

Eliciting and Assessing Reflective Practice: A Case Study in Web 2.0 Technologies

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This paper focuses on the role of multimodal technologies in facilitating reflective processes and the subsequent assessment of reflectivity for students in pre-professional programs. Reflective practice has been established as a critical tool for developing identity in and on practice. This paper will focus firstly on reviewing salient literature about reflective practice and its use with pre-professional teachers. It will then report the processes and outcomes of the authors' practices, as supported by the literature. Various reflective practices will be examined and explained. The role of the E-Portfolio (Electronic Portfolio) as the vehicle for housing student reflective practice will be briefly explored and the process for using author-developed rubrics for assessing levels of reflective practice will also be shared. Suggestions for replication in other disciplines, while being implicit, will also be made explicit.

Authentic and principled reflective thinkers know how to make meaning across their experiences and use their emerging understandings to advance their learning. This paper explores the potential of rethinking pedagogy given web 2.0 technologies that allow us to question, re-imagine, and leverage the roles of audience, voice, and identity in fostering students' reflective practice. Following discussion of relevant literature across several fields, the current paper will share examples of "multimodal" reflective practice and evaluative rubrics used to assess student work and growth. Exploration will include design and application of assessment rubrics and engagement with the web 2.0 tools. Key strategies of evaluating reflective material will be identified and shared using examples from across several disciplines. The relevant literature and theoretical supports for the use of reflective practice, and E-Portfolio as a vehicle for reflective practice, will be briefly overviewed.

Review of the Literature

With the exception of progressive work in higher education in regard to improving the quality of teaching, such as the work of the International Society for Exploring Teaching and Learning, (ISETL, 2010) little information is available in regard to if, or how, faculty use reflective practice on a wide and regular basis. Some evidence in this area is found with pre-professional teacher programs that are required to show evidence of the students' journey from student-teacher to teacher for national accreditation. At the higher education level, it is tacitly assumed that all teacher education programs utilize reflective practice. Examining the support for reflective practice in both undergraduate and graduate students assists in illuminating a potential use for all faculty in higher education in an important way: namely, that faculty can incorporate reflective practice for their own students in

fields other than teacher education and utilize E-Portfolio as the conduit for examining reflective practice across several modalities. Reflective practice at its base allows faculty to examine what students think they know, understand, or experience in educational settings. It adds an additional product level of assessment for faculty to evaluate what students know and can do. Examining students' reflection gives faculty insights into metacognition, but the reflective practices and processes themselves can also be assessed and evaluated.

Van Manen (1977) initially proposed the existence of levels, or strata, within reflection. He put forward the notion of "co-orientational grasping," by which he meant "that one person partakes in the orientation of another" (p. 213). Specifically, he suggested that this practical reflection could contribute understandings and critical reflections and, furthermore, could be stratified into three levels. The first level was focused on the practical means, rather than the ends (p. 226), the second was concerned with analyzing and clarifying experiences, whereas the third, and highest level, included questioning pre-established knowledge, conventions, and experiences. It was established early in the literature that reflectivity can be pursued at a variety of levels.

Schön (1983) went on to further describe the verbal and nonverbal thinking entailed as the structure of *reflection-in-action* (pp. 128-167) and illustrated his concepts through disciplines as diverse as psychotherapy to architecture. He discussed the reframing of problematic situations (p. 129) as a process of reflectivity. In his later work, (1987) he articulates the notion of *reflection-on-action*, where one reflects upon aspects of an event after the fact. He makes the point that the professionals who receive guidance and encouragement, and who think carefully about what they do while they are doing and experiencing it, will typically learn in a more profound

way. This thinking has been subsequently supported in the more recent literature of teacher education.

The focus of this paper is teacher education, and specifically music and English teacher preparation, but connections can be made across different disciplines and will be made explicit in the discussion section of the current paper. Teaching is “a process of ongoing learning, reflection and decision making” that develops over the course of multiple stages of pre-professional teachers’ education (Barr et al., 2000, p. 464). Beginning with undergraduate studies, pre-professional teachers develop their knowledge through academic coursework. Subject-specific content knowledge develops through the pre-professional teachers’ content-specific coursework, but pedagogical content knowing (PCKg) does not typically begin to develop until pre-professional teachers are provided with opportunities to apply subject-specific content knowledge to actual teaching or professional situations (Cochran, DeRuiter, & King, 1993; Wilson, Shulman, & Richert, 1987).

