is central to ePortfolios and eFolio thinking, also reflects the synthesis employed by bringing together both process and product sides of ePortfolios. Because ePortfolios exist electronically, they provide for more synthesis, for example, synthesis of other types of assessment data and authentic learning activities, or synthesis of learning outcomes and professional ePortfolio presentations. eFolio thinking encourages students to engage in a process to create a product that will aid their learning and professional development, and when done well, aid all of us in assessing the individual's learning in more meaningful, useful ways.

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