Chapter 5
From Tinkering Around the Edges to Reconceptualizing Courses: Literacy/English Teacher Educators' Views and Use of Digital Technology

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Abstract This chapter reports on a study of 28 literacy/English teacher educators in 4 countries (Canada, the USA, Australia, and England) with a focus on their use of digital technology. For analyzing the data, we used Ottenbreit-Leftwich et al.'s (2010) six different ways to incorporate technology into teacher education: information delivery, hands-on skill-building activities, practice in the field, observations and modeling, authentic experiences, and reflections (p. 20). Although most felt using digital technology in teacher education is very important, there were huge differences in how they used it. A few reconceptualized their courses to teach about, with, and through it, while others only used it mainly for information delivery. Two major challenges identified by most were that their university only provided limited support and mostly for technical problems (not pedagogical support) and that student teachers were not necessarily discerning users of resources on the web.

5.1 Introduction

One can rarely pick up a magazine, newspaper, or scholarly journal without an article exhorting the value of technology.

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> The popular press frequently tells us about the latest "must-have" gadgets and software to enable new approaches to teaching and learning, which are ostensibly more efficient, more productive, and more engaging. (Bullock 2016, p. n/a)

Understanding and effectively using digital technology pose a serious issue for teacher educators because most likely they did not use digital technology in their work as classroom teachers and technology is changing rapidly. The proliferation of technology in our lives has untold benefits (and hidden consequences); the place of digital technology in teacher education needs much more exploration. This chapter considers the insider perspectives of teacher educators. Experience with digital technology from the teacher educator's perspective is a somewhat untold (and hidden) story. Here we report on a study of literacy/English teacher educators, those who teach literacy methods courses in teacher certification programs. The study, *Literacy Teacher Educators: Their Backgrounds, Visions, and Practices*, includes 28 literacy teacher educators (LTEs) from the USA, Canada, England, and Australia.

The overall goal of the study is to study in-depth a group of literacy/English teacher educators, with special attention to their backgrounds, views, research activities, identity, and support within the university. This chapter reports on the third phase of the research to understand LTEs' views of the place digital technology in teacher education, use of it, and supports/barriers they experienced.

The group we are studying are well-suited to provide an insider perspective on the use of digital technology in literacy teacher education courses. Selwyn (2011) maintains that "questions which explore digital technologies in schools from the lived experiences of those using (and those *not* using) them should be at the forefront of any educational technologist's mind" (p. 40). Others wonder how teachers can acquire the requisite knowledge, skills, and dispositions (Barrett and Mascia 2012; Warschauer 2011). We consider LTEs' views of digital technology, their practices, and support.

5.2 Context

There are many issues surrounding use of digital technology in schools. We have chosen to briefly discuss a few which bear on the work of LTEs across the four countries. For purposes of this chapter, we define *digital technology* (as used in education) as a tool that extends or creates a space for teaching and learning (e.g., a Wiki that operates as a shared space for constructing knowledge).

5.3 Digital Technology and Literacy

The intertwining of literacy and digital technology is a legitimate area of study because the many new forms of communication (e.g., text messages, blogs, screencasts, Instagram) are changing our literacy patterns. Connecting literacy theory and

teaching to digital technology acknowledges that newer forms of communication made available through digital technology are changing our literacy practices and our understanding of what it means to be literate (Selber 2004). The changes in how we communicate (e.g., through email), what we communicate (e.g., personal blogs), and with whom (e.g., others who share a common interest) provide unprecedented opportunities but also carry untold risks. Further, interest in increasing literacy achievement seems to be a global concern:

> Literacy takes a central place in education and 'its accepted importance for all developed countries is indicated by the centrality it has acquired in the international comparisons adopted by the OECD member countries, together with mathematics and science' (Freebody 2007, p. iii) … Increased literacy capabilities for individuals are often tied to increased 'life' choices, opportunities and mobility and collectively by society are viewed as offering more equitable distribution of social and economic goods. (White and Murray 2016, p. 136)

