



# Pre-Service Educators Developing a Digital Identity

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## Abstract

This article discusses a study on preservice education students and the implementation of digital identities through self-constructed websites in a technology course. Researchers investigated the process of helping educators create a domain of their own while they consider the role of technology and digital identities in their future classrooms. Data revealed themes that focused around building the website and building a digital identity. The researchers contend that there is a continuum of three stages that exist for students to engage in web literate practices. These stages include being consumers, curators, and creators of digital content. These stages are not meant to be viewed as a linear process, but as an opportunity to review instructional practices, and literacy strategies in learning environments.

**Keywords** Digital identity · Domain of one's own · Digital literacy · Digital portfolio · Online learning environments

## Introduction

As educators in networked spaces, we utilize a variety of digital texts and tools to create and curate representations of our presented identities. We may have portions of this content shared by institutional affiliations, such as school websites. We may use social networks to tweet, respond, and share thoughts about teaching, research, and important events with our professional learning networks. We use proprietary learning management systems to house and share pedagogical materials. This assemblage of texts, spaces, and screens link together to create and maintain our personal and professional digital identities. The problem is that as we engage in these digital literacy practices, we do so in a siloed system in which we do not have full control over what is shared about identity, or for how long this will last.

In most educational settings, there are not many attempts to openly build a student or educator's digital identity (Yuan & Powell, 2013). Block (2007) defined identity as a series of "socially constructed, self-conscious, ongoing narratives that individuals perform, interpret, and project in dress, bodily movements, actions and language" (p. 32). Identity construction may be conducted in face-to-face or digitally networked

spaces. Digital identity is defined as a fluid, context-dependent representation of the visible elements online content that leads to the investment (Darvin & Norton, 2015) of imagined identities (Pavlenko & Norton, 2007) within imagined communities (Anderson, 1991). Across these practices, identity construction is about the negotiation of new subject positions at the crossroads of the past, present and future (Block, 2007, p. 27).

Much of the work of identity construction in educational settings focuses on the online learning management system (LMS). In classrooms from kindergarten through higher education, this includes the use of Google Classroom, Google Apps for Education (i.e., Google Docs, Sheets, Slides), Blackboard, or other proprietary systems. Ease of use and access is often the primary motivator as digital texts and tools are provided by the learning institution. Educators and students are given a space for online and hybrid engagement, with little concern for issues of privacy, security, and ownership of intellectual property. Learners and instructors utilize these spaces while the system is monitored and administered by someone designated by the institution. These systems and their administrators often are changed or abandoned as new systems and tools are made available, or personnel turnover occurs. Recent work suggests moving from portfolios and digital portfolios to enabling students to build and maintain a domain of their own (O'Byrne & Pytash, 2017).

Adding to this problem is that even though the Internet has become a central part of personal and professional life for the more than three billion people who access it daily, the more

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challenging demands of digital and web literacies, especially for academic purposes, are little understood and seldom taught in school. Preparing educators to integrate technologies strategically to support student learning is one of the most important issues facing educators around the world. As we grow and change over time, small parts of our identity are caught up and possibly left behind in these silos. Furthermore, it is hard to craft the representation of your identity as the businesses and algorithms that control these texts and spaces usually determine and control how you represent yourself online. To combat these concerns, there is a need to create opportunities for students to engage with digital tools in online spaces across their academic careers (Turner et al., 2017).

To address these challenges, we believe that students need to develop and maintain a domain of one's own, one online space that students build up from Pre-K through higher education to allow for documentation of learning over time (O'Byrne & Pytash, 2017). These web spaces can be used for content ranging from personal to professional. The key advantage of having users create and share their own content is that they are portable. Educators and students can create and document learning over time, and when they move on to another physical institution, their digital work can follow them. This digital portfolio documents not only lessons learned but also the steps taken as we engage in web literate practices. This is necessary as we often have discussions about aspects of access, agency, and empowerment of individuals in networked spaces. Educators need to be well versed in the theory and application of diverse digital tools to support student learning so that, by extension, they feel equipped to prepare children to thrive in a complex, globally networked age.

