Reflective Course Design: An Interplay between Pedagogy and Technology in a Language Teacher Education Course

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This study reports on a sequence of iterative redesigns of a graduate-level foreign language teacher education course. The study describes the interplay between technology and pedagogy that resulted in important curricular changes, from a focus on individual to social and then holistic reflection. Using a team-based design model, instructional experts worked collaboratively over multiple redesigns, sparked by the unique affordances of emerging technologies such as video, video editing, and electronic portfolios, as well as shifts in pedagogical approaches and changes in course goals.

Recent changes in thinking about the role of education have brought about important shifts—from an instruction paradigm to a learning paradigm (Barr & Tagg, 1995) and from a content-centered approach to a learning-centered approach (Fink, 2003). With these shifts come a rethinking of the roles of teacher and student, of the course, and of the curriculum as a whole. These disruptions in higher education also call for a rethinking of teaching and course design – away from an individualistic approach to course design, with the instructor at the center and support staff at the fringe, to a team-based course design model, with the course and student learning at the center, surrounded by the instructor and learning support working as a team (Bass, 2012). In this new model, the instructor and members of the instructional support staff collaborate as a team on both course design and delivery of the course, each person contributing his or her expertise to the goals of the course. According to Bass (2012), instead of assuming that innovation will come about by converting faculty, "this model focuses on changing course structures so that faculty will be empowered and supported in an expanded approach to teaching as a result of teaching these courses" (p. 30). This study reports on iterative redesigns of a graduate-level teacher education course brought about through an interplay between technology and pedagogy that resulted in important curricular changes—from a focus on individual, social, and then holistic reflection—to a team-based design model. In our course, instructional experts worked as a team over multiple redesigns, sparked by the unique affordances of emerging technologies as well as shifts in pedagogical approaches and changes in course goals.

Theoretical Framework

Teacher Reflection

In many teacher education courses, student teachers are encouraged to apply theories and methodologies to their own classroom teaching experiences in order to build up a repertoire of teaching techniques and to explore ways to make student learning more effective and engaging. The reflective model of teacher learning holds that teachers learn best through experience, reflection, conceptualization, and experimentation (Dewey, 1933; Richards & Lockhart, 1994; Schön, 1987; Ur, 1996; Zeichner & Liston, 1996). This recursive cycle lays the foundation for ongoing professional development and enables teachers to develop their own personal theories of teaching and learning. Richards (1995) explained that "becoming a reflective teacher involves moving beyond a primary concern with instructional techniques and 'how to' questions" (para. 2) to ask deeper questions that regard instruction and managerial techniques as part of broader educational purposes, and not simply as ends in themselves.

Teacher reflection can support this development by pushing teachers to confront prior assumptions about teaching and learning, to question their own teaching practices, and to inquire into not just what works in the classroom but also why it works. Two early influences on the practice of reflection in teaching are Dewey (1933) and Schön (1987). For Dewey, reflection is "active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (1933, p. 9). In Schön's (1987) definition, teachers construct knowledge through *reflection-in-action* (at the moment of teaching) and *reflection-on-action* (action planned before or after teaching). Teacher reflection can consist of several stages, where teachers identify a problem or question regarding teaching or learning, propose actions to address the question, gather and analyze data, and evaluate the solution. This process can uncover new questions and lead to new cycles of teacher inquiry. This is in line with sociocultural perspectives on teacher learning, which

is characterized as a long-term, cyclical process of dialogic mediation in which learners' everyday

concepts are made explicit and reflected upon, and scientific concepts are introduced, experimented with, and used in various meaningful and purposeful activities, with the goal of advancing learners' cognitive abilities so that they can accomplish goals or solve problems on their own. (Johnson, 2009, p. 63)

Sociocultural perspectives on teacher learning. Sociocultural theory understands cognitive development to be a socially mediated activity dependent on the specific social activities in which we engage, which in turn allow us to reconsider and reshape existing knowledge, beliefs, and practices (Lantolf, 2000; Vygotsky, 1978, 1986). This development occurs through a process of internalization and transformation. Internalization is "the progressive movement from external, socially mediated activity to internal mediation controlled by individual learners" (Johnson & Golombek, 2003, p. 731). Initially, learners engage in an activity mediated by other people or cultural artifacts but later appropriate the tools to regulate their own activity individually and internally. Cultural artifacts can be physical tools (e.g., a teaching journal, research/readings, or technology) or symbolic tools (e.g., language). Through socially mediated activities, learners confront and reshape knowledge and appropriate new ways of thinking, in a process of transformation of self and activity (Johnson & Golombek, 2003).

Johnson and Golombek (2003) considered teacher learning to occur at the intersections of experiential and expert knowledge, where student teachers use expert knowledge to name and ground their experiences and understandings, transforming and appropriating this knowledge in a personally meaningful way. This is important for teacher education because sociocultural theory

> enables teacher educators to see how various tools work to create a mediational space in which teachers can externalize their current understandings and then reconceptualize and recontextualize their understandings and develop new ways of engaging in the activities associated with teaching. (Johnson & Golombek, 2003, p. 735)

Johnson (2009) recognized three movements that have generated mediational tools and spaces that foster teacher development: reflective teaching, action research, and teacher research movements. In these models, self-directed, collaborative, inquiry-based learning can "encourage teachers to engage in on-going, in-depth, and reflective examinations of their teaching practices and their students' learning, while embracing

the processes of teacher socialization that occur in classrooms, schools, and wider professional communities" (Johnson, 2009, p. 6).

Development of professional identity. This new understanding of teacher education contributes to the development of professional identity and to the creation of community, since learning occurs through social interaction within a community of practice by "constructing new knowledge and theory through participating in specific contexts and engaging in particular types of activities and processes" (Richards, 2008, p. 164) that are collaborative in nature. In teacher education programs, collaborative learning can "foster the emergence of a professional discourse, heighten a feeling of membership in a professional community, and lessen the isolation and irrelevance often associated with university-based professional course work" (Johnson, 1999, p. 2-3). Learning to teach is understood as a process of acculturation and identity formation as student teachers learn the language (discourse) of practice to ground their experiences, to appropriate new knowledge, and to operate as full members of a new culture and community. Professional identity can be understood as

> people's legitimate participation in a profession; their occupation of a professional 'role' and ability to control the practices, language, tools, and resources associated with that role; the ideals, values and beliefs that lead them to commit to a profession; the unique way in which they personify their professional role as a result of the experiences that have influenced them through their career; and the representation of themselves as a professional that they project both to themselves and to others. (Maclean & White, 2007, p. 47-88)

In engaging in activities that are collaborative or other-regulated, teachers work together in a mediational space to externalize and reshape their knowledge, creating and contributing to a community of professionals.

Technology and Teacher Education

The shift from a teaching paradigm to a learning paradigm in education (Barr & Tagg, 1995) changes not only the roles teachers and learners play, but also the role of technology, as well as the role of those who shape and support technology integration in education. Today, teaching technologies are not just repositories of information or passive delivery mechanisms of static packaged course material (Batson, 2011), but play a significant role in helping us with the difficulties inherent in the paradigm shift we are experiencing, in which monitoring and responding to learners' progress becomes just as important as, if not more important

than, delivering instructional content and assessing students' final products (Cambridge, 2010). As Bass suggested, technologies help us because they "allow us to see, capture, harvest, and design for the intermediate learning processes" (2012, p. 28). Technologies such as video and electronic portfolios (i.e., ePortfolios) can be harnessed in teacher education programs to support the intermediate steps of learning, as well as to promote teaching and learning through reflective practices. Bass (2012) went on to propose that technologies such as blogs, discussion boards, and collaborative writing tools "serv[e] as a bridge from novice process to expert practice" (p. 29), leading students through iterative processes to, eventually, "speak from a position of authority" (p. 28).

Many reasons compel us to believe that the most opportune moment for integration of technology in teaching is in the teacher education process. Like the familiarity one had to have with the tools of the trade in the days of stylus and tablet or pen and paper, today's technology also needs to be exercised in prolonged use before it can be effective in teaching. Teacher education programs can provide the training and initial experiences teachers need with technology as they build up a repertoire of tools for their professional careers.

