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ORIGINAL PAPER

Using Digital Portfolios: Reflection, Assessment & Employment

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Abstract
Many programs utilize digital portfolios for students to archive assignments. This manuscript highlights how one counselor education program implemented digital portfolios as a means for fostering student reflection, and subsequently evolved the portfolios towards satisfying both comprehensive exam and student employment goals. The author introduced a digital portfolio component to a core curriculum course in hopes of fostering students' reflection. Simultaneously, counselor education program faculty were addressing inadequacies of norm-referenced testing employed for students' comprehensive exam. Together faculty pursued building assessment components within the reflection blogs, utilizing the platform as digital portfolios. This effort was aimed at meeting three goals: (1) fostering student reflection; (2) satisfying program comprehensive exam/assessment requirements; and (3) serving as a professional website for students' post-program employment searches/interviews. Students receiving formative feedback on their digital reflections demonstrated significantly higher mean reflection scores than students only utilizing portfolios as a "digital journal". This manuscript presents an overview of the initiative in its first year of implementation, resources and obstacles experienced, and preliminary findings from data collected. Technology platform information and student work samples are highlighted.

Keywords Digital portfolios · Reflection · Counselor education · Assessment

A critical component of counselor preparation is fostering graduate students' reflection. The ability to reflect on counseling skills and the development of those skills not only benefits the students, but prepares them for active reflection within both school and clinical settings (Erford 2015; Thompson 2012). However, actively incorporating reflection within practitioner program curricula can prove challenging given institution, state, and national assessment requirements (e.g., degree completion exams, comprehensive exams, state licensure, national certification). Many programs may find norm-referenced multiple choice exams (e.g., the National Counselor Examination for licensure for graduate students in counseling programs) more expedient, albeit less in-depth, than open-ended essay questions requiring reflection and application.

Vacillating between these two extremes of multiple-choice and open-ended essay, some programs employ student portfolios as a means of satisfying goals. Whether these portfolios are hard-copy compilations of printed documents or digital collections of files and presentations, the portfolios serve as a representation of students' work accomplished and growth achieved throughout the program. This manuscript outlines one institution's creation and implementation of student digital portfolios as a means for satisfying program assessment requirements, fostering students' critical thinking (i.e., reflection) within a core curriculum course, and equipping students with a website for post-graduation employment searches. While the program of study was counselor education, the nature of the course chosen for implementation (i.e., Group Counseling Dynamics) commonly serves as an elective for students enrolled in other degree programs (e.g., psychology, school psychology, sports psychology, etc.). This manuscript begins with a brief review of the literature followed by a summary of the forces necessitating programmatic changes. Implementation of the portfolios is presented as a Methods section followed by results of the initiative. These results are addressed in the Discussion section divided into three overarching themes of Reflection, Assessment, and Employment.

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The manuscript concludes with limitations of the current project and recommendations for programs considering similar pedagogical innovations (i.e., digital portfolios).

Literature Review

Regardless of instructional level (e.g., P-12, undergraduate, graduate, professional development) reflection exists as a complex construct that while recognized as critical for effective curriculum and pedagogy, remains contested in terms of definition (Nguyen et al. 2014). This definitional elusiveness can further complicate pedagogical logistics for educators desiring to actively incorporate reflection within their instruction (Denton 2011). Specifically regarding graduate-level practitioner degrees, it seems reasonable that this challenge extends beyond initial degree conferment continuing into professional development/continuing education requirements necessary for maintaining certification and/or licensure.

In their conceptual analysis of influential definitions of reflection, Nguyen et al. (2014) synthesize a five-component model with the intention of guiding educators through the implementation of reflection within teaching, learning, and assessment. Nguyen et al. (2014) describe five components which differentiate reflection from other more routine thinking processes. The five components are described as: (1) thoughts and actions; (2) attentive, critical, exploratory and iterative processes; (3) an underlying conceptual frame; (4) a view towards change; and (5) the self (Nguyen et al. 2014).

More specifically, "thoughts and actions (TA)" refer to the subject of the thought processes (i.e., thinking about one's thoughts and one's actions) while "attentive, critical, exploratory and iterative (ACEI)" characterizes these thought processes as intentional and focused rather than a solitary or random cognitive exercise (Nguyen et al. 2014). Building on ACEI, "conceptual frame (CF)" describes reflection as more than merely solving a problem, but thinking aimed at exploring the problem itself.

"View on change (VC)" represents the notion that reflection should result in change, a thread prevalent in most definitions (Nguyen et al. 2014). Thinking about one's TA and CF in an ACEI manner leads to change, and this change is not static but itself becomes the focus of further and/or continual reflection. Finally, "elf (S)" describes how reflection requires all four previous elements (i.e., TA, ACEI, CF, and VC) work in concert with the self as center. Reflective thought considers how content is individually related to the "self" (e.g., "What action did I do?"; "What am I thinking?") as well as how content may be collectively related (e.g., "What do my actions say about me?"; "How might my thinking impact who I am?") to the "self" (Nguyen et al. 2014).

