

# Content Analysis of Nursing Students' ePortfolio Reflections and Navigational Design Choices: A Qualitative Study

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**Abstract:** Nursing students are required to demonstrate achievement of specific outcomes for program completion and approval for licensure. Mastery of clinical content is typically established through faculty-developed and standardized exams, which do not provide sufficient evidence of student acquisition of requisite knowledge and behaviors for professional practice (i.e., effective communication and clinical judgment). To encourage reflective practice and provide a sharable digital showcase, the School of Nursing and Population Health at the University of New England incorporated ePortfolios. Accelerated Bachelor of Science in Nursing (ABSN) and Bachelor of Science in Nursing (BSN) students receive ePortfolio parallel instruction in their programs. We anticipated that ePortfolio reflective practice would encourage students' self-evaluation and stronger awareness of their emerging professional identity. Since ABSN students have completed prior undergraduate degrees and may have work experience, we imagined they would reach a deeper level of reflection on their learning than the traditional BSNs. Analysis of four graduated classes demonstrated this was not the case, finding more similarities than differences in their reflective practice and ePortfolio content curation. Students constructed their ePortfolios to include some skills across nursing courses, regularly adding content and improving their reflective practice to demonstrate their learning, but neither BSN nor ABSN students incorporated their prior experiences or non-Nursing course work to demonstrate a skills transfer. Student ePortfolios provided more than just a digital repository, but students were not independent ePortfolio makers yet. Our study does not indicate that our fledgling program is integrative but provides a foundation as we aspire to high-impact ePortfolio practice.

## Introduction

The University of New England (UNE) is a small, private institution in Maine with a focus on health sciences professions. The School of Nursing and Population Health (SONPH) includes two undergraduate nursing programs relying mostly on in-person instruction. Students in the Bachelor of Science in Nursing (BSN) program typically complete their undergraduate degree on a traditional four-year track, while Accelerated Bachelor of Science in Nursing (ABSN) students have already earned a bachelor's degree and will earn a BSN through a 16-month program. Until 2019, students were not guided to connect concepts across courses or to observe their progression toward development of a professional nursing identity. Research has shown that effective reflective practices

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enhance the student's ability to "think like a nurse" and are key to the development of clinical judgment (Lasater & Nielsen, 2009). Prior to ePortfolio implementation, the nursing curriculum incorporated experiences that built critical thinking and writing skills, but reflection lacked an authentic audience beyond the course. For example, before ePortfolio integration, a student would have interviewed a nurse leader and relayed details of the interview in writing and through in-class discussion; however, they were not required to complete written reflections about their expectations prior to the interview or to consider insights based on the interview. Sharing an interest in reflective practice, Deb Kramlich, Associate Professor in the SONPH, and Jen Gennaco, DigiSpace Coordinator and Multimodal Writing Specialist at the Student Academic Success Center, partnered to introduce ePortfolio.

Beginning in the summer of 2019, UNE nursing students have been constructing their ePortfolios of artifacts and reflections. Their practice centers on processing, assessing, and adjusting as they examine their learning through a reflective process. A reflection from the beginning of the program, for example, had students explain their perception of the art of nursing by embedding an image into a post and then explaining their choice. In an advanced course, students were asked to reflect on their preceptorship experience and connect it to concepts such as patient-centered care or empathy. Thus, the ePortfolio content is individualized but consists of required posts and pages. Kathleen Blake Yancey (2019) describes an ePortfolio that consists mostly of a collection of artifacts as a "wrapper" where "although ePortfolio hosts learning, it exerts no effect on learning" (p. 2). The use of ePortfolio as curriculum moves ePortfolio beyond a standardized host site and into an intentionally designed showcase. Through a series of purposeful compositional choices, contextualization of artifacts, selection of design and navigation, and curation of content, students could become ePortfolio makers, creating ownership in their learning (Yancey, 2019). Our study was designed to sample student ePortfolio sites to better understand the depth of student reflection and also to determine if ePortfolios in our BSN and ABSN programs are more than a wrapper to a standardized collection.

Over the course of the past decade, nursing professionals have been transitioning from paper portfolios to ePortfolios (Green et al., 2014) to document professional growth and development (Hannans & Olivo, 2017; Madden et al., 2019). Our original ePortfolio goals were to increase students' reflective practice to develop their emerging professional nursing identities and to provide basic knowledge of website building (using WordPress software) in a supported environment. With an authentic audience, initially within and then beyond the University, students are meant to get more comfortable sharing their work with peers and professors and then curate for their learning and for sharing with future employers. Since national and international members of the nursing community have been considering expansion of the use of ePortfolio as a model for relicensure and evidence of clinical competence (Harrington & O'Neill, 2021), students' understanding of design and curation could be instructional for a future professional development portfolio. Libba McMillan et al. (2014), nursing faculty from Auburn University with vast ePortfolio integration experience, note that as students continue to collect artifacts and reflect on their clinical and academic experiences, they create a foundation on which to advance their careers. However, as Miguel Nino and Scott Hicks (2021) note, often students do not transition their learning ePortfolios to career ePortfolios, thus ending their portfolio experience. Our design provides in-class curation support to begin this transition. Since WordPress is open-source software, students need only secure a domain and transfer their content from their UNE site to their own, unlike some portfolios housed in learning management systems (LMS).

No capstone course and limited curation and connection across courses made transition to a career ePortfolio challenging. In our initiative, both BSN and ABSN students receive parallel, direct ePortfolio instruction in their first nursing course and again in one of their final courses. Reflection and artifact collection are incorporated into courses at the faculty's discretion. In the study sample,

some courses required process and project work as well as reflection in ePortfolio while other courses required only one ePortfolio reflection. Susan Kahn (2019) suggests that ePortfolio curation should guide students to articulate their learning across experiences and courses to intentionally build a sense of professional identity. Nursing, as a professional degree program, is well-suited to student development of an ePortfolio that demonstrates the attainment of skills and values of the nursing profession. In Kahn's (2019) program, English majors create a capstone ePortfolio that includes reflections synthesizing their undergraduate experiences as they transition to professional or graduate work. In UNE's nursing program, this articulation occurs during the final semester in the Transition to Practice course, where students examine and redesign their ePortfolios, selecting artifacts and reflections that highlight their preparation to enter professional practice.

After three years of an ePortfolio initiative in the UNE nursing programs, our study examines not only students' reflective writing practices but also their curation and navigational design choices. By categorizing students' content selections, we begin assessing our students' progress toward becoming ePortfolio makers and their sense of professional identity. Like Kahn (2019), we want to provide the right level of guidance to allow student autonomy in analyzing their skills and constructing a professional identity. However, our study highlights the importance of revisiting the purpose of ePortfolio, not only for students but also for faculty. Developing reflective practice as a career skill but also as a valuable synthesis of students' experiences requires hands-on guidance. Also, in our experience, students needed multiple instructional sessions to acquire foundational technical skills to curate their ePortfolio, and faculty needed guidance on constructing prompts that encourage critical reflection. In the absence of a capstone course, ePortfolio development and curation to career ePortfolio can be achieved, but guided support at multiple points is necessary, and deep reflective process can be met by both BSNs and ABSNs regardless of their prior experiences.

## Methods

Our data include a stratified, systematic random sample of publicly accessible ePortfolios from approximately 200 traditional BSN and ABSN students who earned their BSN at the UNE SONPH in May 2021 and May 2022. Twenty percent of ePortfolios from four graduated classes were sampled ( $n = 40$  student ePortfolios, 10 from each of the four cohorts) to determine the level of reflection and to record skills categories and navigational methods. We chose qualitative content analysis, drawing on the work of Maria Impedovo et al. (2013) and Kathryn Wozniak and Jose Zagal (2013). Because the data were publicly available, our project was deemed IRB exempt. The ePortfolios were assigned unique identification codes to protect student privacy in the data analysis. Three types of data were considered and coded (see Appendix A for the data collection tool and Figure 1 for an excerpt):

- ePortfolio design and navigation structures that demonstrated student intentionality in directing the audience
- Cataloging of content
- Analysis of style and depth of student reflection

We followed a grounded theory model for qualitative data analysis, whereby "analysis begins as soon as the first bit of data is collected" (Corbin & Strauss, 1990, p. 6) and then proceeds systematically and sequentially as important concepts emerge. We chose a sample of eight ePortfolios (two from each cohort) to independently assign conceptual codes and develop an initial set of characteristics for each reflective category, after which we compared notes and refined our codes. Initially, we expected to categorize only one first-semester and one final-semester sample, but in practice we determined that we needed at least one more sample to allow for a variety of responses (as some prompt guidelines varied from very detailed in expectation to open-ended). One concept that became

apparent was that many students simply followed design guidelines to meet content requirements but spent little time personalizing and did not take ownership during the curation process. We determined the content and design categories by identifying the features of the “default” ePortfolio and attempting to measure intentionality of design through the variations from the default. In applying the reflection rubrics, we often revisited previously categorized samples to norm our thinking, essentially finding anchor samples to parse differences between reflective categories. Subsequently, we analyzed ePortfolios separately and met regularly to discuss differences until we reached agreement.