Video reflection and teacher education. Videotaping, digital video editing, and annotation tools have been used in teacher education courses to support teacher reflection through delivery of models of best practices in teaching (Dhonau & McAlpine, 2002), video-based cases (Hewitt, Pedretti, Bencze, Vaillancourt, & Yoon, 2003), video clubs (Sherin & van Es, 2009), and self-observation (e.g., Bryan & Recesso, 2006; Calandra, Gurvitch, & Lund, 2008; Geyer, 2008; Preston, Campbell, Ginsburg, Sommer, & Moretti, 2005; Rich & Hannafin, 2008; Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra, 2008; van Es & Sherin, 2002; Yerrick, Ross, & Molebach, 2005). Video integration offers many advantages in supporting teacher learning. For example, video allows teachers to replay and view the teaching event multiple times at their own pace and with a different focus each time. It is a permanent record that can document one's professional development over time. It can be shared with colleagues, inviting opportunities for collaboration, peer mentoring, and social reflection. Video can be archived, edited, and used for different purposes and with different users. "Video affords the opportunity to develop a different kind of knowledge for teaching—knowledge not of 'what to do next,' but rather, knowledge of how to interpret and reflect on classroom practices" (Sherin, 2004, p. 14).

ePortfolios and teacher education. Portfolios have functioned as "assessment" tools in the context of art and design well before they were adopted in education in the 1980s (Larson, 1991). Their use in education, however, has evolved to include other dimensions, such as learning and institutional data gathering, as well as uses beyond the context of formal education, such as personal and professional development and life-long learning (Cambridge, 2010; Elbow & Belanoff, 1986; Yancey & Weiser, 1997; Zeichner & Wray, 2001). Portfolios have been used widely in teacher education programs (Diez, Hass, Henn-Reinke, Stoffels, & Truchan, 1998; Zeichner & Wray, 2001). Often referred to as *teaching portfolios*, these portfolios may be used to "document growth in teaching over time" ((Zeichner & Wray, 2001, p. 615) as well as to ensure that teachers are "continuous learner[s] who reflect on practice" (Darling-Hammond & Snyder, 2000, p. 529).

Portfolios are generally categorized according to their purposes: for instance, as process, showcase, or assessment portfolios (Abrami & Barrett, 2005). Process portfolios represent the learning transformations that the student has gone through. Showcase portfolios emphasize the student's goals and achievements, and assessment portfolios are geared towards evaluation and grading of the student's work. Casting the issue another way, Cambridge (2001, 2010) categorized portfolios as having primarily two perspectives: they can be about the "individual," and/or they can be about some "institutional standard" against which the individual is being evaluated. While the two perspectives are frequently viewed as mutually exclusive and contradictory (Barrett & Carney, 2005), Cambridge (2010) drew on the history and philosophy of western education to resolve their opposition and show their close relationship. In the decades after their adoption in education, implementations of the portfolio method have involved various combinations of these purposes, making it generally difficult to define the approach as a single pedagogical technique. For the most part, however, whether or not the goals are contradictory, the aim of portfolios (and, by extension, ePortfolios) has been to allow students to develop reflective self-assessment skills, and to allow evaluators to have access to authentic student work for assessment.

Having evolved in close parallel with the growth of digital technology, portfolios have, not surprisingly, evolved into ePortfolios. While the core components of the portfolio have remained focused on the original objectives of collecting artifacts, promoting self-reflection, and providing authentic assessment for students, teachers, and educational institutions, as occurs with the introduction of any new technology, the evolution from paper-based portfolios to ePortfolios has added new dimensions to the original purpose. Cambridge (2010) listed "multimedia and hypertextual evidence" (p. 200), annotation, visualization, and "scaffolding learning processes" (p. 199; including "distributed scaffolding," p. 209) among the potential

benefits of ePortfolios as the capabilities of digital technology continue to evolve.

Method

Course Context

Our teacher education course, Teaching Foreign Languages, is a required course for all first-year MA and PhD students in our department, which they take concurrently while teaching Spanish, Italian, or Arabic language courses for the first time at our institution. Most of the graduate students in this course have never taught before, and so our course is designed to address the immediate concerns and challenges that they may encounter during their first semester of teaching. One of the main goals of the course is to provide graduate student instructors (GSIs) with numerous opportunities to observe and apply new ideas and teaching principles through practical activities and to develop their own personal theories of teaching through systematic reflection and experimentation. Through engaging in course activities, graduate students will come to see themselves as competent and confident teachers, will understand the value of ongoing teacher development, and will be able to identify appropriate resources and tools to support that growth. Course activities include in-class discussion, teaching observations, reflective essays, an action research paper, research presentations, and a teaching portfolio. These activities are designed to support teachers as they externalize and reshape prior conceptions about teaching and learning through socially mediated activity and as they appropriate new ways of thinking and contribute to a community of practitioners.

Population

Students. The teacher education course typically enrolled 12 to 27 graduate students. In any given year, two to four of those would be PhD students in Spanish, while the rest would be MA students in Spanish, Italian, or Middle Eastern Studies. The student population was diverse, with most students coming from the US but others from Europe, Latin America, or the Middle East; their ages ranged from 22 to 45. While taking our teacher education course, the Italian MA students taught one section of Elementary Italian, the Middle Eastern Studies MA students taught one section of Elementary Arabic, and the MA and PhD students in Spanish generally taught two sections of Intermediate Spanish.

Instructional team. The instructor of this course, Emily Scida, was also the director of the Spanish and Italian Language Programs at the University of Virginia. She coordinated the beginning and intermediate Spanish and Italian language courses, trained the GSIs, and supervised the 35 to 40 GSIs and lecturers who taught these courses. Each GSI taught one or two sections of beginning or intermediate Spanish or Italian each semester, totaling approximately 75 sections of beginning and intermediate Spanish and Italian offered per semester; about 1,600 undergraduate students were enrolled in these courses per semester. Spanish GSIs who have advanced in their degree program may teach upper-level language and literature classes. All GSIs in Spanish and Italian had full responsibility over the entire course—they taught six hours a week, prepared their own daily lessons and practices, created exams, assessed students' progress, and held office hours. The director was responsible for the selection of the textbooks, the creation of course syllabi, and the supervision of the teachers of the beginning and intermediate levels. In addition, her duties included teaching the teacher education course every fall semester.

The faculty consultant in instructional technology, Yitna Firdyiwek, had been in his position since 1997. He had coordinated a Teaching + Technology Initiative, a program that funded faculty-driven projects in instructional technology focusing on undergraduate teaching. His position involved working with faculty to identify technology integration questions that are worth exploring, developing attainable goals, drafting budgets, and assisting with effective and sustainable management of the project beyond the development stage. He focused on designing solutions from the instructor's point of view, by which is meant an approach that takes the instructor as the lens through which the needs of all of the course's stakeholders (e.g., students, administrators) are addressed. The approach combined technology integration and faculty development in an effort to achieve a critical and reflective engagement with technology for pedagogical purposes. E-folio, the portfolio-based course management system used in this project, was designed by him with this broad perspective in mind.

Over many iterations of this course, we collaborated as a team in designing the course and learning activities, considering the alignment of new technology integration with our course goals and rethinking changes for the next course offering. We both delivered the classes, although the instructor was the primary classroom presence, and we both consulted with students outside the classroom on technology and content matters. This team-based approach supported significant curricular innovations with every offering of the course in a collaborative cycling from one year to the next. The collaborative process allowed us to:

- maximize our resources without burdening one or the other of us in the process;
- engage in, and model for the student teachers, our own reflective approach in the scholarship of teaching;
- document and maintain a history of the course from multiple perspectives (student/teacher, technical/pedagogical); and
- develop the "portability" of the course to enhance sharing of the curriculum as well as results of our investigations.

As indicated by Bass (2012), the team-based approach to curricular design leverages resources more efficiently while refocusing course design on promoting learning and freeing the course from dependency on a single instructor.