To make this a reality, there is a need to have educators, particularly pre-service teachers, have opportunities to engage in these practices. There is a need for digital spaces in which educators can actively create, build, and modify content as they create representations of their identities. This research encompasses two research questions by having students in higher education develop digital portfolios and a domain of their own.

- How do students in undergraduate and graduate-level educational programs view the role of digital content construction in the context of social and connected online learning environments?
- How do pre-service teachers apply/integrate constructing online content into their work across the program as they develop their digital identity?

This study explores important research questions about literacy and technology inclusion practices in many educational contexts. Participation in this study by the target population of pre-service educators provides more exposure for them in their local contexts and identifies future uses of digital texts

and tools in instruction. Findings provide insight into the knowledge, skills, and dispositions that skilled educators use as they integrate digital literacies into instruction as we prepare individuals for full participation in a global society.

## Moving from Theory to Construction of Digital Identities

To frame this study, we incorporated several perspectives, including those from multiliteracies, social scholarship, and identity as a literacy practice. These perspectives are the foundation upon which we tested and modified an instructional model for providing direct instruction and experience in digital media construction and connected learning for pre-service and veteran content area teachers. In addition, we were guided by prior work in the development of portfolios and digital portfolios in educational settings.

### Multiliteracies Design

Multiliteracies is founded with a perspective of social change to empower learners as “active designers of social futures” (Cope & Kalantzis, 2000). This active design process embeds critical literacy perspectives to encourage students as they are “reading the word and reading the world” (Freire & Macedo, 1987) while integrating the teaching of writing (Cope & Kalantzis, 2000) and the use of technology. Pedagogy defined by multiliteracies theory builds aspects of critical engagement between students and text to promote equity and access through the process and product of design. In this study, multiliteracies was viewed as a tool to assist pre-service teachers in designing online texts and representations of their presented identities.

### Social Scholarship

Social scholarship examines the use of digital, social spaces that impact how and why scholarship is conducted (Greenhow et al., 2009). Social scholarship provides opportunities to connect formal scholarship with informal, socially-mediated web literate practices (Boyd & Ellison, 2007). The practices involved in social scholarship ultimately become a representation of the individual as the content they create, share, and interact with (e.g., Facebook or Twitter reactions) and exist within networked publics (Boyd & Ellison, 2007). In effect, when an individual attempts to create meaning in the world, the associated activities can be viewed as collective socio-collaborative acts of meaning that impact their educational and social identities.

## Identity as a Literacy Practice

Presented representations of identity are socially constructed, and enacted by the individual (Lam, 2000; Handley et al., 2006). These representations are “self-understandings” or an identification of the ways in which individuals “try to act as though they are who they say they are” (Holland et al., 1998, p. 3). Not only do our group memberships and social networks impact our identity, but the texts and literacy practices that we utilize online and offline form these presented identities (Dezuanni et al., 2015). Individuals invest resources as they “engage in the range of social interactions and community practices in which they are situated” (Norton, 2013, p.420). These identities are multiple, fluid, and may vary across contexts (McCarthy & Moje, 2002) as individuals choose to change or modify these representations as they explore new “self-understandings” (Holland et al., 1998, p. 3).

## Portfolios to Digital Portfolios to a Domain of One’s Own

Student portfolios that document learning over time is not a new concept. For decades, portfolios have been a staple of teachers’ writing instruction. In 1986, composition scholars, Belanoff and Elbow, detailed how they implemented writing portfolios in their college writing program. While they intended for portfolios to provide an authentic assessment of students’ learning, they also found that a portfolio system had many benefits, including teachers acting as collaborative colleagues, rather than isolated dispensers of student grades. Furthermore, the collaboration occurring between teachers and students allowed students to take more ownership of their writing and develop a sense of agency about their writing.