PCKg is defined by Cochran et al. (1993) as “a teacher’s integrated understanding of four components, pedagogy, subject matter content, student characteristics, and the environmental context of learning” (p. 266). For the purposes of this paper, pedagogical content knowing includes teachers’ purposes for teaching content, knowledge of students’ content understandings (and potential misunderstandings), knowledge of curriculum and materials, and knowledge of instructional strategies for teaching particular topics within the context of their internship settings. As Grossman (1991) explains, “Teachers must draw upon both their knowledge of subject matter to select appropriate topics and their knowledge of students’ prior knowledge and conceptions to formulate appropriate and provocative representations of the content to be learned” (p. 9).

The literature in the teacher education field has emphasized the importance of reflective practice in leading pre-professional teachers to restructure prior understandings and refine pedagogical thinking (Schön, 1987; Calandra, Gurvitch, & Lund, 2008). This is especially critical during the semester in which students complete their student teaching placement while compiling a culminating E-Portfolio (and accompanying defense/hearing/oral presentation). Fenstermacher (1994) is useful here in terms of understanding what it means to reflect on one’s practice in a deliberate manner:

Yet another way to justify that we know something is to offer good reasons for doing or believing it... the reasoning of the teacher takes place in folk or commonsense language... Reasoning of the sort I am referring to here is what Aristotle called

phronesis: deliberative reflection of the relationship between means and ends. (pp. 44-45)

Building on this understanding, Posner (2005) argues, “If preservice teachers do field experience without thinking deeply about it, if [they] merely allow [their] experiences to wash over [them] without savoring and examining them for their significance, then [their] growth will be greatly limited” (p. 3). Pre-professional teachers’ accounts of well remembered events and critical incidents can serve as important ways to provide good reasons for their actions and understandings within the context of their program and thus serve as a way for them to begin to articulate their PCKg. While recent scholarship continues to advocate for providing pre-professional teachers with opportunities to exercise reflective practice, the authors did not know how the use of assessments or rubrics might elicit, support and capture students’ growth as deliberative reflective practitioners.

Where methods courses typically have included written reflections to exercise and engage pre-professional teachers’ reflective thinking (Smagorinsky & Whiting, 1995), these approaches are subject to selective memory and lack of supportive evidence (Yerrick, Ross, & Molebash, 2005). The authors chose to conduct a comparative research study (authors, in review) where firstly they wanted to establish how our students’ reflective practice differed with different modalities of expression. The authors, as faculty and researchers, asked the students firstly to write a blog post (print text log) every second week, and on the weeks in between, the authors asked students to create and post a Vlog entry (video log) about their experiences. A Vlog is a recorded video of the student speaking while thinking back across their practice, understandings, and sometimes mis-understandings of, and in, their actions in the field. Results of this study are being reported elsewhere (authors, in review) as to the differences in how students used the blog and vlog media; however, the practices employed to elicit that reflective practice, as well as the design of appropriate assessment tools for that work, will be illustrated in this paper.

Multimodal, digital tools such as blogs and vlogs were intentionally selected to support and reflect a valuing of the increasingly multimodal nature of forms of representation. Current reform efforts in K-12 schools have emphasized value in a pedagogy of multiliteracies in which learning how to read and write multimodal texts is integrated alongside learning how to construct and communicate through alphabetic texts (Kress, 2003; New London Group, 1996). Multimodal representation is complex and largely unfamiliar to the pre-professional students entering some graduate programs, but in authentically utilizing the affordances

of several complementary modes of communication, students are quick to value the ease on the semantic load placed on written language when composing is limited to print text (Shoffner, 2009; Kajder, 2007). The selection of these modalities and forms of writing also derived from the authors' valuing of language and writing as a dynamic process of transformation, as opposed to a process of reproduction (Cope and Kalantzis, 2009). By modeling such a pedagogy within our methods course instruction, the current authors were both opening up what counted as valued communication within the graduate courses and modeling a pedagogy that aimed at a more productive, innovative, and creative use of meaning making, reflective practice, and subsequent development of teachers' identity and agency.