Three Course Redesigns

First redesign: Use of best practices video archive. The goals of the Teaching Foreign Languages course included enabling GSIs to apply theories and methods to their own classroom teaching and instilling in them a lifelong habit of teaching improvement and documented professional development through critical thinking and self-reflection. A challenge common for teacher education courses is that student teachers often feel disillusioned by the perceived irrelevance of theory and research on teaching to the immediate challenges and problems they face as first-time teachers. This is the difficulty in teaching such a course—how to address practical and immediate teacher concerns and, at the same time, help GSIs understand the relevance of methods, approaches, and theories to their own classroom teaching. Prior to the first course redesign described below, GSIs engaged in reflective activities that asked them to observe an experienced teacher and then reflect on the teaching event in a reflective essay, meaning that each GSI observed a different teacher. Our experience at that time was that many teachers did not delve deeply enough in their analysis of their own teaching, the application of new ideas and materials, or their observations of other teachers. Studies have suggested that novice teachers tend to focus their reflections initially on classroom management, teacher behaviors, and survival concerns, rather than on student learning (Davis, 2006; Gebhard, 1999). The fact that each GSI observed a different teacher for such assignments added to this problem—it did not allow us as a class to engage together in a focused, detailed, and critical analysis of the observed lesson during class time.

Our hope is that GSIs will think beyond teaching tips and focus on the attainment of student learning outcomes in their courses—in other words, away from

questions like "How do I teach this material/skill?" to questions of "Why is this technique/activity effective in helping students learn this material/skill?" so that GSIs can appropriate the tools necessary to make informed teacher decisions in new contexts. Richards (1995) broached this same dilemma: "How can teachers move beyond automatic or routinized responses to classroom situations and achieve a higher level of awareness of their teaching skills, and of the value and consequences of particular instructional decisions?" (p. 59). Our conviction is that we can support new teachers make this transition through activities that help them apply the research and theories they are learning about in our education courses to authentic teaching situations.

In the first course redesign cycle, we sought to offer these opportunities through the online delivery of models of best practices in teaching and subsequent teacher reflection, with the following goals in mind: application of theory and research to practice; improved critical thinking and reflection; accountability and improved quality of work through an online public forum; and collaboration and peer learning. These curricular goals were achieved through two technology implementations: (1) the integration of a video archive of teaching clips, and (2) the creation of a web-based collaborative writing framework using E-folio, which allowed the students to view and comment on each other's work.

Technology. E-folio was originally conceived as an electronic performance support system (EPSS), an approach to software design that allows for the creation of support systems with a high degree of integration between "information, tools, and methodology for the user" (Gery, 1991, p. 34). The goal for E-folio was to help instructors apply the principles of the portfolio method of teaching and assessment in a digital environment. Following the EPSS guidelines, the main features of E-folio, which grew out of successive iterations, consisted of:

- a multimedia document management system;
- a commenting system that can be attached to any multimedia document;
- a video archiving and editing system;
- an instructional feedback and assessment system; and
- a process for selecting artifacts and generating individual and course portfolios.

Using E-folio, instructors could assign work to students, have students exchange and comment on each other's work, and provide students with feedback. Once students had done all of the required work, they could select the items they wanted to include and submit their portfolio for review. Following a review, the reviewer has the option simply to return the work or to publish it,

in which case the system would generate a portable format of the portfolio for the student. Figure 1 shows the three main panels in E-folio: Activities, where students post their work including discussion boards, assignments, video clips, and portfolio; Class Space, where students can view and search class postings and portfolios; and, Instructor, where the instructor can create assignments and publish student portfolios, among other functions.

In addition to the principles of the portfolio method of teaching, as articulated primarily by Elbow and Belanoff (1986), the design of E-folio is also influenced by the works of Spiro and Jehng (1990), whose research in cognitive flexibility theory and learning in "complex and ill-structured domains" (p. 167) of knowledge informed the design of E-folio's interactive video editing capabilities. Spiro and Jehng (1990) pioneered the exploration of computers for what they termed "random access instruction" (p. 165), in which the computer's capacity for reconfiguring information (e.g., connecting different clips from a video) is leveraged to help students make connections and draw conclusions at advanced levels of instruction. Learning how to teach foreign languages presents just such a problematic knowledge domain involving complex concepts that require varied and multiple perspectives. Much as Spiro and Jehng (1990) did with hypertext searching and retrieval of film clips from laser disks to support students writing analytical essays, E-folio provides our GSIs with tools for working with video clips that are accessed selectively from streaming sources and for embedding them in web-based hypertext documents.

In this course redesign project, funded through a University of Virginia Teaching + Technology Initiative Fellowship, the instructor videotaped the classroom teaching of 15 experienced GSIs, lecturers, and faculty teaching different levels of Spanish and Italian courses in our department. We hired a graduate student to compress the video files and add hinting (to allow the finding of specific segments in the video). The videos were then uploaded onto a streaming server and accessed through E-folio. At this stage, the videos were accessible only to the instructor, who edited short clips that tied in with specific learning units of the course. The archive of complete lessons and short video clips was then made available to the class as a whole, who could also view them through E-folio.

This video archive was used as a means to bridge theory and practice in our teacher education course. Short clips that would work well with the units of the course were selected and uploaded onto our E-folio course website, where GSIs viewed the clips and reflected on them in an online essay. For example, for the unit on Teaching Vocabulary, GSIs viewed three short video clips of an experienced teacher teaching vocabulary and then responded in a reflective essay,

guided by questions that helped them link the course readings to the video, and posted their essays on E-folio, where others could read and respond using the comment feature. In Figure 2, we see the archive of video clips, the preselected video clip open for an assignment, as well as the window displaying the assignment prompt for the reflective essay. In some assignments, GSIs were asked to select other videos from the archive to watch and to edit a short clip that represented for them best practices in that particular category (e.g., Teaching Vocabulary). Figure 3 shows the video-editing tool in E-folio and the video embedding process. In a subsequent semester, students responded to the model clips in a threaded discussion format. Viewing the preselected clips allowed us all to observe the same teaching event outside of class time and, together, evaluate in-depth the effectiveness of specific teaching techniques, practice activities, and classroom interactions that we saw in the video clips. Figure 4 summarizes the tools in E-folio that were used in the first redesign of the course.

Second redesign: Video and self-reflection. While the first course redesign was successful in bridging theory and practice, we still felt that many times, levels of reflection and analysis in assignments did not reach beyond a superficial level. The video archive was effective in delivering models of best practices of experienced teachers, but we wondered whether the use of video could enhance teacher learning even further. Our goal was to consider new ways of engaging GSIs to promote deeper levels of reflection and self-analysis. Video facilitated reflection on others' teaching, but could GSIs turn the video on themselves this time around to engage in meaningful self-reflection? We discovered that research on K-12 teacher education reported positive results on teacher learning from the integration of video annotation, editing, and self-videotaping (Geyer, 2008; Preston et al., 2005; Rich & Hannafin, 2008; Rosaen et al., 2008; van Es & Sherin, 2002; Yerrick et al., 2005). With the emergence of FlipCams, an inexpensive and easy-to-use pocket video camera, we were inspired to experiment with a new solution.

Studies have reported improved quality of teacher reflection in activities that incorporated videotaping and video editing and annotation (Preston et al., 2005; Rich & Hannafin, 2009), and so we carefully considered how these tools might be incorporated into our course. Many of the benefits of video integration described for the video archive of best practices apply here, as well. For example, video allows the teacher to view and replay the lesson multiple times and at his or her own pace, noticing details and different aspects of the teaching event each time. The availability of the recorded lesson also allows for some distance in time from the event, allowing the teacher to view the lesson from a more

Figure 1
The E-folio Interface
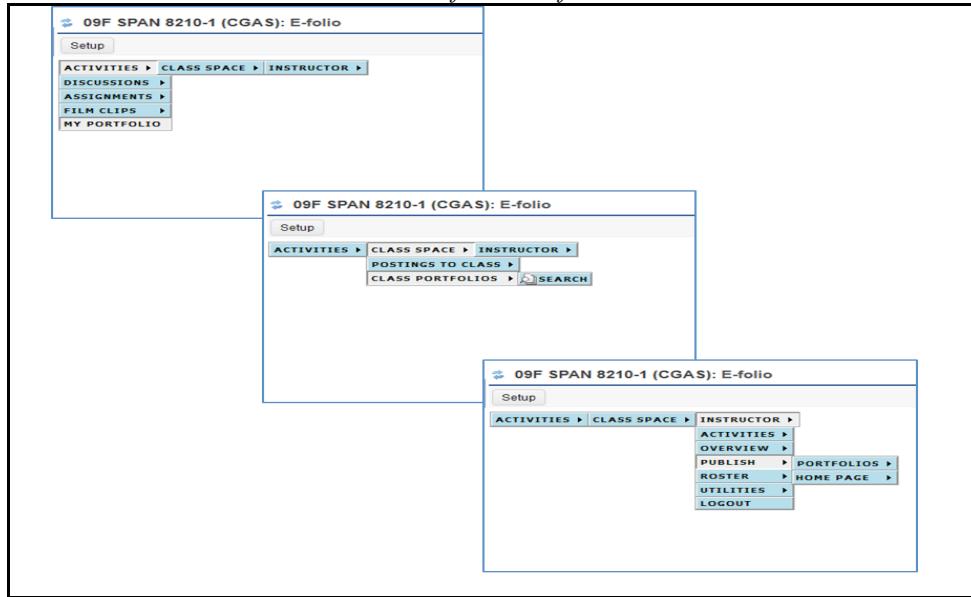
Note. This figure shows the three main panels in E-folio.