Through the iterative process, specific categories emerged for the structural design and featured content choices. Design choices were coded as generic default (0), multiple personalized (2), or somewhere in the middle (1). Personalized design choices could take multiple forms, such as a (non-required) highlights page or the exclusion of a default design element, such as a customized menu to exclude certain content. For example, in Figure 1, three of the four examples shown included some customization design choices but varied in the type of customization. Content choices could encompass one or more of the following: assigned generic content (A), personalized (unassigned) content (P), featured work samples (F), and categorized skill-based content (C), such as student-generated categories. In Figure 1, all students included some assigned content (A).

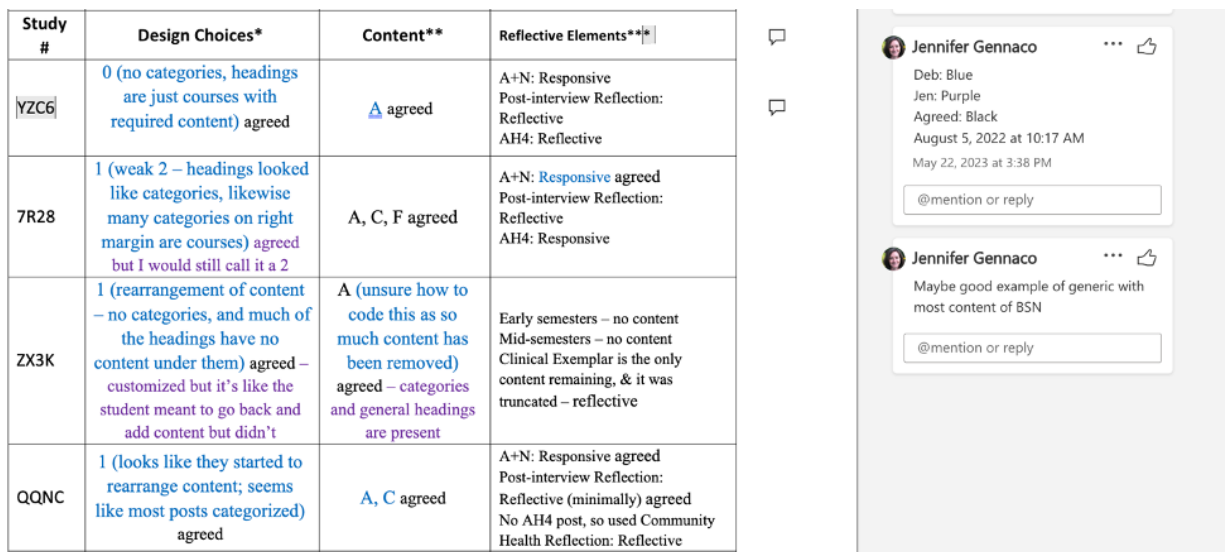


Figure 1: Working copy of the shared comprehensive data collection tool with notes (See Appendix A for data collection key); colored text indicates notes between meetings.

All students were expected to include assigned generic content; however, the content was unique to the individual’s experience. Students may have included text-based or multimodal projects (podcasts or infographics) and reflections based on clinical experiences or examinations of prior or present ethics and beliefs (often in response to a guest speaker or resource about ethical dilemmas). We determined a level of personalization based on how far students deviated from the assigned generic content. Thus, students within a cohort were given the same prompts, but reflection was based on their experiences or choices (see Appendix B for example prompts).

A generic design choice was the result of completing ePortfolio requirements in each course but not curating content. A generic design would include the names of the courses (and course numbers) with associated materials in a dropdown menu. By adding a header image and required content but

not curating the content, the student followed a generic design. Thus, the design choice was coded as "0," such as in sample YZC6 (see Figure 2).

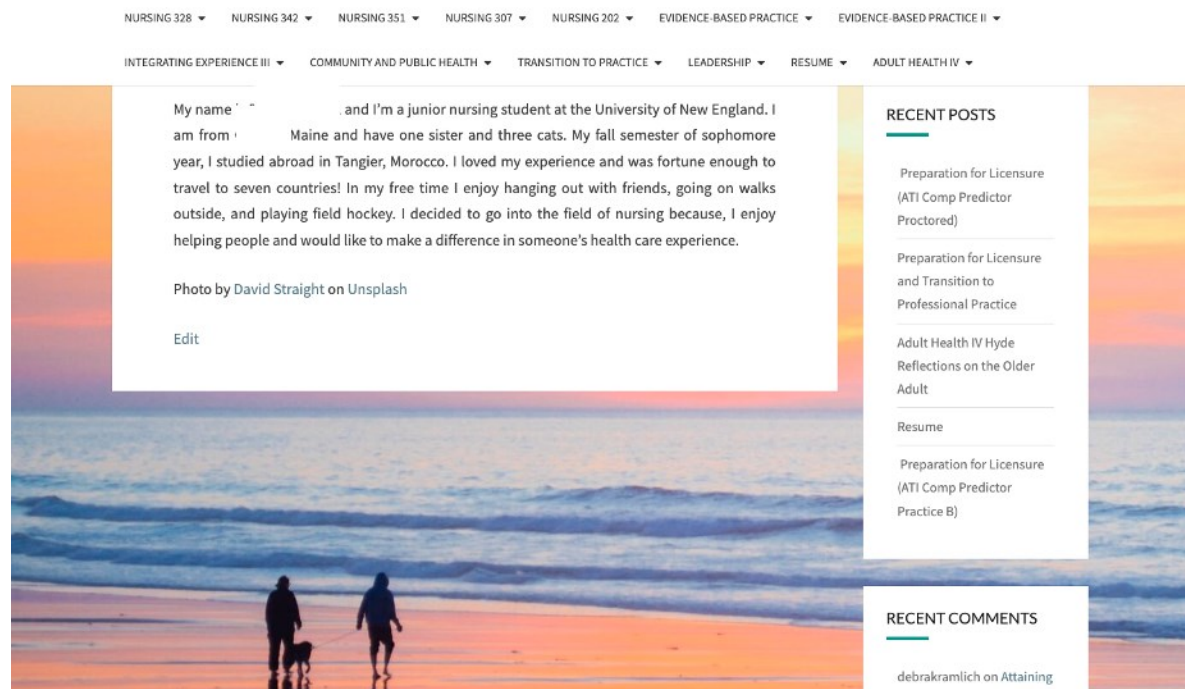


Figure 2: Generic menu and content of YZC6 sample (code = 0) for design choices.

Site 7R28 (see Figure 3) was the only one of this four sample set (Figure 1) to include featured content using a customized menu that included categories/headings, such as self-care, ethics, and collaboration. Because the student featured content, it was coded as a customized design choice (2) with generic (A), categorized (C), and featured (F) content.

Analysis of style and depth of student reflection was guided by a formative reflective writing rubric developed by one of the authors (Deb) and one of the university's writing specialists (see the "Reflective Elements (global)" section in Appendix A: Data Collection Tool). We analyzed select posts from three points in each student's nursing program progression: first semester of nursing courses; either second or third semester; and final semester. If students curated to limit accessibility to assigned reflections (such as removing early course work from the menu), we used the search function to find samples or did not collect data if it was not available (see example ZX3K in Figure 1). We considered the writing prompts for the reflective assignments to contextualize student reflections.

Following final coding of the three data elements, we further grouped the data according to the timeline, frequency, and depth of ePortfolio instruction within the respective cohorts, and we considered course requirement differences. This additional level of analysis illuminated potential influences on student navigational design choices and highlighted content as well as their level of reflection as cohorts did not receive the same level of instruction due to the pandemic. Following the qualitative analysis, two-sample t-tests were performed to compare data across cohorts (ABSN vs. BSN, 2021 vs. 2022) to further explicate any differences in design choices, curation, and level of reflection