Educators began to see portfolios as an opportunity for students to identify and map out the processes involved in cognition, in order to build up their self-regulated learning (Zimmerman, 1990). The ultimate goal being an opportunity for students to control their own learning, and improve cognition through enhanced metacognition (Baird, 1986). This led to an interest in the intersections of authentic assessments, identity, and motivation (Clark et al., 2001). Clark et al. (2001) argued that portfolios are “sites of learning” in that students are engaged in the acts of “constructing, negotiating, compiling, documenting, sharing, revising, reflecting on, and assessing one’s own work in a portfolio” (p. 212). Students participate in the construction of knowledge as active participants in the assessment of their learning. Concomitantly, students shape how their identity at school is represented. As Clark et al. (2001) note, “For some theorists, learning itself is seen as the construction of identities as individuals take up and take on different social practices in different contexts with different social communities at different times.” Ultimately, learning becomes an opportunity to engage in the process of

constructing and reconstructing identity (Lave & Wenger, 1991). Arguably the work of compiling a portfolio yields the possibility for students to begin constructing a sense of their identity.

With the advent of new technologies in classrooms, many teachers use digital tools to expand the use and functionality of portfolios in the classroom. The term digital portfolio or e-portfolio is also used when these materials are used for a collection of electronic evidence maintained by the learner (Barrett, 2007). While digital tools may have provided a solution for storing and accessing students’ portfolios, in today’s classroom digital tools don’t serve as merely a platform to host students’ portfolios. Instructional technologies and digital media in the writing classroom have the opportunity to change current views of writing and literacy practices in current and future contexts. Image, sound, video are now included to create compositions that are multimodal, interactive, and nonlinear. Students are not only writing the traditional written analysis, but also blogs, infographics, and public service announcements. In addition, students are engaged in media production, constructing websites, and showcasing digital evidence of their learning. Curating and showcasing students’ digital literacy artifacts is not solely a collection of their knowledge and abilities to produce using twenty-first-century skills, they are an amalgamation of students’ digital identities as learners (Belshaw, 2016).

The one question that surrounds the development of portfolios and student portfolios is the question of ownership (Watters, 2015). One possible opportunity to allow learners to develop agency and ownership over their learning as they highlight their particular talents, abilities and interests is shown in the thinking around Domain of One’s Own (O’Byrne & Pytash, 2017). The Domain of One’s Own initiative was first imagined as an opportunity to empower individuals, develop digital literacy and fluency through data ownership (Baker, 2016; O’Byrne & Pytash, 2017). The thinking was considered as a contemporary version of Virginia Woolf’s 1929 essay titled *A Room of One’s Own* in which she demanded a personal place to write (Udell, 2012). This early work became a pilot program that started at the University of Mary Washington and then has traveled across numerous other institutions of higher education and beyond (Reingold & Stommel, 2016). This philosophy prompts individuals to consider not only our own spaces on the web, but also the bits and pieces that have been collected about us (Watters, 2014, 2017).

Specifically, the initiative helps students, faculty, and staff register a domain name of their own and associate this with hosting space managed by the school. This domain and the hosting space can be used to create and maintain a website of the individual’s choosing using WordPress and other open-source software. These web spaces can be used for projects ranging from personal blogs to professional portfolios. Most

importantly, the materials created are portable. Individuals can take their domain and content with them if or when they leave the school.

## Setting & Participants

This study was conducted with a sample of seven students enrolled in the Using Instructional Technology in Problem-Based Learning. All of these students were in the first semester of a four-semester teacher education program. The class is required in the sequence of courses as students are enrolled in a pre-service teacher education program. The pre-service program is a two-year-long program that spans four semesters of classes, each lasting 13 weeks. This study focused on the development of a digital portfolio to archive student work product across the program, and the impact of owning this domain on the creation of this space. This class was held during the first semester in the sequence of courses in the program. This specific instance of the class was held in the spring semester of 2017. The program and study participants are affiliated with a mid-sized, public university in the south-east of the United States.

The class was taught by the first author (O'Byrne), an associate professor of literacy education at the college. He collaborated with the second author (Hunter-Doniger), an associate professor of creativity and creative arts in education. The research was formalized as part of a faculty learning group, or local Professional Learning Club (PLC) organized under the faculty technology support department known as *Teaching, Learning and Technology* (TLT). TLT is a campus-wide department with a number of different PLCs each exploring different technology research. These university-supported PLCs are a group of educators that regularly meet to share expertise and work collaboratively to improve research, teaching, and service opportunities. The authors used time spent in the PLC, and funding obtained from the PLC to conduct this research.

