Implementing a Digital Hub Strategy: Preservice Teacher and Faculty Perspectives

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Abstract

An education professor and a preservice teacher candidate describe their respective insights on the design and implementation of the first iteration of an open, web-based professional portfolio project. The student's lived experience shows that for some, a Digital Hub can be a useful tool for curation, reflection, and networking; survey data suggests that not all students see value in this work, however. The pedagogical, programmatic, and research implications of this project are discussed.

Background

The English-language Bachelor of Education (B.Ed.)[1] program at the University of Ottawa prepares preservice teacher candidates for professional certification by the Ontario College of Teachers (OCT). In line with professional standards for the teaching profession (OCT, 2017), the Faculty of Education offers a rigorous, research-based program of professional preparation that equips new teachers with adaptive expertise (Timperley, 2012) that includes knowledges, skills, and ways of thinking essential to the design of learning experiences for diverse learners in complex and ever-evolving contexts of schooling in this province (Ng-A-Fook, Kane, Crowe, Karagiozis, & Hagerman, 2017). Before 2015, the consecutive B.Ed. program at UOttawa was completed in a single academic year, but in the fall of that year, new legislative mandates required all of Ontario's Bachelor of Education programs to become four-semester programs (Government of Ontario, 2016; Petrarca & Kitchen, 2017).

One of the most challenging problems to address through the B.Ed. redesign in our Faculty has been how to create learning experiences at scale that will equip all candidates to teach with diverse digital technologies for diverse purposes within a broader programmatic framework of teacher inquiry for building adaptive expertise (Ng-A-Fook et al., 2017; Timperley, 2012). There are many reasons for this, but given the changing scope and contexts for teaching and learning in our globally connected world, we must find solutions. The Internet and all of the technologies that give us access to its ever-evolving and expanding network of human thoughts, knowledge, and practices has transformed conceptions of literacy (International Literacy Association, 2017; Leu, Kinzer, Coiro, Castek, & Henry, 2013; Mediasmarts.ca, 2017; Spires, Bartlett, Garry, & Quick, 2012), of citizenship (Kahne, Hodgin, & Eidman-Aadahl, 2016), and of teaching (ISTE, 2017; Mishra & Koehler, 2006; New London Group, 1996). Programmatically, we need to find new ways to equip preservice teachers for the shifting social, cultural, and technological realities of their future classrooms, whether in bricks-and-mortar schools or virtual

ones, while also ensuring they learn frameworks for evaluating technologies for their pedagogical affordances and constraints.

Presently, students in our four-semester program can take a technology integration course in their final semester, but it is not required. Most students see a range of technologies used in the classrooms where they complete their evaluated practica, but in their university course work, the deep investigation of research on digital technologies and their uses in contexts of learning comes after their graded practica are over, and then, only if they select this course. This means that many students in our B.Ed. program likely see technology integration practices in action and even emulate them during their practica, but probably do not learn foundational theories or research to inform critical reflection on the practices they have observed or tried. Moreover, because the only remaining practicum experience in their B.Ed. program is an alternative practicum during the last three weeks of their fourth semester that may or may not involve classroom teaching, even students who opt into the tech integration course may miss the chance to put any new thinking about technologies and teaching into practice until they get a teaching job, months or even years later.

This is a problem because, although the majority of our teacher candidates are in their mid-twenties and have therefore never known a world without the Internet, we know that as individuals, they are not equally prepared to use digital tools and applications to accomplish advanced academic or professional tasks (e.g., Hutchison & Reinking, 2011; Kiili, Mäkinen, & Coiro, 2013). Research suggests that preservice teachers' print-based literacies and out-of-school uses of mobile phones, social media, and video streaming applications have not necessarily prepared them to teach with diverse digital tools (Colwell & Gregory, 2016; Hundley & Holbrook, 2013). Moreover, college-age students often struggle to synthesize multiple, multimodal information sources (Braasch, Bråten, Strømsø, Anmarkrud, & Ferguson, 2013), to evaluate the reliability of information sources (Wineberg & McGrew, 2016), and to create multimodal representations of their disciplinary understandings (e.g., Wishart, 2017).