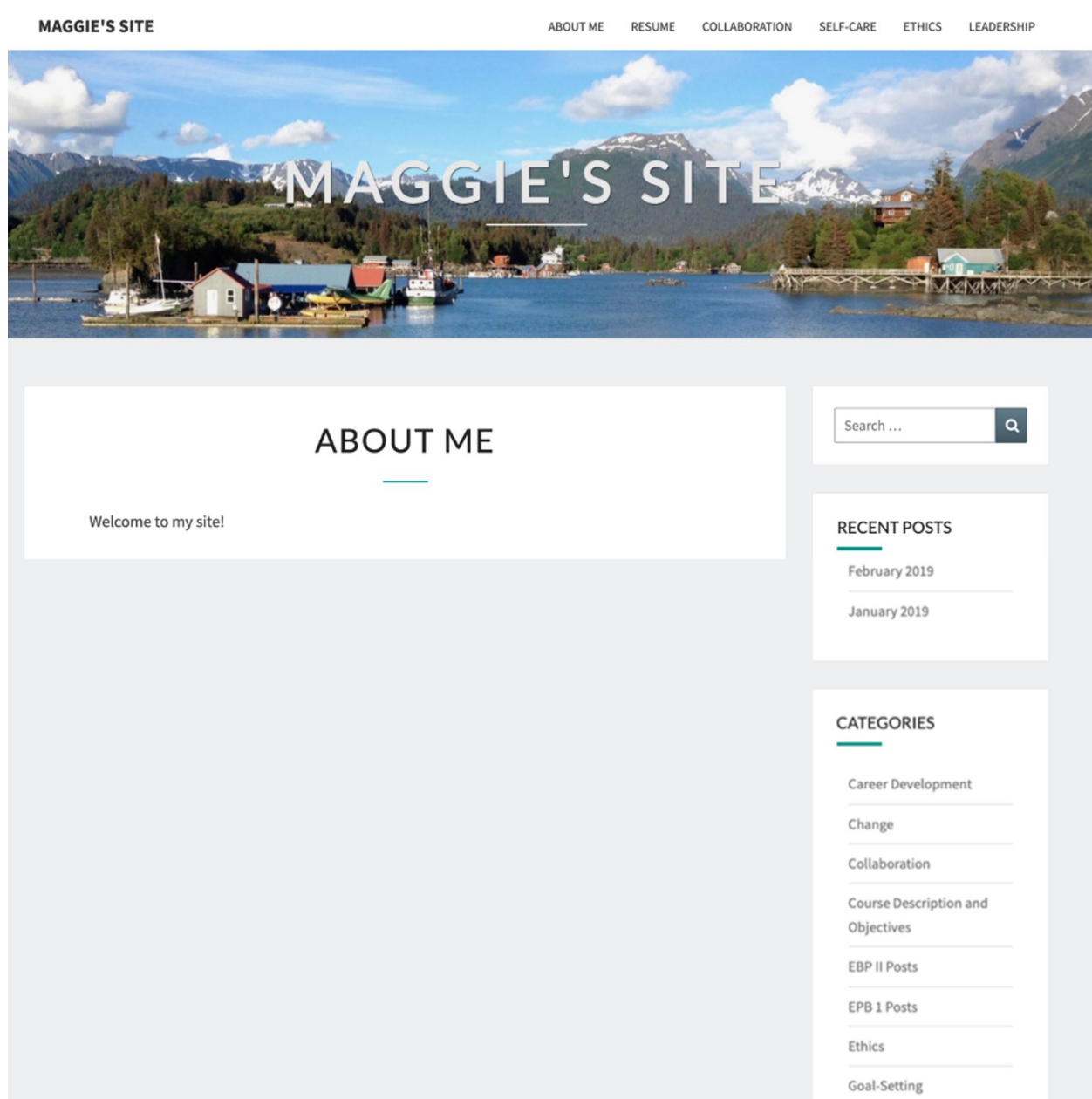


Figure 3: Customized site menu and a categories widget.

## Findings

Our content analysis revealed some compelling patterns, resulting in three main themes that are important for iterative improvement of our ePortfolio initiative. Our first theme, “you get what you ask for in reflective practice,” speaks to the importance of intentionality in designing assignment instructions and prompts. Our second theme, “curation takes time, technical instruction, and expectations,” reminds us that effectively building high-impact ePortfolio practice into the curriculum requires scaffolded, strategically timed instruction, and technical support as well as assigned specifications. Our final theme, “authentic audience matters,” highlights the need to build a folio-thinking culture that encourages students to make the connections between their ePortfolio

practice and professional nursing skills. Although we believed that we had provided some of this structure, our analysis revealed areas for improvement and assumptions that were incorrect.

### **You Get What You Ask for in Reflective Practice**

Students with critically reflective responses demonstrated “thinking like a nurse,” indicating their progress toward developing a professional identity, but reflection assignments were not always constructed to prompt students to critical reflection. Over the first few semesters, both the BSNs and ABSNs demonstrated increasingly more reflection, which one might anticipate as students gain more experience. Interestingly, while this trend continued for both cohorts of ABSNs into their final semester, the same was not true for the BSNs as they showed some regression to lower levels of reflection.

Content in ePortfolio posts seemed to align with prompts provided by faculty as well as the structure and function of the assignment. Descriptive and responsive posts focused on recalling, describing, and reacting to activities whereas reflective responses included elements of questioning or evaluating the degree to which the experience fit with prior beliefs or assumptions. For those students who included an early sample of reflection, only three of the 19 ABSNs and one of the 19 BSNs had an early reflective response. The majority of posts in earlier courses were descriptive or responsive, with very little reflection in part because the prompts elicited descriptive or responsive answers. One assignment instructed the students to post an artistic representation of nursing as an art and write a paragraph explaining their image (See Appendix B: Example ePortfolio Reflection Prompts for this and other prompts). In their posts, some students crafted a more literal response such as including a picture of a nurse holding a patient's hand and discussed that nurses should provide comfort. Others took a more interpretative approach such as including an image of a symbolic representation of nursing, such as a famous artwork or a personal interpretation of how nursing is an art. For example, one student included a picture of their bracelet with the initials “MS.” In the post, they explained that their mother's diagnosis of multiple sclerosis taught them that nurses play a powerful role in providing care and support for their patients. The BSN student wrote, “Nursing is more than a science, but an art. I'm not just becoming a nurse—but the nurse you want to walk into your room... [I want to] become the nurse that I watched help my mom through difficult times...” This content speaks to the idea of comfort but goes beyond the picture as a symbol of a nursing value and into making a personal connection (a characteristic of our responsive category); however, it does not move into the reflective category. At this early point in the program and due to the limited expectation of the prompt, students are unlikely to be deeply reflective because they do not have enough of an understanding of nursing practice to question their assumptions or beliefs, which are characteristic of our reflective and critically reflective categories. This prompt serves to capture students' understanding of nursing at the beginning of their program, which may be valuable when used to compare students' understanding at the end of the program.

Similar assignments early in the program required students to either describe an experience or respond to a prompt, with no instruction for categorization or “tagging” posts to specific skills. Oona Janssens et al. (2022) have noted “tagging” reflections on experiences to specific skills in ePortfolio may facilitate student integration of theory into practice. In our sample, students answered the prompts in posts but, if not directed to do so, were not categorizing the skills that the prompts were meant to illustrate. For example, a post may be categorized by the course number (which was meant to help faculty navigate to their course's work) but not categorized based on a skill or concept, such as collaboration or goal setting. Assignments in later courses explicitly asked students to analyze and reflect on experiences, connect with prior or concurrent experiences in other courses, or project the impact of experiences on future practice. Some of those posts included uploading a more substantial written assignment, such as a formal paper or project, accompanied by guided reflection on the

experience. Student posts for those assignments more often demonstrated deeper levels of reflection, especially when students were instructed to apply categories (“tags”) and connect to course objectives and nursing program outcomes. For example, students interview a nurse leader in a 400-level course (See Appendix B for full prompt), completing a pre-interview reflection, a post-interview reflection, and an essay in connection with this experience. In a post-interview reflection, one student explained that they have always seen their interviewee as a leader but, due to this interview, described the change in their thinking about the qualities of leadership and the balance required to be an effective leader. They also noted ways they would apply the information in their future role as a nurse. Because the prompt required students to move beyond describing the interview and into connecting it to their experiences, the student wrote a more in-depth post that demonstrated a new awareness (an element of our reflective category). Also, this post was categorized as “Nursing Leadership” as opposed to only a course number.

Students need explicit guidance on reflective practice that moves beyond description or a generic response and into critically examining their experiences as a necessary step to building their professional identity. In our sample, the majority of students (both BSN and ABSN) had at least one reflective or critically reflective response, but were not consistently critically reflective in upper-level courses. As noted by John Zubizarreta (2009), students often lack reflective skills or mistake “emotional unloading” for reflection (p. 36). For example, when given the prompt to “reflect on two or more insights you will take away from this course and how each can influence your practice going forward,” one BSN student gave a responsive answer by explaining that aging adults had sexual desires, and even if “many people” view that as “being gross,” the student characterized that judgment as “cruel and ignorant” and vowed to “validate [older adults’] sexual and intimate practices.” Although this may not be overt emotional unloading, the student’s generalization of “many people” points to a lack of self-assessment, yet it also offers an understanding of the expected professional behavior of a nurse. Students typically answered the prompt and did not extend to identify the impact of an experience on their way of thinking or on their preconceived notions unless explicitly prompted.