## Digital Portfolios in the Program

The integration of educational technologies across a program in higher education is always a challenge to ensure rigor, access, and consistency across the program (Strudler & Wetzel, 1999). While trying to establish a digital portfolio sequence throughout the program it became evident that there were additional challenges associated with the process. Most of the efforts to embed a digital portfolio were successful, however, some challenges that were experienced included the technological skill level of the faculty who teach these courses, agreeing upon required assignments, and the time it took to champion these initiatives.

Another important factor that was considered is that portfolio creation and use is a crucial piece of the accreditation puzzle. According to the Council for the Accreditation of Educator Preparation (CAEP) digital portfolio technology is deemed acceptable and appropriate for evidence-based accreditation that supports continuous improvement. As of the publication of this study, new initiatives are underway to utilize a proprietary data management system (i.e., TK20) for the purposes of collecting, archiving, and sharing student data and work products at this university. TK20 is an online data management and assessment system called Technology in Kindergarten through Age 20. The researchers viewed the digital portfolios created in this study as complementary, and perhaps a replacement for the usage of programs such as TK20. For instance, rather than leaving the data in an institution-owned platform, students would build, maintain, and keep their data beyond graduation and use it in their own professional teaching practice.

## Instructional Model

The course focuses on elements of instructional technologies used to scaffold learners as well as embedding project-based learning into K-12 settings. As such, the content of the course primarily focuses on two complementary areas of web literacy, and project-based learning (O'Byrne, 2018). The instructional model used to guide pre-service teachers as they use the Internet identifies a continuum of three stages that move learners from consumers to producers of digital content. More to the point, we need to move learners from content consumers to content curators to content creators. Content in this piece is defined as text matter of a document or publication in a form that is digital or online. These stages do not have to operate in a sequence, nor should they be mutually exclusive. The instructional model is guided by aspects of Cognitive Apprenticeship and suggests that we need to start this process with educators first, and learn along with our students. Students could and should move across each of these stages depending on purpose in their work.

**Consume** The first stage of this sequence involves learners primarily reading online content and materials. This may take the form of learners reading blogs, wikis, and social networks for personal and academic pursuits. Learners should read across multiple modes of information that includes text, images, video, audio, and other graphical representations. These graphical representations may include charts, graphs, infographics, and maps. The important thing to remember is that learners need to be able to synthesize across these varied modes and formats.

**Curate** The second stage of this sequence involves learners curating online content as they search and sift through online

texts. Curation is defined as pulling together, sifting through, and selecting specific content for presentation to others. This may take the form of learners reading and archiving web pages before sharing or commenting on this content. In this process, learners are deciding whether these materials are credible or relevant to the purpose of their inquiry. This process occurs on two levels as learners are gradually learning more about a topic as they read more content; they are also modifying their evaluations of new content as they learn more. Over time, they become more of an expert on the topic and the process involved as they build their own credibility on a subject.

**Create** The third stage of this sequence involves having learners construct or create digital content. There are many parallels between online content construction and the writing process as learners plan, generate, organize, compose, and revise digital work product. This may take the form of learners editing a wiki, building a website, or producing a stop-motion video for the class YouTube channel. In this process, learners are encoding and decoding meaning by constructing, redesigning, and reinventing texts. Learners write, compose, and create through play and expression with digital texts and tools.

## Implementation

Contemporaneously as students worked across the previous content, they also engaged in a set curriculum in which they identified the digital identity they currently had, and the identity they wished to construct. Students identified an identity and name for their URL and were given a key to unlock their digital identity from the hosting company. Throughout the semester, students were given two to three weeks to work their way across several elements of building their digital identity, embodied in a WordPress website. The guidelines for the digital identity project are outlined in Table 1.