Ideally, then, our program would offer all teacher candidates a range of pedagogically meaningful opportunities, starting in the first year, that build foundational technical skills, digital literacies skills, and enduring identities as confident, capable professionals who can leverage the affordances of digital tools and applications to support student learning across disciplines and for a range of purposes. The University of Ottawa Digital Hub Strategy (http://sites.google.com/site/edtechuo) is one initiative designed to address this constellation of needs. Launched in the fall semester of 2017, English-language B.Ed. students are now required to create a professional digital website where they curate evidence of their learning, reflect on their growth as teachers, and showcase their strengths. Determining the extent to which this strategy does or does not support our overarching programmatic objectives for teaching and learning with technologies will be the focus of long-term inquiry. In this article, however, we review research on open, web-based digital professional portfolios in preservice teacher education programs. Then, we document two perspectives on the piloting and implementation of the Digital Hub Strategy—the student view and the professor view. Taken together, our insights as the principal designer of the strategy (Michelle) and one of the first students in the B.Ed. program to create a digital hub (Jessica), shed light on the challenges, benefits, and unresolved questions about this work for our preservice teachers and faculty.

The Digital Hub at UOttawa: A Professional Web-Based Portfolio Project

As our lives become increasingly enmeshed with and shaped by digital networks, universities are creating opportunities for students to explore the complexities of online identity construction, to understand the potential of digital collaborations, and to build foundational digital and web literacies (Lankshear & Knobel, 2008; Leu et al., 2013; Mozilla Foundation, 2017). Electronic portfolio projects such as Domain of One's Own (DoOO), which was launched first at the University of Mary Washington in 2012 (Reingold & Stommel, 2016), is an example of a program that, having now spread to universities and high schools around the world (e.g., Watters, 2015), gives students their own domain name and web hosting so that they can build their own "personal cyberinfrastructure" (Campbell, 2009, p. 59).

More than an exercise in systems management, DoOO initiatives are intended to empower students, their voices, and to help them develop web literacies skills that include knowing how to participate, share, connect, protect, contribute, and work openly on the Internet (Watters, 2017). When students develop the architecture and content for their own web domain, versus working in password-protected e-portfolio or template-oriented learning management systems, they have more control over their creative work and the way it is presented to the world (Cohn & Hibbits, 2004; Fiedler, Mullen, & Finnegan, 2009). Inspired by Virginia Woolf—who asserted that for a woman to write fiction, she must have money and a room of her own (Woolf, 1929/2002)—proponents of DoOO assert that for a student to become digitally literate, she must have the means and a dedicated space where she can learn about the web, create the web, and curate the narratives of her own (digital) identity (Belshaw, 2016; O'Byrne & Pytash, 2017). Some universities pay for students to have their own web domain hosted by an independent Internet service provider (e.g., Reclaim Hosting.com, 2017). At the University of Ottawa, students have lifetime access to institutional Gmail accounts and can therefore create a Google site with their regular email login credentials for free. Candidates are also invited to explore the pros and cons of free website design platforms such as Weebly, Wix, and WordPress and to choose the platform that works best for them so that, from the start of their process, they are encouraged to critically evaluate these technologies.

Several studies have found that the process of curating an electronic portfolio is supportive of preservice teachers' learning processes (e.g., Lin, 2008; Strudler & Wetzel, 2011), especially when they have full control over their work, what they publish, and how it looks (e.g, Hartnell-Young, 2006; Parkes, Dredger, & Hicks, 2013). Recent research also suggests that when college students build a public e-portfolio that tells their story and communicates a personal brand to an external audience, they also learn to design a website, to construct multimodal messages, to use social media for professional purposes, and develop a deeper understanding of self as a professional (Jones & Leverenz, 2017). Although the study by Jones and Leverenz (2017) was not conducted with preservice teachers, the open, professional orientation of their portfolio research suggests there is great potential for similar outcomes in teacher education programs.

A study by Keenan, Rosenberg, Greenhalgh, and Koehler (2016) found that graduate students in Master's of Education and Master's of Educational Technology programs who develop professional website portfolios using "over the counter" technologies such as Weebly, Wix, and WordPress learn new

technology skills and demonstrate "a large and stable comfort level" with website authoring tools (p. 1089), even though most of them have never been formally trained to create websites. Developing a professional website also allowed participants in this study to demonstrate the depth and breadth of their technology knowledge, a core component of the *TPACK* framework (Mishra & Koehler, 2006) which describes the integrated sets of knowledge teachers use to make decisions about the integration of technologies in a learning context (cf. tpack.org). More research is needed to determine the impact of web-based professional portfolio programs on preservice teachers' development of TPACK, however.