Rather than characterizing reflection as only looking back "on" thoughts and actions, Nguyen et al. (2014) additionally situate reflection in the "here and now" as an active process. Concluding the article, Nguyen et al. (2014) provide a working definition of reflection asserting, "reflection is the process of engaging the self in attentive, critical, exploratory and iterative interactions with one's thoughts and actions, and their underlying conceptual frame, with a view to changing them and with a view on the change itself (p. 1182)." Such a definition certainly echoes Dewey's definition of reflection as active and persistent, and aligns with educational practices aimed at engaging learners in critical thought focusing on the conceptual frameworks (e.g., beliefs, reason, proof, values) of the "self" (Denton 2011).

Exploring reflection within teacher-preparation programs, Denton (2011) likewise highlights focusing on thoughts (i.e., metacognition), exploration (i.e., time and depth), and active iteration (persistent/continual contemplation) as characteristics of reflection. From these elements, Denton investigates various educational practices all aimed at fostering reflection within students enrolled in undergraduate- and graduate-level practitioner programs (i.e., teacher preparation). These strategies include formative assessment (Denton 2011), screen-capture feedback (Denton 2014), and evidence-based writing in electronic/digital portfolios (Denton 2012). The latter investigation is relevant to the current study as the author sought to similarly utilize digital portfolios within a graduate-level practitioner program (i.e., school counseling and clinical mental health counseling).

Using a convenience sampling, Denton (2012) had undergraduate students enrolled in a teacher preparation program create electronic portfolios utilizing the WordPress blogging platform (available at https://wordpress.com/). Portfolios consisted of multiple elements including a landing page (functioning as the blog page), four additional pages (e.g., teaching standards, program artifacts), and metadata tools (i.e., "Widgets" such as the archive and tag cloud tools). Participants then wrote portfolio entries on a biweekly basis regarding various aspects of their program of study (e.g., course content, course assignments, field experiences/observations, etc.) as a normal part of course requirements. Written portfolio entries were then assessed by Denton and other instructors/supervisors within the teacher preparation program with a writing quality rubric. A writing intervention was employed where participants were introduced to the rubric, practiced writing an entry, and received both instructor and peer feedback.

Data from participants in Denton's study suggested that the writing intervention significantly improved the quality of portfolio entries. Additionally, despite potential criticism that portfolio-based writing may become formulaic or stifle student reflection, the results suggested a change in the degree of reflection present in participants' entries after the writing intervention (Denton 2012). Denton concludes the study asserting that while many practitioner programs may be

utilizing electronic portfolios to demonstrate accreditation criteria (e.g., state, national, profession credentialing agencies) or serve as vehicles for assessment, the potential for electronic portfolios to foster student reflection bears continued investigation.

Reflection for Practitioners

Not surprisingly, this focus on engendering reflection within both student-as-learner and student-as-practitioner is not reserved to teacher preparation programs. Similar consensus exists surrounding the critical need for reflective practices in counselor preparation (Erford 2015; Thompson 2012) equipping students for conducting both individual and group counseling (Corey et al. 2014; Sink et al. 2012). The Council for the Accreditation of Counseling and Related Educational Programs (CACREP) guides counselor education programs with professional accrediting standards (CACREP 2015) for both masters- and doctoral-level programs. Reviewing the expected dispositions of graduating counselor candidates suggests successful counselor education programs incorporate reflective components/assignments into all courses; not solely in clinical or field coursework. Likewise, for practitioner programs housed in colleges of education, the Council for the Accreditation of Educator Preparation (CAEP) – formerly known as the National Council for Accreditation of Teacher Education (NCATE) – outlines dispositions of successful educator candidates which speak directly to reflection (CAEP 2015; NCATE 2015). This focus on student reflection extends beyond counselor education programs with other "helping profession" (e.g., dentistry, medicine, nursing, pharmacy, psychiatry, etc.) practitioner programs recognizing the influence reflection has on students' clinical case conceptualization, professionalism, and critical thinking (Brand et al. 2016; Devi et al. 2017). Thus there is arguably substantive recognition of the value of student reflective writing from practitioner fields spanning education (Denton 2012), school counseling/school psychology (Wakimoto and Lewis 2014), and science education (Hawkins and Park Rogers 2016; Ziegler and Montplaisir 2012).

Forces Necessitating Programmatic Change

While electronic portfolios may not be considered "new" (Okoro et al. 2011), their implementation within higher education appears to remain limited (Ziegler and Montplaisir 2012) with some programs forgoing the "electronic" aspect and using hard-copy printed collections rather than digitally-based formats (Gordon 2003). Such observation adequately captures the author's graduate program at the time of this study. A graduate-level counselor education program housed within a university located in the southeastern United States, the program offered three counselor education degree concentrations: school counseling, clinical mental health counseling, and student affairs in higher education counseling. In their initial year of the program, all students were required to complete common core courses regardless of their degree concentration.