Another factor that may have contributed to some differences among cohorts is course sequencing coupled with assignment expectations. In the final semester, the ABSNs are enrolled in a high-stakes clinical course while the BSNs complete that course in their next-to-last semester; that clinical course typically consumes most of the students’ attention and overshadows other coursework. Under those circumstances, that the BSNs seemed to regress in the depth of their reflections while the ABSNs continued the trend of deeper reflection seems counterintuitive. Explicit prompts and assessment rubrics, with examples, can help students develop a vocabulary of reflection and facilitate deeper reflection on their learning. The ePortfolio assignments in the final semester mostly lacked grading rubrics and were instead deemed complete if submitted on time. One could surmise that the ABSNs are developmentally more inclined toward deeper reflection and not simply driven by external grade expectations; since they have already earned one degree, they identify more as graduate students with their sights set on a profession and treat their final semester as a capstone experience. The BSNs, on the other hand, have completed what they consider the most rigorous semester of the curriculum, are more relaxed in their final semester, and need explicit grading rubrics to achieve expected standards. This is not typical of nursing programs – most schedule their final clinical immersion (preceptorship, internship) in the final semester. Also, nursing programs typically schedule some type of leadership course at some point in the senior year, as well as other courses that may contribute to a capstone experience. This finding is purely speculation and more qualitative inquiry is needed to support these assumptions. When working with student populations likely to have employment or acceptance into a program prior to graduation, ePortfolio practitioners may consider incentivizing critical reflection through a grade but more ideally through specific feedback that



encourages students to thoughtfully curate their ePortfolios with the expectation of sharing beyond the college or university.

### **Curation Takes Time, Technical Instruction, and Expectations**

Our results indicate that a more robust customization and curation process is needed for students to become ePortfolio makers. Slight but mostly statistically insignificant differences in design choices, content, and levels of reflection were noted between the 2021 and 2022 cohorts for both the BSN and ABSN programs, as observed in the qualitative data and confirmed in the quantitative analysis. Both cohorts graduating in 2022 were slightly more likely to have higher levels of customization and curation, more categorized, featured, and personalized content, and deeper levels of reflection than their 2021 counterparts. The 2021 ABSNs were slightly higher in those elements across the board than the BSNs, but there was very little difference in those elements between the BSNs and ABSNs in the 2022 graduating cohorts. Within the sample, only two (both BSNs) of the forty students performed no curation (see tables in Appendices C and D).

These differences may be explained by several factors, not the least of which was the pandemic-related disruption in instructional opportunities. BSNs are introduced to ePortfolio in their English composition course, usually in their first or second semester. Most (but not all) sections of the English course required ePortfolio for the 2021 BSNs, while all the sections for the 2022 graduates incorporated ePortfolio. Twenty percent of the total 2021 BSN graduates and 10% of the total 2022 BSN graduates transferred or placed out of the freshman English course, and thus did not start an ePortfolio until their first nursing course in the spring of their sophomore year. Although they were adding content and reflection to their ePortfolio regularly, in part due to pandemic challenges, the 2021 BSNs received no additional in-class ePortfolio instruction until their final semester (a gap of three years). During those years, students were taught by some faculty with extensive ePortfolio experience, such as one of the authors (Deb), and some with limited ePortfolio experience. Although instruction about curation and navigation were delivered in person to the 2021 BSN cohort, pandemic restrictions (physical distancing in an auditorium not designed for classroom instruction) contributed to an environment not conducive to collaboration and application of instruction. The 2022 BSNs received brief additional instruction in their first nursing course in the spring of 2020; additional planned instruction was cancelled due to the pandemic. Subsequently, although that cohort of students was assigned ePortfolio reflections in various courses, they received no in-class technical instruction until two years later in a final semester course that prepares the student to transition to professional practice. Adequate technological training and ongoing technical support have been identified as essential facilitators for successful ePortfolio use (Tickle et al., 2022). Although one-to-one support was available in-person and via Zoom through the Student Academic Success Center, most students did not seek additional help. This may have indicated one of several explanations: they were competent in the basics of WordPress software as required content was added to the ePortfolio; the online tutorials were sufficient; or their grades were not impacted by any challenges they may have faced (i.e., creating pages instead of posts, posts not published, etc.).

ABSN students are introduced to ePortfolio in their first semester in a course taught by an adjunct faculty member heavily invested in ePortfolio who also has vast nursing leadership experience. The 2021 graduates received their initial instruction in person, while instruction for the 2022 graduates was delivered remotely due to the pandemic. Their subsequent and final instruction occurred in their last semester (just a year later for both cohorts), in the transition to professional practice course taught by a different faculty member new to the course and less familiar with ePortfolio. Both cohorts of ABSN students experienced pandemic-related conditions similar to the BSNs. A difference with the 2022 ABSN cohort was that the faculty member teaching the transition to professional practice course required the students to begin curation and transition to a professional career ePortfolio, with

peer feedback, as a portion of the course grade. Students were given credit (or not) for their efforts as opposed to being given specific, written feedback about their choices. The activity was meant to encourage students to prepare their sites for sharing with future employers while still allowing the addition of on-going course work. Thus, students were instructed on methods to transition the site but were not required to make the transition until the end of the course.

Although our students shared a common career goal and their reflections sometimes demonstrated their “thinking like a nurse,” most students’ curation did not demonstrate synthesis as explained by Gail Matthews-DeNatale (2019) as “integrating what they derived from the curriculum into their identity” (p. 120) to create a professional ePortfolio that reflects the movement from student to professional. Matthews-DeNatale’s work includes a capstone course within a Master’s program, allowing for more targeted steps toward this goal, but even without a dedicated ePortfolio course, our cohorts of ABSNs and BSNs made progress in constructing professional, public-facing ePortfolio sites with only limited instruction and only a few additional assignments, spread among multiple (but not all) courses.

In a broader view, WAC and WID practitioners guiding students toward polished career ePortfolios may want to customize toward building around career skills and student population’s expected transition into the profession. In the absence of a capstone course, structuring the ePortfolio to incorporate professional skill-based categories that are frequently revisited may create a base of understanding for faculty and students. When working with student populations likely to have employment or acceptance into a program prior to graduation, ePortfolio practitioners may deliver (or offer) curation instruction early in the final semester when most students apply for employment or graduate positions. This may result in students (and faculty) better understanding the value of ePortfolio curation as not only a means of demonstrating their learning via the product (their ePortfolio) but also as an on-going examination of skills, that prepares students for interviews and other more widely known practices, such as writing resumes and cover letters. Again, determining if this programming changes student perception of the value of an ePortfolio is a line for future inquiry.

### **Authentic Audience Matters**

Most of the content in the ePortfolios seemed directed at the respective course faculty to address the outcomes of that course. Thus, the only “audience” was the individual student and the course faculty, reducing the students’ motivation to reflect beyond their response to prompts or assignment requirements. The assignments in several courses included guided, semi-structured peer-review or peer-comment elements, increasing the audience but limiting that expanded audience still to those remaining within the course and cohort. Few courses prompt students to draw on either prior or concurrent experiences in their reflections; doing so could expand the audience to faculty across the nursing curriculum as well as co-curricular experiences. Even fewer courses prompt students to critically reflect on experiences to transform their future practices. Prompts in some courses do ask the students to consider potential future employers as they compose their responses. In upper-level courses focused on career development and transition to professional practice, students are required to upload artifacts such as cover letters and resumes directed at potential employers. They are not, however, required to embed links to their ePortfolios in those documents. Faculty were not expected to review or assess the portfolio on the whole, possibly reinforcing that curation was just another assignment.

One barrier to facilitation of a wider audience was easy access to the student ePortfolios. As noted by Madden et al. (2019), student engagement in ePortfolio is strengthened when the “learning experience is visible, meaningful, and relevant” (p. 88). Making learning visible to an authentic audience, whether that be peers, faculty across the curriculum, or future employers, enhances

learning through intentional connections across relevant experiences. Although most student ePortfolios are publicly accessible, the student posts were challenging to locate for several reasons, including site design, failure to categorize the post, or password-protected posts with no password provided to the instructor. Faculty had invested significant time to locate, read, and respond to student reflections. At the beginning of the 2021–2022 academic year, the university changed its LMS, and the improved LMS provided a means for students to upload links from their ePortfolio to the LMS. This significantly facilitated ease of access to posts and may have contributed to overall improvements from 2021 to 2022 in the ePortfolio elements being analyzed and assessed. Through the use of both the LMS and the ePortfolio site, students were able to maintain the possibility of an authentic audience via ePortfolio while also submitting a direct link for published ePortfolio posts, improving the review process for faculty and recording the submission in the LMS. Even if course content was not categorized correctly or was not easily accessible from the student's home page, the link submitted via the LMS provided faculty with one-click navigation to content. Because many of the courses that incorporate ePortfolio regularly have enrollment upward of 50 students, using this process may encourage faculty to continue requiring that students add content to their ePortfolio. Conversely, the LMS upgrade posed challenges in that new users (both faculty and students) were learning two separate platforms with different log-in credentials and different audiences, which resulted in some students' frustration or negative feelings about ePortfolio, as reported by faculty from comments on course evaluations.

Submitting links from the ePortfolio to the LMS does not support a more comprehensive approach to ePortfolio design and development, but using the links struck a balance between the faculty's administrative desire for tracking and grading in the new LMS and our goal to develop student ePortfolios. Although the students may have felt the extra step of submitting the link was cumbersome, the benefit (particularly during curation) is an important one in building a career portfolio of their own design rather than a prescribe structure determined by the professor. This method also allowed them to rearrange content for curation even while they completed final coursework and reflections.