In what follows, we offer our initial perspectives on the Digital Hub as piloted from 2015-2017. Jessica offers a single, independently authored account of the challenges and benefits of the Digital Hub for her as a student. The narrative of her lived experience shows a progression from feeling very anxious about creating a website and sharing information online to feeling confident as a teacher who can share valuable ideas and resources with her professional networks. She talks about the limitations of her skills, at first, and then offers an account of how she began to see value in the Hub. Using student feedback and survey data, Michelle unpacks the assumptions she made about the Digital Hub. We conclude with a summary of the steps we have taken to scale up the project, and with questions for future research.

Jessica's Perspective

When I entered the Teacher Education program in September 2015, I had absolutely no idea what to expect. I arrived after many years of questioning the direction my career would take. However, when I walked into my first B.Ed. course and was surrounded by like-minded individuals who all clearly shared my same love for education, I knew I was finally in a place where I belonged. I had the passion and the determination to succeed, but the content was new. Words like curriculum, universal design for learning, exceptionalities, differentiated instruction, assessment for/of/as learning, technology integration, and individual education plans were being thrown around in our classes, and for the most part I had very little understanding of these terms. The stream of new information was endless.

And then I entered my foundations course in Curriculum Planning and Assessment with Professor Hagerman. On day one, Professor Hagerman told us that we would we be learning about planning and assessment using the Ontario Curriculum, and that we would be doing the majority of our work online, using digital tools and new technologies to demonstrate our understandings. We would also be making a Digital Hub as a place to curate and compile all of our assignments. To be frank, I had no idea what a "Digital Hub" even meant, which made me feel anxious. About halfway through that first class, when I realized it meant that I would be required to design and create a website where all of my work would be posted for evaluation, the anxiety grew. I had never done anything like this before. What if what I posted was bad or wrong? What if I looked silly or sounded uninformed online? Do I even have anything meaningful to contribute? These questions and tensions remained at the forefront of my thinking as I considered the design of my website.

Looking back, although the creation of a website and the posting of my work online made me uncomfortable, the ways in which Professor Hagerman scaffolded the creation of the Digital Hub during

our time together made the whole process much less daunting, and in the end, actually quite enjoyable. This was something I had been wanting to do for some time, and I now had the space and motivation to accomplish it. Instead of just saying, "Go make a website, everyone!", Professor Hagerman led us through a series of activities to explore the variety of web-design platforms available to us, showed us examples of digital hubs created by her colleagues, and provided class time for us to begin to build our sites. She encouraged questions, open discussion of what was working and what was not, and collaboration amongst us, student to student, which was in a way difficult. This sharing of ideas and open vulnerability amongst my peers went against pretty much everything I had been through in my postsecondary schooling experience to date, but it was a welcome and refreshing change.

I began my Digital Hub by choosing the platform that seemed the most user friendly (this so happened to be Weebly, however it was a personal preference that worked for me), and adding in the basic requirements that Professor Hagerman asked of us in the course syllabus (a "Home Page," an "About Page," and a "Blog Space"). I chose a theme with bright colours, pictures of crayons and inserted an image of myself in a Faculty of Education sweatshirt, as these all represented me and my ideas of myself as a preservice teacher at the time. When it was time to post the first assignment to our blog, a synthesis of three of the Ontario Curriculum Documents, Professor Hagerman reminded us that we were all emerging, preservice teachers, and thus should frame our work in this way. As it turned out, it wasn't as difficult as I originally anticipated. On the contrary, I really enjoyed it. I started adding extra content that was not required for Professor Hagerman's course, as well as blogging about my daily activities in the Teacher Education Program. I added pictures from my practicum experiences in the classroom, as well as extra pages for the volunteer work I did, workshops I attended, and certifications I received. As I gained confidence in what I was producing and the content on my hub became richer, I began sharing my work via the professional Twitter account that I started (with Professor Hagerman and the Faculty's suggestion/encouragement), and seeking feedback from other professionals in the field of education. This whole process of "putting myself out there" was scary, but also highly rewarding. I believe that the creation and maintenance of my digital hub has prepared me to be a digitally literate educator, with the ability to reflect deeply on my teaching and learning experiences. I have gained confidence in my abilities to interact with and integrate digital technologies and tools into my teaching philosophy, which will, in turn, benefit my future students and help them to also become critical and confident digital citizens.

My interest in the Digital Hub Strategy led me to register for the optional Technology Integration course in my fourth semester. Once again, the creation of a digital hub was a central focus of Professor Hagerman's course. Although many of us had already created our professional digital presence, some had not, and so together we went through the same types of activities to begin building a site as I had gone through over a year previously. Professor Hagerman led us through what she called a "visioning" exercise, where we thought deeply about the words we would choose to describe ourselves as educators, and, in turn, discussed how best to represent these descriptions digitally. I wondered what colours, images, fonts, uses of positive and negative space would best portray me as the creative, engaging, hands-on, sports-loving teacher I wanted the world to know I am. It was through this series of activities

that my perception of my digital hub began to change and I started to think more critically about the messages I was communicating through my content and design choices.