Figure 2
*The E-folio Video Archive With a Sample Clip Open*
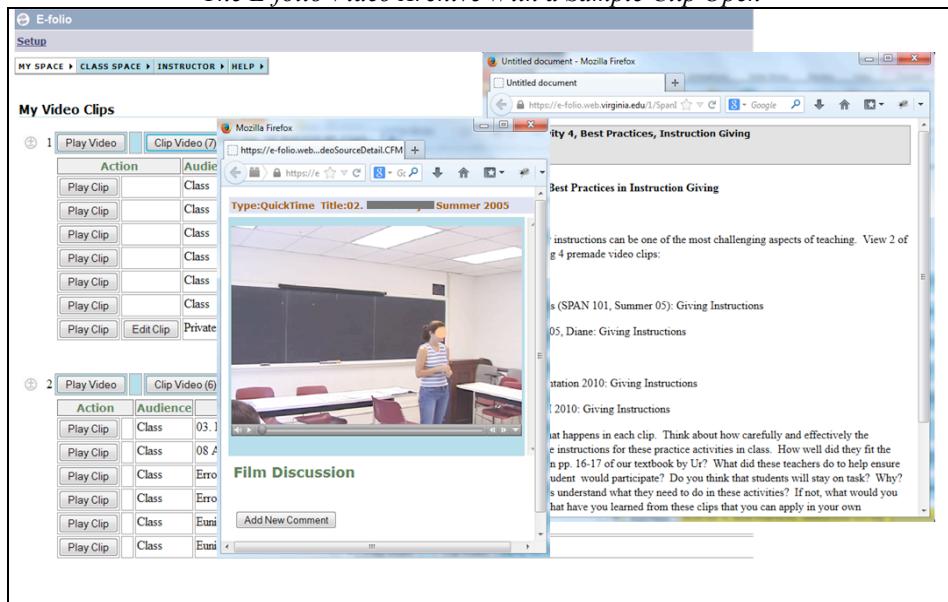
Figure 3

*Video Editing Dashboard and the Screen for Selecting and Embedding Video Clips*
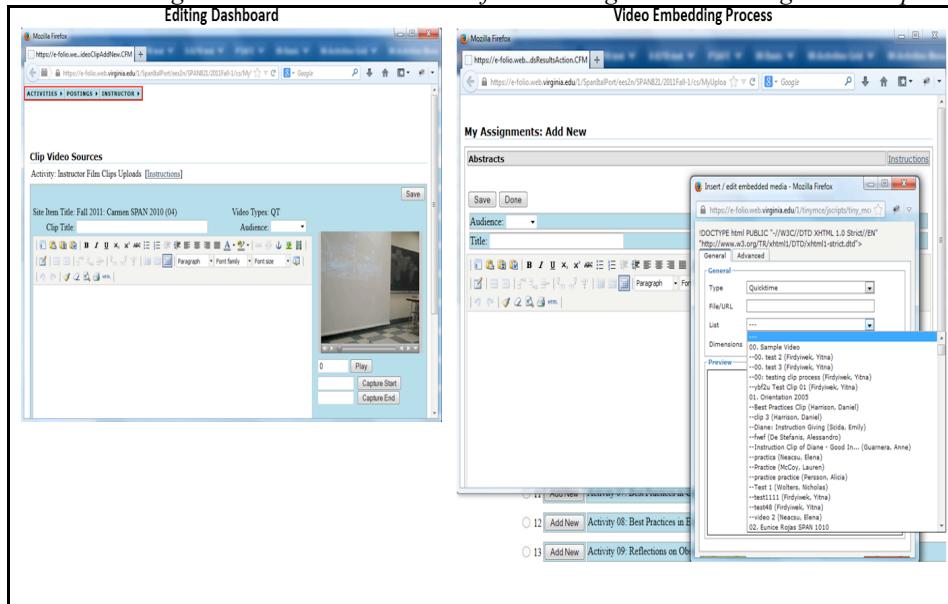
Figure 4

E-folio Tools Used in the First Redesign of the Course
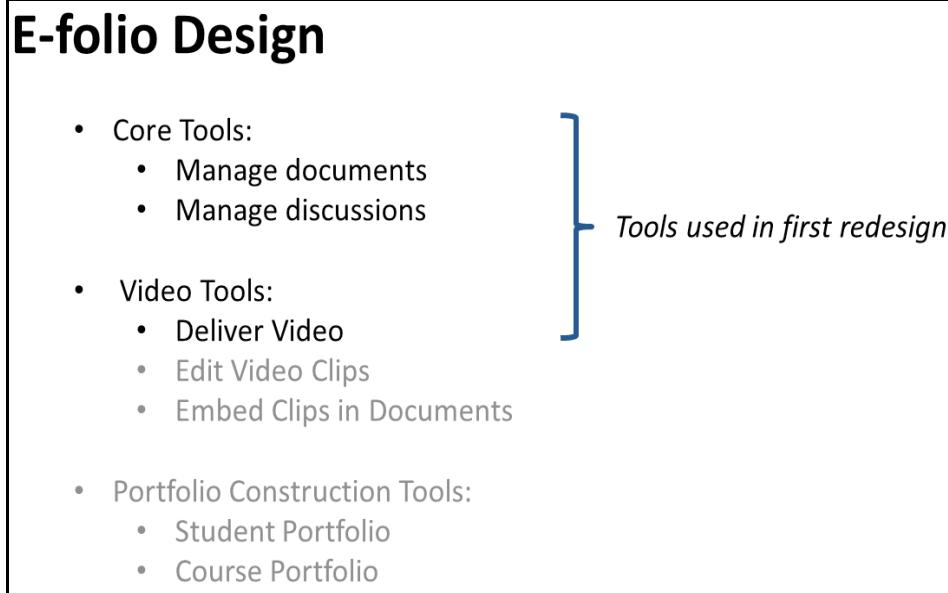
objective viewpoint and without the pressure to act or react at the moment of teaching. The ability to view the videotaped lesson repeatedly and as an objective viewer could contribute to more nuanced and meaningful reflections. In addition, video invites opportunities for sharing, collaboration, and participation in social reflection with peers, expanding the structures of learning to include peer mentoring, peer learning, and participation in a community of practitioners.

Technology. GSIs borrowed FlipCams from the instructor or from the Language Lab to videotape their own classroom teaching. Once finished, they submitted the FlipCam to the instructor, who then uploaded the video segment onto her computer. The video was then compressed, uploaded to the server, and placed as a streaming video onto our course E-folio site by either the instructor or faculty technology consultant. Video editing and embedding were done by the GSIs directly

in E-folio, where all videos were archived and all reflective assignments were submitted. The video management process for the second redesign is summarized in Figure 5.

In this iteration of the course, GSIs engaged in video reflection through two types of assignments (Scida & Firdyiwek, 2013). The first new assignment promoted both self- observation and peer observation through video. GSIs self-videotaped their classroom teaching and then reflected on the teaching event in two stages—first based on memory alone and then again after watching their videotaped lesson, comparing and contrasting the advantages and disadvantages of self-reflection based on memory and video-based reflection. On E-folio, GSIs watched their entire videotaped lesson and selected and edited short clips that demonstrated significant teaching or learning moments for them. GSIs shared these clips in our online video archive and embedded selected clips directly into their online reflective essays, as visual evidence for the arguments made in their writing. At the end of their essays, GSIs posed questions for their peer reviewer. The peer reviewer read the essay and watched the embedded video clips and then responded to the GSI's questions in the comment box.