## Discussion and Implications

Students' navigational design choices, highlighted content, and level of reflection provided insight into their metacognition and perception of high-value content as they transitioned from a learning ePortfolio to a career ePortfolio. The analysis revealed factors that may have influenced the transition of their ePortfolio from a collection of artifacts to a medium for deeper learning through narrative reflection and a showcase of professional practice. Matthews-DeNatale (2019) states that ePortfolio as curricular process is achieved "when past, present, and future converge and act on lessons learned through [students'] narratives" (p. 111). Although students in all studied cohorts demonstrated an awareness of their growing professional skill sets and reflected on their learning during the program, we recognize the potential for more integrative connection as reflection bridges students' past, present, and future into their career ePortfolio.

In our first three years of incorporating ePortfolio, our study indicates that we made progress toward our goal of strengthening and expanding reflective writing practice and in educating faculty and students about ePortfolio as curriculum, despite the obstacle of the pandemic. An integrative review conducted by Nikki Tickle et al. (2022) found that faculty endorsement, digital literacy, timely and meaningful feedback, and clear expectations with assessed outcomes all contribute to students' value of ePortfolio. Although we thought we had addressed many of these areas, our experience has illuminated some weaknesses. For the 2021 and 2022 cohorts, full faculty buy-in had not yet been achieved, expectations were not always clear or formally assessed, and student and faculty fluency with the web-building software had not been adequately scaffolded. Most importantly, students did

not seem convinced that making an ePortfolio would be worth their efforts. Students protested that hiring managers cared only about credentials and certificates and would not be interested in ePortfolio content. Since nursing positions were plentiful, some students articulated that the process of curation was unnecessary. Although the job market for nurses is promising, particularly since the pandemic, we value curation and professional digital presence as an important step in students' developing self-awareness of their skills and the importance of reflection as a lifelong practice. Leslie Cordie et al. (2019) highlights a process of reflection, personal narrative, and personalized ePortfolios to prepare students in varying programs "to communicate their readiness for a career" (p. 24). Although our students had built reflective practice and were able to personalize their ePortfolios, they were not yet demonstrating the personal narrative element as the backbone of their curation. In an assessment of ePortfolio use in eight healthcare fields, Janssens et al. (2022) noted that multiple studies found ePortfolio use to be beneficial for competency-based education (p. 6) and to scaffold into professional development practice (p. 7). Thus, the potential benefits motivate us to improve our process and to convey these benefits to students. Our specific challenges provided us with direction when revising instruction, timing, and feedback about ePortfolio curation.

### **Faculty Endorsement and Training**

Several professors were new to the concept and value of ePortfolio, so in the May 2021 cohorts, their perceived value of ePortfolio may have been minimal. Although all faculty had been introduced to ePortfolio in December 2019, they were not expected to integrate ePortfolio into courses immediately. Faculty had limited experience with the platform and logistics, but many had begun to integrate or revise reflective writing prompts for inclusion into ePortfolio. An unpublished qualitative study conducted by one of the authors (Deb) in 2019 explored the value nursing faculty placed on writing across the curriculum and in the profession. Most of the participants agreed that writing is highly important; one faculty member noted that "It's a form of communication which is vitally important to good outcomes for patients' care" and "it's used to develop critical thinking through reflection..." Faculty recognized the value of reflection but may not yet have seen the potential of ePortfolio as curriculum.

A series of faculty development workshops were scheduled for spring 2020, where both technical and pedagogical guidance was to be provided as faculty integrated ePortfolio. Due to the pandemic, only two faculty development workshops were conducted before the March campus closure, and faculty focus shifted to online teaching with ePortfolio components being integrated by some faculty and not others. Most faculty were present for the workshops, which provided an overview of high-impact ePortfolio practice with a focus on reflective writing, an introduction to WordPress, and an overview of possible multimodal project incorporation. The few faculty members with at least one semester of ePortfolio experience integrated ePortfolio-based projects and reflections as they were more familiar with the technology of ePortfolio, while those new to ePortfolio incorporated fewer ePortfolio assignments as they were focused on redesigning curriculum to fit the unexpected shift to fully online learning, which was an unfamiliar model to many. The result was uneven use of ePortfolio. For example, in one 300-level course, students (taught by Deb) posted and reflected on multiple steps in the process of demonstrating evidence-based practice and reflected on collaborative group work. In another 400-level course, students (taught by a first-semester user of ePortfolio) responded to one reflective prompt about the most impactful part of that 400-level course. To provide faculty support in the pandemic setting, Jen met remotely with faculty (those teaching the 200-level course and a few teaching 300-level courses) in May 2020 and December 2020 to offer guidance with both the technology and prompt development or revision for the following term. Through targeted, individual faculty support, prompts were developed to align with course

content rather than in community with the whole department. Some faculty chose not to meet individually, opting for the more general approach of a prompt based on insights from the course.

Despite these challenges, progress was made in reflective practice and ePortfolio design. Eleven of 16 faculty responded to a spring 2022 follow-up survey to Deb's 2019 study. Nine respondents indicated they had increased the number of written assignments in their courses, primarily using ePortfolio for reflection. Three of the eleven specifically noted assistance from the Multimodal Writing Specialist (Jen) to revise prompts. This process of progressive ePortfolio integration across the curriculum resembles that of the nursing program at Three Rivers Community College (Eynon & Gambino, 2017, p.71). Also, when Jen and faculty members collaborated to create prompts, categories of skills (also referred to as "tagging") were identified and integrated into reflective assignments. Thus, content categorized by course number (to assist professors' navigation) was also being categorized by skill, like "self care," "collaboration," or "leadership." These categories were not program-specific but were intended to help students recognize connections between academic courses and non-academic experiences. An adjustment that would likely encourage students to become ePortfolio makers would be to have the students determine the skills and connections between their content as opposed to the category being "assigned" for each response. Program outcomes and more general categories that stretch across disciplines could serve as guides. Students would likely be more aware of their learning if they were asked to connect each response to a concept or skill, and the curation process would probably result in greater customization to highlight student skills since they would already have thought about and categorized content regularly through the course of earning their degree.

Another initiative within the nursing curriculum's increased ePortfolio use was the introduction of "specifications grading" in non-clinical courses. Specifications grading merges three areas of assessment not usually combined: mastery learning, repeated attempts, and student control of grades. This method promotes student-centered, self-regulated learning, application and prioritization, and achievement of learning outcomes (Nilson, 2015). Students have options for demonstrating achievement of the learning outcomes, including various ePortfolio reflections and projects. ePortfolios have been found to be useful in documentation of self-regulated learning in medical training (van der Gulden et al., 2019), which requires the student to actively participate in their own learning processes through metacognition. As noted by Madden et al. (2019), ePortfolios can provide students with flexible, visual means to present achievement of learning outcomes. Preliminary results of a qualitative study currently being conducted by Deb and another nursing faculty colleague show that students appreciate the flexibility provided by specifications grading and feel more motivated to actively engage with their learning. Many of the students choose ePortfolio projects, some multimodal, and courses using specifications grading require considerable reflection in ePortfolio to demonstrate mastery. Given the increased student satisfaction, faculty teaching non-clinical courses using specifications grading has doubled since 2021, from three to six faculty. A possible next step in this direction may be the inclusion of reflections and artifacts required for an interprofessional honors designation, thus connecting the nursing career ePortfolio to highlight more interprofessional learning.

### **Clear Expectations and Students' Perceived Value**

In all ePortfolio instructional classes, the purpose of ePortfolio is stated: "Craft a space that reflects your goals, experience, and aspirations; Create a professional presence on the Web; Regularly reflect on your learning and analyze your experiences by examining process and product." Students are not explicitly instructed to share with an external audience, but creating a Web presence implies this action. Students appeared to be comfortable with some of their work being publicly available. Public visibility is the default, but students were directed to select/adjust their site visibility settings on at



least two occasions (during the introduction and curation classes). Our sample included only public sites (two of our random sample of 40 sites were network-users only and thus were replaced with public sites for the study). Some content was password protected, indicating that students consciously used the visibility settings to limit the audience for select content.

In our estimation, the minimal curation expectation may have signaled that personalization was unnecessary, and limited feedback may have resulted in a perceived lack of value of sharing. During the curation instruction (a two-hour, in-person class workshop in the final semester), our goal was to start the curation, but the curation was not formally assessed or commented upon by the professor, aside from the 2022 ABSN cohort. The curation instruction encouraged connection of content, a meta-awareness of skill set, and the consideration of an external audience as students were directed to list the skills and expertise that they thought would be most important to their future nursing career. They were then directed to review the categories they had already applied to ePortfolio content and add new content or additional skills as categories to their posts to help visitors understand these skills. About 30 minutes of class focused on design choices (related to theme, accessibility, and customization) and technical instruction for adjusting menus, constructing landing pages, and highlighting featured content. Peer feedback was given in written form at the end of the curation class, and students were encouraged to continue curation. Although professors regularly provide feedback on ePortfolio content, the curation was not formally assessed.

