Self-Study of Teaching and Teacher Education Practices 16

Dawn Garbett
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Being Self-Study Researchers in a Digital World

Future Oriented Research and Pedagogy in Teacher Education

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Chapter 1
Being Self-Study Researchers in a Digital World: An Introduction

Dawn Garbett and Alan Ovens

From whichever perspective we take – being self-study researchers in a digital world has reinvigorated our collective desire to understand what it is to teach about teaching in changing times. This book explores the possibilities for the self-study of teacher education practices contiguous with the advent of new and emerging digital technologies. As teacher education transforms and is transformed by such development, there is a corresponding transformation and expansion of research possibilities associated with immersion in an increasingly digital world. Our teachers of the future are encouraged to work within this digital world to enhance their competence, share their ideas, record their achievements and create electronic resources and profiles. They are readying to teach in a world where their students' expectations and experiences of education and schooling will be manifestly different to their own. And so our students' expectations of us are to ensure that they are at least acquainted with ways to engage meaningfully with technology in their classrooms and early childhood centres and to understand why this might be beneficial (or not) for all learners in all curriculum areas.

Self-study researchers likewise enjoy an expanding range of ways that they may generate, collect and make sense of data related to learning about how and why we teach about teaching. So much has changed in our academic careers as technology has seeped into the fabric of our tenure. The spread of video and photographic technology means that images as well as written words can be used as sources of evidence about the impact of our teaching on students' learning; as pedagogical tools and as a means for data collection. The digital form of such audio, video and written data now makes possible new ways of creating, processing and analysing data. The growing connectivity of the internet makes available new ways of working with

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colleagues, both locally and globally, to enable research collaboration and dissemination of that research as well as innovative pedagogical practices.

In this introductory chapter, we set the scene by considering how being 'digital' augments, enhances and problematizes our conventional methods of doing self-study research. This invokes the problem of how does one define the concept of the digital world. Is this synonymous with the use of new technologies, or is it describing something else? For us, the digital world is a world saturated with, and increasingly interdependent with, digital technologies. It is the contemporary world as we know it, propelled by the ubiquitous use of computers, affordability of devices, development of 'smart' software, speed and availability of broadband, soaring mobile phone use and massive global connectivity through the internet and World Wide Web. In this sense, "digital" becomes shorthand for any electronically enabled technology whose underlying environment encodes and manages information as digital signals in accordance to software (such as an operating system, browser or application) that becomes enmeshed in, and broadly generative of, the everyday world we experience (Lupton, 2015). It is today's world in which the pervasiveness of digital technologies is profound, yet largely invisible. Indeed, many of us are barely aware of the role digital technologies already play at home, in schools, in banks, in cars, in hospitals, and in supermarkets. Digital technologies have become central to the way we generate, transfer, process, record, and display information. This, in turn, transforms how we enact and transact our daily lives. For example, the internet and mobile technology have transformed communication, financial transactions, access to information and social lifestyle. Likewise, digital technologies have brought about sweeping changes for tertiary education and new challenges for teacher educators. Not only can our classrooms be entirely virtual, but there is a concurrent demand for digitally proficient and innovative beginning teachers who are adept at using a raft of new applications, such as video-conferencing, blended and flipped lessons, and learning management systems, that enable greater flexibility and responsiveness to student learning.

This ubiquity can be best demonstrated when one thinks about one's own professional practice as a modern academic. Figure 1.1 shows the result of us mapping our own digital practice as self-study researchers in a university setting. While this map is incomplete (not only do we keep remembering things that should be here, we are also finding new things), it demonstrates how being and becoming digital is a very central part of how we constitute ourselves and practice as teacher educators. Deeply integrated into our daily lives, we make active use of digital tools to build networks, communicate, publicize and share our research, teach, and facilitate our productivity. Each of these dimensions of contemporary academic practice is enabled not only by a myriad of software applications but also by a growing range of devices needed to run this software. We, for example, each have a smart phone, tablet, laptop and desktop computer (with multiple screens) for our use wherever we are working. In terms of the self-study teacher education practices, it is clear that we are deeply immersed in a digital world.

However, the risk of counting the number of applications and computers we have is to miss an important point in how digital technologies are transforming our

Fig. 1.1 Mapping our digital practice

contemporary social and professional lives. As sociologist Debra Lupton (2015) suggests, "… the very idea of 'culture' or 'society' cannot now be fully understood without the recognition that computer software and hardware devices not only underpin but actively constitute selfhood, embodiment, social life, social relations and social institutions" (p. 2). In the same way that the effect of the industrial revolution was more about the total reconfiguration of societal demographics, politics, structures and economics rather than the number of factories that were built, the rise of digital technologies is more about what transformations they enable rather than the specifics of the technologies themselves. With respect to self-study research, we suggest this digital world can be conceptualised in four ways: as a set of technological tools, a complex network of social relations, an architecture of participation and as a cultural milieu.