Assignments in the class included the development of lesson plans, a comprehensive unit plan, and a bi-weekly synthesis that was reflective of course content and goals. All course assignments were completed in Google Docs and underwent a rigorous process of peer and self-review before submission for review by the course instructor, as detailed by project-based learning guidelines. All materials were saved in Google Docs and ultimately moved over to student websites throughout the semester. Students are given opportunities to create the digital identity they value and want to construct. Work completed on the websites was shared and reviewed with other students in the class every three weeks to identify gradual completion of the website and to provide feedback to peers. The final website was assessed at the end of the semester. The class collaboratively constructed a rubric for this assessment by first identifying elements they believe should be in the website, and then assigning a value system to use in assessing this work.

## Methodology

To address the research focus, we analyzed qualitative data to identify connections between the data and the research questions (Thomas, 2006). We collected data from three different sources to allow for triangulation of findings (Denzin, 1978): (a) student work product on their website, (b) focus group interviews, and (c) researcher notes. Focus group interview questions are included in the appendix. We sought to understand initial participant dispositions and possible changes during, and after exposure to direct instruction of elements of digital media construction. Analysis was conducted in a multi-step process to inductively analyze (Patton, 2002) and ultimately develop themes (Merriam, 2002) from the data.

Qualitative data were collected throughout a 13-week semester course in digital literacies in education and analyzed to answer the research questions. Data were analyzed in a multi-step process to recognize patterns (Patton, 2002) and to develop themes (Merriam, 2002). In qualitative research, triangulation is used to maintain the accuracy and internal validity of a study (Merriam & Tisdell, 2015). This study was triangulated through the use of multiple methods and sources of data collection such as observations, field notes, and the websites the students created. This process insured the recursive nature of data collection and analysis necessary in naturalistic qualitative inquiry (Patton, 2002).

Throughout the duration of the study, the researchers took observational notes on participant conversations and reflective discussions regarding designing a professional website. These reflective discussions included the use of materials, requirements for the website, ease and accessibility of the website platform, and problematic issues with a digital identity. Data were collected by two researchers and cross-checked for reliability. Analysis of patterns and themes in qualitative data allowed the dynamics of change to be more evident and permitted us to better understand how participants' decisions during the study. The information was analyzed using open and axial coding on the data analysis platform NVivo to assist in looking for patterns, trends, and themes.

## Findings

During the open coding phase of analysis, themes began to emerge (See Table 2). These themes were coded in NVivo which refers to themes as nodes (See Table 3). The researchers discussed and agreed upon sixteen recurring themes.

The data was given another pass as the nodes were assigned to data that were represented by each category. Table 2 shows the frequency of each node from the analysis. The size of the space correlates directly to the number of times each category was assigned to the data.

**Table 1** Scaffolding provided to build WordPress website

Assignment	Description
Three steps to identify & develop your digital identity.	Who are you, or who would you like to be in six words?
Develop your personal cyber-infrastructure (Campbell, 2009).	Identify and connect your spaces online.
Starting a WordPress website.	Selecting a domain and starting a website using open source tools.
Selecting a theme for your WordPress website.	Review and selection of a theme that will impact the aesthetics of the website.
Customizing a theme for your WordPress website.	Fine-grained revisions of the website to perfect the look and interactivity of the website.
Creating posts and pages on your WordPress website.	Adding and organizing content across the website.
Using tags and categories on your WordPress website.	Identification and use of tags and categories to help users navigate the website.
Organizing and customizing content and pages on your WordPress website.	Fine-tuning of the organizational structure and menus of the website.

From this data, the researchers reviewed the results to check this work against the research questions (Maxwell, 2012). The researchers referred back to the initial open coding as data was examined. Utilizing axial coding (Strauss, 1987), connections between existing themes or Nodes were revealed. After additional passes through the student observations, researcher notes, and websites using iterative, analytic methods (Angrosino & Mays de Pérez, 2000; Bogdan & Biklen, 2003) two distinct overarching themes emerged. These overarching themes were, 1) Building the Website, and 2) Building a Digital Identity. Keeping the research questions in mind the data were restructured during this process to form sub-themes that accurately represented the primary trends in the data. The original nodes assigned during open coding aligned with each overarching theme as subcategories or subthemes (see Table 4).