Despite having content from multiple courses and having begun the curation process in class, evidence from the sample ePortfolios revealed that about half of our student sample did not curate in depth. We encouraged students to update their About pages for an external audience, perhaps explaining their motivation for becoming a nurse and highlighting their long- and short-term goals. The majority of students made minor adjustments during the class visit, such as changing pages that originally included course numbers to the course topic or skill (ex. “NSG 445 Leadership” became “Leadership”), removing early course work from the menu, or rearranging coursework under broad headings such as “Nursing” or “Archives.” A few personalized by adding a new category to the menu (for example, one ABSN added the category “Pieces of my Journey” to include posts from a variety of courses). For the ABSN cohort required to curate, these adjustments would satisfy the assignment. The few students who added content did not focus on integrating previous degree knowledge or new course-to-course connections. Of the 40 ePortfolios reviewed, we noted only seven examples of students who clearly added new content aimed at an external audience, mostly in the form of a curated page. One student mentioned an experience in their position as an athletic trainer (their previous degree) as inspiration for becoming a nurse, but they did not connect their previous profession’s skill or knowledge to nursing. Another student incorporated a group video project from a mental health course but did not connect it with nursing content by using a category such as collaboration. Students may have viewed the dedicated class time as enough for curation, and some may have intended to do more but did not, as evidenced by sites with blank pages or truncated posts. As Kahn (2019) notes as a persistent challenge in the English/ePortfolio capstone course at Indiana University-Purdue University, our students’ curation of their ePortfolio did not reflect a unified representation of themselves but rather a collection of course assignments (p. 91). Our curation process is not yet robust enough to adequately support students as ePortfolio makers.

## **Technology and Digital Literacy Considerations**

We anticipated that students would need some direct instruction as most probably had not created websites, but we may have over-estimated students’ comfort level and engagement with a web-building technology. As Paul Kirschner and Pedro De Bruyckere (2017) argue, students dubbed “digital natives” have not necessarily developed technological skills beyond those for socialization or consumption (p. 136) of digital content. In choosing our platform and support model, we did not

presume that students were “digital natives,” even though the majority of our BSN students are recent high school graduates and our ABSN students have likely completed their first degree in the past decade. By providing institutional support and a scaffolded introduction to ePortfolio, as recommended by Tulsa Andrews and Clare Cole (2015), we believed our WordPress multisite would not pose a technological hurdle. Unlike some programs where students self-select web-building software (Wix, Weebly, etc.), our sites are UNE-sponsored, allowing a UNE-based administrator (Jen) to provide instruction and peer tutors to provide technical support through our Student Academic Success Center. Providing an “array of forums” for support (Andrews & Cole, 2015, p. 571), online tutorials for WordPress were also available via our [www.uneportfollio.org](http://www.uneportfollio.org), a public site (thus, analytics for our cohorts' usage cannot be determined).

## Adjustments Implemented

During our first three years, we provided parallel instruction, but considering our study findings and anecdotal evidence, we have modified some instruction for BSN vs. ABSN students. We frame the ePortfolio experience more intentionally from the beginning and create more opportunities for students to recognize the connection between ePortfolio content and program outcomes. ABSN students are now encouraged to include previous work experience or knowledge in the field of their first degree, which varies slightly from BSNs.

The nursing curriculum for BSNs has evolved, providing new possibilities. With the 2021 and 2022 graduates, in-class ePortfolio instruction was given in two sessions (once at the beginning of the nursing curriculum in the spring of their sophomore year and once at the end of the program). Since most had begun ePortfolio in their required English course in their first year, a year or more may have passed between initial use and use in their first nursing course. Currently, BSN students get in-class instruction in the new 100-level nursing course, so most students will use ePortfolio for two courses in their first year. In this 100-level course, BSNs are also instructed to add the Maine Core Competencies as categories and to write a first post about a prior experience that connects to a competency (for example, leadership or collaboration). BSNs are also encouraged to make connections with concurrent course work and co-curricular activities. BSNs use the WordPress platform in 100- through 400-level courses, providing more opportunity for regular, scaffolded technical instruction and content categorization.

In our study sample, public site visibility indicated that students may have shared, but anecdotally, many appeared reluctant to share with an external audience. Professors informally reported resistance from some students to develop an ePortfolio. We did not specifically poll students about their visibility choices, but when revisiting the study sample sites after our initial data collection, we found that no students included their site link on their draft resumes. After the curational class, they may have shared on their resume or in cover letters, but we can only confirm that one student in our sample definitely shared.

Although not part of this study, we wondered if this resistance was an indication of perceived value of ePortfolio. In July 2022, the DigiSpace Coordinator (Jen) spoke with two May 2022 ABSN graduates, based on one of them (coincidentally in our random study sample) contacting then Interim Director of Nursing (Deb) about their post-graduate ePortfolio experience. Arman, the student who shared his ePortfolio on his resume, had an interviewer ask specific questions about its content. Arman believes sharing his ePortfolio resulted in an excellent interview, which led to an offer. Arman mentioned that unlike some of his classmates who had highly curated sites, he did not think hiring managers would view his site, so he minimally curated. In follow up to that conversation, Jen reached out to one of Arman's classmates, David, who agreed to discuss his use of ePortfolio. David also did not believe anyone would view the site, so although he had curated in-depth, he did not share. David

noted that timing was problematic because he had already applied for positions before curation and had not considered referencing his ePortfolio after curation. As noted in the reflective practice analysis, ABSN and BSN students have a slightly different sequence of courses, aside from the shorter completion time of the ABSN program. For the ABSNs in this study, anecdotal evidence indicates that many had applied for or secured positions before the curation instruction, and they were also simultaneously enrolled in a high-stakes clinical course, either being a potential reason that they did not complete a robust curation. Additional study is needed to learn the percentage of students who shared their ePortfolio with an external audience and the audience's reception.

Contextually, we also understood that in 2021 and 2022, nurses were in high demand. We created videos to highlight that ePortfolio may be a distinguishing factor, perhaps providing an "edge" over other recent graduates for competitive positions, and the process of curation provides preparation for interviewing. We added promotional videos into the introductory tutorials to articulate the career-based value of ePortfolio, including a testimonial featuring Arman (Gennaco, 2022).

Based on our study and the anecdotes from the ABSN graduates, we implemented changes to the curation process. First, for 2023 graduating BSN and ABSN groups (not included in this study), we expanded curation to two class visits rather than one. We moved the first curation class to earlier (into their second to last term). Curation is now a required element in the Transitions course (both BSN and ABSN cohorts complete in their final semester), and instruction includes time in class for discussion and application of categories that are connected to the Maine Nurse Core Competencies (Maine Partners in Nursing Education and Practice, 2013) and UNE program outcomes. If ABSNs apply for positions early in their final term, the curation of their site prior may encourage inclusion of their ePortfolio, even as they continue building it. Earlier curation instruction will also give them an opportunity to revisit content and note growth. Additionally, two student testimonial videos were piloted in June 2023 to illustrate curation approaches and provide modeling of curation.

The second change is to align the ePortfolio with career pursuits. Students make an About page as the first piece of content on their site and revise it as part of one of the curation classes. Cordie et al. (2019) suggest that a best practice is for an About page or similar assignment to help "students formulate their professional goals and construct a personal narrative that synthesizes into a professional identity" (p. 24). In collaboration with the Career Advising department, we have begun to integrate ePortfolio curation and career-based workshops into a series of class visits delivered by a career advisor and the DigiSpace Coordinator (Jen). We have implemented activities to have students analyze their skill set, use categories to connect content, incorporate previous work experience, and match content to resumes. Curation support is available in one-to-one session as well. At the completion of each of the career/curation classes, we gather student feedback, inquiring about sharing with potential employers. Further study will inform additional changes.

## Limitations

The limitations of a qualitative analysis of one program within an institution must be acknowledged. Our sample included only publicly accessible sites. Sites were randomly chosen for analysis and may not have accurately represented the range of structures, content, and reflection found in the full cohorts. The formative writing rubric used for analysis of style and depth of reflection was piloted and has not undergone psychometric testing, so validity and reliability cannot be assured. The authors could not be blinded to the students whose sites were included in the analysis, so care was taken to acknowledge potential biases and avoid making conclusions beyond the evidence presented. Our resources limited our collection of follow-up data from students now graduated one or two years ago, leaving us to lean on unverifiable anecdotal evidence. For example, we did not survey students

regarding if they shared their sites with anyone beyond UNE, so we are unsure of the impact of the ePortfolio on an external audience.

We anticipated that students would enter the program with varying levels of digital literacy, but we did not anticipate the extent of this challenge. Our BSN students are typically younger and thus have had more exposure to technology for academic purposes, which we believed would make them more at ease with learning new technology. Although the ABSNs have a prior degree, their comfort with academic technological tools is likely more varied, and despite orientations, learning to use an LMS simultaneously with ePortfolio software, may have posed a bigger challenge than we understood. Although we did not compile data on this point, anecdotally, some students shared that they had not used digital tools to compose beyond creating an occasional presentation or for word processing. We assumed that most students use websites on a daily basis and would recognize terminology and common navigational features like menus and categories, but that may not have been the case. Further study is needed to better identify additional support needed to overcome gaps or resistance.