The second new use of video reflection occurred in students' action research papers. Although the assignment itself was not new to this iteration of the course, the integration of video was new. The action research paper allows GSIs to investigate a teaching concern or interest from their own classroom during the course of the semester, posing research questions, developing a plan for addressing those questions, gathering and analyzing data, and evaluating the results of the research experiment. This time around, the data included self-videotaped lessons that the GSIs viewed, edited, and embedded directly into their research papers as evidence for ideas or arguments. As with all other assignments, the research paper was submitted and shared online, where the peer reviewer read the work and viewed the embedded clips, offering comments in the comment box. These technology implementations were intended to result in deeper levels of reflection, meaningful collaborations, and social reflection (Scida & Firdyiwek, 2013). Figure 6 displays those tools within E-folio that were used in the second redesign of the course.

Third redesign: ePortfolios and self-reflection. While we had encouraged use of all features of the E-folio throughout the first and second iterations of the course, it was not until the third redesign that we focused on a complete integration of the portfolio process in which we tried to bring together the pedagogy and the technology, emphasizing holistic reflection on learning through the affordances of the ePortfolio. Figure 7 shows those tools in E-folio that

were used to achieve these goals in the third iteration of the course.

The third technology implementation in this course redesign was the creation of online teaching portfolios, in which GSIs reflected on their development as teachers during the course of the semester, and of final ePortfolios, in which, at the end of the course, GSIs reflected on their own reflection and on the portfolio process. The primary goal of the teaching portfolio was the documentation by GSIs of their improvements, successes, and challenges during their first semester teaching, providing them with a mediational space to externalize and reshape their knowledge about teaching and learning and to appropriate new tools for continued development. The writing of the various reflective essays and final research paper that were included in the teaching portfolio was intended to promote learning goals such as critical thinking and self-reflection and application of theory and research to one's own teaching practices, as described above. The use of the online forum for the portfolios was intended to result in improved quality of student work, peer learning and collaboration, socialization to the teaching role, and professional preparation (Austin, 2002; Bellows, 2005).

The teaching portfolio included standard documents, such as a statement of teaching philosophy, as well as reflective essays on the video clips viewed online, teaching observations, and participation in teaching workshops. In addition, GSIs created lesson plans and new materials for use in their own teaching that corresponded to the units studied in the course (e.g., teaching vocabulary). These materials were shared with the other teachers in the course and in the department, on the E-Folio website. The project unfolded in stages: first, we used static clips with threaded discussions and basic teaching portfolios. Then we moved towards building a dynamic archive of videos that allowed GSIs to browse and view teaching videos and embed video clips directly into documents, which provided for a more robust portfolio. We found that the sharing of ideas through both the reflective essays and the creation of teaching materials online contributes to the socialization process experienced by GSIs as they begin to understand their role as members of a teaching community (Austin, 2002).

Data Collection and Analysis

To measure the effectiveness of each course redesign, we collected the following data sources: students' reflective essays, final action research papers, teaching portfolios, anonymous course evaluations, and anonymous online surveys. We analyzed the data for students' statements about their learning through reflection (individual, social, and holistic), on the effect

Figure 5
*Videotaping and Archive Management Process Involving GSIs, Instructor, and Technology Advisor*

1. Videotaping -- by Graduate Student Instructor
2. Video compression and "hinting" added for streaming – by Instructor, or Technology Advisor
3. Video uploaded to streaming server – by Technology Advisor
4. Video added to *E-folio* – by Instructor, or Technology Advisor
5. Video clipped and used in documents – by Graduate Student Instructor
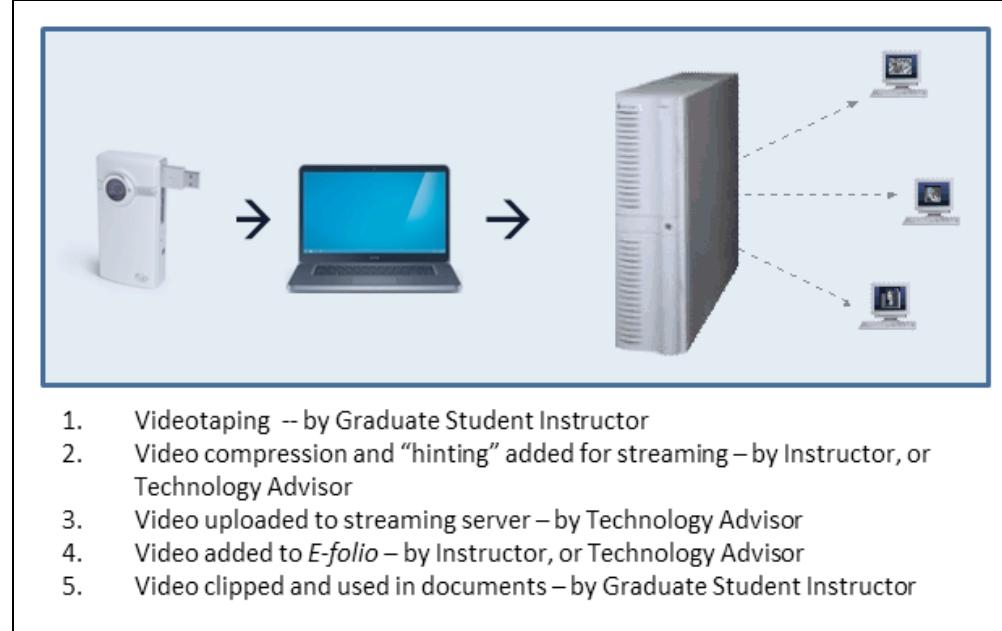
Figure 6
E-folio Tools Used in the Second Redesign of the Course

E-folio Design

- Core Tools:
  - Manage documents
  - Manage discussions

- Video Tools:
  - Deliver Video
  - Edit Video Clips
  - Embed Clips in Documents

Tools used in second redesign

- Portfolio Construction Tools:
  - Student Portfolio
  - Course Portfolio
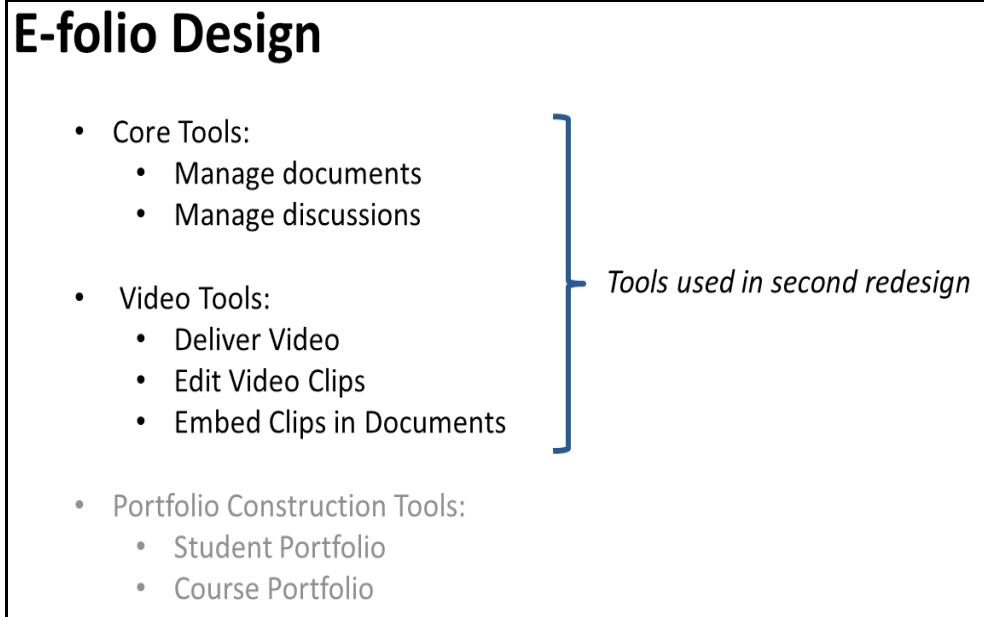
Figure 7
E-folio Tools Used in the Third Redesign of the Course