As a set of technological tools, the digital world enables users to create, copy, remix, share, and store their own content. When encoded in digital form, text, image, and sound is easily manipulated, copied, reproduced, stored, analysed and transferred. These tools both parallel and depart from traditional ways of working with information. As Conole (2011) points out, many of these tools are free online services, multifaceted in their functionality, and embeddable. In other words, the functionality of one tool, such as YouTube, can be embedded into another tool, like a blog, to create a personalized environment for connecting and consuming information. Thus, self-study researchers can utilize these tools and the practices they enable to enact new lines of flight, or experience new ways of thinking, or expand the realm of what is possible.

As a complex network of social and physical relations, the digital world collapses the physical distances between people, thus creating the potential for interactivity, participation, and collectivity not previously available. This ability to network

extends the potential reach of the self-study researcher to a more global scale, or to collaborate with other researchers and colleagues previously out of reach. The speed of transmission in these worldwide networks, along with the archiving capacity of computers, transforms time into a malleable construct. Understanding and utilizing time and notions of space in creative ways can significantly augment self-study practice, particularly in terms of generating, collecting, replicating, searching for and sharing information for study.

As an architecture of participation, the digital world provides the means where different participants with different agendas can engage, exchange ideas, and benefit from the collective input of many. It is an evolving ecosystem where the self-organising activity of participants establishes the material and conceptual territories in which interaction takes place and meaning is generated, negotiated and shared (Gee, 2005). This structure can be viewed as a set of signs (a type of content) and in terms of the individual and social practices in which people engage in respect to the set of signs. The structure also needs a portal that facilitates and mediates access to the space, such as a mobile phone or internet enabled tablet. Thinking in this way, facilitates the self-study researcher's ability to witness and analyze the structure of interaction, the negotiation of meaning and identity, the development of relationships and communities, and the construction of social structures as these occur discursively.

As a cultural milieu the digital world disembodies and re-embodies the researcher. Conceptualising a digital world invokes a post-humanist theory of the body that problematises our concept of the fleshy, sensual and emotional body. Such a post-humanist view describes bodies as complex assemblages that are embedded within and constituted by spatio-temporal networks of relations. In other words, it can be argued that in a digital world a body emerges and takes a dynamic form as an organism as it becomes organised. In this sense, bodies are in the process of being shaped by, extended and influencing the social and physical conditions of their existence. It also raises the question of whether the affordances of new technologies actually change the nature of researching teacher education practices, or whether it allows us to do the same thing more effectively. Such questions not only raise fundamental challenges to who is researched, what is researched and how research is conducted, but also point to broader ontological and epistemological challenges to the nature of the material and existential worlds that teacher education takes place in. Less understood within this field of possibilities are the implications for research and teacher education. The paradox is that while educational technology is rapidly changing, the philosophical and theoretical development of research on, with, and for such technology are developing at a slower rate.

Our ambitious aim is to present research from international scholars who explore the intersection of self-study research, digital technologies and the development of future oriented practices in teacher education. Collectively, the authors explore the changing teacher education landscape by considering issues core to doing self-study including context and location; data access, generation and analysis; social and personal media; forms and transformations of pedagogy; identity; and ethics. As a text,

the book addresses the aspects of doing self-study with educational technology and provides discussion and debate for readers wanting to engage with this expanding field of researching teacher education practices with digital technology. In this sense the collection highlights both the considerable promise of digital technologies while also being circumspect of grandiose claims. Self-studiers are disarmingly honest. Their highly personalized accounts in the following chapters are testimony to their willingness to highlight the chaos and uncertainty inherent in teaching about teaching in changing times.

Mary Lynn Hamilton and Stefinee Pinnegar address the digital turn in relation to self-study of teaching and teacher education methodology. Theirs is a rich methodologically-focused chapter. It is structured around a series of excerpts from Mary Lynn's learning log and inquiry into the way she has integrated technology. They lead the reader through the careful, rigorous research process which is a hallmark of self-study of teachers' and teacher educators' practices. Even though computer-assisted data-gathering and data analysis tools have been a part of qualitative research since the late 1980s and technology seems to have always been a part of S-STEP methodology, these authors have explicated ways in which technology has been the impetus, driver and facilitator of research. Emerging technologies are cast as "silent supports and a critical friend to strengthen and deepen our work". This chapter offers thoughtful exposé of technology-supported data collection strategies which enhance authority of experience and trustworthiness as well as insights into how a self-study research project can be conducted using technology for support.

