

## CHAPTER 11.

# EPORTFOLIOS AS TOOLS FOR FACILITATING AND ASSESSING KNOWLEDGE TRANSFER FROM LOWER DIVISION, GENERAL EDUCATION COURSES TO UPPER DIVISION, DISCIPLINE-SPECIFIC COURSES

**Carl Whithaus**

University of California, Davis

*ePortfolios can both facilitate and assess knowledge transfer from lower division, general education courses to upper division, discipline-specific courses. The chapter opens with a discussion of Teaching/Writing in Thirdspaces (Grego & Thompson, 2008) and argues that the notion of thirdspace can apply to the distance between general education courses and the information skills required within students' majors. By tracking student learning in general education courses, ePortfolios provide a tool for faculty and administrators to make visible the connections and disjunctures between the delivered curriculum in lower division courses and the expectations for students' competencies expressed by faculty teaching upper division courses for majors.*

In *Teaching/Writing in Thirdspaces: The Studio Approach*, Rhoda Grego and Nancy S. Thompson (2008) develop the concept of “thirdspaces” as a means to account for how work with student writing “was influenced by institutional politics, preferences, and power relations” (p. 5). Drawing on the cultural geography work of Edward Soja (1996) and Doreen Massey (1994; 2005) as well as Nedra Reynolds’ (2004) analysis of writing as “spatial, material, and visual” (p. 3), Grego and Thompson account for how local institutional pressures can influence writing instruction as much as the national-level discussions about basic writing and composition pedagogies (Bartholomae & Petrosky, 1986; Shaugh-

nessy, 1977; Shor, 1987, 1996). Grego and Thompson develop the Writing Studio as a systematic method of helping student writers, but their pedagogical practices also allow an understanding of composition's meaningful work as contingent upon localized needs. As a method, Grego and Thompson clarify that their model of the Writing Studio:

is not limited to a course per se but is a configuration of relationships that can emerge from different contexts. Writing Studio has what might be a fourth credit-hour (or otherwise-configured small group meeting) attached to an existing course. These Studios can appear anywhere across the curriculum. ... A Studio organizes small groups of students to meet frequently and regularly (typically once a week) to bring to the table the assignments they are working on for a writing course, another English course, or a disciplinary course or undergraduate research experience that requires communication products. (p. 7)

Their development of the Writing Studio not as “a pedagogy so much as an institutionally aware methodology” (p. 21) to improve writing instruction in both general education and disciplinary courses parallels Soja's concept of “thirdspace” (1996). For Grego and Thompson “thirdspaces” are institutional openings or locations where writing faculty engage what Jonathan Mauk (2003) has called “the spatial and material conditions that constitute the everyday lives of students” (p. 370). For Grego and Thompson, the Studio approach is not only what happens within an individual instructor's classroom but rather is the product of compositionists and writing program administrators using their knowledge about writing, student learning, and their local institutional environments to enact systemic changes that impact students (see also Thompson, 2005).

In “Integrating Undergraduate Research into Engineering,” (Thompson, Alford, Liao, Johnson, & Matthews, 2005) describe how teaching writing in the “thirdspace” of a Studio connected with undergraduate engineering research makes explicit the connections between the “general education skill” of writing and the particular disciplinary moves that more experienced engineering students, graduate students, and faculty make in their own writing and communication processes. By focusing on communications, the Research Communications Studio (RCS) aims to “develop the cognitive abilities of undergraduate researchers” (p. 300). These cognitive abilities have been shaped

by the students' experiences in their previous general education courses; however, the RCS approach engages participants in intensive communication practice for making sense of their engineering research experiences. The explicit focus on the communication of discipline-specific research improves both students' communication skills as well as their engineering abilities (pp. 300-304). The Studio method used in the RCS is a product of a thirdspace approach to postsecondary institutions' treatment of writing as a generalizable cognitive skill, that is, something that can be taught with what post-process theorists (Kent, 1999; Petraglia, 1998) have derisively called General Writing Skills Instruction (GWSI). The Studio approach recognizes the different forms of expertise that undergraduate engineering students, engineering faculty members, engineering graduate student mentors, communication/writing graduate students, and writing/communications faculty bring to the RCS. Combining these different forms of expertise to focus on students' developing cognitive abilities as effective engineers and writers cuts across disciplinary boundaries and, at the same time, requires a bringing together of those disciplinary knowledge.