Reflective Practice and E-Portfolio

As evidenced above, reflective practice is seen to be one of the single most helpful strategies a student can employ to further their understandings. As much as we, the authors, focused on multimodal spaces for capturing and eliciting students' reflective thinking, students in both programs were concurrently developing E-Portfolios designed to capture their pedagogical growth over time. There has been ongoing debate as to the benefits or problems with the use of EPortfolio (Georgi & Crowe, 1998), but it is accepted as appropriate for teacher education (Barton, 1993). It has potential for other disciplines, particularly for the following areas: (1) integration: the ability to make connections between theory and practice, (2) explicitness: the student's focus on the specificity of purpose for the E-Portfolio, (3) authenticity: the E-Portfolio provides direct links between artifacts included and classroom practice, and (4) critical thinking: provided by the opportunity to reflect on change and growth over a period of time. It seems reasonable to expect that the areas of integration, explicitness, and critical thinking hold saliency for all higher education teaching and learning settings.

It is important to have students reflect in effective ways rather than merely run through a mental checklist of their knowledge or perceptions. Fernsten & Fernsten (2005) give three important notions for where to start. They suggest providing safe and supportive environments whereby students can be honest when adding reflective pieces to E-Portfolios (p. 304). They also point out that students need to be given "adequate and strategic prompts" (p. 305), and finally they advocate for "developing understandings of a shared discourse" (p. 306) whereby students have access to definitions, models, and feedback about their reflections. Reflectivity is the primary focus of this paper, and its subsequent use in E-Portfolios is often

most seen in the literature of teacher education; however, it can be found in other disciplines such as career services, communication studies, engineering, and business (Brown, Peterson, Wilson, & Ptaszynski, 2008). For a broader summary of reflection in E-Portfolios at large, please see the work of Barrett (2010), and for understanding the assessment of E-Portfolios as both reflective process and product, the recent work of Chen & Light (2010) is particularly useful.

The work of Gibson & Barrett (2003) illustrates how to best use reflective practice in E-Portfolios in asking students to be more self-directed. The method of asking students to "collect, select, reflect, and connect" is used by many and does not appear to be attributable to just one source; however, it is a useful phrase in understanding how artifacts such as lesson plans, videos of teaching, curriculum planning, and other students work are embedded and represented in E-Portfolios. Additionally, students have opportunity to illustrate how their reflective practice demonstrates the nature of their learning and growth over time. Students constantly reflect throughout a semester, and by going back for selecting, reflecting, and connecting multiple reflections, their opportunities for growth increase exponentially. Students who have had the most experience with E-Portfolios and thus have a familiarity with them tend to prefer the E-Portfolio, and the expected reflective practice, as a preferred assessment of their growth as a teacher. Struyven, Dochy, & Janssens (2008) report that when students have more hands-on experience with a particular assessment method, they develop more positive perceptions. When working intensively with E-Portfolios, participants in this study showed a preference for this type of global assessment of their knowledge and understandings. Students assessing their own reflective practices often try to decipher when reflection is simply about content (Grossman, 1991) and when reflection is about practice (Schön, 1987). Students often struggle with this delineation, and reflective practice loses its benefits and integrity unless the students are given feedback to improve their efforts.

Specific to the interests of the authors for the current paper, the work of Bauer & Dunn (2003) examined the use of reflection in E-Portfolios in music students. One of their findings indicated that there were varying levels of quality in the students' reflections (p.16). They reported low-level reflective writing from music students, noting that it was largely descriptive and about content, rather than in and on practice. The current authors were interested in improving a similar lack of reflective maturity in their own music pre-professional student teachers. Bauer & Dunn (2003) recommended that "students need assistance in better understanding what reflection is and how the process of

reflection works” (p.16). The processes the current authors undertook for improving reflective practice will be reported in detail further in this paper.