Shawn Bullock and Tim Fletcher's chapter addresses the challenges of teaching about teaching in an online, disembodied environment. It is a context thrust upon teacher educators (and other academics) internationally as higher education institutions attract students through offering ever increasingly flexible pathways. Shawn was Tim's critical friend as Tim adapted to teaching about physical education using digital technology in an online environment. Not only was technology and its adoption and integration into a course which had been primarily taught face-to-face the impetus for the self-study but it also facilitated the researchers' capacity to consider practice anew. They realised that senses, emotions and relationships embodied in face-to-face interactions with students occur in new and different ways when teaching on line. While these interactions are most often transient and mercurial in the classroom, moving into a digital space means that these aspects are made persistent and public. The impact that this permanence has on our perception to freely express ourselves when every word can be scrutinised and revisited because they were recorded in some way is salutary. Tim and Shawn are at pains to make clear that online teaching is not inherently better or worse than face-to-face teaching but rather, provides catalysts to consider the social/relational consequences of teaching in a digital space.

The next three chapters are contextualised by teacher education in literacy courses. In the first, Shawn takes on the role of a critical friend again, this time for Clare Kosnik and Lydia Menna who were not experts in using digital technology. However, this chapter is very much a shared journey in search of the 'elusive goal

of integrating technology into teacher education' and understanding self in the process. It is a refreshingly honest and readily accessible account of how self-study has enhanced these teacher educators' use and integration of technology and, in the process, reconceptualised their professional identities. They draw on data generated over two years to signpost the highs and lows of progressing from intimidated novice to digitally competent. From avoidance to using the "Wow factor" and then acquiring a repertoire of technology based activities, Claire and Lydia finally recognise that they are utilising technology as a tool to enhance their expertise and experience as teacher educators.

In Benjamin Boche and Melanie Shoffner's chapter the strong theme that technology was the impetus and self-study the lens that brings professional growth into focus continues. Adopting technology in their literacy classes forced Ben and Melanie to take a closer look at themselves as teacher educators. The chapter highlights the gaps between carefully considered intentions and what actually happens in practice. But even this presupposes that teacher educators have thought carefully about how and why they incorporate technology into their classes in a meaningful way rather than just for the "Wow factor". Ben and Melanie recognised the need to incorporate technology in multiple meaningful ways that extended their pre-service teachers' developing understanding of literacy. They also highlighted that discussing why and how technology could be incorporated with students was more important than focusing on an achievable end product.

Susan Martin and Sherry Dismuke explore their transformation of practice as they substituted tasks to include the integration of technology. They were enthusiastic and committed to learning about technology themselves. Their positivity and confidence has translated to positive outcomes for their students. They provide illustrative examples of how integrating technology changed the students' tangible end products and how they managed to explicate the process of learning to teach using technology in their teacher education courses. Through the careful, thoughtful reflection of their practice, Susan and Sherry learned of the insecurities and tribulations their students faced. They draw the readers' attention to the process of learning to teach using technology as well as the ways that their students' interacted and learned in their classes using technology as a tool.

Brian Rice's chapter is a fascinating juxtaposition of being a teacher in an online community whilst also being a student in another. The insider's experience and perspective in the context of Brian-as-student informed his pedagogical approach and response to students when he was in the teacher's role. As a teacher, he describes an interaction with a student regarding her response to a grade he has given her for incomplete work and compares his own feelings in a parallel case when he failed to fulfill the requirements of an assessment task as a student. Both experiences resonated with our own. We have wanted to rail in frustration at some students' demands and send them a pithy rejoinder. We have also felt the twinge of embarrassment when failing to meet expectations and the relief at being given the opportunity to resubmit. Through his analysis, Brian identifies the lack of support for both students and teachers to build a relational educative space when mediated in an online context. Such a space is not created by happenstance and requires considerable support.

Brian's chapter heralds the dire need to ensure that technology facilitates sociality rather than isolation for students and teachers alike.

That sentiment leads to the next chapter which is focused on building community and capacity to teach in a socially constructive online environment. Helen Friedus and Mollie Welsh Kruger along with other early explorers of teaching digitally at Bank Street College of Education formed an Online Research Group. Together they maintained their focus on a constructivist pedagogy in an online environment and supported one another's professional growth towards becoming the teacher-learners they always strived to be. Implementing social constructivist practices in both online and face-to-face contexts was the driver to reconsider pedagogical practices or to make the familiar unfamiliar. The ORG provided a safe community to share and discuss the findings generated through analysis of the artefacts. Ultimately, self-study provided the wherewithal to grow professionally. One hundred years ago, Bank Street's founder wrote that the mission of the College was "to nurture an attitude of eager, alert observations, a constant questioning of old procedure in the light of new observations… in order to base the future upon actual knowledge of the experiences of the past" (Mitchell, in Antler, 1987, pp. 309). These inspirational founding words underpin the ongoing work of the Online Research Group.