Reflecting back, the initial construction of my hub was full of bright colours, crayons, and narrative descriptions of my thoughts and experiences in the world of education. Because I have grown as an educator, I started questioning whether my design choices were reflecting how I wanted to represent myself professionally. I began with an overall thematic shift, foregoing the bright colours and crayons, which reflected primary-level tendencies in my teaching, but did not indicate the breadth of my experiences in the classroom. Instead, I opted for a more neutral colour palette. I also thought deeply about the images I chose to include, editing and adjusting to highlight not only my teaching experience, but also my interest in technology and my academic work in the university setting. My Technology Integration course also required us to write more academic blog posts, read current research in the field of educational technology, synthesize our understandings, and ask critical questions. It was through this requirement that I was able to refocus what I projected about my professional self, choosing more to discuss my thoughts on relevant topics in education and using less of a narrative voice, recounting my feelings on the outcomes of lessons I planned for my students in the classroom. Adding more substantive commentary connected to current research allowed me to position myself differently as an educator; reading and reflecting on educational research provided greater depth to my Digital Hub, which, in turn, allowed me to demonstrate a new level of professional thinking. Although these tasks were programmatically required in order for me to demonstrate specific competencies and evidence of my learning, I was still given creative freedom over the methods of representation on my Digital Hub, which allowed me to maintain a sense of creative control over my work.

I have come to understand that the iterative process of reflection, critical thinking, creating, and producing that I used in the creation and maintenance of my professional digital space is echoed in the daily work of a teacher. I am thankful to have been given the tools and the opportunity to begin to cultivate these vital skills in a setting where creating my professional identity is not only encouraged, but also expected and anticipated, with guidance and support are available along the way. I now have a professional digital hub with over two years' worth of ideas, reflections, and evidence of my growth. I have added my Twitter feed to my site, which I have come to see as a fantastic space for networking with other professionals and sharing my ideas and experiences with other educators.

Michelle's Perspective

Occasionally, my former students expressed anxiety about putting themselves "out there," but in the Master's of Educational Technology (MAET) program at Michigan State University where I taught for several years and where I co-developed this project with colleagues, students (often, in-service teachers) learned to get comfortable with the discomfort of doing new things with new technologies for new pedagogical purposes (Hagerman, Keller, & Spicer, 2013). Thinking back, I think this is why it never occurred to me that the students in my B.Ed. courses at the University of Ottawa wouldn't see the Digital Hub as an opportunity to develop new skills, or as a space for building an identity as a teacher.

At the end of the first class I taught in the fall of 2015, I invited students to fill out exit cards. I was surprised when several comments expressed concerns about technologies and participation in an open community of learners. Comments included, "I don't like putting information online," "I have no idea how to create a blogging space," "I hate Twitter!," "Concern: Can the links we send be to private pages?" One student wrote, "I prefer to keep close control over what I put online. And, I feel that might stifle what I'm willing to put out there. Plus, I might want to save the best ideas for myself."

To me, technologies, including the Digital Hub, create contexts that serve larger pedagogical goals. My focus was on the Hub's potential as a context for networked learning and technical skills development. And yet, these goals seemed to incite worry. I wondered whether conceptions of schooling as an individual activity—or as an activity whose main purpose is to get good grades based on individual accomplishment—may have been undergirding these reactions from students too. I took a deep breath.

By mid-term, when I again invited comments and similar feedback emerged (e.g., "I am never going to be required to have to have a website as a teacher!"), I realized that for some, my expectations were raising fundamental questions about what teachers do and who they are. I realized that as these students were creating their websites, they may have been experiencing an "un-integration" of self as they "crisscrossed the boundaries between [their] inner and outer realities" (Ellsworth, 2005, p. 61). And in these moments of un-integration, some of them were feeling vulnerable. I resolved to rethink my assumptions about networked learning spaces for preservice teachers, and the way the Digital Hub project was framed for students, not because I wanted them to necessarily feel *comfortable*, but because I wanted to understand how we might frame their discomfort as a pathway to empowerment and deep learning.