E-folio Design

- Core Tools:
    - Manage documents
    - Manage discussions

- Video Tools:
    - Deliver Video
    - Edit Video Clips
    - Embed Clips in Documents

- Portfolio Construction Tools:
    - Student Portfolio
    - Course Portfolio

Tools used in third redesign
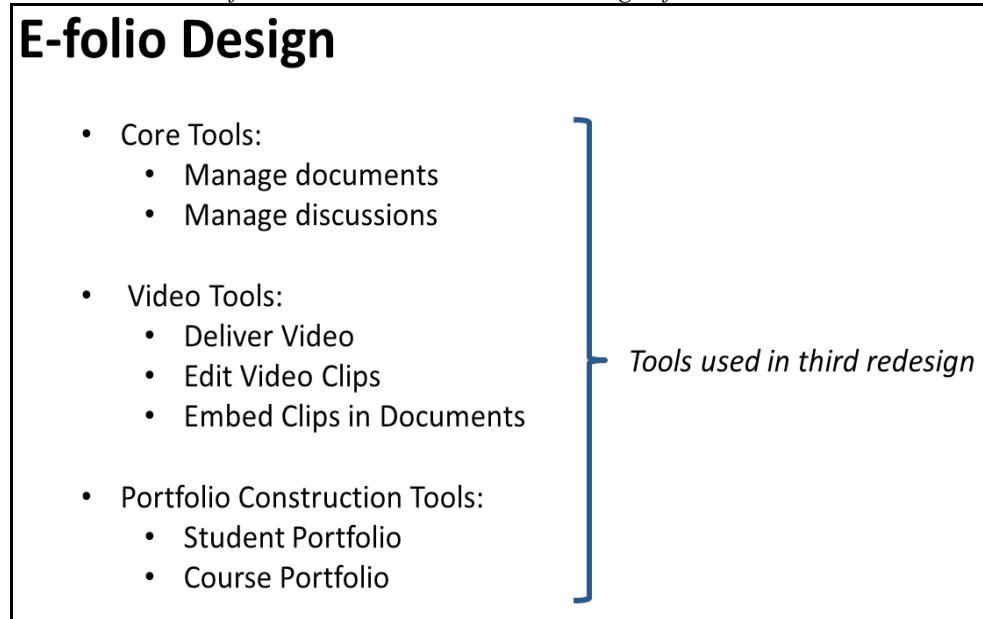
of the use of video tools and of E-Folio on their development, as well as their reactions to the technologies. We examined the data for evidence that each course redesign had achieved or not achieved the particular goals of that iteration. We used the results of the data analysis of each iteration to rethink the interplay between technology and pedagogy and to develop new course design objectives based on the successes and failures of the prior course iteration.

Results

First Course Redesign

The goals of the first redesign were to bridge theory and practice in teaching and to support the application of theory to the GSI's own teaching practices, through a video archive of best practices. The benefits of observing the classroom teaching of other teachers (in person or on video) are numerous. Richards (1995) noted that "peer observation exposes teachers to different teaching styles and, at the same time, provides them with opportunities for critical reflection on their own teaching" (p. 60). In having everyone "observe" the same teaching event (through an online video clip), GSIs were able to contribute to more thoughtful and meaningful discussions during class time, and the critical analysis of the classroom events (of the clip) was much improved from prior semesters. Not only were GSIs better able to make connections between theory and practice, but they could also apply research

and readings to a real teaching situation. One GSI noted: "I thought that the clips were especially useful because they targeted one specific teaching area, which coincided with what we were reading outside of class and discussing in class."

As models of best practices in teaching, the clips served to inspire self-reflection about one's own teaching effectiveness by providing new ideas for teaching techniques, material use, or problem solving. The video clips prompted the following teacher to think more critically about his approach:

> I think the most important lesson I received from viewing this clip is that it made me evaluate my grammar presentation method . . . Therefore, I believe the take-away lesson here is that every good lesson plan needs to have a balance of inductive and deductive approaches in order to assure that all students can benefit.

In many cases, the video clips provided models of approaches or techniques that GSIs could appropriate into their own classroom teaching:

> I think that something I could learn from these clips is to always be aware of the way in which I correct students, so that I can make sure that they will learn from their mistakes. It doesn't help to correct students if they continue to make the same mistakes over and over again, so the correction techniques I use should be ones that will teach

them the reason why they made the mistake in the first place and show them how to fix it both in that specific case and in the future.

The use of video clips makes it easier to give GSIs multiple examples of teaching practices for the benefits outlined above. Hansen (1990) noted that new teachers "need to see a large variety of models in order to build a repertoire that allows them to develop a sense for subtle differences" (p. 19).

One of the benefits of the online forum is that it provides a medium for both observation and reflection—the clips allow GSIs to observe a certain aspect of teaching, practice it in their own classroom, and reflect on its effectiveness (Hansen, 1990). For some GSIs in the course, the video clips motivated interest in a particular topic for their action research paper. GSIs also benefited from the peer learning involved in the sharing and viewing of teaching events by other teachers in the program. The commenting feature of E-Folio allowed GSIs to read and respond to each other's reflections on the clips and to consider other points of view on the same teaching event, fostering social reflection. It has been suggested that reflection is both an individual and social process, and that social interaction may promote deeper reflection (Hansen, 1990; Lord & Lomicka, 2007). The online forum used here afforded GSIs an opportunity for continued discussion outside of class time. In addition, the reflective writing associated with viewing the clips encouraged GSIs to watch the clips repeatedly and at their own pace in order to respond to the writing prompt thoroughly: "The reflective writing caused me to watch the clips many times to be sure I was extracting as much as I could from them."

GSIs noted both the advantages and disadvantages of video-based teaching observation versus in-person observation. While video observation was more convenient, less time-consuming, and more helpful in stimulating critical reflection on a specific aspect of teaching that corresponded to course readings, potential drawbacks of the video clips included limited analysis and limited observer view. Another remark pointed to the value of whole-class viewing and discussion of the video clips to further the analysis during class time, continuing the online reflection into the classroom. At the end of this iteration of the course, we reflected carefully on these and other student observations and responded to them by implementing changes in subsequent offerings of the course. For example, in subsequent semesters we included both direct observations and video-based observations in reflective assignments. In response to student observations about the value of in-class reflection, we added video clip viewing during class time to generate whole class reflection.

Looking back, we concluded that this course redesign was successful in helping GSIs see connections between research on teaching and learning and real classroom practices. The technology implementations—the video clip archive and E-folio site—effectively supported this pedagogical goal by making theory and teaching approaches come to life. In addition, viewing the video clips prompted GSIs to make comparisons between techniques that they saw in the videotaped class and their own personal classroom techniques, and E-folio successfully supported their self-reflection and critical analysis. While we were satisfied with the interaction of pedagogy and technology at this stage, we concluded that levels of student reflection could be improved. In our next course redesign, we aimed to address this concern.

Second Course Redesign

Our goal in the second redesign was to consider new ways of engaging GSIs to promote deeper levels of reflection and improved self-analysis, in both individual and social reflection. Data gathered from teachers' reflective essays in this iteration demonstrate that GSIs were able to engage successfully in self-reflection and social reflection with their peers, through self- and peer video observation. In the video self-observation activity, GSIs noted the benefits of observing their own teaching on video, which allowed them to notice facets of their teaching or classroom dynamics that they otherwise could not and inspired them to appropriate new ways of thinking about their teaching decisions. In the following excerpt, video has prompted the teacher to reflect on himself—his actions, behavior, and decisions in the classroom:

> After watching this video, I am aware that I spent far too much time drilling in the repetition of verb forms. While it is important to memorize the conjugations of verbs, my lesson would have been much better if I have used the verbs in the context of a sentence that communicated their definition and how they are used. Instead of spending lots of time eliciting repetitive conjugations from the students, I should have spent more time with communicative activities.