In the following chapter by Constanza Tolosa, Rena Heap, Alan Ovens and Dawn Garbett, using mobile technology in order to facilitate a conversational framework and make feedback visible to and from their students was the opportunity to study the impact of technology on their teacher education pedagogies. They used survival memos and collective biographies to surface their assumptions and underlying beliefs. Through face-to-face dialogic discussions around these data sets they challenged the patterns, structures and conceptions that sustained their teaching. Discussion about the feedback from their students challenged them to consider modelling and making their feelings of vulnerability explicit anew. The collaborative self-study prepared them to face, and make better sense of, the challenges and changes that technology brought to the forefront in their classes. It also enabled them to keep pedagogy rather than technology (nearly always) uppermost in their practice.

Technology facilitated Kathleen Pithhouse Morgan and Anastasia Samaras's project in a way that would have been unimaginable without it. They used technology to collaborate and facilitate self-study learning communities in South Africa and the USA. They used technology to create a space where they could reflect on the intersections they found in their online research conversation which extended over a period of months. They have made their diverse ways of seeing and knowing the focal point of their research which they refer to as Polyvocal professional learning. They created a virtual thinking space using a number of dialogic tools supported by technology. Theirs is a beautifully crafted, carefully worked exploration of how becoming less text-dependent meant that their meaning-making became more translucent. Through the use of mood boards, poetry and regular emails they have shared how they became complementary colleagues who derive purpose and motivation to communicate the *Why* of the work we do.

Adrian Martin and Katie Strom's chapter introduces rhizomatics into the field of self-study and pose the seminal questions – *How does technology work*? and *What can technology do*? They challenge readers to see the 'self' as an effect of an event on a relational field: an assemblage of overlapping and intra-acting forces rather than as autonomous, unitary and coherent. In this way, a self is a way of being in a state of continuous transformation and becoming. Their research focuses on how google docs can be used to enable and reflect on lines of flight. Their work helps highlight the subjectivity of thinking and reflection and how these approaches allow us, as pedagogues, a means connect, or plug in, or construct assemblages. Or in their words, putting rhizomatics to work as a practical philosophy and thus highlighting that knowing is never done in isolation. Their (non)conclusion is an invitation to open up self-study to new dimensions.

Charity Dacey, Linda Abrams, Katie Strom and Tammy Mills based their chapter on the contributions of other researchers to this book. They have "plugged" their own relationship with technology into this frame to more fully explicate the transformative potential that technology can have on practice and understanding of that practice. They have used technology both as a tool and also as a means to engage with each other in thinking in more complex ways about our self-study of teacher education practices and our relationships with teaching, technology and one another.

The final chapter addresses the impact that technology has on self-study and thus our understanding of how to make the process of learning to teach meaningful in a future oriented world. John Loughran exhorts us as teacher educators to take the risks necessary to embrace opportunities afforded by digital technology and to see our practices anew.

We thank each and every author for their contribution to this book. We are enthused and inspired by the many different ways that our colleagues continue to provoke and worry their practices. The refreshing honesty evident in each of these chapters gives us confidence and courage to pursue our own deeper understanding of how to be self-study researchers and informed teacher educators in a digital world. We trust that you will be similarly challenged.

References

Antler, J. (1987). *Lucy Sprague Mitchell*. New Haven, CT: Yale University Press.

Conole, G. (2011). Stepping over the edge: The implications of new technologies for education. In M. Lee & C. McLouglin (Eds.), *Web 2.0-based e-learning: Applying social informatics for tertiary teaching* (pp. 394–415). Hersey, PA: ICI Global.

Gee, J. P. (2005). Semiotic social spaces and affinity spaces: From the age of mythology to today's schools. In D. Barton & K. Tusting (Eds.), *Beyond communities of practice: Language, power and social context* (pp. 214–232). Cambridge, NY: Cambridge University Press.

Lupton, D. (2015). *Digital sociology*. Oxon, UK: Routledge.

Chapter 2
Self-Study of Teaching and Teacher Education Practices Methodology and the Digital Turn

Mary Lynn Hamilton and Stefinee Pinnegar

This chapter addresses the digital turn in relation to self-study of teaching and teacher education practices (S-STEP) methodology. As we turn, we wonder how S-STEP methodology supports the work of teacher educators and what that support looks like particularly as we consider learning with technology and researching with technology. We know that S-STEP methodology can contribute to the professional work of teacher educators. We know that this methodology captures particular lives, experiences, and practice within the educational world. Consequently, we wonder how we might define, explore and consider how as teachers and teacher educators we can use this methodology when we engage with students in online environments and study our practice. We recognize that we have identified broad areas to cover – teaching students about technology, using technology to improve learning, and employing technology to support the study of our practice. While giving a nod to each area we focus specifically on the ways to use technology to strengthen and empower our research.