By considering digital technology as a literacy tool, we conceptualize it as a key learning process rather than an end in itself. Bullock states: "Teaching 2.0 is not just traditional teaching 'done better' [but] a radically different approach to teaching and learning that requires educators to understand, and make use of, the affordances of Web 2.0 tools" (2011, p. 103). However, research has shown that digital technology is often used for "passive delivery of information" and students often simply do "cut and pasting of online material retrieved from search engines" (Selwyn 2011, p. 25). According to Prensky (2011), the challenge of moving to digitally rich literacy programs is much more complex and nuanced than seeing it as a clash between digital natives and digital immigrants. Digital natives – "those who were born into the age when these technologies were around from their birth" – may be "more at ease with digital technology" (p. 16) than their parents and teachers (digital immigrants), but they still need to be taught how to use digital technology comprehensively in their learning, and teacher educators must learn how to lead student teachers in this direction.

Digital Technology as the Magic Solution

The discourse around digital technology is often framed by a "moral panic" that schools are failing (Bennett et al. 2008, p. 783); a "focus on the allure of 'the new'"(Selwyn 2011 p. 7); or an assumption that digital technology can substantially improve pupil learning (Bullock 2011). However, Selwyn (2012) cautions:

> it is important to resist the temptation to unthinkingly associate digital technologies with inevitable change and progress. Instead researchers should remain mindful of the continuities, recurrences and repetitions associated with 'new' technologies. In many cases, the cliche' of 'old wine in new bottles' remains an appropriate description of the nature and forms of digital technology use in education. (p. 216)

Despite a growing emphasis on the importance of incorporating digital technology into literacy teacher education programs, it is still proving to be a challenge (Otero et al. 2005). Walsh and Durant (2013) writing about their Australian context note:

> educational policies, curricula, and pedagogy have not adjusted to the explosion of digital communication that has occurred in society (despite the millions of dollars that state and federal governments have injected into the sector over the past two decades). Another rea-

> son is that teacher registration requires that students fulfill specific hours of content in each curriculum area. In a crowded tertiary curriculum it is difficult to incorporate areas that are not mandated or pedagogically developed. It has been commonly accepted for some time that digital technology is a tool that can be incorporated into the curriculum and the new National Curriculum: English includes the use of multimodal and digital texts. However there is no developed pedagogical framework presented or recommended for teachers within the National Curriculum. (p. 184)

A few brave researchers are questioning the unbridled support of digital technology (Bullock 2016; Selwyn 2011). They suggest the use of education technologies in teacher education has often been framed in an inherently positive way (Selwyn 2011), with little attention paid to how future teachers might develop complex uses of technology beyond just a specific device or application (Bullock 2016, p. n/a); that is, how can they reframe some of their teaching to teach with, through, and about digital technology to ensure it is not just a gimmick but that digital technology leads to deeper learning?

5.4 Competencies

Expertise with digital technology is an ubiquitous concept; simply defining expertise is not straightforward. Otero et al. (2005) suggest, "knowing how to use the technology involves the technical skills of operating the tools as well as understanding the pedagogical purpose of its use" (p. 10). Butler and Sellbom (2002) identified several barriers to the use of technology: reliability; time to learn the technology; knowing how to use the technology; concern that technology might not be critical for learning; and the perception of inadequate institutional support. How can teacher educators make the transition from teaching as they were taught to an orientation that integrates digital technology (Cervetti et al. 2008)?

Desjardins (2005) defined four competencies that teachers require to use digital technologies:

1. A *technical* competency that enables a new teacher to use the technology (e.g., loading apps)
2. An *informational* competency that enables a new teacher to use the technology to retrieve information (e.g., web searches)
3. A *social* competency that enables a new teacher to use the technology to interact with other people (e.g., discussion board posting)
4. An *epistemological* competency that enables a new teacher to assign tasks to digital technology to generate new knowledge or artifacts (e.g., putting together a digital video)

These competencies reveal the complexity of using digital technology – from simply using an app to working toward knowledge creation. Although developed for teachers, they are applicable for LTEs. They also provided a useful framework for analyzing the data.