In this iteration of the course, the online discussion component became more prominent, as GSIs read and commented on each other's video-based reflections, engaging in self- and peer observation. In comparison to the best practices reflection, where the focus was on another teacher, this time the focus of the reflection was the GSIs themselves. To promote more substantive discussion online among peers (social reflection), we asked GSIs to pose questions at the end of their reflective essay for their peers to

respond to in the comment box. The following excerpt from a reflective essay demonstrates the beginning of the collaboration between GSI and her peer as she poses questions for her partner:

> The second teaching issue that I describe here was also noted by a peer observer of my class. Here, while monitoring a grammar activity I walk around the class to monitor the activity. The problem is that it is a passive monitoring of the class. I help the students who ask for help, but fail to check in with all of the students to see if they are on the right track. I am wondering if it is necessary to check in with all students? When I do check in, how do I decide which errors to correct? Is complete accuracy necessary for learning?

The video reflection and the use of the comment box embedded in each reflective essay prompted meaningful and valuable exchanges between GSIs and resulted in collaborations in tackling common problems, sharing ideas, peer mentoring, and social reflection. The availability of the online forum allowed teachers to continue to dialogue on teaching matters outside of the course and the work environment. In the comment in Figure 8, the GSI references her partner's video and then offers support and advice.

In their action research papers, GSIs were able to use embedded video clips as evidence or support for their ideas, making the research paper come to life for the author and the reader. The following excerpt comes from a teacher's research paper:

> In the next step you will see another video clip of [group 2] working on the exact same exercise in pairs. The [group 1] students in this clip are successfully completing the exercise they have been assigned but the difference in the two clips is striking. It is actually hard to believe that the two groups are working on the same thing . . . The volume of language here is higher than during the rest of the lesson but still very low relative to G2's lesson.

As we can see from teacher reflections, video brought to life aspects about their teaching and classroom dynamics that they may not otherwise have noticed and opened up opportunities for peer collaboration, sharing of ideas, and social reflection to establish an online community of practitioners.

Reflecting on this course redesign, our primary objective was to promote deeper levels of reflection and more substantive discussions and peer interaction. The technology implementations—self-videotaping, editing, and embedding—allowed GSIs a window into their own teaching practices and also supported more detailed,

specific, and meaningful self-reflections. The E-folio site again supported this reflection, as well as peer interaction and social reflection, and gave GSIs all the tools they needed for video editing and for embedding and posting and sharing of written work. We saw that these technologies supported individual and social reflection effectively, and in our next course design iteration we asked whether these same tools might help GSIs appropriate reflection on reflection—holistic reflection on their reflective work as well as on reflection as a tool for continued professional development.

Third Course Redesign

Moving from individual and social reflection in the first two redesigns, the primary goal of the third course redesign was holistic reflection—the documentation of and reflection on the teacher's improvements, successes, and challenges during his or her first semester in teaching, as well as reflection on reflection as a tool and on the portfolio process. Results of the data collected in this iteration were positive. GSIs noted that the reflective work prepared for inclusion in the portfolio prompted critical thinking about their own teaching practices, providing them with a mediational space to externalize and re-conceptualize their knowledge about language teaching and learning:

> Integral to this growth has been the continual process of reflection and self-evaluation that is documented in this portfolio. This process has allowed me to examine my motivations and values as an educator in order to make more informed decisions in the classroom.

In addition, they recognized the impact of reflection as a process and tool that they can take beyond the course to further their professional development:

> This portfolio serves as a tool for me to use as I continue my career as a teacher. I believe that each part of my portfolio functions as an important piece in the overall picture of what I have learned this semester.

The online forum used for the teaching portfolios promoted peer learning and collaboration, socialization to the teaching role, development of professional identity, and participation in a community of practitioners:

> Making this teaching portfolio afford[ed] me an opportunity to reflect on my teaching style in a comprehensive manner. This experience has been a great tool for self-analysis. Besides, one of the most important aspect of doing this portfolio was the systematic exchange of ideas with other educators.

Figure 8
E-folio Discussion Board Exchange

As Bass (2012) stated, "e-portfolios can be powerful environments that facilitate or intensify the effect of high-impact practices. As tools of integration, they also help students make connections and think about how to present themselves, their work, and their learning to an audience" (p. 30). With the development of ePortfolios online, GSIs could more easily access, share, and evaluate each other's teaching materials, generating a true collaborative community of teachers and allowing them to engage in reflection as a social process. In addition, GSIs took greater responsibility for their own teaching improvements, and their quality of work was improved because of the public nature of the online collaborative medium (Hatton & Smith, 1995; Lord & Lomicka, 2007; Shoffner, 2008). In designing new course materials for use in their own teaching, GSIs focused on improving student learning outcomes in their courses. Finally, the portfolio served to document ongoing professional development, with concrete evidence of teaching improvement, reflection, and learning, a document that will serve them well when on the job market or for tenure and promotion (Seldin, 2003). It is our hope that the ePortfolio, with reflection on reflection and on the portfolio process, will extend beyond the teacher education course, becoming a life-long habit of self-reflection and experimentation for each GSI, with the ultimate goals of more effective teaching and improved student learning. In this third redesign, GSIs leave the course with a product—their teaching portfolio saved and downloaded to a CD-ROM—for future development. In the end, the process of creating a teaching portfolio helps GSIs to situate themselves as members of a community of practitioners and to articulate their own attitudes and beliefs about teaching and learning (Austin, 2002; Bellows, 2005).

Discussion and Conclusion

Preparation of future faculty should address graduate students' need for experimentation and reflection on teaching and learning, as well as socialization to their new roles as teachers and scholars, through engagement in authentic activities and contexts. The integration of instructional technologies into a teacher education course can provide the mediational space to promote these objectives in the following ways. First, reflective writing in an online forum creates an environment for individual as well as social reflection, while the creation of a teaching portfolio allows for holistic reflection on teacher learning. By collaborating and sharing reflections, ideas, and materials online, GSIs contribute to an online community of teachers. The act of participating in social reflection promotes deeper critical thinking about one's own teaching practices and exposes one to a variety of views and ideas (Hansen, 1990; Lord & Lomicka, 2007).

These technology integrations and the creation of online portfolios both contribute to teacher preparation

and ongoing professional development and also expose future faculty to the benefits of traditional and innovative technologies that will inform their own decisions about instructional technology use in their classes. The reflective activities and technological tools that teachers appropriate to advance their own development could be leveraged to support student learning in the courses that they teach: an online learning portfolio could create the mediational space for individual and social reflection, collaboration and peer learning, and the creation of a community of learners, whether in foreign language courses or in other disciplines that emphasize holistic learning.

In our course, the trajectory of curricular focus on individual, social, and then holistic reflection has been prompted by both innovations in technologies and shifts in the teaching/learning paradigm and changing curricular goals. In the first redesign, an archive of video clips was integrated to bridge theory and practice in teacher reflections. The success of this implementation and the emergence of FlipCams prompted us to take videotaping one step further in the second redesign, incorporating self-observation through video to support deeper levels of teacher reflection and social reflection. In the third redesign, we asked whether these tools could foster holistic reflection on learning through the affordances of the ePortfolio. As Bass (2012) stated,

> The team-based model asks not only how . . . instructional experts might collaborate with faculty on a new design but also how some of them [e.g., academic and IT support staff] might play a role in the delivery of the course so that not all of the burden of the expanded instructional model falls on the instructor. (p. 32)

The three iterations of the course were the result of the dynamics of reflective, team-based course design, where each of us brought our expertise to work toward instructional goals we held in common.

References

Abrami, P. C., & Barrett, H. (2005). Directions for research and development on electronic portfolios. *Canadian Journal of Learning and Technology, 31*(3), 1-15.

Austin, A. E. (2002). Preparing the next generation of faculty: Graduate school as socialization to the academic career. *Journal of Higher Education, 73*(1), 94-122. doi:10.1353/jhe.2002.0001

Barr, R. B., & Tagg, J. (1995). From teaching to learning—A new paradigm for undergraduate education. *Change, 27*(6), 13-25. Retrieved from http://www.maine.edu/pdf/BarrandTagg.pdf

Barrett, H., & Carney, J. (2005). *Conflicting paradigms and competing purposes in electronic portfolio development.* Retrieved from http://electronicportfolios.org/portfolios/LEAJourn al-BarrettCarney.pdf

Bass, R. (2012). Disrupting ourselves: The problem of learning in higher education. *EDUCAUSE Review, 47*(2), 23-33.