With the support of heuristic tools we articulate how intimate, virtual, thoughtful study using S-STEP methodology can support the work of digital/cyber/teacher-selves as teacher educators. Exploring these selves requires careful attention as we carry histories and backgrounds, including academic-selves and teacher-selves whereas virtual space adds cyberselves, digital-selves and so on. Navigating these spaces can be complicated at best. Indeed, utilizing more intimate methodologies allows us to uncover and excavate our tacit, professional knowledge developed in

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present moments (Stern, 2004) of practice that may remain hidden in other methodological approaches. S-STEP research involves understanding ourselves and experiences in relation to those we educate and, in turn, our imaginings about those students that our students will educate. The digital turn opens virtual pathways for scholarship and bring new perspectives to S-STEP work.

Critical Issues

In the next few pages we present a series of Learning-Log/Inquiry-Planner excerpts as examples, not as exemplars but rather as heuristic tools around which we can talk about aspects of S-STEP methodology and the digital turn. We intersperse these excerpts to offer a rough view of a S-STEP methodology-in-process. First we offer critical issues to consider.

From the outset we acknowledge that the digital turn does not alter our ontological stance or the systemic way we approach our work or the strategies we consider to collect information. Rather, the digital turn offers ways to engage more deeply to reveal our stance. Commitment to careful rigorous research is just that – careful, rigorous research – and should occur with or without technology. Commitment to rigor is a part of any strong study. Respect for participants and their contexts along with their words and perspectives is an imperative aspect of quality research – and in a time when social media affords us the opportunity to find out (potentially) everything about everybody, we must cautiously guard against believing all that we read and place an even higher value on triangulation, critical analysis and the strategies we select to examine our practice.

The intimate scholarship (Hamilton, 1995) of S-STEP holds an ontological orientation guided by a coming-to-know process grounded in dialogue (Pinnegar & Hamilton, 2009). Centered in the study of one's self-in-relation-to-Other – autobiographically, historically, culturally, politically – we attend to aspects both present and absent. The person conducting the research is both the focus and the author of the research, providing an intimate look into practice and experience. Not satisfied with the perspective of the distanced researcher, S-STEP researchers engage in their work with a desire to enact and bring different understandings to their practice experience. LaBoskey's (2004) S-STEP elements with attention to practice and improvement makes clear that engagement of self-in-relation-to-Other(s) can reveal professional identity and knowledge.

Two critical aspects distinguish S-STEP from traditional qualitative research. First, is the explicit ontological stance of the researcher. To enact good research, researchers must have a sense of their stance in the world, often just an implicit subtext. In S-STEP we expose that stance. Second, is the use of dialogue in the coming-to-know process. While other methodologies may give a nod to critical friends and relevant others, S-STEP researchers engage in dialogue recognizing it as the basis from which they assert authority of their claims and as a way to expose their understandings and actions. In turn, this becomes the way they develop

trustworthiness as researchers in the ways they process and develop their ideas and knowledge.

We wonder how the digital turn affects S-STEP. Realistically technological tools can only enhance S-STEP work, but how do researchers engage with it? Might there be concerns for the ways technology invades our lives? Prior to the emergence of technology as we know it today, Postman (1992) warned that surrendering our culture to technology served no good purpose and noted that in the burgeoning technopoly – a society that privileges efficiency –members consider the technical inherently superior (Postman, 1992. p. 51). As a voice in the wilderness, he warned that granting free rein to technology removes limits on the value of statistics. If new technologies alter our approach to interests (the things we think about) and the character of our symbols (the things we think with), they alter the nature of community (the arena in which thoughts develop) (Ahumada, 2011, p. 9). In fact, it seems that newer qualitative researchers do not see a world without digital texture (e.g., Wesch, 2010). Accepting this warning, we must give careful attention to what we do and how we engage in our research.

How can we make the digital turn with S-STEP and remain the careful rigorous researchers? We provide a description of ML's foray into digital research and learning as a way to explore the use of digital tools in S-STEP methodology.

First Excerpt from MLH's Digital Learning-Log

Two years ago I (ML) received an invitation to turn my graduate level multicultural class into an online class as a part of the university-wide initiative to develop and broaden our online presence in the twenty-first century. I resisted as my view of teaching only included face-to-face teaching and distance learning was just that – distanced. Still my personal commitment to questioning those stuck places in my practice and exploring the unknown inspired me to forge ahead into the experience. I asked myself question – does this work?

To systematically explore her work, ML completed the Inquiry Planner to support her inquiry. You can see below how she begins to engage in her exploration. Initially she offers reflections as she ponders her potential study prior to identifying a question or plan.

ML's Inquiry Planner Round 1

What am I interested in exploring? What do I identify as problems in my practice, where my actions do not seem to match my values? What issues do I want to further understand? What do I want to learn about these interests, issues, and concerns?

(continued)

I am interested in exploring my experience as I engage in teaching courses online. I do not have a positive view of online learning and I wonder how I could encourage higher order thinking skills and develop a learning community online.

How could I explore these concerns and issues? What contexts might be most fitting? Who are the most appropriate participants – me? My students? My program?