The work of a highly situated Studio approach to teaching engineering writing is localized within the institutional politics, preferences, and power relations of the University of South Carolina. As such, the RCS is a thirdspace technique, in that it is not a stand-alone course offered through either an English department or an engineering department, but rather, like other incarnations of the Studio, a simultaneous "outside-but-alongside/inside" approach to the institutional location of (supplemental) instruction through writing (Grego & Thompson, 2008). The Studio approach and the notion of thirdspaces for understanding explicit instruction in writing are valuable because they highlight the disconnections that can occur between the articulated learning outcomes for general education courses and the articulated learning outcomes valued within disciplinary communities such as engineering. What students learn in their general education courses may not always transfer as effectively as intended to their disciplinary modes of inquiry. Researchers interested in understanding how students' knowledge and skills transfer from one learning environment to another could use the concept of thirdspaces as a way of articulating why and how these disconnections occur. To fully use the concept of thirdspaces, researchers and teachers need a tool to help measure learning outcomes. ePortfolios appear to be promising tools to use for measuring learning outcomes (Acker & Halasek, 2008; Desmet, Church Miller, Griffin, Balthazor, & Cummings, 2008; Lopez-Fernandez, 2009; Mauk, 2003; Van Aalst & Chan, 2007).

## **EPORTFOLIOS AS TOOLS FOR OUTCOMES-BASED ASSESSMENTS IN GENERAL EDUCATION**

Measuring the learning outcomes of general education courses has become an increasingly important issue for postsecondary institutions (Humphreys, 2009; Schneider, 2008; “What General Education Courses Contribute to Essential Learning Outcomes,” 2009). Within this larger push for accountability and the measurement of learning outcomes, Desmet et al. (2008) have shown that ePortfolios can effectively be used as tools for assessments of the types of learning that take place in lower-division writing courses. They argue that electronic portfolios, “creat[e] a large centralized database of documents” and thereby make “it possible to articulate classroom and program concerns with larger institutional imperatives for measurable outcomes in assessment” (p. 16). In particular, they point out the ways in which electronic portfolios can be used to support and study revision (p. 16) and enhance student reflection (pp. 16-19).

Students’ abilities to reflect upon their own work are not only important in terms of improving writing, but are vital skills to develop as they move into professional environments (Argyris & Schön, 1974; Schön, 1983, 1987, 1991). Since reflection further develops professionals and their abilities to perform complex tasks, it is no surprise that as students progress from lower division courses into their major course work and pre-professional studies, they are asked to engage in more reflective activities (Butcher, 2009; Ostorga, 2009; Xiao, 2008). The increase in reflection is seen in fields as various as education (Butcher, 2009), design (Ostorga, 2009), and nursing (Xiao, 2008).

The development of student writing abilities underscores reflection as an important skill area transferable across various courses and writing situations (Yancey, 1998). Writing provides a means for developing students’ abilities to reflect on their practices, whether that reflection is explicitly about their writing or about the development of skills they will need in their professional practices. As Dawn (Swartzendruber-Putnam, 2000) has written, “Able writers can think critically about their writing” (p. 88). This ability to reflect on writing practices—and really on communication practices and rhetorical situations—appears to be heightened when using ePortfolios. Desmet et al. (2008) found “the articulation of learning as a product, is what separates formal reflection in ePortfolios from the more dispersed processes of revision involved in the various exhibits of a [traditional print-based] writing portfolio” (p. 20). The large corpus of texts that Desmet et al. were able to analyze from the University of Georgia led them to find statistically significant evidence that “revision, at least within the context of ePortfolio assessment, improves student writing” (p. 25).

Not only does the ePortfolio system at the University of Georgia demonstrate connections between students working explicitly on revision and improvement in their writing, but this extensive database also allows for tracking student learning in general education courses. A system such as the EMMA-based ePortfolios provides a tool for faculty and administrators to make visible the connections, as well as the possible ruptures, between the delivered curriculum in lower division courses and the skills needed to succeed in upper-division, disciplinary courses.

ePortfolios then provide a way to operationalize Soja's (1996) concept of thirdspace within a university's writing curriculum that complements Grego and Thompson's Writing Studio model. ePortfolios may serve as an institutionally aware methodology that draws in the everyday conditions and concerns of students' lives and emphasizes building connections between general education courses and course work that prepares students for work in their professions. Understanding how knowledge about writing transfers from one educational environment or course to another is a key way in which a well-constructed ePortfolio program can help administrators, faculty, and students.