As a part of annual assessment and accreditation review, faculty discussed two programmatic concerns: the program's comprehensive exam requirement, and supporting students in their post-graduation search for employment. Historically, the faculty had utilized a national norm-referenced exam to fulfill the program comprehensive exam requirement. However, faculty concern grew regarding the exam's annually changing protocol (i.e., test questions) and how well such changes did or did not represent the program's mission and vision. Undoubtedly successful completion of the exam aided students in pursuing national certification, but doubt remained as to whether or not core elements of the program were represented (e.g., leadership, advocacy, professional and personal growth, ethical practice, social justice, reflective professional).

Simultaneously, an institutional focus on supporting students' post-graduation employment found the faculty exploring different ways of preparing students for job searching and potential means of implementing such support within the program. Noting the unique nuances of the practice settings of each concentration (i.e., school, clinical, higher education), faculty desired something comprehensive yet nimble enough to remain relevant for all students. This concern was further emphasized when recognizing many students choose to pursue dual-endorsement in order to practice in multiple settings (e.g., school and clinical).

Prior to these changes, one of the faculty members had started exploring the possibility of students completing a portfolio in lieu of a standardized test for comprehensive exam requirements. Having secured college and institution approval, the faculty member had already began allowing student advisees (i.e., students within the faculty member's degree concentration) the option of completing a portfolio, however portfolios were non-digital consisting of printed copies of various program artifacts (e.g., assignments, final projects, reflection papers). Another faculty member (the author) had gained experience implementing and assessing students' electronic portfolios while serving as an adjunct instructor during doctoral studies. Implementing the portfolio model already established via a digital platform seemed to be a solution which could provide both the breadth (i.e., assessing comprehensive standards, course content, and program vision) and agility (i.e., relevant for multiple concentration settings and adaptable for interviewing) faculty desired.

Portfolio Structure & Format

After reviewing various website/blog platforms, WordPress was chosen as the software's default setting in a blog format. The interface is relatively intuitive, and (arguably most important for students) there is no cost associated with creating a blog/portfolio site. While WordPress does offer domain registration for additional fees, the act of creating and populating a blog site using WordPress is free. Student portfolios consisted of four required web pages: "About Me", "Program Artifacts", "Additional Resources", and "Portfolio Reflections".

The "About Me" page (set as the site's landing page) contained a brief biography of students, their degree concentration, and their intended practice setting (e.g., school, clinic, higher education). "Program Artifacts" served as an archive page where students posted specific assignments/projects from identified courses throughout the program. Artifacts were divided into two sections with "Core Artifacts" representing coursework required of all students, and "Concentration Artifacts" reflecting content associated with individual degree concentrations. Artifacts were available for download/viewing via hyperlinks and most often took the form of documents (e.g., Microsoft Word, Adobe .pdf) or presentations (e.g., Microsoft PowerPoint).

The "Additional Resources" page provided students with the opportunity to articulate relevant professional connections as well as highlight assignments not already represented as a program artifact. Relevant connections usually consisted of hyperlinked URLs directing viewers to professional associations as well as local, state, and national credentialing agencies. Additional assignments posted for download usually included work samples, group collaborations, and projects completed during field experience (e.g., practicum, internship).

Finally, the "Portfolio Reflections" page served as the primary vehicle for students' reflective writings. This blog page was built using the default starting page WordPress generates for users. Relatively little customization is required as the page is comprised of students' reflections (i.e., individual blog postings) most commonly visually presented as a listing of post titles and introductory sentences. Site viewers can scroll through this list and read reflections in their entirety by clicking on individual post titles.

Average time from initial registration with WordPress (again choosing the no-cost option), to creation of the blog site, and generating each of the required four pages took between 15 to 40 min. The interface utilizes icons for common formatting functions (e.g., bold, italic, bullet points, hyperlink, etc.) and provides users with a preview function before pages/postings are released (see Fig. 1). Additionally, both pages and postings are malleable with the user being able to edit and/or delete at any time.

Implementation Presentation and instruction regarding the creation of portfolios were implemented during a core course within the counselor education program. Specifically, all students regardless of degree concentration within the counselor education program were required to complete Group Counseling