Based upon the research questions, this study focused on two areas of inquiry as educators in a pre-service educational program developed digital portfolios and a domain of their own.

### How Do Students in Undergraduate and Graduate Level Educational Programs View the Role of Digital Content Construction in the Context of Social and Connected Online Learning Environments?

Students that profited from the instructional model valued the opportunity to construct digital content, although they often had challenges with the skills needed to build this space. There was a lot of resistance and frustration to the use of WordPress as the platform used for digital construction as students felt the program was not intuitive. The students indicated that they

**Table 2** Open Coding Themes

Themes (Nodes)	Explanation of Themes
<b>Aesthetics</b>	Concerns with how the web page looks visually.
<b>Compliant</b>	Seems to be accepted that women are trolled and have the attitude that there is not much you can do about it.
<b>Concerned with Self Identity</b>	Worried about what they want to reveal online.
<b>Emotions</b>	Demonstrate emotion about the website or the process of making the website (positive or negative).
<b>Envisioning</b>	Picturing mentally what they want the webpage to look like and communicate- can imagine possible next steps.
<b>Expressing</b>	Communicating who they are and their Digital ID.
<b>Frustration</b>	Lack of understanding of how to create a website- Wanting a drag and drop, or more user-friendly model.
<b>Going beyond comfort zone</b>	Reaching beyond self-perceived capacities.
<b>Problem solving</b>	Googling etc. finding resources to create the website
<b>Reflection</b>	Discussing how the website is a daily process of being a reflective practitioner.
<b>Self-Efficacy-High</b>	How confident they felt about what they were doing (positive).
<b>Self-Efficacy-Low</b>	How confident they felt about what they were doing (negative).
<b>Thinking about issues with digital identity</b>	Discussing how to protect themselves.
<b>Thinking of viewer</b>	Thinking about who will see the website and designing it to meet their interests and to tell the story or reveal the story they want to show.
<b>Working through issues</b>	On own-time on task Trial and error.

**Table 3** A visual representation of the first round of coding with the initial 16 Nodes. The size of the space represents the number of times the theme was coded.



could envision what they wanted to do, however, the platform did not provide a user-friendly way to make this a reality, thereby creating obstacles to overcome while in the process. The students commented that since they did not have the

skillset or the confidence to build their own webpage, that they wished a platform was chosen with drag and drop capabilities so they could focus more on content and move past the aesthetics. A student commented, “My knowledge [of

**Table 4** Axial Coding Results

Theme 1	Sub Theme	Nodes
<b>Building the Website</b>	<b>Appearance of the website</b>	<b>Aesthetics-</b> how the web page looks <b>Envision-</b> Picturing mentally what they want the webpage to look like and communicate- can imagine possible next steps.
	<b>Problems creating the website</b>	<b>Frustration-</b> lack of understanding of how to create a website- Wanting a drag and drop, or more user-friendly model. <b>Self-Efficacy-</b> How confident they felt about what they were doing (negative). <b>Figuring out problems</b> <u>Working through</u> issues on own-time on task Trial and error <u>Problem solving</u> -googling etc. creating it
	<b>Confidence</b>	<b>Self-Efficacy-</b> How confident they felt about what they were doing (positive) <b>Going beyond comfort zone-</b> reaching beyond self-perceived capacities.
	<b>Emotional</b>	<b>Emotion-</b> Demonstrate emotion about the process of making the website (positive or negative)
<b>Theme 2 Building a Digital Identity</b>	<b>Sub Theme</b>	<b>Nodes</b>
	<b>Expressing who you are</b>	<b>Concerned with Self Identity-</b> Worried about what they want to reveal online <b>Expressing-</b> communicating who they are and their Digital ID <b>Reflection-</b> Discussing how the website is a daily process of being a reflective practitioner.
	<b>Issues</b>	<b>Thinking about issues with a Digital Identity-</b> discussing how to protect themselves <b>Concern about negative unsolicited comments-</b> worried about random controversial negative comments and reactions to website <b>Compliant-</b> seems to be accepted that women are trolled and have the attitude that there is not much you can do about it.
	<b>Considering the intended Audience</b>	<b>Thinking of viewer-</b> Thinking about who will see the website and designing it to meet their interests and to tell the story or reveal the story they want to show.
	<b>Emotional</b>	<b>Emotion-</b> Demonstrate emotion about the website (positive or negative)