## **USING EPORTFOLIOS TO PROMOTE AS WELL AS ASSESS KNOWLEDGE TRANSFER**

Acker and Halasek (2008) have examined the question of ePortfolios' abilities to facilitate knowledge transfer by looking at how ePortfolios can increase connections between secondary English courses and general education college writing courses. Working with faculty from Ohio State University and two high schools, Acker and Halasek designed and studied an ePortfolio program "through which high school and university personnel conducted joint research to address K-16 English language arts (ELA) alignment and student success in the postsecondary environment" (p. 2). High school students wrote essays and used an Open Source Portfolio (OSP) system to receive feedback from both university and high school writing faculty. The goal was to improve alignment between K-12 and postsecondary writing instruction and help students better understand what constitutes "good" writing in high school and the university. In addition, Acker and Halasek believed that an ePortfolio system would provide the "richer, innovative, and 'more authentic' measure of student writing" (p. 2) called for by the Center for Educational Policy Research's (CEPR) *Mixed Messages* study (Conley, 2003). The two key aspects of the knowledge transfer in Acker and Halasek's project turned out to be the benefits that students received from having feedback from differently situated readers (i.e., high school teach-

ers and college instructors) and the discussions among high school and college faculty about the aspects of writing they valued.

While Acker and Halasek hypothesized that “methods of responding to student writing differ between high school language arts teachers and college composition teachers” and that “different response patterns ... have adverse effects on the quality of student writing and revision” (p. 4), they found that having different forms of comments actually benefitted students. Their study indicates that high school and college teachers’ different types of responses “did not negatively affect the students’ revisions” (p. 7). In fact, students may have benefitted from the “*two kinds of readers*—one who focused on local and a second who focused on global issues” (p. 7). Because ePortfolios easily allow the sharing of student documents among multiple readers, they encourage distributive assessment (Whithaus, 2005, pp. xxix-xxxii, 49-66; Warnock, 2009)—multiple readers reading, responding, and evaluating a document or an entire portfolio based on their own situation-specific criteria rather than using a rubric that strips away the authentic perspectives of different readers and different contexts.

In addition to increasing the amount and types of feedback students received, Acker and Halasek’s ePortfolio system encouraged collaboration and community among high school and college faculty. By sharing curricula and discussing their evaluations of student writing, the participants talked across institutional boundaries about issues such as the value of “voice” in student writing. As an evaluation concept, “voice” is particularly difficult to quantify, but the differences between high school and college teachers were not solely focused on identifying students’ use of personal voice, but on the appropriate context in which personal voice should be used. Acker and Halasek note that in their study “high school teachers typically encouraged students to create a voice in personal essays (e.g., personal narratives or opinion pieces) but discouraged them from using that same ‘voice’ in more academic pieces (e.g., research papers). The distinction was not one generally made by college teachers, who encouraged students to create voice in all of their academic writing” (p. 9). Although the study and the discussion among the high school and college faculty revealed a difference about the way that voice was defined and when personal voice was considered appropriate, the very act of having the discussion about ePortfolios across the institutional divide of high schools and colleges created a thirdspace where knowledge transfer could occur not only for students but also between faculty members.

While Acker and Halasek’s study shows how ePortfolios can be used to both promote and assess knowledge transfer about writing, ePortfolios can also facilitate the transfer of multimodal composing abilities and information skills. Pinto and Sales (2008) have defined information literacy skills or INFOLIT as