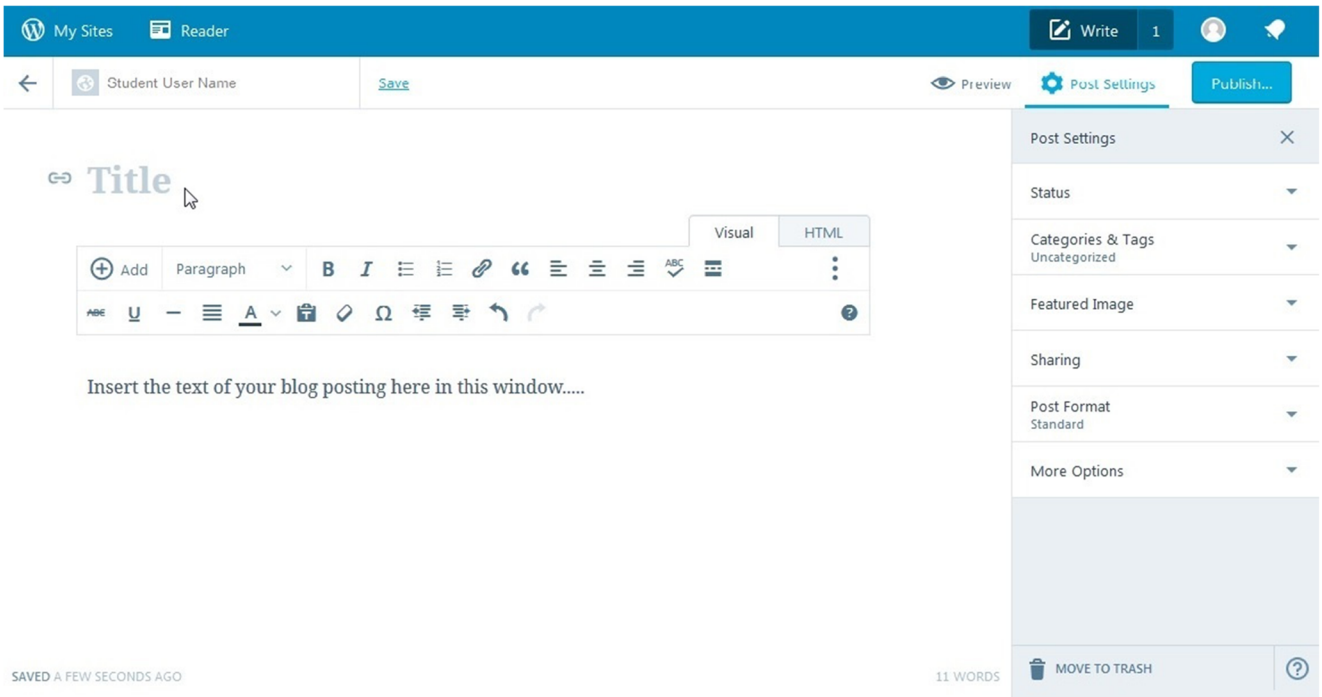

Fig. 1 Sample WordPress post editing window

Dynamics with the author as the primary instructor for the course. Additionally, this decision provided the opportunity to access an even more heterogeneous group of students as the course is frequently used as an elective by other graduate programs both within and outside the college where the counselor education program is housed. Thus the diversity of student practitioners exceeded degree concentrations (i.e., school, clinical mental health, higher education) with students representing various other helping professions (e.g., sports psychology, school psychology, teacher education, psychology).

Instruction on the creation of individual portfolios took place during two class sessions near the beginning of the semester, with dedicated instructional time consisting of no more than half of each session. These class sessions usually began with course content, discussion, and activities then switching to portfolio creation during the last half of class. Notably this allowed students with web/blog expertise to leave as soon as required tasks were completed simultaneously freeing faculty to provide more individualized attention for remaining students. In addition to these two class sessions, a series of screen capture videos were recorded and made available for students. These succinct (i.e., 10 min or less) instructional videos were deliberately focused on single tasks necessary for portfolio creation and/or maintenance (e.g., writing a blog posting, inserting a hyperlink, etc.) and were accompanied with narration. Making available a collection of brief, task-oriented videos allowed students to seek individualized help outside of class throughout the entire semester.

After successfully creating their individual portfolio blog site, students were required to post weekly reflective writings (i.e., blog postings) on the "Portfolio Reflections" page. Students were also required to upload a culminating course assignment to the "Program Artifacts" page (i.e., group counseling curriculum/outline). Both of these requirements were incorporated into course grading.

Evaluating Student Reflection An integral part of the course curriculum asked students to weekly reflect upon the development of their skills and competencies pertaining to group counseling. These reflections had traditionally taken the form of weekly journal entries with students following a general writing rubric. Historically students would submit completed journals to instructors at the semester's end during finals week. Migrating reflection writings into the portfolio environment facilitated weekly review by the instructor preventing the need to hurriedly read/grade numerous journals at the semester's end. Another benefit of the digital platform, students were able to write and review reflections as stand-alone entries while easily considering their place within the greater context of students' cumulative blog. While such processing can arguably take place within journal writing as well, the blog format allowed more explicit connections between past and present writings (e.g., tagging, hyperlinks to previous entries, etc.).