5.5 Conflicting Messages

Like many educational initiatives, there is not a clear message about digital technology:

> Although the need for teachers and their students to engage with digital literacies at all stages of education has been articulated in numerous policy documents and directives, there has been little sustained impact in the classroom. Such policies frequently underline the economic desirability of 21st Century skills … but statutory curriculum requirements do not always reflect this (Burnett et al. 2014). It is not surprising then that preparing teachers to operate effectively with digital literacies in this changing environment is fraught with difficulty. (Garcia-Matin et al. 2016, p n/a)

An example of conflicting messages can be found in the new national curriculum for English (in England) which Marshall (2016) notes: "The new national curriculum will be introduced in English in 2015 and is devoid of all mention of anything digital. There is no talk of film, television, computers, iPads, phones. There is nothing that might link us to the twenty-first century technology at all (p. n/a)." Whereas many school districts (e.g., in Canada) emphasize use of digital technology (see http://www.opsba.org/files/OPSBA_AVisionForLearning.pdf), making sense of these mixed messages was one of the challenges faced by the teacher educators.

5.6 Methodology

To put together the sample of 28 LTEs, lists of teacher educators in Tier 1 (research-intensive) and Tier 2 (teaching-focused) institutions were compiled, and we systematically worked through them. A range of experience (e.g., elementary/primary and secondary teaching) and a gender representation comparable to that in the profession as a whole were considered.

All participants were interviewed three times over the period April 2012 to February 2015. Each semi-structured interview was approximately 60–90 min in length. The third interview focused on use of digital technology and future plans of the LTEs to use digital technology. Interviews were done either face-to-face or via Skype and were audio-recorded and transcribed. The lead researcher and one of the coauthors jointly interviewed all the participants.

Some of the interview questions were the following: What kind of digital technology do you use in your course? How important is the use of digital technology in literacy courses? What does digital technology provide for you as an LTE that is different from what you could do previously? What are some effective digital technology practices of LTEs that you have seen or heard about? To what extent do you use social media in your course? To what extent have you had support from your institution on integrating digital technology into your literacy teacher education courses?

Much of the methodology was qualitative as defined by Merriam (2009) and Punch (2014). Qualitative inquiry is justified as it provides depth of understanding and enables exploration of questions that do not on the whole lend themselves to quantitative inquiry (Merriam 2009). It opens the way to gaining entirely unexpected ideas and information from participants in addition to finding out their opinions on simple preset matters. A modified grounded theory approach was used, not beginning with a fixed theory but generating theory inductively from the data using a set of techniques and procedures for collection and analysis (Punch 2014). As the analysis progressed, key themes were identified and refined – adding some and deleting or merging others – through "constant comparison" of the interview transcripts and the main research question. When reading the transcripts, the three main concepts – views, use, and support – guided our analysis.

For data analysis, qualitative software NVivo was used in creating a number of nodes: advantages of digital technology, examples of teaching with digital technology, support from the institution, student teacher response, and so on. This allowed us to determine both LTEs' views and their practices. This led to identifying three categories: views of the place of digital technology, examples of the use of digital technology, and supports and barriers/challenges. We loosely used Dejardins' (2005) competencies as a framework for analyzing their practices.

5.7 Findings

As Fig. 5.1 shows, the sample included LTEs with a range of experience.

Since they are from four countries and many universities, we cannot provide specific detail about the context for each individual. There were 6 males and 22 females; 12 worked at teaching-intensive universities, while 14 were at research-intensive universities.

Experience as a teacher educator	1-5 years = 7 6 -10 years = 10 11-15 years = 2 16 -20 years= 5 21+ years = 4
Countries	Canada - 7 US - 11 England - 5 Australia - 5

Fig. 5.1 Background of participants (as of 2013)

5.7.1 *Literacy Teacher Educators' Views on the Place of Digital Technologies*

The LTEs recognized that digital technologies must be a prominent part of literacy teacher education. While they appreciated the wide range of technologies available, they also emphasized the need to meaningfully integrate technological tools into literacy teaching and learning. For instance, Hailey[1] noted:

> Well, I think the digital should not be there for the sake of digital technology. It has to enhance the goals and instructional strategies of the class. So, it has to be meaningful. So, it has to be fully integrated or there's no sense in it. That said, teachers in today's world do need a certain [*level of*] comfort.