WordPress] is limited, so my [web] page is limited.” Only one student (recorded as student #2 in researcher notes) stood out as demonstrating self-confidence with web design.

Students also indicated significant concerns, or a primary focus on design aesthetics, as opposed to content, as they worked on their websites. Their main concerns were with the theme, color, and overall “look” of the website. On the first reveal day of the websites early in the semester, the majority of the students had started a shell of their sites and were still working through frustrations and technical issues. At that same time, Student #2 had gone beyond the aesthetic concerns the rest of her classmates had and was beginning to envision what she wanted to reveal as her digital identity as well as how she wanted to present that to her intended audience. Most students’ approach towards the website was concrete-sequential (Gregorc, 1984) because the focus remained on the aesthetics of the site and stayed fixated on that single aspect and did not move.

As students worked their way through the learning curve necessary to build in WordPress, they gradually saw opportunities to utilize this digital space in their program and other coursework, as well as other aspects of their identity. Although, once the aesthetics were acceptable to the student, they did not fully consider their digital identity, even though the assignment was to create the website and digital identity concurrently. Once they worked through the basic framing issues of the website and became more confident they were able to consider deeper issues such as their audience or the viewer, and about negative concerns that are often partnered with a public digital identity.

### **How Do Pre-Service Teachers Apply/Integrate Constructing Online Content into their Work across the Program as they Develop their Digital Identity?**

During the study, students also had difficulty determining what a digital identity required and how to present their digital identity. Their focus was on the frustration of the web creator and their self-efficacy with the digital platform. They expressed challenges as they were beginning their career as educators, and not knowing fully what identity a “digital educator” should represent. They considered traditional representations of teachers from their past, and tried to imagine how to express who they were, and combine this with their desire to create, or modify other digital identities they currently held while becoming an educator. Put simply, they wanted to have, and share a digital identity online, but did not have many good examples to select from as they constructed these spaces. They also received mixed messages from other faculty members, advisors, and practicing teachers about whether or not it would be wise for their career to have a robust digital presence.

These challenges of identifying a model to serve as an exemplar also impacted their decisions about their safety and intellectual property online. In terms of their ownership of

ideas, students all agreed on the idea that they did not want anyone to take their lesson plans without giving them credit or selling their idea and making money off of them. Although they could not identify examples of high-quality teacher websites, they could quickly share examples of teachers from Pinterest, Instagram, or Teachers Pay Teachers. They saw the opportunity to utilize these spaces but had a hard time making the connection to a space that they controlled (i.e., a domain of one’s own). As a group, they seemed very territorial of their intellectual property, or what they perceived to be a chance for entrepreneurship once they became a teacher. They were aware of their earning potential as a teacher and were planning how to supplement their salary.

As students continued to develop their website, they were regularly engaged in a discussion to consider the impact on their digital identity and issues of privacy or security. These discussions often brought up the fact that many women are targets of trolling online. An example of this is later in the semester when the basic framework of the website was established and the class held a deep discussion on digital identity and unsolicited comments or reactions to their website from internet “trolls,” who are individuals who intentionally set out to provoke or discredit the victim. Some students were concerned about the overall vulnerability they put themselves in if they create a public space on the internet. Even though the students were concerned about the security of their posts, the students seemed compliant and accepting that chances are, they will eventually be on the receiving end of an unwelcome attack online. Students made comments such as, “I don’t see this as a big deal, so why worry?” “If you don’t want to be trolled, don’t put it out there.” and “Maybe we are desensitized because we are young” (researcher notes). The students all seemed to be aware and cautious of on-going hazards that a digital identity could present, but it was not a concern of urgency at this time.