Students' reflection postings were assessed utilizing a rubric based on the work of Denton (2011, 2012). The rubric evaluated five components including: Main Point; Evidence; Connection; Reflection; and Elements. Each component was graded using a three-point Likert-type scale with values including "Level 1″ (indicating unsatisfactory), "Level 2″ (indicating satisfactory), and "Level 3″ (indicating excellent). The first component (Main Point) assessed whether or not students clearly stated an opinion or distinct point. Component two (Evidence) required students in include some sort of evidence or illustration representative of their main point. These examples of evidence often included visual images, embedded videos, active hyperlinks, etc. The third component (Connection) assessed whether or not students clearly articulated the relationship between their main point and the evidence provided. Component four (Reflection) addressed how well students were able to reflect on their main point with application to course focus/content (i.e., group counseling). In assisting with understanding this aspect of the rubric, the component was introduced as a "So what?" prompt challenging students to explain how they saw their main point connecting to the course. Finally, component five (Elements) focused on formatting aspects of the posting such as length, professional/scholarly writing, terms and vocabulary from course content, etc.

Methods

Two offerings of the Group Counseling Dynamics course (sections A and B) were scheduled during the same semester with the author as the instructor of record for both. Both sections were required to create portfolios and utilize the portfolios for weekly reflections, however only one section received weekly formative feedback on their postings from the instructor. Student reflections were evaluated using a rubric assessing five aspects of individual written entries. The rubric (based off Denton 2012) addressed individual reflection postings' main point; evidence/example of the main point; articulated connection between main point and evidence; reflective thought/insight; and structural elements of the posting. Introduced at the beginning of the semester, the rubric was used to guide weekly formative feedback from the instructor for students enrolled in the "formative feedback section" (i.e., section B) of the course.

Each section of the course had 15 students enrolled yielding an overall N of 30 for the study. Independent samples t-tests were used to analyze differences between mean reflection posting scores for the two course sections. Due to scheduling difficulties towards the end of the semester, only the first 12 reflection postings were considered for analysis in this investigation. Thus 360 reflection postings were analyzed (i.e., 12 postings from each of the 30 students) out of the potential 450 (i.e., 15 weekly postings from 30 students) submitted for instructor review during the semester.

Results

Analysis began with review of the descriptive statistics. Descriptive statistics were reviewed and found to be within tolerable limits for a normal distribution. Reflections were assessed using the five component rubric and scores were then aggregated into an overall 3-point Likert-type scale rating. Reflection scores were then reviewed by week (i.e., weeks 1 through 12). Table 1 presents mean scores and standard deviations for the twelve reflections disaggregated by course section. Section B (i.e., the course section receiving weekly formative feedback on reflections) demonstrated consistently higher mean scores than section A across all twelve weeks.

Additionally, Table 1 presents independent samples t-tests performed on students' mean reflection scores. Section B mean reflection scores were found to be significantly higher for weeks 1, 2, 3, and 4 ($p < .05$).

Discussion

The current study emerged amidst multiple interests concerned with programmatic review and improvement. Specifically, a pressing need for the revision of students' programmatic summative assessment (i.e., comprehensive exam), a desire on the part of faculty to support graduates as they seek employment, and an interest in fostering students' reflective writing were addressed through the use of digital portfolios. In addition to serving as a vehicle for the execution of these three themes, the use of digital portfolios aligned with current calls for technology infusion within counselor education (McAuliffe and Eriksen 2011). The study yielded empirical findings (i.e., students' mean reflection scores) as well as faculty observations (i.e., program assessment completion and graduate employment) and are discussed in further detail here.

Aligned with previous literature (Denton 2012), students in this study who received formative assessment with their weekly reflection writings demonstrated higher mean scores consistently throughout the twelve weeks, and at times these differences were found to be statistically significant. Reflective writing serves as a critical component of student understanding and processing (Ziegler and Montplaisir 2012), and these findings suggest that formative assessment (even when relatively brief and rubric-focused) may foster increased student reflection. Additionally, the use of a blogging platform (i.e., WordPress) for the digital portfolio facilitated both creativity and sharing within students' reflections.

Interestingly, while students receiving formative feedback (i.e., enrolled in section B) consistently demonstrated higher mean reflection scores, not all weeks were found statistically significant. In fact, section B mean reflection scores were found statistically significant for only the first four weeks of the semester. Whether section A students' mean scores "caught up" or section B students' mean scores plateaued, from week five throughout the end of the semester the difference between the two groups remained statistically non-significant. Unfortunately, further investigation into possible causes for this change are beyond the current discussion.

Within their reflection postings, students were required to include some form of "evidence" serving as an illustration or visual representing their main idea. Students' initial use of uploaded documents (e.g., previous coursework, research articles, etc.) soon expanded to include hyperlinks to professional associations and/or relevant agencies (e.g., American Counselor Association) (Fig. 2). Student creativity continued to develop yielding embedded YouTube videos (Fig. 3) and student-created memes (Fig. 4). As there was no requirement regarding the type of evidence used nor variance in points assigned (i.e., document versus hyperlink, video, mem, etc.), students were free to find/create evidence on their own. Thus these latter examples of evidence seemed illustrative of increased critical thinking on students' part as they sought out images and generated text for meme crafting. The use of memes within reflection postings as evidence soon spread as students viewed others' postings and began asserting their own creativity.