Bob also candidly acknowledged the importance of purposefully integrating digital resources into his literacy courses, rather than treating technology as an end in itself or as a disconnected add-on. He explained:

> I don't ever believe in making a fetish of digital technologies as though of themselves they're the answer to all our problems. So, I step back from that kind of rhetoric completely. But, at the same time given the ubiquitous nature of digital technologies, out there in the world of teenagers, and any sphere of life, it would be absurd to suppose that teacher education shouldn't be availing itself of the potential of media of that kind. I mean there is a range of types of digital technologies that we could talk about.

While most LTEs felt that digital tools should have a prominent place in literacy teacher education, they also emphasized the importance of achieving a balance between the use of technology tools (e.g., Google docs, university-based platforms for online discussion) and the fostering of personal (face-to-face) connections with the student teachers in their courses. Many felt that online courses had a place but needed to be balanced with face-to-face experiences. They did not want student teachers to lose sight of the relational nature of teaching and learning. For instance, Carolina pointed out that the use of digital resources "should be prominent" in literacy teacher education; however she also stressed "there should be a balance of both the digital interface and the personal interface." She felt it was important "not to ignore the personal within the context of the digital, which can actually then be carried into what people want to develop in relation to their literacies and their own practices as educators." For, if student teachers were to "work only online or in that digital space, then they don't get a sense of what it actually means to be a teacher because it is so unrealistic."

Similarly, Rachel suggested she struggled at times to strike a balance between the need to incorporate relevant digital tools into her literacy courses and to also maintain the personal connection with student teachers that is central to her practice as an LTE. Rachel confided:

> I'm probably a dinosaur compared to some lecturers because while I try and keep in touch and I try and give them access to relevant resources, I still really like the privilege of working in a face-to-face situation. At the same time, though, I think we need to give them the

[1] Pseudonyms used for all participants

> skills to use the electronic white board effectively, not just as another blackboard. I think we need to help them feel confident about all of that and what they can do with kids in terms of developing websites themselves or whatever. But, I'm not the one to give them some of that really at the minute stuff. I'm much more a dinosaur.

The LTEs used a range of digital technologies in their literacy courses. The next section of this chapter will consider the ways in which the LTEs incorporated technological tools into their teaching.

5.7.2 Use of Digital Technology

When asked about the importance of using digital technology in teacher education, the vast majority of LTEs felt it was very important. However, when asked the extent to which they use digital technology in their literacy methods courses, there was a huge discrepancy. See Fig. 5.2.

To determine how the LTEs were using digital technology, we asked participants to simply list the technologies they were using. We then grouped these into Desjardins' (2005) four competencies. The four competencies range from simple use of a technology to convey information to creating knowledge collaboratively.

(a) A *technical* competency that enables a new teacher to use the technology

The LTEs felt there was a range of expertise among their student teachers regarding facility with use of digital technology. Some were highly able/comfortable, while others had limited skills. Most could use Facebook (FB) for communicating with friends, but the majority did not know how to use digital technology in their teaching. For the most part, the LTEs did not feel it was their responsibility to teach the student teachers how to use particular technologies (e.g., educational apps,

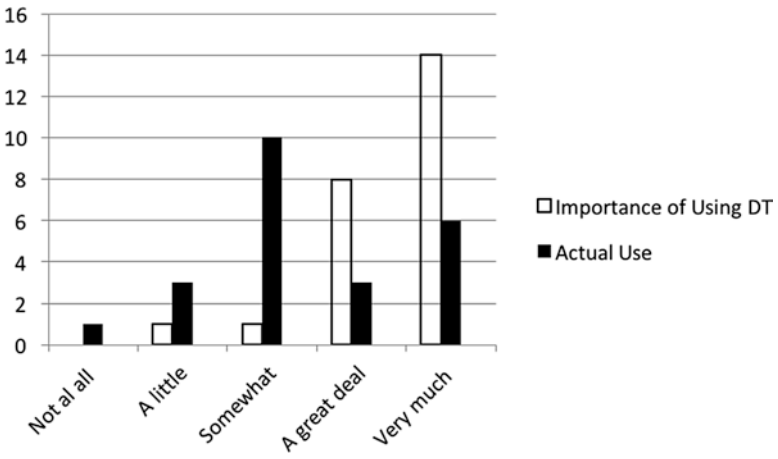

Fig. 5.2 Importance of using digital technology and actual use

smartboards, presentation tools); some felt it was the student teacher's responsibilities to learn how to use them; others felt it would take up too much class time; and some did not have sufficient knowledge of the programs to teach them. However, in certain cases they accessed support from their IT departments (e.g., to do an in-service course on making iMovie). In a few teacher education programs, there was a specific course on digital technology, but this was not the norm.