the ability to locate, evaluate, and manage information; these information literacy skills “are basic to the process of ‘learning to learn’ [and play] a key role in promoting the autonomy of the graduate and future professional” (p. 54). The concept of information literacy (INFOLIT) was introduced by Paul Zurkowski (1974). The American Library Association defines information literacy as “an understanding and set of abilities enabling individuals to recognize when information is needed” and “a capacity to locate, evaluate, and use effectively the needed information” (p. 58). Pinto and Sales’ work on INFOLIT in Spanish universities helps address the question of how building information literacy competencies can enable knowledge transfer. It also addresses the question of how to transfer knowledge about information literacies from one context to another. Like the tensions between teaching writing as a general skill and teaching writing within the disciplines, Pinto and Sales point to the tensions between generic information literacy and the specific knowledge of any disciplinary or professional community. They claim that “despite the generic need for information literacy, it is also part of the specific competencies of any community of practice; and, in this sense, we believe that much effort still needs to be made in order to help to promote real user-centered information literacy instruction” (p. 72). ePortfolios as tools and the concept of a thirdspace between general education courses and discipline-specific competencies may help promote the “real user-centered information literacy instruction” that Pinto and Sales call for in Spanish universities. The increasing emphasis on information literacy in Spanish universities parallels the new focus on multimodal composing found in many North American postsecondary writing programs. Researchers (Gee, 2003; Kress, 2003; Whithaus, 2005) have found that effective writers in the early 21<sup>st</sup>-century are not only engaged in text-based literacy practices, but need to be able to use multimodal information and communication technologies (ICTs).

Lambert and Corrin (2007) have traced the development of an ePortfolio system that includes vigorous reflection for the development of text-based literacy practices as well as competence in the use of multimodal forms of composition. While this ePortfolio system at the University of Wollongong in Australia was designed to be customizable “for all students across all faculties,” the pilot projects were run with 300 students in Performance and Journalism. Working with these disciplines foregrounds the need for ePortfolios to represent students’ developing competence as writers and as composers able to work in multiple media. Like Pinto and Sales (2008) and many North American proponents of writing in the disciplines, Lambert and Corrin are aware of the tensions between developing generic skills and the more nuanced set of competencies required within disciplinary and professional contexts. Their ePortfolio system addresses

these issues by having eight skills develop across three different contexts (see Figure 1). Notice how the eight skills (critical thinking, problem solving, teamwork, written communication, oral communication, self-management, initiative, and technology) cut across three different contexts (work, university, and community).

Lambert and Corrin's study shows that ePortfolios have the potential to represent students' movement from developing general skills when they enter college to developing professional competencies as they prepare to graduate and enter the workforce, graduate school, or professional schools. Taken together with Acker and Halasek's (2008) and Pinto and Sales' (2008) studies, Lambert and Corrin's work shows how ePortfolios may be used to promote as well as assess knowledge transfer across institutional and social divisions (i.e., high school to college, general education to disciplinary courses, college to professional training). Understanding these institutional and social divisions as liminal thirdspaces challenges ePortfolio developers to link outcomes assessments with the students' next learning environments. Acker and Halasek's (2008) examination of how ePortfolios could connect high school students in Ohio with the writing curriculum at Ohio State offers one illustration of using ePortfolios as a way of negotiating these thirdspaces. Lambert and Corrin's (2007) work with Performance and Journalism students at Wollongong suggests another. The question now is whether it would be possible to build an assessment of

my portfolio (trial version)

home | about | sample | privacy | troubleshooting | my records | my progress

Logged on as Sarah

### My Records Summary

	Work <a href="#">view</a>	University <a href="#">view</a>	Community <a href="#">view</a>
<a href="#">Critical Thinking</a> <a href="#">view</a>			
<a href="#">Problem solving</a> <a href="#">view</a>	1 Report <a href="#">view</a>	1 Report <a href="#">view</a>	
<a href="#">Teamwork</a> <a href="#">view</a>	2 Reports <a href="#">view</a>	2 Reports <a href="#">view</a>	
<a href="#">Written communication</a> <a href="#">view</a>			
<a href="#">Oral communication</a> <a href="#">view</a>			1 Report <a href="#">view</a>
<a href="#">Self management</a> <a href="#">view</a>	2 Reports <a href="#">view</a>		1 Report <a href="#">view</a>
<a href="#">Initiative</a> <a href="#">view</a>	1 Report <a href="#">view</a>		1 Report <a href="#">view</a>
<a href="#">Technology</a> <a href="#">view</a>	2 Reports <a href="#">view</a>	1 Report <a href="#">view</a>	

To see reports of the records sorted by skill, by context, or both, click on the relevant [view](#) icon. For more information on the skills or event categories given, click on the relevant term.