## Conclusions and Future Directions

Findings from this study have provided additional information to improve ePortfolio integration into the Nursing curriculum on many levels. In our first three years, we have made progress integrating reflective practice and digital skills. By expecting students to overtly label and map program outcomes to course work and through curation, we are working students toward a deep understanding of their skills. Our results also indicate that our BSN cohorts are not at a significant disadvantage in reaching critical reflective practice compared to the ABSNs. Although ABSNs may bring more life experiences, they are not generally more critically reflective, and they do not necessarily connect their prior experience to their nursing coursework.

We have learned that both faculty and students require more support in a few key areas. For both BSN and ABSN students, more dedicated time to establish confidence in the value of ePortfolio and more technical support may increase personalization of student ePortfolios. We need to engage faculty more holistically in the process for ePortfolio prompt development and placement within the program as well as in revision to yield student responses with more critical reflection and connection to prior and co-curricular experience.

Convincing students of the value of ePortfolio continues to be a challenge. Especially since the pandemic, health care workers are in high demand, and students will likely encounter employers who are not looking beyond the basic credentials to fill positions. We must promote ePortfolio curation as a meaningful activity rather than an assignment. This may become easier as more nursing courses continue to assign reflective writing that encourages students to “comprehend how their classroom learning and field experiences support their preparedness for accomplishing professional goals and improve their ability to communicate to a professional audience” (Cordie et al., 2019, p. 24). But these reflection prompts must also include a stronger emphasis on transferrable skills, connecting previous experiences, current co-curricular experiences, and potential future experiences. We aspire to “Personalized ePortfolios that are specific to students’ goals and experiences while [we offer] guidance and practice on the process (artifacts, reflective writing, use of technology) rather than the exact content” (Cordie et al., 2019, p. 24). To help students meet this level, we need to offer more guided support, both in person and via asynchronous resources.

Another future change for both faculty and students would be to incorporate a better review and feedback process. We must continue to assess the best placement for feedback on site curation and also site-building. Students may not curate in the same timeframe, but they may benefit from the opportunity to revisit and self-assess their site content more regularly. Establishing accountability will signal that the content is important, but should it only be the responsibility of the faculty and/or

Multimodal Writing Specialist to offer feedback during a final course? Might advisers or other faculty have time or interest in providing feedback on curated ePortfolios? What assessment method might we employ? We must find a way to provide more instructional guidance and feedback throughout the process within an already rigorous program that does not include a capstone or ePortfolio course.

For faculty, an improved process for reflective writing prompts and feedback could be adopted. In part due to the pandemic, prompts were developed without full consideration of placement in the curriculum. Expanding this process to a department-wide activity would create the opportunity to discuss and revise with more intentionality. This process could also include an informal faculty peer review, allowing faculty to better connect course activities.

Our experience and findings from this study have provided some key takeaways that those interested in ePortfolio as a means for students to cultivate reflective practices and showcase their learning across the curriculum may find valuable, particularly in professional programs. First, we recommend articulating a clear purpose for the ePortfolio to include relevance to the students' future profession, preferably supported by evidence, while also emphasizing the value of curation as a step toward securing a desired position within that profession. Second, faculty need sufficient preparation (technical and support to assess/evaluate/provide feedback on reflective writing). Third, the students' level of technical literacy and guidance toward critical reflection through well-designed prompts must be cultivated through practice. Finally, mapping reflection and course work to skills and outcomes does not translate to students being ePortfolio makers, particularly without a capstone or ePortfolio course. However, as within an ePortfolio capstone course, we will continue to aim toward a "demonstration and articulation of learning gains, transition planning, and integrative learning" (Kahn, 2019). Despite a variety of challenges, deep reflective practice and a curative process that guides students to constructing a professional nursing identity feels attainable for our BSNs and ABSNs, despite their prior experience and educational backgrounds.

## Appendix A: Data Collection Tool

To organize our data collection, we created this spreadsheet with descriptions. Since we independently completed the spreadsheet, we used our meeting times to hone the descriptions and resolve any conflicting scores.

Study #	Design Choices*	Content**	Reflective Elements***

### *\*Design Choices: 0-2 scale*

**0 Generic Default.** Follows assigned navigation structure.

Menu likely includes required content such as About page, Resume page, Course pages with dropdown to assignments or generic course categories (e.g., NSG 353 category).

**1 Low-level Customization.** Generic default with one intentional navigation method.

Menu rearranges required content in some way, such as by skill or content; may include removing content from menu. Category navigation widget may or may not be on the home page. Recent posts are uncategorized.

**2 Curated.** Design that includes a curated navigational method and one other navigational method.



- Showcase/highlight or About page, includes curation through embedded navigation to other content (i.e., embedded posts or hyperlinks)
- Menu rearranges required content such as by skill (e.g., self-care, collaboration) or content (e.g., research page with dropdown menu to samples from different courses)
- Categories widget is present on home page and categories are applied to most posts

**\*\*Content: Multiple may apply.**

- **Assigned generic (A) content** (About page, Resume page, Course pages)
- **Categorized (C) content** (evidence-based practice, leadership, interprofessional practice, etc.)
- **Featured (F) work samples** (featured posts, curated collection of samples on menu or page)
- **Personalized (P) content** (personalized additions that were not ePortfolio assigned pieces, may include content from non-Nursing courses)

**\*\*\*Reflective Elements (global)**

**Descriptive (D):** Describes or summarizes experiences, observations, or activities. Addresses prompt(s) at a factual level by focusing only on what happened or was stated.

**Responsive (Res):** Responds to experiences, observations, or activities. Addresses prompt(s) at a level that identifies key issues; focuses on a challenge/ concern / conflict / question; information is prioritized and connections to self are made. May answer relevant “why?” and “how?” questions.

**Reflective (Ref):** Questions, evaluates, or affirms prior perceptions, actions, or beliefs/values related to experiences, observations, or activities. Addresses prompt(s) at a more personal level; demonstrates new awareness of self or others by using a “before” and “after” explanation/comparison of assumptions and beliefs.

**Critically Reflective (CR):** More deeply examines beliefs, values, and assumptions over time, noting how new awareness has led to transformation: a different way of thinking or behaving. Explains how learning was/will be applied to new situations and future practice.

## Appendix B: Example ePortfolio Reflection Prompts

Note: The four semesters of the ABSN program align with the final four semesters of the 8-semester BSN program.

Cohort/semester	Course	Assignment	Excerpt of prompt
ABSN 1st semester Nursing program	Passport to Integration	Art and Nursing	Each student is to take a photo of any type of art medium (painting, sculpture, glass art, etc.) that speaks to them on how nursing is an art and will write a descriptive paragraph explaining their choice and what it means to them.
BSN 1st semester Nursing program	Integrating Experience I	Collaboration in Nursing	Each student is to identify an image (painting, sculpture, glass art, etc.) or a song that reflects on the value of collaboration and will write a descriptive paragraph

			explaining their choice. Upload to your ePortfolio.
ABSN and BSN 3rd semester of Nursing program	Integrating Experience III	Death with Dignity	In a thoughtful, two- to three-paragraph post, reflect on the following: <ul style="list-style-type: none"> <li>- Discuss your preconceived thoughts and” baseline knowledge of death with dignity. Include your initial thoughts, feelings, and viewpoints on the topic prior to completing the readings and watching the videos.</li> <li>- How does death with dignity challenge your beliefs of the first ethical principle, nonmaleficence, or do no harm, which is directly tied to the nurse's duty to protect the patient's safety?</li> </ul>
ABSN 3rd semester Nursing/ BSN 4th semester Nursing program	Leadership	Interview	Post-Interview reflection: What did you learn from this interview about leadership in nursing? How would you rate the quality of their self-awareness/management vs. their social-awareness and management? What surprised you? What responses reinforced your knowledge? How did this interview influence your feelings about this leader? How will you apply this new knowledge in your future nursing career?
ABSN and BSN 4th semester of Nursing	Gerontology	Course Reflection	In this course, you have been asked to examine, from a holistic, caring perspective, the complex challenges and unique adaptations that face aging adults... The purpose of this ePortfolio assignment is to reflect on two or more insights you will take away from this course and how each can influence your practice going forward.