## **Discussion**

Findings suggest that pre-service teachers understand the value of actively creating a digital identity online. In this work, digital identity construction, and the development of a domain of one’s own is transdisciplinary as it requires educators and students to cross multiple content areas and academic disciplines. While some learners might contemporaneously construct multiple identities across different contexts, particularly in online environments, this process streamlines how students showcase their learning (O’Byrne & Pytash, 2017). The instructional model provides an opportunity for individuals to create and curate elements of their own personal cyberinfrastructure (Campbell, 2009).

Potential limitations to this study need to be recognized in any investigation. One important limitation of this study was the use of a convenience sample from a single course for a short

period of time. Little was documented or explored about the prior knowledge, experiences, and exposure to digital practices of the participants in the study. We did our best to identify possible connections between the prior history of portfolios and digital portfolios and implementation in prior classes in the pre-service teaching program. We have no way of connecting or attributing these elements to a specific course, or experience. Additionally, the individuals in this course and over the totality of the program are not especially diverse. This provides challenges as we consider aspects of diversity and identity. Finally, the length and timing of the study may have provided challenges as we examined possible changing of student dispositions and use of aspects of digital literacy and pedagogy in classroom instruction. Future iterations of this study will survey intersections between digital identity production and aspects of culturally responsive pedagogy.

This research highlights the need for all individuals, especially educators, need opportunities to learn how to develop agency and ownership over their digital identity. This instructional model identifies one way to build the necessary talents, abilities, and dispositions. To engage in digital literacy practices, individuals need to consider opportunities to move learners from consumers to producers of digital content. Through the findings in this study, we believe there is a continuum of stages that exist as we help students become the digitally literate citizens that they need to be in the future (NCTE, 2019; O'Byrne, 2019). More to the point, we need to move learners from content consumers to content curators to content creators (O'Byrne, 2018). Researcher notes suggest these stages do not have to operate in a sequence, nor should they be mutually exclusive. Future research can examine the possibilities of instructors learning along with their students.

As we have indicated throughout this study, identity construction through the development of digital content can only happen if educators embed opportunities to build and utilize these new and digital literacies in instruction. There is a need to utilize these texts and tools in instruction, but also have educators display them as well. The stages detailed in this study are not meant to be viewed as a continuum, or as replacing earlier stages. This is an opportunity to review our own instructional practices, and literacy strategies highlighted in our classrooms. Educators should continue to display that they can work with students to understand and prepare them for these digital spaces and beyond.

## Conclusion

Despite the transformative possibilities associated with the inclusion of the Internet and related networked technologies in instruction, relatively little is known about the regular use of these technologies in our daily lives. For students in particular, their ability to best utilize these digital and web literacies in work is

central to their collective future. This means that students need to leave our schools with the skills necessary to not only read, write, and participate on the web. As technologies connect our global marketplace, students need to identify opportunities to empower themselves as true natives of these digital spaces.

## Appendix 1: Focus Group Interview Questions

Thank you XXX for your participation in this interview.

As you know our conversation will be recorded and used for research purposes. The purpose of this interview is to learn more about the work you do with technologies in instruction, and to find out more about the professional learning opportunities that have informed your work, and that you would like to receive in future.

You can stop the interview or ask for clarification at any time.

Do you understand that your completion of the interview signifies your consent to participate in this research project?

- Tell us about your feelings about developing a website as part of this class.
- Please describe challenges and opportunities you had while developing your website.
- Please tell us about concerns you had as you developed an online, open digital identity.
- Please describe some of the challenges and opportunities you experienced.
- Tell us about how you might use these spaces and tools with students?
- How are digital technologies made available to individuals in your learning process?
- How might you integrate technologies into your normal teaching and learning? Tell us about the tools and strategies you may use to be successful in these endeavors.
- As a student and future educator, how might these activities support your future areas of work? Why?
- Thinking back to previous professional learning experiences, can you describe activities that have been MOST/LEAST helpful to learning as an educator using technology in instruction?

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