After proposing The Digital Hub as one plank of a broader digital strategy in the teacher education program, the program director asked me to study students' experiences with the Hub, and present that work to the Faculty. An ad hoc committee of engaged students who had developed Digital Hubs offered salient insights. For starters, each of them reported that their main motivation to create a professional website was to gain a job market advantage. They also suggested that programmatically, Faculty could make much better use of Digital Hubs for interdisciplinary projects that could be submitted online and reviewed by multiple professors for multiple purposes. Using these insights, Jessica and I drafted a survey for all graduating B.Ed. students.

We shared the survey link through programmatic communications channels and in cohort Facebook groups. The three professors teaching the technology integration course also invited their students to take the survey, anonymously. We received 74 responses. All but one of the respondents indicated that they had created a Digital Hub during their B.Ed. program. Forty-three percent of respondents (n=32) belonged to the Imagination, Creativity and Innovation cohort but, as we summarize in Table 1, the survey did include responses from students in all five B.Ed. cohorts and all three grade-level specializations (primary-junior, junior-intermediate, intermediate-senior).

Table 1

Summary of participants by basic qualifications and cohort

Division	N	Cohort	N
Primary-Junior	41	Global Perspectives	20
Junior-Intermediate	8	Comprehensive School Health	10
Intermediate-Senior	25	Second Language	6
		Imagination Creativity Innovation	32
		Urban Communities	6

We asked students why they created a Digital Hub. As summarized in Table 2, 90% of the 74 respondents did it because they had to as part of a course. Additionally, 60% of participants indicated that it was a programmatic expectation. The third-most highly reported reason was because they planned to have a classroom website. Unlike those on the student committee who were confident their web presence would translate into a full-time position, only 24% of the survey respondents felt their website would help them to get a job. Respondents were not generally concerned with the broader skills-based or pedagogical implications for the work either. Although 39% reported making the Hub to learn new digital literacies skills, only 25% did it to gather evidence of their growth, which raises questions about whether the course-based context for the Hub project may have been limiting students' engagement or interest in the learning potential of the work. Interestingly, the students on the ad hoc committee, most of whom had active professional social media presences, and who were creating novel content to share with their professional learning networks, were convinced their websites would generate a return on investment. The 90% of survey respondents who did this work because they had to seemed less optimistic.

Table 2

Reported reasons for creating a digital hub

Reasons	N (%)	Reasons	N (%)
To get a job	18 (24.3)	It's fun	15 (20.3)
Course requirement	67 (90.5)	Learn new digital literacies skills	29 (39.2)
Reflection on my work	16 (21.6)	Plan to have a classroom website	35 (47.3)
Gather evidence of my growth	19 (25.7)	Build a professional learning network	22 (29.7)
Share my work	22 (29.7)	Programmatic expectation	45 (60.8)

The survey also asked students to share insights on the challenges and perceived benefits of their Digital Hub projects. Jessica used a process of inductive coding to construct descriptive codes from the students' responses (Miles, Huberman, & Saldaña, 2014). Together, we reviewed, revised, and defined the codes. The coding manual can be found at http://bit.ly/UO_digitalhubcodes.

Sixty-one students described the challenges they met as they developed their professional digital presence during their B.Ed. program, which clustered around four main themes: skills and knowledge, tensions related to professional identity, design, and time.

Thirty-four students said they struggled with technical skills, and realized they had to learn new technical skills to make a website. One respondent wrote,

> Challenge: Learning what platforms work best to create websites as well as learning how to use them. People often assume that our generation is immediately computer savvy, but this is often not the case so there is definitely a huge learning curve for many of us.

Several students reported general difficulties understanding how to use a variety of digital media.

Twenty-one respondents said they felt unsure about how to present themselves online as new teachers, or about sharing information about themselves on the Internet. One student wrote, "I am still unaware of what professional 'brand' I want to have out there." Another wrote, "I was also a little shy to share all of my work as I wasn't really confident because it was so new." Consistent with course feedback, another participant wrote, "I am hesitant to include too much information about myself online."

Interestingly, some students seemed to want more guidance on what to include on their portfolios, whereas others wanted less. One student wrote, "I am unsure about what information to include, the format" and another wrote,

> Too often, the content of our digital hubs was determined for us (e.g., Your assignment this week is to blog about: x, y, z). In a realistic setting, bloggers and content creators have more independence or freedom about what they share online. I think it would be more interesting to have more freedom as to what your digital hub—or some other online presence—looks like.