I could explore these wonderings as I undertake my first online class. I could focus on interactions and my course design.

What strategies might I use? What would count as evidence?

I could collect artifacts from class, lesson plans, student input, and so on.

What work in educational research (or other research fields) will guide my inquiry? What beliefs are embedded in my questions? What values do I embody in my practice and research? How will I hold myself accountable? What do I expect to contribute to the knowledge base?

I could consider technology, digital, new literacies and more. I will bring my inquisitive nature to the study along with my commitment to understanding the development of my professional knowledge.

From Pinnegar, S. and Hamilton, M. L. (2009). *Self-Study of practice as a genre of qualitative research*: *Theory*, *methodology*, *and practice*. Dordrecht: Springer Press.

In the form above you can see her beginnings and desire to examine her practice. The invitation to engage in online learning from University colleagues sparked her interest in examining technology used in instruction, to enhance learning, and to support research. In contrast to Postman's concern about technical rationalism, S-STEP methodology situates technology as an opening rather than a constricting tool to explore practice.

In her second learning-log entry ML develops her ideas as she considers ways to propel her research forward.

Second Excerpt from MLH's Digital Learning-Log

To prepare I informally interviewed people I knew who had been students in and teachers of online courses. Most often instructors talked about rote, worksheety, lecturey classes with little inspiration for students. And students talked about rote, boring assignments where little engagement occurred between students and instructors. I also sought research articles but the "how-to's" were less than exciting and I had little interest in engaging in video work. While I heard much talk about computers I found little support in the literature for creatively teaching classes online in ways to that encourage students to engage in higher order thinking. I felt less than enthusiastic about these findings.

(continued)

My next step for developing an understanding of online teaching included an Internet search for and a collection of syllabi from online classes focused on multicultural education but not limited to that content. I found a broad range of possibilities – and whether I recognized my discoveries to be appealing or did not, I reflected – always – about my students and content. I asked – how I might respond to these artifacts as a student? As an instructor? What might students' learn? How might I inspire change in thinking? In this step, the syllabi acted as faux critical friends, often used in qualitative research to foster deep/critical thinking as a researcher, to challenge me to think about my values as an instructor and my expectations for my students.

Upon completion of my review I decided on the organization, the texts, the assignments and more for my own class, I could see the glimmer of subtle differences between teaching and planning on/offline. How would I introduce myself? How would I manage the class? How would I interest them? Could I generate a class environment that countered the sense of difference? How might I encourage higher order thinking skills? How can I "know" students are learning?

Although we value technology used in instruction and technology used to enhance learning, here we focus on technology as support in the research process. In her learning-log entry you can see hints about how ML systemically explored possibilities in her course preparation. As an experienced teacher educator she gathered information to inform her thinking and she turned to the larger qualitative research literature to examine ways to develop her coursework and constitute a study.

In our search we found that computer-assisted data-gathering/data-analysis tools have been a part of qualitative research literature since the late 1980s with more studies centered on of teaching than studies describing methodological fit. The works of Tesch (1990), Mann and Stewart (2000), and Markham (1998) represent examples of early work that address the digital side of research. Current research texts also address ways to enhance research through technology (e.g. Fielding, Lee, & Blank, 2008; Marshall & Rossman, 2006).

Since the first text written about S-STEP methodology, teaching with technology and technology as a research strategy have been a part of S-STEP. For example, Johnston, Anderson, and DeMeulle (1998) established a multi-dimensional environment for themselves in which to communicate their teaching reflections. Others, like Thompson (2004) use online environments to capture their own and their students' thinking about teaching. Hoban (2006) makes a distinction between technology as a tool and technology as a social/cultural practice. In this chapter, however, we recognize technology as a support for researchers to access and explore constructions of knowledge. As a chat, blog, email, website, and more, technology can facilitate the research process.

Possible Data-Collection Strategies

As LaBoskey (2004, p. 817) notes S-STEP research has a mostly qualitative nature and uses mostly qualitative strategies with an S-STEP twist with many choices beyond the use of the inquiry planner – what can we do? We wonder which strategies will help us identify aspects of the practices we hope to explore. We know that our work requires vulnerability and a willingness to maintain integrity as we enact careful research (Matias, 2012). We also know we need to bring aesthetics, with its attention to meaning-making, into our methodological processes (Davidson, 2014). But what data collection strategies will support a strong S-STEP in its digital turn? To figure that out we identified frequently used strategies in published S-STEP research in books, journals and proceedings. Here we explore interview, observation, and fieldnotes/journaling tempering what we know as traditional qualitative researchers and S-STEP researchers with current information regarding the digital turn. We know that rather than generating new strategies or frameworks emerging technologies become silent supports and a critical friend to strengthen and deepen our work.