While it is possible to see students’ weblogs as a form of an electronic E-Portfolio, the authors’ students’ work was developed in dialogue with or alongside the E-Portfolio work. In the context of English Education, students did read across their blog/vlog entries collected across the semester to develop a reflective page in the E-Portfolio discussing their growth over time, as evidenced within both the posts made and the comments received and, where appropriate, responded to. Where teacher reflective practice has historically been tied to written reflections through print (Ray & Hocutt, 2006), in both blog/vlog posts and E-Portfolio composing, students are writing across modalities and media. Within a discipline that studies and cultivates written expression, it follows that graduate students with 4-year undergraduate degrees in the areas of composition and literary studies are skilled at written expression, though research indicates they are still novices when it comes to using writing as a tool for self-growth and learning (Cole, Ryan, Kick, & Mathies, 2006; Khourey-Bower, 2005). Additionally, emerging research has begun to suggest that where blogs are writing spaces that may promote reflective practice, the depth of reflection within individual posts or blogs varies markedly (Shoffner, 2009; Ray & Coulter, 2008). The use of intentional scaffolding and assessment rubrics throughout this case study was a deliberate move to address these issues.

Assessing Reflective Practice

Improving the quality of reflective practice in students requires finding a way to make explicit the differences between levels of reflective practice. Several researchers have been successful; therefore, a brief examination of their work is useful at this point. Fernsten & Fernsten (2005) suggest “clearly differentiating between process and product reflections.” That is, to give students specific questions so that they can reflect about outcomes and processes. This can also be seen in Schön’s (1983; 1987) reflection *in* and *on* practice. Discussing the goals and expectations of each assigned reflection helps students understand what is expected but is not so detailed that the students simply write what they think the professor wants to hear. Fernsten & Fernsten (2005) also recommend the construction of rubrics to assist students and faculty to see the development of skills in reflective practice. Rickards et al. (2008) presented a series of frameworks to be used when characterizing student reflections, and they created a matrix of descriptors that overviews developmental perspectives (p. 41). In their study, they sorted a sample of reflective essays into

their framework, which consisted of three levels (beginning, intermediate, and advanced), through the lenses of three perspectives (self assessment, how people learn, and learning that lasts). The three perspectives are indicative of the content of the reflections, while the levels indicate the degree to which students are reflective in their writing. Rickards et al. recommended deepening understanding of reflective practice in students by refining the matrix descriptors and training assessors to use the matrix, with a view to being better able to identify the development of students’ reflection longitudinally over time.

The works of Larrivee (2008) and Sparks-Langer et al. (1990) are the most robust in the literature in developing frameworks for pre-professional teachers, and the current authors started with, and ultimately adapted, these works when developing their own measures. Sparks-Langer et al. (1990) set out to establish the characteristics of good reflective pedagogical thinking. They developed a framework and a coding scheme for analyzing reflective thinking, and they subsequently report the findings of testing these with pre-professional teachers. Their framework consists of seven levels, ranging from (1) “no descriptive language” through (4) “explanation with traditional or personal preference given as the rationale” to (7) “explanation with consideration of ethical, moral, political issues” (p. 27). The results of their study suggest they would reframe their framework, as the linear model was not consistent for all students. Specifically, some students might reflect about the moral implications of a situation or experience but use little to no appropriate or descriptive language. The work of Sparks-Langer initiated a path for the current paper, namely to establish a framework that might work with our particular set of students. Larrivee (2008) also contributed to this end, and her work puts forth a framework of four levels (p. 342-343): (1) *Pre-reflection*, where reflection is reactive, lacking ownership, and non-questioning; (2) *Surface reflection*, where the focus is on ‘what works’ in action and is basically just descriptive; (3) *Pedagogical reflection*, in which reflective writing applies teaching knowledge as well as theory and research, and connections are made between principles and practice; and (4) *Critical reflection*, where moral and ethical implications and consequences of their teaching practices are examined in light of the impact on students and the social conditions that fostered it (p. 343).

Larrivee goes on to suggest that reflection develops in dimension, “from trivial to significant to potentially profound” (p. 344). In her study, she sought out authors from previous teacher reflective practice literature and asked them to establish specific descriptors that might

define levels of reflective practice. After they were written, revised, and piloted, they were asked again to rank the descriptors as high quality or otherwise. By calculating the majority of “high quality” rankings from each participant, either a researcher or author with expertise in reflective practices, Larrivee took the majority opinion to assign items to each of the four levels. The magnitude of this study is apparent, as descriptors were created in such a way that they could be used for self-rating and observer rating. A final tool was created, a series of indicators in each of the four levels, whereby they are given a score based on observation or perception. That is, a categorical ranking of “frequently observed, sometimes observed, and infrequently observed” (p. 353). The tool also includes a facilitator assessment, a self-assessment, and a plan for action toward improved reflective performance.