Figure 1: Attributes and Outcomes for the University of Wollongong ePortfolio (Lambert & Corrin, 2007).



knowledge transfer onto a large-scale learning outcomes study such as Desmet et al. (2008), who measure the importance of revision within the required general education writing course at the University of Georgia. Using a multiyear, institution-wide ePortfolio (similar to the ones from Ohio and Australia discussed in this essay), it would be possible to expand their study to account for how students used revision in their upper division, disciplinary courses. This expansion of a learning outcomes assessment from within general education writing courses to the impact of general education writing courses on students' use of particular writing skills (such as revision) within upper-division, disciplinary courses, highlights the potentials of ePortfolios as systems. These systems can be used not only for the assessment of individual students' growth, but also for the assessment of the knowledge transfer that occurs when students take particular writing skills developed in general education courses into discipline-specific upper division courses.

## **USING THE OPEN SOURCE PORTFOLIO (OSP) TOOL WITHIN SAKAI TO MEASURE KNOWLEDGE TRANSFER FROM LOWER DIVISION WRITING COURSES TO UPPER DIVISION WRITING COURSES**

What would an ePortfolio system for measuring knowledge transfer from lower division, general education courses to upper division, discipline-specific courses look like in practice? At the University of California, Davis, we are developing an ePortfolio system that would allow us to assess how students' knowledge about the writing skills stressed in their lower division writing courses transfer to their upper division writing experiences. This ePortfolio system works within UC Davis' build-out of the Sakai course management system and incorporates the Open Source Portfolio (OSP) tool that is integrated into Sakai. By collecting student writing samples from our first-year composition courses (University Writing Program, 1), we are assembling a corpus of texts that will allow us to replicate and extend the University of Georgia study (Desmet et al., 2008). In replicating the University of Georgia study, we will use ePortfolios to focus on revision and measure the impact that revision has on the quality of student writing within a given course. Extending the University of Georgia study, we will track the development of students' abilities:

1. To use evidence effectively,
2. To shape an essay for a particular audience and purpose, and
3. To use a variety of appropriate prose styles and to master accepted grammar, syntax, and usage.

Each of these areas relates to a set of explicitly articulated course goals for our first-year writing courses (see Table 1).

**Table 1. Course Goals for UWP 1 and Areas to be Measured via Data Collected through a Sakai/OSP ePortfolio System**

Areas to be Measured	UWP 1 Course Goals
Revision	<ul style="list-style-type: none"> <li>• Not an explicit course goals of UWP 1</li> </ul>
Evidence	<ul style="list-style-type: none"> <li>• To explore the nature of evidence in academic and expository writing (and to synthesize multiple texts, formulate an original argument, and support it with appropriate evidence)</li> <li>• To provide students with instruction and practice in synthesizing multiple texts, formulating an original argument, and supporting it with appropriate evidence</li> </ul>
Audience and Purpose	<ul style="list-style-type: none"> <li>• To introduce students to the concepts of audience, purpose, persona, voice, authority, and tone as they relate to expository writing</li> </ul>
Style and Usage	<ul style="list-style-type: none"> <li>• To review the requirements of standard written English and to help students master accepted grammar, syntax, and usage</li> <li>• To develop students' ability to recognize the stylistic aspects of expository texts, and to develop a clear, reasonably sophisticated, and appropriately varied prose style in their own writing</li> <li>• To develop their awareness of language, including such concepts as diction, word choice, connotation/denotation, and figurative language</li> </ul>
[Course Goals Excluded from ePortfolio Study]	<ul style="list-style-type: none"> <li>• To develop the close reading skills necessary for analysis and interpretation of academic and scholarly writing</li> <li>• To introduce the forms and conventions of non-fiction prose</li> <li>• To explore, through readings, how assumptions, key questions, and fundamental concepts lead to the construction of knowledge in different disciplines</li> <li>• To introduce students to effective ways to structure and organize texts</li> <li>• To help students learn how to analyze individual arguments</li> </ul>

The use of ePortfolios in upper division writing courses (including writing in the disciplines courses, writing in the professions courses, writing experience courses, and senior-level, discipline-based seminars with significant writing requirements) allows the creation of a text corpora where we can analyze the ways in which students revise texts, use evidence, adapt their writing for specific audiences and purposes, and effectively employ different writing styles and correct usage conventions. Comparing students' performances in lower division, general education writing environments and upper division, discipline-specific writing experiences allows us to map how knowledge about particular areas of writing moves with students as they advance in their academic careers. The Ohio State (Acker & Halasek, 2008) and Wollongong (Lambert & Corrin, 2007) studies suggest that knowledge transfer can not only be measured but also be encouraged by using an ePortfolio system; using the OSP tool within Sakia at UC Davis will allow us to test these findings about knowledge transfer.