This organic emergence and expansion of memes as evidence also demonstrates a social cognitive (Vygotsky 1978) element of the reflection writing facilitated by the digital portfolios. Students were able to engage in individual reflection through writing, receive instructor feedback, share both reflection writings and feedback with peers in class, and then reference any and all of these elements (e.g., referring to past writings, hyperlinking previous postings) within subsequent

Table 1 Mean reflection scores & independent samples t test data

Reflection	Section A		Section B		*t*	*p*
	M	*SD*	*M*	*SD*		
1	2.0800	.19712	2.5467	.35024	−4.497	.000*
2	2.1467	.31593	2.4933	.40614	−2.609	.014*
3	2.3067	.35349	2.6400	.30426	−2.768	.010*
4	2.2400	.29472	2.6000	.37796	−2.909	.007*
5	2.2400	.40848	2.4533	.36619	−1.506	.143
6	2.1733	.31045	2.4000	.40000	−1.734	.094
7	2.1867	.38148	2.4800	.43293	−1.969	.059
8	2.2933	.43337	2.4000	.44078	−.668	.509
9	2.2000	.40708	2.2667	.47610	−.412	.683
10	2.2800	.33637	2.2933	.36148	−.105	.917
11	2.2000	.27255	2.4133	.30675	−2.014	.054
12	2.2333	.31547	2.2800	.46476	−.322	.750

*= significant at $p < .05$. $df = 28$

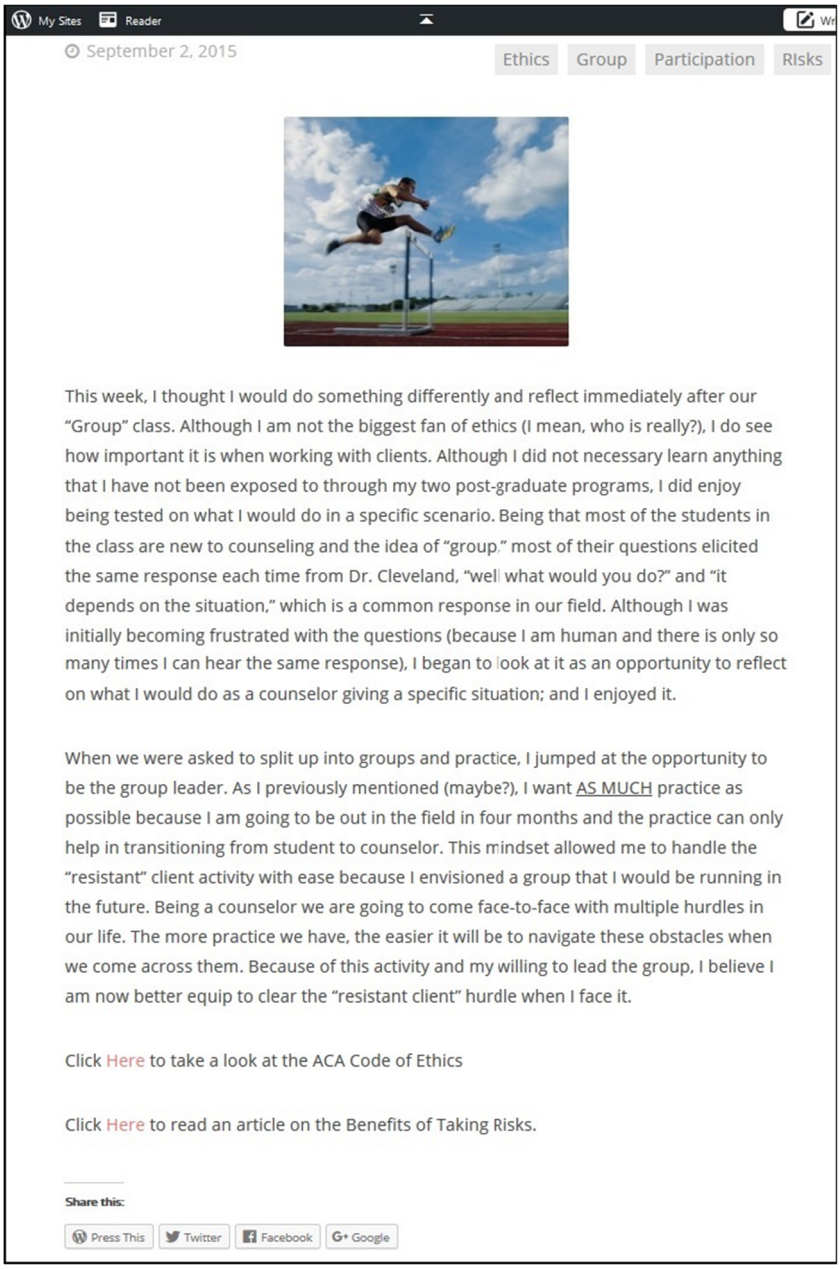

Fig. 2 Sample posting with hyperlinks and tags

reflection. This collaborative creation of knowledge via reflection with peers is an important part of training and preparing reflective practitioners (Hawkins and Park Rogers 2016).