The current paper authors were motivated to adapt the concepts particularly from Rickards et al. (2008), Sparks-Langer (1990), and Larrivee (2008) to attempt to make clear the levels of reflective practice they were looking for in their own students, students who were different in demographic and educational characteristics from those in the Sparks-Langer and Larrivee studies. The next section of this paper outlines the decision points, processes, and successes of eliciting and assessing reflective practice in music and English pre-professional students with the proposal that many of the suggested techniques and tools will adapt to other disciplines in higher education.

Putting the Literature into Action

Background

The authors are members of a small teaching and learning centered department in a School of Education at a state university. There is an accreditation requirement for the use of E-Portfolios as part of all pre-professional programs within this particular School, and both authors had used E-Portfolios extensively at other institutions, integrating them into their course pedagogies prior to their current roles. That said, one author had extensive experience in cultivating students’ written reflective practice (English education) and the other author had considerably less (music education). As colleagues with a fundamental goal of aligning capstone products, the authors met regularly to discuss how the work of students was similar and different. Naturally, the issue of reflective practice was raised often. The authors noticed that their approach to the processes of asking students to write reflectively was different, so they planned to align teaching styles in order to be able to evaluate students’ products with more congruence.

In the fall of 2008, students for music education had been emailing their reflections each week to their professor, whereas the English students had been creating dynamic voice thread digital narratives. For the Spring of 2009, the authors cooperatively asked their students to write a Blog one week and then create a Vlog every other week, the idea of the English faculty, a nationally recognized expert in multi-media literacies and Web 2.0 learning. A Blog is a written piece of text added to a weblog, and a Vlog is a video narrative recorded in real time and uploaded also to a weblog for sharing with the professor or viewing community within a class. This was done using the www.wordpress.com blog site but was secured and password protected. Permissions were shared between students and faculty only. The content of the Blogs and Vlogs were the students’ reflections about their week of teaching experiences. The results from the data of these were remarkable, and group differences were observed between the Vlog narratives and the Blog narratives as well as within group differences (authors in review). The results of this study confirmed that students did indeed reflect differently depending on the modality (Blog or Vlog) and that their perceptions about the processes were mixed. When asked about the experience, many reported needing more prompts and, in particular, needing more guidance as to what was good reflection. In response to this, the authors met to design congruent prompts and created a rubric for use the following fall semester in 2009.

Blogging on Sakai

SAKAI is a free, open source, educational software platform. Systems similar to this are called Course Management Systems or Learning Management systems. Features of these include class calendars, document distribution, a grade-book, discussion threads, live chat, assignment uploads, online testing, wikis, blogs, and podcasting (for an example, see <http://sakaiproject.org/>). In the fall of 2009, Blogs were required of students in both classes who were taking a two day field placement internship at public schools. Faculty already used the learning management system (LMS - Sakai) to teach their classes, so it was administratively sensible to have students work in the platform where their other class and coursework was held. Blogs were written by students each week and responded to by faculty. The prompts greatly assisted students to focus their writing initially around themselves and what they were doing. This was often superficial writing, but with the use of the rubric (See Figure 1), faculty gave students feedback that promoted deeper thinking, and therefore, deeper reflective writing.

Figure 1
Reflective Practice Rubric

Capstone or macro-reflection	Level 0 (Unsatisfactory)	Level 1 (Basic) 70-80	Level 2 (Competent) 80-90	Level 3 (Distinguished) 90-100	Score
Reflection on practice	No reflection on practice is given	Does not recognize change to practice but discusses it Does not perceive relationships between student learning and teaching practices but discusses them Does not engage in critical criticism of one's own teaching but discusses one's teaching	Is unclear how changes to practice occurred, but they are recognized Perceives relationships between student learning and teaching practices Engages in critical criticism of one's own teaching	Acknowledges and articulates changes in practice Analyzes relationships between student learning and teaching practices Engage in critical criticism of one's own teaching offering alternatives for future practice	
Critical reflection of growth	No reflection of growth is given	Does not perceive area of change in beliefs or assumptions Does not observe self in the process of thinking Does not question commonly-held beliefs Does not craft narrative using past experiences, reflections, or learning	Is unclear which changes to beliefs or assumptions have occurred Partially observes self in the process of thinking Questions commonly-held beliefs without offering alternatives Narratives refers minimally to past experiences, reflections, and learning	Acknowledges and articulates change in beliefs or assumptions Observes self often in the process of thinking Questions commonly-held beliefs offering solutions Narrative weaves richly between past experiences, reflections, and learning	
Total Score					/200