Batson, T. (2011). Situated learning: A theoretical frame to guide transformational change using electronic portfolio technology. *International Journal of ePortfolio, 1*(1), 107-114. Retrieved from http://www.theijep.com/pdf/IJEP34.pdf

Bellows, L. (2005). Assessing the academic and professional development needs of graduate students. *To Improve the Academy, 23*, 267-283.

Bryan, L., & Recesso, A. (2006). Promoting reflection among science student teachers using a web-based video analysis tool. *Journal of Computing in Teacher Education, 23*(1), 31-39.

Calandra, B., Gurvitch, R., & Lund, J. (2008). An exploratory study of digital video editing as a tool for teacher preparation. *Journal of Technology and Teacher Education, 16*(2), 137-153.

Cambridge, B. L. (Ed.). (2001). *Electronic portfolios: Emerging practices in student, faculty, and institutional learning.* Sterling, VA: Stylus.

Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment.* San Francisco, CA: Jossey-Bass.

Darling-Hammond, L., & Snyder, J. (2000). Authentic assessment of teaching in context. *Teaching and Teacher Education, 16*(5), 523-545. doi:10.1016/S0742-051X(00)00015-9

Davis, E. (2006). Characterizing productive reflection among preservice elementary teachers: Seeing what matters. *Teaching and Teacher Education, 22*, 281-301. doi:10.1016/j.tate.2005.11.005

Dewey, J. (1933). *How we think.* Chicago, IL: Henry Regnery.

Dhonau, S., & McAlpine, D. (2002). "Streaming" best practices: Using digital video-teaching segments in the FL/ESL methods course. *Foreign Language Annals, 35*(6), 632-636. doi:10.1111/j.1944-9720.2002.tb01901.x

Diez, M. E., Hass, J. M., Henn-Reinke, K., Stoffels, J. A., & Truchan, L. C. (1998). *Changing the practice of teacher education.* Washington, DC: AACTE.

Elbow, P., & Belanoff, P. (1986). Portfolios as a substitute for proficiency examinations. *College Composition and Communication, 37*(3), 336-339. doi:10.2307/358050

Fink, L. D. (2003). *Creating significant learning experiences.* San Francisco, CA: Jossey-Bass.

Gebhard, J. G. (1999). Reflecting through a teaching journal. In J. G. Gebhard & R. Oprandy (Eds.),

Language teaching awareness: A guide to exploring beliefs and practices (pp. 78-98). Cambridge, UK: Cambridge University Press.

Gery, G. J. (1991). *Electronic performance support systems: How and why to remake the workplace through the strategic application of technology*. Boston, MA: Weingarten.

Geyer, N. (2008). Reflective practices in foreign language teacher education: A view through micro and macro windows. *Foreign Language Annals*, *41*(4), 627-638. doi:10.1111/j.1944-9720.2008.tb03321.x

Hansen, E. (1990). The role of interactive video technology in higher education: Case study and a proposed framework. *Educational Technology, 30*(9), 13-21.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education, 11*(1), 33-49. doi:10.1016/0742-051X(94)00012-U

Hewitt, J., Pedretti, E., Bencze, L., Vaillancourt, B., & Yoon, S. (2003). New applications for multimedia cases: Promoting reflective practice in preservice teacher education. *Journal of Technology and Teacher Education, 11*(4), 483-500.

Johnson, K. (1999). *Understanding language teaching: Reasoning in action.* Boston, MA: Heinle & Heinle.

Johnson, K. E. (2009). *Second language teacher education: A sociocultural perspective*. New York, NY: Routledge.

Johnson, K., & Golombek, P. (2003). "Seeing" teacher learning. *TESOL Quarterly*, *37*(4), 729-737. doi:10.2307/3588221

Lantolf, J. (Ed.). (2000). *Sociocultural theory and second language learning*. Oxford, UK: Oxford University Press.

Larson, R. A. (1991). Using portfolios in the assessment of writing in the academic disciplines. In P. Belanoff & M. Dickson (Eds.), *Portfolios: Process and product* (pp. 137-152). Portsmouth, NH: Boynton/Cook.

Lord. G., & Lomicka, L. (2007). Foreign language teacher preparation and asynchronous CMC: Promoting reflective teaching. *Journal of Technology and Teacher Education, 15*(4), 513-532.

Maclean, R., & White, S. (2007). Video reflection and the formation of teacher identity in a team of pre-service and experienced teachers. *Reflective Practice, 8*(1), 47-60. doi:10.1080/14623940601138949

Preston, M., Campbell, G., Ginsburg, H., Sommer, P., & Moretti, F. (2005). Developing new tools for video analysis and communication to promote critical thinking. In P. Kommers & G. Richards (Eds.), *Proceedings of world conference on educational multimedia, hypermedia, and telecommunications 2005* (pp. 4357-4364). Chesapeake, VA: AACE.

Rich, P., & Hannafin, M. (2008). Capturing and assessing evidence of student teacher inquiry: A case study. *Teaching and Teacher Education, 24*, 1426-1440. doi:10.1016/j.tate.2007.11.016

Rich, P., & Hannafin, M. (2009). Video annotation tools: Technologies to scaffold, structure, and transform teacher reflection. *Journal of Teacher Education, 60*(1), 52-67. doi:10.1177/0022487108328486

Richards, J. C. (1995). Towards reflective teaching. *English Teacher's Journal, 48*, 59-63.

Richards, J. C. (2008). Second language teacher education today. *Regional Language Centre Journal, 39*(2), 158-177. doi:10.1177/0033688208092182

Richards, J. C., & Lockhart, C. (1994). *Reflective teaching in second language classrooms.* Cambridge, UK: Cambridge University Press.

Rosaen, C., Lundeberg, M., Cooper, M., Fritzen, A., & Terpstra, M. (2008). Noticing noticing: How does investigation of video records change how teachers reflect on their experiences? *Journal of Teacher Education, 59*(4), 347-360. doi:10.1177/0022487108322128

Schön, D. (1987). *Educating the reflective practitioner*. New York, NY: Basic Books.

Scida, E., & Firdyiwek, Y. (2013). Video reflection in foreign language teacher development. In H. W. Allen & H. H. Maxim (Eds.), *Issues in language program direction: Educating the future foreign language professoriate for the 21st century* (pp. 231-237). Boston, MA: Heinle.

Seldin, P. (2003). *The teaching portfolio—A practical guide to improved performance and promotion/tenure decisions* (3rd ed.). Boston, MA: Anker.

Sherin, M. (2004). New perspectives on the role of video in teacher education. In J. Brophy, (Ed.), *Using video in teacher education* (pp. 1-27). London, UK: Elsevier.

Sherin, M., & van Es, E. (2009). Effects of video club participation on teachers' professional vision. *Journal of Teacher Education, 60*(1), 20-37.

Shoffner, M. (2008). Informal reflection in pre-service teacher education. *Reflective Practice, 9*(2), 123-134. doi:10.1080/14623940802005392

Spiro, R., & Jehng, J. C. (1990). Cognitive flexibility and hypertext: theory and technology for the nonlinear and multidimensional traversal of complex subject matter. In D. Nix & R. Spiro (Eds.), *Cognition, education, and multimedia: Exploring ideas in high technology*

(pp. 163-206). Mahwah, NJ: Lawrence Erlbaum.

Ur, P. (1996). *A course in language teaching: Practice and theory*. Cambridge, UK: Cambridge University Press.

van Es, E., & Sherin, M. (2002). Learning to notice: Scaffolding new teachers' interpretations of classroom interactions. *Journal of Technology and Teacher Education, 10*(4), 571-598.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language*. Boston, MA: MIT Press.

Yancey, K. B., & Weiser, I. (Eds.). (1997). *Situating portfolios: Four perspectives*. Logan, UT: Utah State University Press.

Yerrick, R., Ross, D., & Molebach, P. (2005). Too close for comfort: Real-time science teaching reflections via digital video editing. *Journal of Science Teacher Education, 16*, 351-375. doi:10.1007/s10972-005-1105-3

Zeichner, K. M., & Liston, D. P. (1996). *Reflective teaching: An introduction*. Mahwah, NJ: Lawrence Erlbaum.

Zeichner, K., & Wray, S. (2001). The teaching portfolio in US teacher education programs: What we know and what we need to know. *Teaching and Teacher Education, 17*(5), 613-621. doi:10.1016/S0742-051X(01)00017-8

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