## Appendix C: Group Statistics

### Table Legend:

- Design Choices/Curation: 1=generic default; 2=low-level customization; 3=curated
- Content: 1=assigned generic; 2=assigned + categorized; 3=assigned + featured; 4=assigned + categorized + featured; 5=assigned + categorized + personalized; 6=assigned + categorized + featured + personalized
- Reflective Elements: 1=descriptive; 2=responsive; 3=reflective; 4=critically reflective

Design Choices/Curation (scale 1-3)	
Cohorts	Mean (Standard Deviation)

BSN 2021	2.10 (.56765)
ABS N 2021	2.40 (.51640)
BSN 2022	2.50 (.70711)
ABS N 2022	2.50 (.52706)
<b>Content (scale 1-6)</b>	
Cohorts	Mean (Standard Deviation)
BSN 2021	2.70 (1.33749)
ABS N 2021	3.10 (1.44914)
BSN 2022	3.40 (.966)
ABS N 2022	3.40 (1.90)
<b>Reflective Element 1 (scale 1-4)</b>	
Cohorts	Mean (Standard Deviation)
BSN 2021	1.4444 (.52705)
ABS N 2021	1.6667 (.500)
BSN 2022	2.10 (.73786)
ABS N 2022	2.20 (.63246)
<b>Reflective Element 2 (scale 1-4)</b>	
Cohorts	Mean (Standard Deviation)
BSN 2021	2.40 (.69921)
ABS N 2021	2.7778 (.66667)
BSN 2022	3.00 (.47140)
ABS N 2022	2.90 (.73786)
<b>Reflective Element 3 (scale 1-4)</b>	
Cohorts	Mean (Standard Deviation)
BSN 2021	2.80 (.78881)
ABS N 2021	3.00 (.81650)
BSN 2022	2.70 (.82327)
ABS N 2022	2.90 (.73786)

### Appendix D: Results of Independent t-tests

<b>Design Choices/Curation</b>	
Cohorts	Significance (2-tailed)
BSN 2021 vs. BSN 2022	.180

ABS N 2021 vs. ABS N 2022	.673
BS N 2021 vs. ABS N 2021	.232
BS N 2022 vs. ABS N 2022	1.000
<b>Content</b>	
Cohorts	Significance (2-tailed)
BS N 2021 vs. BS N 2022	.198
ABS N 2021 vs. ABS N 2022	.696
BS N 2021 vs. ABS N 2021	.529
BS N 2022 vs. ABS N 2022	1.000
<b>Reflective Element 1</b>	
Cohorts	Significance (2-tailed)
BS N 2021 vs. BS N 2022	.039*
ABS N 2021 vs. ABS N 2022	.057
BS N 2021 vs. ABS N 2021	.372
BS N 2022 vs. ABS N 2022	.749
<b>Reflective Element 2</b>	
Cohorts	Significance (2-tailed)
BS N 2021 vs. BS N 2022	.039*
ABS N 2021 vs. ABS N 2022	.709
BS N 2021 vs. ABS N 2021	.245
BS N 2022 vs. ABS N 2022	.723
<b>Reflective Element 3</b>	
Cohorts	Significance (2-tailed)
BS N 2021 vs. BS N 2022	.785
ABS N 2021 vs. ABS N 2022	.777
BS N 2021 vs. ABS N 2021	.584
BS N 2022 vs. ABS N 2022	.574

\*Statistically significant at  $p < .05$

## References

- Andrews, Tulsa, & Cole, Clare. (2015, April). Two steps forward, one-step back: The intricacies of engaging with ePortfolios in nursing undergraduate education. *Nurse Education Today*, 35(4), 568–572. <https://doi.org/10.1016/j.nedt.2014.12.011>
- Corbin, Juliet M., & Strauss, Anselm. (1990, March). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13, 3–21. <https://doi.org/10.1007/BF00988593>

- Cordie, Leslie, Sailors, Jamie, Barlow, Becky, & Kush, John S. (2019). Constructing a professional identity: Connecting college and career through ePortfolios. *International Journal of EPortfolio*, 9(1), 17–27.
- Eynon, Bret, & Gambino, Laura M. (2017). *High-impact ePortfolio practice: A catalyst for student, faculty, and institutional learning*. Stylus.
- Gennaco, Jennifer [Jennifer Gennaco]. (2022, August 11). *Arman discusses ePortfolio's role in helping him get a nursing position* [Video]. YouTube. <https://youtu.be/NNIJoCtuEc8>
- Green, Janet, Wyllie, Aileen, & Jackson, Debra. (2014, January). Electronic portfolios in nursing education: A review of the literature. *Nurse Education in Practice*, 14(1), 4–8. <https://doi.org/10.1016/j.nepr.2013.08.011>
- Hannans, Jaime, & Olivo, Yosemite. (2017, November). Craft a positive nursing digital identity with an ePortfolio: Take advantage of your digital footprint to demonstrate your skills and experience. *American Nurse Today*, 12(11), 48–49. <https://www.myamericannurse.com/craft-a-positive-nursing-digital-identity-with-an-eportfolio/>
- Harrington, Tracey, & O'Neill, Sandra. (2021, December 11). Adoption of e-portfolios for registered nurses & midwives professional registration and revalidation in Ireland. *Irish Journal of Technology Enhanced Learning*, 6(1), 138–153. <https://doi.org/10.22554/ijtel.v6i1.100>
- Impedovo, Maria Antonietta, Ritella, Giuseppe, & Ligorio, Maria Beatrice. (2013). Developing codebooks as a new tool to analyze students' ePortfolios. *International Journal of ePortfolio*, 3(2), 161–176. <http://www.theijep.com/pdf/IJEP107.pdf>
- Janssens, Oona, Haerens, Leen, Valcke, Martin, Beeckman, Dimitri, Pype, Peter, & Embo, Mieke. (2022, August). The role of ePortfolios in supporting learning in eight healthcare disciplines: A scoping review. *Nurse Education in Practice*, 63. <https://doi.org/10.1016/j.nepr.2022.103418>
- Kahn, Susan. (2019). Identity development as curriculum: A metacognitive approach. In Kathleen Blake Yancey (Ed.), *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy* (pp. 89–105). Stylus.
- Kirschner, Paul A., & De Bruyckere, Pedro. (2017, October). The myths of the digital native and the multitasker. *Teaching and Teacher Education*, 67, 135–142. <https://doi.org/10.1016/j.tate.2017.06.001>
- Lasater, Kathie, & Nielsen, Ann. (2009). Reflective journaling for clinical judgment development and evaluation. *The Journal of Nursing Education*, 48(1), 40–44. <https://doi.org/10.3928/01484834-20090101-06>
- Madden, Karyn, Collins, Emma, & Lander, Patrick. (2019). Nursing students' perspectives on ePortfolios: Themes and preferences compared with paper-based experiences. *International Journal of ePortfolio*, 9(2), 87–96. <https://theijep.com/pdf/IJEP327.pdf>
- Maine Partners in Nursing Education and Practice. (2013). *Maine Nurse Core Competencies*. [http://www2.nmcc.edu/media/download\\_gallery/MaineRNCompetencies.pdf](http://www2.nmcc.edu/media/download_gallery/MaineRNCompetencies.pdf)
- Matthews-DeNatale, Gail. (2019). Untangling the past and present while weaving a future: ePortfolios as a space for professional discernment and growth. In Kathleen Blake Yancey (Ed.), *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy* (pp. 107–122). Stylus.
- McMillan, Libba Reed, Parker, Francine, & Sport, Andrea. (2014, April). Decisions, decisions! E-portfolio as an effective hiring assessment tool. *Nursing Management*, 45(4), 52–54. <https://doi.org/10.1097/01.NUMA.0000444882.93063.a7>
- Nilson, Linda B. (2015). *Specifications grading: Restoring rigor, motivating students, and saving faculty time*. Stylus.
- Nino, Miguel, & Hicks, Scott. (2021). The 6A ePortfolio model: Professionalizing learning in higher education. *International Journal of ePortfolio*, 11(2), 95–107. <http://theijep.com/pdf/IJEP375.pdf>
- Tickle, Nikki, Creedy, Debra K., Carter, Amanda G., & Gamble, Jenny. (2022, October). The use of eportfolios in pre-registration health professional clinical education: An integrative review. *Nurse Education Today*, 117. <https://doi.org/10.1016/j.nedt.2022.105476>
- van der Gulden, R., Heeneman, S., Kramer, A. W. M., Laan, R. F. J. M., Scherpbier-de Haan, N. D., & Thoonen, B. P. A. (2020). How is self-regulated learning documented in e-portfolios of trainees? A content analysis. *BMC Medical Education*, 20, 1–13. <https://doi.org/10.1186/s12909-020-02114-4>



- Wozniak, Kathryn, & Zagal, Jose. (2013, June). Finding evidence of metacognition through content analysis of an ePortfolio community: Beyond text, across new media. In Nikol Rummel, Manu Kapur, Mitchell Nathan, & Sadhana Puntambekar (Eds.). *Conference on Computer-Supported Collaborative Learning (CSCL) 2013 Proceedings* (pp. 189–192). DePaul University. <https://repository.isls.org/handle/1/1804>
- Yancey, Kathleen Blake. (2019). *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy*. Stylus.
- Zubizarreta, John. (2009). *The learning portfolio: Reflective practice for improving student learning* (2<sup>nd</sup> ed.). Jossey-Bass.

## Note

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