The benefits of asking students to Blog on Sakai were three-fold. Firstly, work held in the blog could be accessed anywhere, which means students were more likely to “Blog” while in the field. Secondly, comments added by faculty were recorded in the Blog and served to remind students how to improve their performance at the next entry. Thirdly, the material was held for the course of the semester, and adding to the Blog each week helped motivate students as they could see their progress and growth. The prompts that were used typically started with orientation in the field, i.e., “What do you see? How do you fit in? What are your fears? What will be your strength here?” The prompts then moved to professional expectations such as “Why do you feel prepared? Do you know your material? Do you know what to teach?” As the semester progressed, the faculty both agreed to also use prompts to elicit thought about important aspects of the experiences such as classroom management, teaching children with special needs, dealing with administrative tasks such as roll call and tardiness, being able to differentiate instruction for diverse students, and evaluating what their own students were learning. The faculty subtly promoted

reflection content but then guided the depth of the reflectivity with rubric-driven feedback. There is support for both prompts and feedback in the literature (Fernsten & Fernsten, 2005; Rickards et al., 2008), and the faculty saw a deliberative improvement in the students’ work over time. The faculty both gave their students the same prompts at the conclusion of the semester in order to establish if students could see their own growth. The final prompts of “What have you learned the most? What do you still need to learn? In what ways do you feel, think, or act like a teacher now that you didn’t in the beginning?” helped student unpack their own processes and track their growth, and this was assisted by the fact they could refer back to earlier entries as examples.

Vlogging on www.wordpress

In the spring semester 2010, the authors moved off the Sakai learning platform for the Blogging work. The primary reason was so that students could be more creative with how they posted their reflections. The faculty still required a Blog text one week and a Vlog

Figure 2
Video Collage Rubric

	Developing (3-5 points)	Acceptable (6-8 points)	Target (9-10 points)	Score
I Selected Video Segments	There is some question about why these segments were chosen, how they fit together, etc. Recording is of low quality. Students' faces and identities are not showing. (Must be shadowed or grayed out in video editing)	Video selected fits the reflection and goal setting offered. Some footage is of high quality (and offers a great vantage point for the viewer), and some is not. Students are not identifiable in the video.	Key moments of classroom practice are selected. Footage is consistently of high quality and captures the action of the class. Events are fully presented. No student identities are discernable (either visibly or through reflective comments).	
II Presentation	The video is sloppy – or it is little more than some cutting and pasting – bad PowerPoint. Or, presentation distracts the viewer from the substance of the content.	The video brings together good visuals and effects/transitions/visual content that helps to communicate to the viewer.	The video is well composed, with each element working to communicate intended meaning.	
III Balance	Too much style and not enough substance. Or, worst case – too little of both.	An adequate balance between substance and style. Footage is balanced to moments of reflection and meaning making.	Just the right balance between substance and style. Leveraged the media and medium to do something not done in another textual form.	
IV Voice/Identity	Voice is either inconsistent or is immature. Little to no evidence of learning from previous work. Limited vision. Limited scope.	Voice is consistent, reflects ownership and responsibility for the class, and captures beginning identity as a teacher. Components all come together to demonstrate that the teacher is mindfully engaged in this work.	Voice here is articulate, mature, and communicates some sophisticated moves for a beginning teacher. It is clear that the teacher is genuinely immersed in this work as the work is in dialogue with and builds on previous learning.	
V Reflection across time	Offers little constructive criticism of one's own teaching. Acknowledges basic student needs and learning.	Critically examines "core instructional practices." Examines learning of all students. Communicates an awareness of difference across class communities, etc. The video has a clear and meaningful purpose.	Sets informed goals for future practice that grow from insights gleaned through observation and performance. Challenges assumptions about and expectations for students. Unpacks the context of the school, the community, etc. The video sheds new light on practice, understanding, questions, etc.	
TOTAL				/50