Interview

S-STEP researchers often use interviews, purposeful conversations (Bogdan & Biklen, 2006), to detail thoughts, words, language and context of colleagues, students and selves. Following a general qualitative format, researchers include the design of questions, note-taking/recording during the interview, careful analysis, and review of interpretation with participants. The ways we position ourselves – remembering to situate self, explore positionality, and walk alongside participants (even if the interviewee is the self) – bring a critical difference to S-STEP research. We counter queries to participants with queries to self about understanding, bias and perspective (although those queries most often occur after the interview not simultaneously.) In S-STEP research, researchers make explicit their position as researcher-participant in the study.

The digital turn affects the context and approach of the interview rather than the format. Currently researchers use Skype (Hanna, 2012), smartphone, email (Redlich-Amirav & Higginbottom, 2014) or other Social Mobile Devices (SMD) to collect data (Beddall-Hill, Jabbar, & Al Shehri, 2011) focused on social interaction. Skype enhances the online interview with its visual component (e.g., Holt, 2010; Redlich-Amirav & Higginbottom, 2014). Some authors use tables to depict ways digital technologies support research (e.g. Hookway, 2008). Attending to Skype, recorders, photos (Hanna, 2012), smart phones and tablets (Moylan, Derr & Lindhorst, 2015) enhanced by cloud technology that synchronizes devices make

digital interviews seem more participant-centered and flexible (Trier-Bieniek, 2012). Some researchers suggest that digital chatting in real-time on Facebook or Twitter may be appropriate as alternatives to face-to-face interviews (Redlich-Amirav & Higginbottom, 2014). Others suggest use of discussion forums to allow researchers (Skågeby, 2015) to nestle into the social space. These technologies evolve to support the exploration of experience and practices (Hammond, 2014).

Observation

Usually in S-STEP researchers make few changes to traditional observational strategies whether they observe students, colleagues or themselves. Importantly, the S-STEP researcher generally links the observation back to the self and practice in some way. Still, how do you set up observations in a digital world? A variety of technological tools exist to record action. Other possible strategies might include the observation of the usage of social information and communication technologies (SICT) like Twitter and Facebook (Beneito-Montagut, 2011). The SICT bring a twist to engaging in observations where researchers can observe a virtual, asynchronous space and customize their work to monitor internet usage and so on.

While not equivalent to the real events, digital recording preserves events in close to their original form. Usually researchers transcribe the information collected as evidence as well as a support in the analytic process. Additionally recording can serve as an external memory source that allows researchers to examine materials extensively and repeatedly. A digital record provides an exhaustive record that permits careful analysis of what happened. Furthermore continuous recording does not emphasize any specific aspects of life. While digital recordings capture the fine details of the setting and can allow researchers to return to the recorded scene, the best way to use recordings is in conjunction with other research strategies. In so doing, insights about the setting that might be overlooked because of their subtlety and/or the familiarity of those involved can be uncovered.

In S-STEP methodology, digital recordings often record teaching practice or particular events. Some researchers (e.g., Berry, 2007) have recorded class sessions with students to capture all elements – verbal/non-verbal – of conversation. Others, like the Arizona Group (2004) make recordings to document conversation. Analysis of recordings allows researchers to interrogate self and setting in exploration of practice and the knowledge around which the practice emerges. These recordings serve as springboards for practice-focused conversations, because living contradictions emerge when viewing self-in-action. Private, voluntary web-based groups and videoconferences via the Internet allows researchers to access broader audiences (Matthews & Cramer, 2008).

Notes in the Field

Fieldnotes and journaling are crucial elements of quality S-STEP. Many studies include fieldnote references but fewer sources include details about how to engage in fieldnote writing. Still, we know that notes written in a moment-of-time serve as an abbreviated version of what actually occurs. In S-STEP methodology the researcher might provide a more intimate, vulnerable description than found in more traditional fieldnotes. We include feelings and perspectives rather than set them aside, situating self against the context to explore and explain the practice being studied and the knowledge being generated (if that occurs). These fieldnotes might depict details about the setting and about students-teachers-Others involved along with a description of the self-in-relation-to-Other. Fieldnotes echo researcher development throughout the study. As a writing tool, journals offer places for writers to expose their personal feelings, interpretations, and judgments. Richardson and St. Pierre (2005) see that writing allows the writer to reveal a deep exploration of self situated in context. Certainly S-STEP researchers see journaling as a way to provide story and narration to experience (Wilcox, Watson, & Paterson, 2004).

In the digital turn blogs offer an alternative but more public record to journals/fieldnotes.

By author choice there may/may not be opportunities for response. Blogs offer a public space where a person can include details about daily experiences (Hookway, 2008). Some blogs offer a viable alternative but issues of privacy and trustworthiness remain. Craig (2013) points out the importance of digital storytelling and the ways these stories presented in multimedia fashion connect text to internet. In fact, stories of this sort can support teacher educators in the careful depiction of their experience as teachers and the professional knowledge they hold. Generally, if participants are willing, blogs allow all participants to comment almost immediately about what occurred/did not occur.