LTEs used many types of technologies including VoiceThread, Storify, clickers, document camera, and digital pens. Most did not feel it was feasible to be fully versed in a huge range of digital resources, especially those used in practice teaching schools. Given that technology is changing so rapidly, we asked to what extent they found it a challenge to remain current with digital technology. Figure 5.3 clearly shows that most find it very challenging and may partly explain the discrepancy noted in Fig. 5.2.

(b) An *informational* competency that enables a new teacher to use the technology to retrieve information

Easier access to resources (e.g., library) was mentioned by most as an advantage of teaching in a digital age. Resources were not restricted to text-based materials: videos of effective literacy teaching, websites (for curriculum resources), podcasts on specific topics, and videos of authors they are reading. Many commented that they could quickly access information (e.g., Wikipedia) during class or retrieve notes from a previous lecture when student teachers were struggling with a concept/topic. Many created a repository for resources (e.g., course blog or a program website) to which they and the student teachers could contribute. However, many noted that student teachers were not savvy consumers of digital-based materials and had to be taught how to ascertain the quality/authorship of the materials. Many gave student teachers lists of websites with high-quality material (e.g., International Reading Association site http://www.readwritethink.org/).

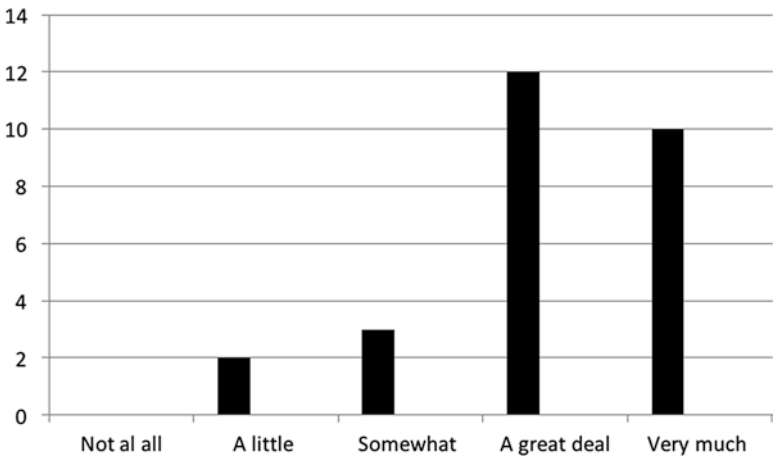

Fig. 5.3 Challenge to remain current

(c) A *social* competency that enables a new teacher to use the technology to interact with other people. All used email and/or the university platform to communicate with student teachers – especially during practice teaching; however, use of social media on a larger scale varied significantly. See Fig. 5.4.

Some valued the face-to-face contact with student teachers which they felt was missing on line, while others felt it was too time-consuming to manage social media accounts (e.g., blogs), and some simply stated they did not have the technical skills to use social media.

Some used digital technology to create highly interactive courses where student teachers could post questions or comments to a smartboard during the class session. Dominique encouraged discussion "before, during, and after class" using tools such as Tumblr and Twitter. And for Melissa by starting "discussion" before the class meant "I don't need to present the material to them … So in the class, what we do is I engage them in pedagogical practices that are aligned with what they are reading and make those visible." Stella noted online learning communities gave student teachers "opportunities to network with each other" and to share multimedia content (e.g., articles, videos, blogs) with one another on these platforms.

Almost all believed that social media could assist with community building especially because student teachers created Facebook pages for their cohort. However given the "freewheeling" nature of social media, most were *not* part of the student teachers' FB pages. This choice allowed them to maintain their privacy and their professional relationships with their student teachers. As a result, communities developed on social media platforms were often for student-only use.