posting every other week, but additionally, students could upload video clips of their teaching (with K-12 student identities removed or grayed out), links to interesting websites, and photos. Most importantly, they could choose the look or design of their wordpress Blog to best represent themselves with a fuller teacher identity. The wordpress blog site is fully password protectable, and students wrote with the knowledge that their professor would read and respond to reflective material on a weekly basis. The quality of the reflection was still guided by material from the rubric. Faculty used the Sakai learning platform for all other coursework submissions but opened the reflective practice to a more individualized platform. The faculty also chose not to use prompts in this second spring semester. The reasoning was to determine if students could begin to self-examine their practice in meaningful

and mature ways, as, once they graduate, this process will be crucial to their longevity in the profession as life-long learners themselves. Instead of using guiding prompts to scaffold students' reflective work in the vlog/blog, the authors' expectations were that, given the fall experience, students were ready for a gradual release model that moved the scaffolds to the context of other activities and "freed" students to make meaning from their developing points of view and unique, individual teaching placements.

Additionally for the spring, the un-scaffolded yet still multimodal writing was tasked within the context of three student-created video collages. Here, students were required to videotape themselves teaching in their school-experience placements and edit the footage down to a short, yet intensely-reflective, video collage of habits, trends, strengths, and weaknesses that they

perceived in their own teaching practices. This reflection both *in* and *on* practice led students to examine themselves in much more focused, critical, and realistic ways than they had previous semester. Asking students to create this video collage, or what was effectively a mini-movie, with titles, subtitles, soundtracks, voice-overs, and transitions, was made possible by the skills of the two faculty. They both have created multimodal compositions, used digital media as spaces to learn from their own pedagogy, and are confident in their skills and abilities to teach their students how to navigate these technologies. Secondly, students were open to and familiar with this kind of composing, reporting that it gave them more freedom to illustrate what they know about themselves. This, in turn, allowed them to ask for help in areas they were less confident with – largely the targeted content and reflective comments or questions evident in the video. Using a multi-media reflection technique in the video collage, and reflecting both *in* and *on* practice across time, seemed to help students make more progress each month. They were asked to make three video collages, one each month, in the middle three months of the spring semester. The video collages were also assessed by the faculty with a shared and jointly developed rubric (see Figure 2).

Sharing of videos for evaluation occurred in two different ways: one, in the case of the music class, the students volunteered to periodically share their video collages with the class while using the rubric for peer evaluation and review, and; two, in the case of English Education students, by commenting on one another's videos when posted to the blog/vlog website.

The rubric developed for this video collage project is an analytic one, so while other aspects of the Video Collage are evaluated, of most value to this current paper is row 5 (Figure 2), *Reflection Across Time*. To be clear, summative evaluations using the rubric for the video collages did not factor into the class grade for any student. Instead, it was used as a diagnostic and formative assessment only to encourage deeper reflection. Students at this level of pre-professional training are encouraged to self-direct their learning for personal growth rather than a grade.

Outcomes

The culminating product for the students in this pre-professional program is the E-Portfolio. This is housed in Sakai as well. Firstly, students select work they believe best represents their learning, such as course assignments and lesson plans, etc. Where prompts for specific pages differ across programs, all students are expected to select reflections from their Blog on Sakai, their work on www.wordpress, and their work in their Video collage, again with an emphasis on

demonstrating their growth over time. The E-Portfolio is presented and defended orally as a master's thesis equivalent, a culminating defense presentation of their work, and is evaluated by not only the advisor but also other members of the students' committees, cohort members, and faculty from previous coursework. The E-Portfolio is assessed on several distinct features to meet accreditation, but the authors also used the reflective practice rubric (Figure 1) to ascertain if the capstone reflections were of suitable maturity and depth. The use of the rubrics (seen in Figures 1 & 2) as tools to support this work is important for two reasons. First, they give formative feedback to the students for their reflective Blogs, Vlogs, and Video collages during their coursework and professional placement in student teaching. Grounded in theoretical frameworks and research discussed earlier, the authors were guided in assisting their students to reach deeper levels of reflective practice. Second, the consistent, descriptive indicators for what exemplifies rich reflection made explicit to the students how the final product, the E-Portfolio, would be assessed for one of its main components – the voice of reflection about growth over time.