While our proposed system focuses on writing skills, ePortfolios offer the potential to track other forms of knowledge transfer. By collecting a series of learning artifacts, ePortfolios can be used to measure how students' skills in areas such as critical thinking, problem solving, or teamwork develop in their general education coursework. The learning artifacts could include multimodal compositions, more traditional forms of assessments such as exams, and writing samples. If used on a university-wide level, ePortfolios could be used to compare how student growth and achievement in these areas in lower division courses transferred to discipline-specific competencies in their upper division, discipline-specific course work.

## **KNOWLEDGE TRANSFER, INVOLVED STUDENTS, AND COLLABORATIVE LEARNING**

Tracking the knowledge transferred from lower division writing courses to upper division writing courses on a university-wide level is not about the assessment of individual students' abilities, but rather a systemic and programmatic assessment. Measuring how knowledge about revision, use of evidence, audience/purpose and style/usage moves (or does not move) with students is a question of the aggregate. Studies of Computer Supported Collaborative Learning (CSCL) (Dillenbourg, Eurelings, & Hakkarainen, 2001; Koschmann, Hall, & Miyake, 2002; Stahl, 2002; Van Aalst & Chan, 2007) provide models for ePortfolio developers and researchers interested in explicitly involving students in their own knowledge building activities. However, this research tends to emphasize collaborative processes and overlook learning outcomes. Van Aalst and

Chan's (2007) work aims to incorporate learning outcomes within a CSCL model where student designed ePortfolios play a significant role; drawing on three classroom studies they examine the evolution and roles of that student knowledge building plays in the ePortfolios.

In most ePortfolio systems, the framework for the portfolio is created by the classroom teacher or by the institution setting up the portfolio system and not by the students participating in the project. In Van Aalst and Chan's (2007) studies of ePortfolio and CLCS systems in Canada and Hong Kong, the students engage in knowledge building within frameworks that they have defined for themselves:

The goal is to enable the class to articulate questions and ideas they have about the topic and to delineate the general scope of what they attempt to accomplish. Students may contribute their ideas to the database and talk to each other about them. With some assistance from the teacher, the class may settle on a general plan for what it hopes to accomplish in the unit. (pp. 178-179)

The idea of constructing an ePortfolio system where the participants are active builders of the ePortfolio's framework returns to early debates in writing studies ePortfolios about the differences between student-designed (webfolios) and database-driven, institutionally-designed (ePortfolios) (Batson, 2002; Whithaus, 2005). Van Aalst and Chan's (2007) model demonstrates the possibilities for integrating these models of ePortfolios into systems that incorporate databases, but allow students significant influence on the shape of their portfolios and the assessment of the learning taking place in them. These shifts not only affected the ePortfolios, but also the way that inquiry proceeded in the courses. In the classes, "instead of focusing on readings and topics, sustained inquiry and progressive problem solving could be facilitated by providing authentic problems and encouraging questions to emerge from student-directed inquiry" (p. 209).

For ePortfolio developers concerned with improving the alignment of lower division courses that focus on information skills and writing with the competencies required of students for work within their majors, this model implies the potential of incorporating student input into a programmatic assessment. How would students define the successful transfer of writing skills developed in lower division courses into their upper level, discipline specific writing experiences? In some studies, this question might be approached through student surveys. Within an ePortfolio system—especially one that would incorporate