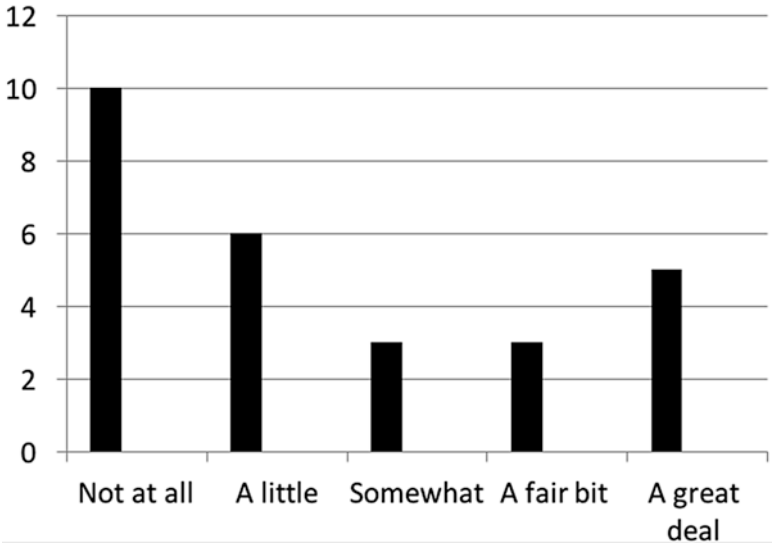

Fig. 5.4 Use of social media

(d) An *epistemological* competency that enables a new teacher to assign tasks to digital technology to generate new knowledge or artifacts

A small group of LTEs truly used digital technology for knowledge creation. They were extremely comfortable with digital technology, had strong technical skills, and understood that digital technology had changed literacy/communication which in turn required fundamental changes to their literacy courses (for a detailed description, see Kosnik and Dharamshi 2016). They could envision the power of digital technology to co-construct knowledge. For example, Hailey's student teachers did a case study of a child (including videos) which they shared with a small group of student teachers who had to comment on it. Letting the student teachers actually view literacy teaching and engage in an online discussion allowed them to jointly develop their knowledge and skills to be a literacy teacher.

Student teachers used digital technology to both showcase their newfound knowledge and use it as a basis for discussion with others. Dominique's class "watched a video about being a basketball star and talked about how race and gender were represented" then asked the student teachers to think about creating "a counter message." Other examples of knowledge creation include:

- Make an iMovie on a specific topic (e.g., on bullying).
- Participate in teacher communities by contributing to blogs and Twitter feeds.
- Participate in teacher-focused events (e.g., contribute a piece to a BBC competition on current affairs/news).
- Create podcasts on an aspect of literacy to share with broader community.
- Create a video case study of pupils which relates to a theory of literacy.
- Write a review of a book that had been banned in schools and post the review on a public site.

5.7.3 Support with Digital Technology

Regarding their digital literacy practices, we asked the LTEs "How did you know what to do?" Participants provided a wide range of responses. While some received formal support from their institutions for the most part, others received none. Interestingly, several described acquiring digital literacy knowledge and skills for their teacher education courses through informal routes, such as trial and error as well as guidance from colleagues, family, and friends.

(a) Formal support: institutional support

When asked about the support from their institution in using digital technology, the reports were dismal. See Fig. 5.5.

Some described receiving technical help (e.g., maintaining learning management system such as blackboard, Moodle), while few received both technical *and* pedagogical assistance. A few LTEs such as Carolina noted her institution had an educational design team staffed with "brilliant people who are so proactive in their