While no empirical evidence was collected specifically addressing programmatic assessment requirements, faculty response and observations were favorable to the adoption of digital portfolios. From a strictly logistical perspective, the posting of weekly reflections on the digital portfolio versus traditional hard-copy journals allowed a more preferred, if not more manageable, workload for faculty. Rather than reading and grading 15 weeks of individual students' reflections at the end of the semester, faculty were able to read through students' reflection postings throughout the semester.

This process of weekly reading presented the opportunity to serve as "monitoring" whereby faculty could assess students' progress through the course content and reflective processes. For students enrolled in the class section receiving feedback (i.e., section B) this manifested as active formative assessment for individual students' reflection writings. As previously referenced, this formative assessment process afforded a more social-cognitive approach to course instruction.

As students wrote individual reflections communicating their constructions of course content and interpretations of class experiences, these writings were reviewed by faculty and (for students enrolled in section B) faculty

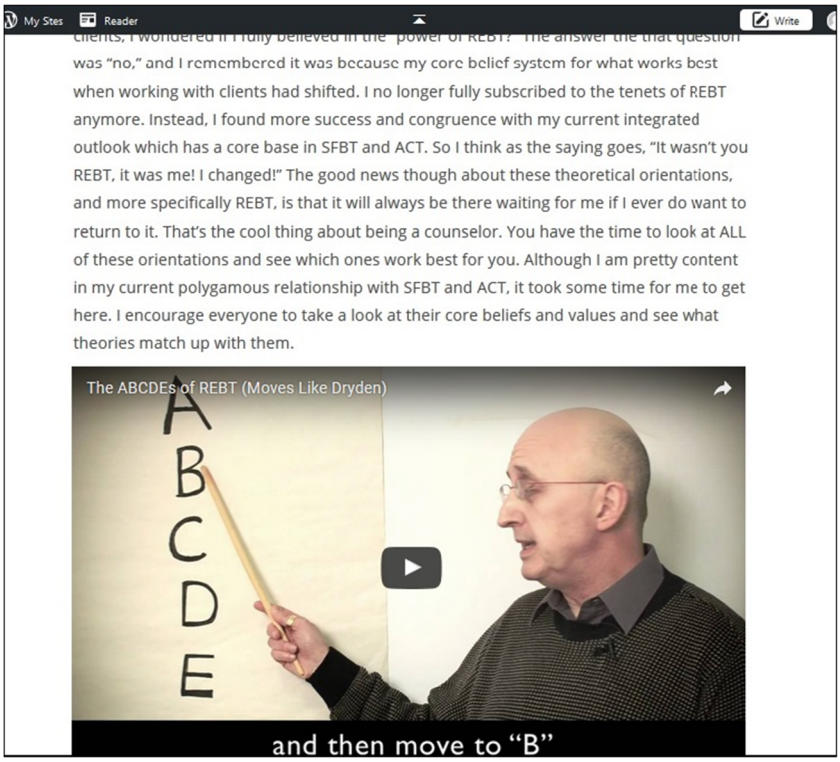

Fig. 3 Sample posting with embedded video

conceptualizations were provided via formative feedback. Additionally, as the semester progressed, faculty were able to insert summarizations of students' past week reflections into current instruction. This spiral approach to the curriculum invited students to revisit not only thematic "group" constructions, but to authentically question both faculty/text constructions and their own individual constructions as well. Such an approach, utilizing social cognitive formative assessment elements, presents students with an active, collaborative experience that can significantly influence learning (Ziegler and Montplaisir 2012).

Similar to programmatic assessment, the current investigation captured no empirical evidence for the focus on student employment. This was largely due to the fact that the course chosen for implementation was in year one of the program. At the time of data collection, students were still engaged in core