Van Aalst and Chan's (2007) work on active student participation in knowledge building—the students would be invited to address these connections with the courses and the ePortfolio system themselves. Operationalizing a vision of students as active agents in the measuring of knowledge transfer is a difficult task. A large-scale ePortfolio system could be designed to measure how well discrete writing skills (such as revision, use of evidence, awareness of audiences and purposes, and the ability to use different writing styles and correct usage conventions) aligned in writing samples drawn from lower division courses and upper division courses. Having such a system incorporate the potential knowledge building functions of ePortfolios would require that the reflective element(s) used in the upper division courses associated with the ePortfolios explicitly asked students to consider how their earlier college writing experiences impacted their later work. In this way, data could be gathered that would include student perspectives on the knowledge about writing that transferred from their earlier college writing experiences to their later experiences. This data would be associated with writing samples, so that researchers could verify and investigate further the student perceptions. This follow up activity would create data with a greater depth and a greater validity than data gathered through a more traditional student survey. Light, Chen, and Ittelson (2012) describe qualitative and quantitative triangulation techniques through ePortfolio pedagogy in their recent book, *Documenting Learning with ePortfolios* (pp. 7-24).

## **CLOSING: USING EPORTFOLIOS TO MEASURE KNOWLEDGE TRANSFER**

When applied to learning about writing in secondary and postsecondary contexts, the concept of thirdspaces (Grego & Thompson, 2008; Soja, 1996) suggests that students not only learn about writing in official “sanctioned,” for-credit, writing-focused courses, but also have the potential to learn even more effectively through a variety of opportunities connected with research activities in their own disciplines. The concept of thirdspaces then is useful if we want to rethink traditional modes of delivering writing instruction. When ePortfolios operate on an institution-wide level, they can become a vehicle of measuring the learning about writing that occurs in these thirdspaces. They can also measure how specific writing skills acquired in one context (lower division writing courses) do, or do not, transfer into other contexts (e.g., upper division, disciplinary courses where there is a significant amount of writing required). These measures of knowledge transfer should include how students are using information literacies and multimodal composing skills as part of the develop-

ing abilities as writers. Finally, ePortfolios may even be designed in ways that incorporate the latest developments in computer supported collaborative learning (CSCL). By incorporating reflective cover letters or other reflective pieces of writing that ask students about how earlier course work informed the choices they made about their writing in later courses, a set of data can be collected that incorporates students' knowledge about their learning and their emerging knowledge base about writing (Goodwin-Jones, 2008). Combining the students' reflections with outcomes-based assessment tied to multiple samples of student writing from different course levels creates a rich matrix of data-driven assessments that can work as a feedback loop and help inform curriculum development and the faculty's pedagogical choices.

## REFERENCES

- Acker, S. R., & Halasek, K. (2008). Preparing high school students for college-level writing: Using ePortfolio to support a successful transition. *The Journal of General Education*, 57(1), 14.
- Argyris, C., & Schön, D. A. (1974). *Theory in practice: Increasing professional effectiveness* (1<sup>st</sup> ed.). San Francisco: Jossey-Bass.
- Bartholomae, D., & Petrosky, T. (1986). *Facts, artifacts, and counterfacts: Theory and method for a reading and writing course*. Portsmouth, NH: Boynton/Cook.
- Batson, T. (2002, November 26). The electronic portfolio boom: What's it all about? *Campus Technology*. Retrieved from <http://campustechnology.com/articles/2002/11/the-electronic-portfolio-boom-whats-it-all-about.aspx>
- Butcher, J. (2009). Off-campus learning and employability in undergraduate design: The "Sorrell Young Design Project" as an innovative partnership. *Art, Design and Communication in Higher Education*, 7(3), 13.
- Desmet, C., Church Miller, D., Griffin, J., Balthazor, R., & Cummings, R. E. (2008). Reflection, revision, and assessment in first-year composition ePortfolios. *The Journal of General Education*, 57(1), 15.
- Dillenbourg, P., Eurelings, A., & Hakkarainen, K. (Eds.). (2001). European perspectives on computer-supported collaborative learning: *Proceedings of the first European conference on computer-supported collaborative learning*. The Netherlands: University of Maastricht.
- Goodwin-Jones, R. (2008). Emerging technologies web-writing 2.0: Enabling, document, and assessing writing online. *Language and Technology*, 12(2), 7-13.
- Grego, R., & Thompson, N. S. (2007). *Teaching/Writing in thirdspaces: The studio approach*. Carbondale, IL: Southern Illinois University Press.