Discussion

The benefits of this year of practice have been numerous. The faculty authors have found that their students responded well to being part of an ongoing dialogue between professor and student each week. It was, in some ways, a type of individualized instruction. The students were asked at the end of the semester what they enjoyed or disliked about the various ways they could reflect, and it was interesting to note that although the students who had the least amount of experience with the technologies used offered up the most negative feedback, they consistently recognized that their learning was amplified by examining themselves so often.

Work by Gomez, Sherin, Griesdorn, & Finn (2008) suggests that when reflection is valued in a culture, video technology can support self-examination of any practice. Naturally, as technology advances, so will opportunities for new methods of self-examination of practice. Rich & Hannafin (2009) illustrate the ways in which several new video annotation tools can assist students to examine their own links between theory and practice in action. Future research could of course empirically examine if there is a correlation between the various forms (Blog, Vlog, Video collage) of reflective practice and whether the level of reflective practice significantly improves in students in pre-professional programs. Further comparative study could investigate whether levels of reflective practice differ between students in pre-professional programs (i.e.,

teaching, medicine, physical therapy) and other types of programs such as business, liberal arts, or engineering, as well as the question of how much the choice in reflective practice modalities may impact the subsequent quality of action in students. That is, does reflecting in a multitude of ways help the professional skills of the student? The purpose of this paper was to illustrate the nature of eliciting reflective practice and also assess reflective practice, and the best-practices noted here are suggested for other pre-professional programs. Veterinarians, physical therapists, and other disciplines that need to encourage a deep understanding of actions, performance, and practice would most certainly benefit from asking students to engage in clearly assessed reflective processes. Schön himself recommended that physicians, architects, and engineers may benefit from reflective practice in the ways it has also been used in athletics and the arts, not simply in classroom teaching (Robbins, Seaman, Yancey & Yow, 2006, p. 2).

Conclusion

Strategies suggested within this paper revolved around several key themes identified in the wider literature. These can be taken and applied directly to most teaching and learning settings where faculty wish to understand more meta-cognitive and higher order thinking of their students. Simply put, eliciting reflective practice needs four essential elements: (1) students need to understand what reflective practice is or what it looks like (Bauer & Dunn, 2003; Fernsten & Fernsten, 2005); (2) students need safe and supportive environments whereby students can be honest (Fernsten & Fernsten, 2005); (3) students need to be given “adequate and strategic prompts” (Fernsten & Fernsten, 2005); and (4) there needs to also be an accessible platform for the students to house their reflective practice in an ongoing and consistent fashion so improvement can also be acknowledged and, in turn, reflected upon. It is suggested in this paper that using Learning Management Systems such as the open source Sakai and Web 2.0 technologies is appropriate, but it is also cautioned that the use of technology needs to be supported and facilitated by faculty who are confident in these technologies themselves. Other Course Management Systems such as Blackboard, Toolkit, and WebCT may also offer commensurate features such as Blogs.

The above research and best practices suggest that there are two important factors involved for evaluating reflective practice. Firstly, making explicit the vocabularies of excellent reflective practice is critical. This will naturally depend on the discipline, but the work of Schön (1983, 1987) and Van Manen (1977) may help faculty who are interested in exploring

reflective practice discriminate between reflection *in* and *on* practice in their own disciplines. The positive outcomes of reflective practice are becoming increasingly prevalent in higher education literature across many disciplines. Secondly, creating a rubric or checklist with desirable criteria is equally important and is necessary to convey expectations clearly and regularly to students. Asking students to evaluate models of reflective practice will also assist them in understanding differences in reflective practice quality. In summary, much of this literature and many elements in these theoretical frameworks can support higher education students in other content areas, not simply teacher education. The tenets of teacher education are salient for all faculty in improving the eliciting of reflective practice from students, and the nature of reflective practice makes it suitable for faculty to use across multiple disciplines, and multiple modalities, in their own classrooms, particularly when housed in an E-Portfolio.

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