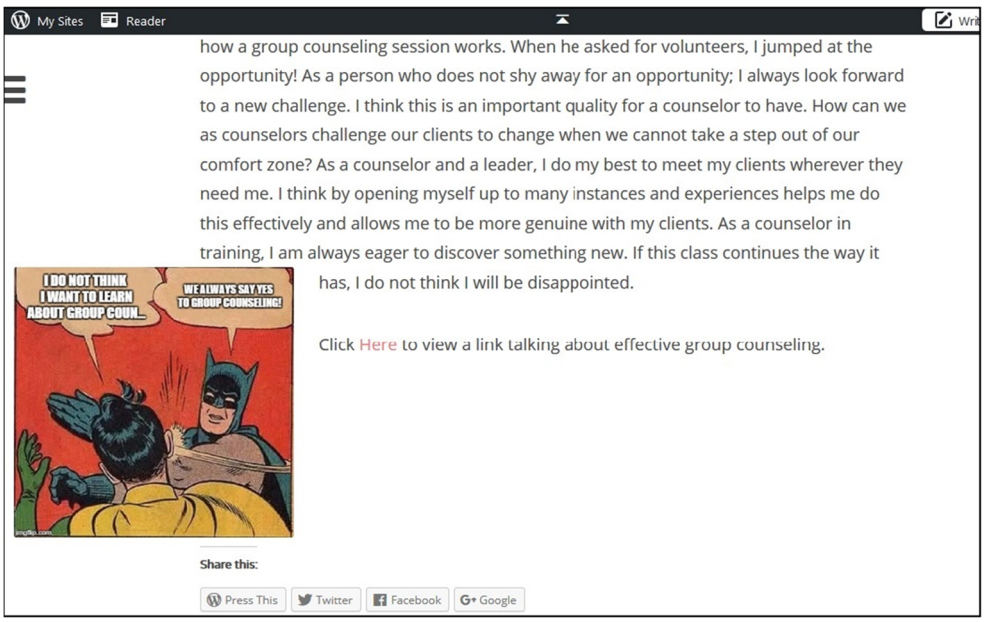

Fig. 4 Sample posting with meme

coursework yet to enroll in second year field-placement courses and subsequent graduation. However, anecdotally many students reported excitement at the resource of a digital portfolio for use with job searching and interviews. Such feedback aligns with literature supportive of digital portfolios predicting increasing use (Okoro et al. 2011) as students believe they have more opportunity to display creativity, greater control over information presented to potential employers (Willis and Wilkie 2009), portray themselves as more "tech savvy" (Wakimoto and Lewis 2014), and enter interviews with a customized presentation tool relevant for both one-on-one and large group situations (Lyons 2008). Together, these gains in assessment and student employment convinced faculty of the supremacy of digital portfolios when compared with more traditional normative comprehensive examinations. The digital portfolios afforded the same content and reflective writing evaluations as traditional comprehensive exam assessments, but provided a more contextualized picture of student functioning. This perspective was gained through formative assessment (i.e., evolution of students' reflective writings each week), inclusion of creative and expressive arts (i.e., blog embedded memes, images, and photos), and active implementation of technology (creation and maintenance of blog, active hyperlinking, and sharing/viewing with employers).

Limitations

While the present findings and their application to student reflection are encouraging, the study is not without limitations. Most notably is the limited sample size and the use of convenience sampling. The author recognizes both of these concerns and their influence over any potential generalizations. Future investigations would benefit from increased sample sizes and the use of random sampling. While this may prove challenging for graduate programs with smaller enrollment numbers, larger institutions with core courses required for all graduate students (e.g., introduction to research, human development, etc.) may be able to facilitate such research.

Another limitation of the current study is the lack of empirical evidence collected regarding the programmatic assessment and employment themes contributing to the implementation of the digital portfolios. Undoubtedly, data representing changes resulting from the implementation of the portfolios would further inform and strengthen the current study. However, this project began as more of a programmatic improvement endeavor with faculty focusing on securing institutional curricular approval. After achieving administrative clearance, the window for implementation was rather brief.

Furthermore, from a systemic perspective, implementation within a core course during the first year of the program seemed most sustainable. Clearly there is need for follow-up investigations during end-of-program semesters when students are most actively pursuing post-graduate employment. Specifically, collaboration with institutional departments focusing on end-of-program logistics (e.g., field placement offices, certification personnel, alumni office, etc.) may prove beneficial especially for smaller programs with limited numbers.

Conclusion

Digital portfolios as a part of course or program curriculum offer a future-focused assignment harnessing student motivation as they prepare for the workplace (Okoro et al. 2011). Further, integrating digital student writings (i.e., blogging) within portfolios aligns with studies affirming the use of reflective learning methodologies into practitioner-preparation programs (Brand et al. 2016). The current study described the development and implementation of digital portfolios within a counselor education program. These portfolios utilized a blogging platform (i.e., WordPress) to satisfy programmatic assessment needs (i.e., program comprehensive exam), prepare students for post-graduation employment (i.e., job search resource), and foster meaningful student reflection. Portfolios were introduced to two sections of a first-year core course with students in one section (i.e., section B) receiving brief, targeted formative assessment on their weekly reflection writings. While only the first four weeks were found statistically significant, section B students consistently demonstrated higher mean scores on their weekly reflection writings throughout the entire twelve weeks. These findings should be encouraging to practitioner-preparation programs desiring to implement digital portfolios as a means of increasing students' understanding of their learning while simultaneously establishing ongoing reflection habits which will be carried out into the field (Lyons 2008).

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Compliance with Ethical Standards

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Ethical Approval All procedures involving human participants performed in this study were in accordance with the ethical standards of the institution and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Additionally, informed consent was obtained from all individual participants in the study.

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