- Humphreys, D. (2009). College outcomes for work, life, and citizenship. *Liberal Education*, 95(1), 7.
- Kent, T. (1999). *Post-process theory: Beyond the writing-process paradigm*. Carbondale, IL: Southern Illinois University Press.
- Light, T. P., Chen, H. L., & Ittelson, J. C. (2012). *Documenting learning with eportfolios: A guide for college instructors*. San Francisco: Jossey-Bass.
- Koschmann, T. D., Hall, R., & Miyake, N. (Eds.). (2002). *CSCL 2: Carrying forward the conversation*. Mahwah, NJ: Lawrence Erlbaum.
- Lambert, S., & Corrin, L. (2007). Moving towards a university wide implementation of an ePortfolio tool. *Australasian Journal of Educational Technology*, 23(1), 16.
- Lopez-Fernandez, O., & Rodriguez-Illera, J. (2009). Investigating university students' adaption to a digital learner course portfolio. *Computers and Education*, 52, 608-616.
- Massey, D. B. (2005). *For space*. London/Thousand Oaks, CA: SAGE.
- Massey, D. B. (1994). *Space, place, and gender*. Minneapolis: University of Minnesota Press.
- Mauk, J. (2003). The "Real" (e)states of being, writing, and thinking in composition. *College English*, 65(4), 21.
- Ostorga, A., & Estrada, V. (2009). Impact of an action research instructional model: Student teachers as reflective thinkers. *Action in Teacher Education*, 30(4), 9.
- Petraglia, J. (1998). *Reality by design: The rhetoric and technology of authenticity in education*. Mahwah, NJ: Lawrence Erlbaum.
- Pinto, M., & Sales, D. (2008). Knowledge transfer and information skills for student-centered learning in Spain. *Portal: Libraries and the Academy*, 8(1).
- Reynolds, N. (2004). *Geographies of writing: Inhabiting places and encountering difference*. Carbondale, IL: Southern Illinois University Press.
- Schneider, C. G. (2008). A different take on excellence. *Liberal Education*, 94(1), 2.
- Schön, D. A. (1987). *Educating the reflective practitioner* (1<sup>st</sup> ed.). San Francisco: Jossey-Bass.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.
- Schön, D. A. (1991). *The reflective turn: Case studies in and on educational practice*. New York: Teachers College.
- Shaughnessy, M. P. (1977). *Errors and expectations: A guide for the teacher of basic writing*. New York: Oxford University Press.
- Shor, I. (1987). *Freire for the classroom: A sourcebook for liberatory teaching* (1<sup>st</sup> ed.). Portsmouth, NH: Boynton/Cook.

- Shor, I. (1996). *When students have power: Negotiating authority in a critical pedagogy*. Chicago: University of Chicago Press.
- Soja, E. W. (1996). *Thirdspace: Journeys to Los Angeles and other real-and-imagined places*. Cambridge, MA: Blackwell.
- Stahl, G. (Ed.). (2002). *CompUPter support for collaborative learning: Foundation for a CSCL community*. Mahwah, NJ: Lawrence Erlbaum.
- Swartzendruber-Putnam, D. (2000). Written reflection: Creating better thinkers, better writers. *The English Journal*, 90(1), 6.
- Thompson, N. S., Alford, E. M., Liao, C., Johnson, R., Matthews, M. A. (2005). Integrating undergraduate research into engineering: A communications approach to holistic education. *Journal of Engineering Education*, 94(3), 10.
- Van Aalst, J., & Chan, C. K. K. (2007). Student-directed assessment of knowledge building using electronic portfolios. *Journal of the Learning Sciences*, 16(2), 175-220.
- Warnock, S. (2009). Methods and results of an accreditation-driven writing assessment in a business college. *Journal of Business and Technical Communication*, 23(1), 24.
- What general education courses contribute to essential learning outcomes (2009). *The Journal of General Education*, 58(2), 19.
- Whithaus, C. (2005). *Teaching and evaluating writing in the age of computers and high-stakes testing*. Mahwah, N.J.: Lawrence Erlbaum.
- Xiao, L. et al. (2008). Gerontological education in undergraduate nursing programs: An Australian perspective. *Educational Gerontology*, 34(9), 18.
- Yancey, K. B. (1998). *Reflection in the writing classroom*. Logan, UT: Utah State University Press.