These contrasting perspectives suggest that flexible architecture and design recommendations could help students to feel invested in their work. Too many required posts, or inflexible recommendations for the architecture or content, may undermine the broader learning objectives for the Hub. This is consistent with other findings about student agency as a key determinant of buy-in and success (e.g., Fiedler et al., 2009; Strudler & Wetzel, 2011). Although students' Hubs could be strictly designed to align with program accreditation standards and professional standards of practice (OCT, 2017), these data suggest that prescriptive programmatic expectations for Hub content and structure could undermine student learning.

Three students noted that this work takes a lot of time. This isn't surprising, given the technical skills they also reported needing to learn, but it is an important consideration if students don't see inherent value in the work.

In terms of perceived benefits, 30 students reported that they liked how their Hubs allowed them to demonstrate their professional skills and to network with potential employers. Twenty-seven students cited increased digital literacies skills, technical skills, and increased confidence with technology integration. Nineteen students noted that they learned about sharing and participation in professional digital networks through their Hub project. One student wrote, "Got past the fear of publishing for a

public audience." Importantly, 12 students also noted the Hub as a valuable place for reflection on their professional growth. Comments included, "Understand myself as an educator" and, "A place to keep my artefacts and reflect on them. It is nice to see what I did and when." Together, these data suggest many students did perceive a gain in their technical skills, and digital literacies skills, including those related to participation in professional digital networks. And yet, six students said they saw no value in the work at all. One student wrote, "I found it difficult to make a blog without a focus. I'm not comfortable sending people to my website. It is a bunch of random articles." Lin (2008) reported a similar subset of student comments in her study. As we think about scaling this work up for all students, it will be essential to understand how to create meaningful pathways to learning for all students, including those who find the work challenging, frustrating, or at first, pointless.

Discussion

In their study of electronic portfolios as digital stories, Jones and Leverenz (2017) begin with a quote from Antoine de St. Exupéry. "If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea." It seems that the insights gained so far in our work on the Digital Hub project in the English-language B.Ed. program at the University of Ottawa have led us to consider how we might inspire a longing for a lifetime of networked learning and open reflection.

Consistent with findings from previous research, Jessica's lived experience suggests that for some students, an open, web-based professional portfolio can become a meaningful space for preservice teacher identity construction (Sanford, Williams, Hopper, & McGregor, 2012), for reflection on practice (Oakley, Pegrum, & Johnston, 2014) and technical skill development (Keenan et al., 2016; Lin, 2008). Although more research is needed, Jessica's insights on her development as a digitally literate teacher also seem to align with claims by "domain of one's own" advocates (e.g., Belshaw, 2016; O'Byrne & Pytash, 2017) who suggest the creation and curation of a professional web presence can support digital literacies learning. Jessica felt anxious at the start of this project, but was willing to push through to find meaning in the work. Others, however, did not. Future research will need to explore why or how some preservice teachers transition from worried to empowered as they create their Digital Hubs.

In light of our preliminary data, here are the strategies we have implemented so far. First, we developed a website (http://www.sites.google.com/site/edtechuo). Here, all students can learn about the vision for the project, find examplars created by other B.Ed. students, listen to testimonials, review pros and cons of website development platforms, find blog posts on particular issues and links to screencast tutorials. By design, the process of learning to create a website requires our students to read and synthesize web-based information independently, to make decisions, and to figure it out. To mitigate worries about the public nature of this work, we have encouraged students to view the Hub as a long-term project that will, and indeed should, evolve as they evolve. On the Privacy page, we offer strategies for protecting their identities as they learn. To encourage collaboration, professors who teach the required course in instructional methods and practicum planning will create opportunities to talk about and share

Digital Hubs among peers. At orientation, candidates considered how they would communicate core values and teacher qualities to others using images, content, text, colour, fonts, and video. This visioning exercise was meant to inspire thinking about their professional identity, their story, and their brand (Jones & Leverenz, 2017). Although the Hub will become their culminating evaluated portfolio, students will have full control over which content they present, the narrative they tell about that content, and the design of their space.

Fundamentally, this project is about creating a space for all preservice teachers to develop technical skills, literacies skills, and ways of thinking that we understand to be essential to their long-term effectiveness as professionals. Future research will explore whether these Digital Hubs, as introduced in 2017, support the development of preservice teacher candidates' technical skills, digital literacies, and technological pedagogical content knowledge. Further, it will be essential to understand which aspects of this project, if any, inspire our candidates to adopt the Digital Hub as a truly meaningful lifelong professional cyberinfrastructure.

Note

1. As a French-English bilingual university, our Faculty offers Bachelor of Education programs in French and English that prepare teachers to work in English-language and French-language schools in Ontario.

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