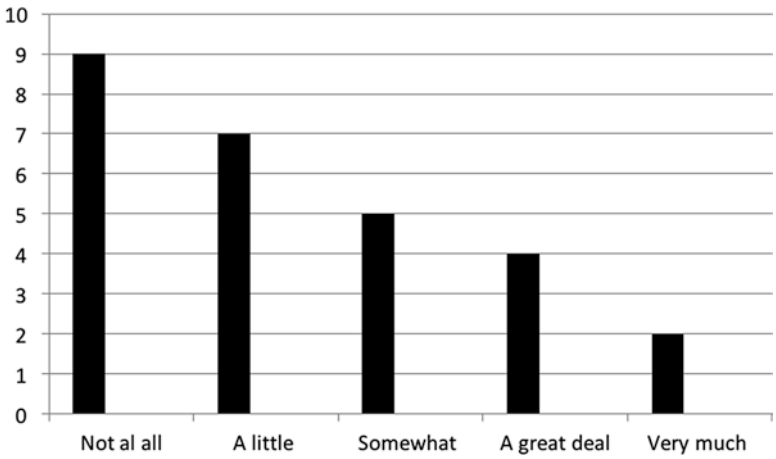

Fig. 5.5 Support from institution

support" by helping faculty "think differently about how we design our courses." Caterina's online teaching director considered the following: What are the research disciplines that are doing well with online programs? How do we set up hybrid programs? Similarly, Chester's instructional strategists helped with "preparation, technical, arranging clusters, choosing materials, and downloading [materials]."

To help teacher education faculty gain a deep understanding on how to use learning management systems, Hope's institution offered fellowships on how to use their platform (Canvas), "to learn how to use it and tweak it, and make it work in your classroom," while Caterina's institution created a formal community of teachers to "[discuss] what software they found successful, what teaching strategies, how do they design their programme so that it's a back and forth conversation versus just a Friday post." For the most part, few received the kind of pedagogical support described above.

(b) Informal support: self-directed efforts

Since few LTEs received little to no help (technical or pedagogical), they had to be resourceful. Some relied on their own initiative and curiosity; Dominique, a savvy user of digital technologies, when asked how she knew what to do, responded:

> Part of it is being on Twitter and following people who talk about this kind of stuff, and then just getting their tweets. But as soon as I get a tweet about new apps, I just download them or purchase them.

Similarly, Misa relied on the assistance of her extended network to remain current with digital literacy practices. She described how she used her network of FB friends:

> …if I have a question or idea or need resources, I can go right into my Facebook network. I could post something or I could in-box a few people. It just makes it easier to get information, to get new ideas… I feel like when I first started teaching in the early nineties and mid

> nineties, you had to do all that research kind of on your own, and now … it's a vast array of things you have access to.

Several LTEs relied heavily on their own network of family and friends for support related to digital technologies. Many counted on the skills and knowledge of their course assistants (graduate assistants or teaching assistants) to effectively help them integrate digital technologies into their courses. Maya's course assistant, who had worked with youth and storytelling in the past, introduced her to digital storytelling.

Justin and Lance both depended on the assistance of colleagues. Justin preferred the informal assistance to a "top-down model" because "it's easier to try things out when there are [colleagues] who are prepared to be enthusiastic about it."

5.7.4 Challenges to Using Digital Technology

(a) Time-consuming

Several LTEs felt that effectively integrating digital technology practices into their courses could be very time-consuming and thus a limitation. Jane pointed out this integration was not a simple process because she had to "learn the technology as well as the application." Similarly, Sara said: "Okay now I've learned it. Now, how can I incorporate it?" Hope commented: "It's a lot of work, it's a lot of hours, it means really re-thinking your pedagogy." Heather also noted the steep learning curve involved in learning new digital technologies, as she metaphorically described it: "We're going to have to probably build the plane while we're flying it." As a result, some LTEs were reluctant to completely dive into the often uncharted territories of digital technology practices. Hailey commented: "Well, I can see how they could be useful, but I think it takes more teacher direction than I had the time to do right now, and more student direction for that matter."

(b) Disconnect between digital technology resources in teacher education courses and classrooms

Although the LTEs acknowledged the various advantages digital technology provided them and their student teachers, they were aware of the frequent disconnect between digital technology practices in teacher education and those in the classroom. Their student teachers often experienced this gap during their practice teaching placements. Dominique explained, "so many of my student teachers would say 'All the stuff you're talking about in class we don't see at all in the field.'" Consequently, the LTEs had to prepare their student teachers for that reality. Stella explained:

> I think you also always want to be cognizant of the fact that not every school is equipped in the same way. So it's no good going in there with something really flash and fancy that you just know they won't ever use because the signal's not very good or, you know, there won't be space in the room or it would take too long to set up. So I think you've always got to be showing them alternatives.

Maya wanted her student teachers to be aware of access issues pupils may face and be prepared to teach in schools and communities not well-resourced with digital technology. She noted, “In many schools, technology is more policed,” and so websites or applications would have to be accessed outside of the classroom; however, pupils may not be able to easily access technology at home.

The LTEs reported receiving a range of formal supports from their institutions as well and informal supports from their personal and professional networks. Further discussion is needed on the ways in which increased formal and informal support could address the limitations of digital technology described by the LTEs.

5.8 Discussion

Over the three interviews, it seemed that the LTEs in the study were hardworking, committed, thoughtful, and continuously updating their courses. However, as the findings above reveal, integrating digital technology into literacy methods courses is a complex endeavor. Although the vast majority felt it should be a key component of teacher education, the steps to reaching this goal were unclear and time-consuming. None of the LTEs “bought into” the discourse that use of digital technology will speed up learning. Nor did any want to use it for the WOW/edutainment factor. They were aware that simply layering digital technology onto an existing course is inadequate, but many were truly perplexed as to how to fully integrate digital technology into their teaching.

All recognized that digital technology is going to continue to evolve at a rapid rate. Having to rely on informal networks (friends and family) does not seem to be an adequate form of professional development for teacher educators. Universities need to consider both technical and pedagogical support for LTEs. Further, LTEs need to work together and consult with digital technology experts to work out a pedagogy of literacy teacher education where digital technology is used to support student learning and prepare them (both student teachers and LTEs) to continue to learn. A multidisciplinary approach with many opportunities for dialogue is necessary.

One common sentiment that emerged among the LTEs was a feeling of tremendous guilt when they were not doing more with technology. Although none of the participants stated there was a university policy that required them to integrate digital technology into their courses, there was an unspoken assumption they would do so. There was subtle (and not so subtle) pressure from student teachers and university leaders that each literacy course would be technology-rich. We feel this guilt is misplaced because they were resourceful in trying to fill in the gaps in their knowledge.

It was apparent that there are not sufficient examples of what it looks like to reconceptualize literacy methods courses using digital technology. Although the competencies described by Desjardins (2005) are helpful, they are still too vague. Many more examples need to be available to LTEs, not just a single “WOW” lesson

on YouTube but many examples of course syllabi that show how digital technology is integrated into a literacy methods course to support student teacher learning and prepares them for working in classrooms in the twenty-first century.

Larger unanswered questions about education compound the situation: in general, what are we trying to accomplish in education? Which leads to the question: what should be our goals for literacy teacher education? The place of digital technology in education may seem obvious, but as the literature review and findings section reveal, there is no widely agreed-upon consensus to the what, why, how, and where. These larger and specific questions need to be addressed systematically because without a clearer direction, each individual LTE is left to grapple with the technical and conceptual place of digital technology in teacher education.

The data revealed that LTEs' courses differed dramatically which suggests that student teachers will complete their programs with quite different understanding about literacy, varied pedagogical skills, and, perhaps, unexamined views of digital technology. Some new teachers will be woefully unprepared to teach literacy with and through digital technology nor will they have had the experience of learning in a digitally rich environment. The variability and inconsistency in the LTEs' courses can have significant consequences.

Solutions to this multifaceted and complex situation are not going to simply "arrive." Selwyn (2013) offers this advice:

> So, rather than continuing to wait in vain for the great technological leap forwards, it is perhaps more sensible for academics to begin to pay serious attention to what kinds of digital technology might be of genuine benefit to them. Instead of struggling with the over-hyped, pre-configured digital products and practices that are being imported continually into university settings, a genuine grassroots interest needs to be developed in the co-creation of alternative educational technologies. In short, mass participation is needed in the development of 'digital technology for university educators by university educators.' (p. 3)

Our research has provided an insider perspective on the challenges LTEs face regarding digital technology. Our advice is to think about literacy courses as a "work in progress" which will continue to develop over many years in the profession. Consider the technologies that will be of use to teacher educators and to student teachers. These technologies will look different in each context, but this approach makes the larger task more manageable and will allow LTEs to modify as needed thus learning and growing with their student teachers. Of course, LTEs will need support and examples as they move into teaching in ways they may not have experienced as students.

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