Focus Groups

Focus groups are not often used in S-STEP methodology because of the focus of self-in-relation-to-Other. If undertaken, they follow a traditional format that includes people unfamiliar with each other who are led in discussion by an appointed coordinator. Use of focus groups becomes valuable if you want to pilot ideas or gather information about different perspectives. If you want ideas to emerge from conversation, focus groups may work. Given the relational aspect of S-STEP, the lack of familiarity expected in focus groups can not occur. However, in S-STEP some researchers do use groups of colleagues or students or others to help them engage in the study of practice.

In group work, S-STEP researchers tend to combine focus group and interview design guidelines. When using groups in S-STEP methodology, the technical

aspects remain the same with added attention to self-in-relation-to-Other. As a true focus group involves heterogeneous grouping of people unfamiliar with each other, an online turn might involve groups organized by interest. A potential difficulty may come in the self that shows up at the group. The question is – will people represent themselves honestly or situate themselves in an alternative persona (Redlich-Amirav & Higginbottom, 2014)? In the digital turn Skype, Google, other similar formats would support this strategy. Importantly, foreknowledge of participants' technical backgrounds would be critical to facilitate smooth engagement so a check of equipment and prowess are recommended prior to the arranged meeting.

As ML selects which strategies best support her study she needs to consider the synchronous/asynchronous aspects of communication (Redlich-Amirav & Higginbottom, 2014). What is the value of synchronicity in her work? That is, must she be in communication with her participants in a real-time setting or can she offer better support to participants at their convenience.

After consideration of strategies, ML expanded her inquiry planner to include more detail. (NOTE: The beginnings of this study are presented as if they occur in a linear fashion, but in reality this is a rough description of the process that clearly must occur in a less predictable manner.

ML's Inquiry Planner: Round 2

1. What am I interested in exploring? What are my living contradictions? … I know that I must attend to my wariness about learning in this fashion – is this resistance to change or a knowing about learning? I must keep an open mind. Since the course focuses on diversity and social justice, how will the online environment affect the content and context?

   How could I explore these concerns and issues? What contexts might be most fitting? …

   To prepare I talked with people familiar with online learning/teaching. I found "how-to" research articles. I collected syllabi from online classes focused on multicultural education but not limited to that content with a broad range of results. I wondered, how might I inspire change in thinking? I could focus on my students/me/our learning/our environment.
2. What strategies might I use? What would count as evidence?
   We will write about our experiences, I will write about my experience and record my experience…. watching me and watching the students. I will work to create a strong course and attend to the teaching, the content, and more. In other words, the strategies will include fieldnotes, observation, activities used at strategic times, student/teacher narratives, dialogue, and interviews.

   Evidence can include: Plans, journals, dialogue transcripts, student/teacher narratives, interview transcripts, results of class activities.

(continued)

> What work in teacher education research (or other research fields) will guide my inquiry? …
>
> In Teacher education + S-STEP literature; Used search engine to find literature.
>
> Search the knowledge base: to gain an understanding of the struggles of the learning-to-teach process; aspects of the coming-to-know process; the use of and development of professional knowledge. I want to use technology to bring technology into the teaching of others….and myself. I found few real examples that would inspire higher order thinking skills. I found research that addresses online instruction, but fewer articles that explore the ways to engage technology to study technology in the classroom. I found many articles that focus on analysis using technology. I found little on the work of teacher educators and digital research strategies.

For ML, email interviews seemed like a good strategy to begin to query student learning and her own practice. Recognizing the importance of rigor and systematicity when focused on self, she plans to write careful notes, collect documents, and engage critical friends. ML also recognizes that whether engaged in digital or face-to-face contact, privacy issues must be a concern.

Evidence

In preparation for a S-STEP researchers generate questions and focus on issues to investigate. They also identify what evidence might reveal appropriate information. Sometimes the answer is more obvious than other times, but careful deliberation must occur. The claims may rest on the quality and veracity of the evidence collected. Therefore, researchers want to collect data that not only provides evidence of claims made, but answers questions others might raise either about the data or claim.

As researchers probe their questions and work out the forms of evidence they hope to find, use of critical others can support this process. These critical others might be skeptical colleagues or colleagues with whom you work and can sharpen, reshape and refocus questions in unpredictable ways that make for a more interesting, more significant, or stronger study. We notice that we need to be mindful of whether the evidence we collect will provide evidence from which we can address the question we asked. For these reasons, answering the question – what will count as evidence – requires thoughtful, careful deliberation and can ultimately impact the trustworthiness, rigor, and strength of the study.

Third Excerpt from MLH's Digital Learning-Log
Digitally I set up Voice Threads for short lectures where I talked to them as if they were in class. I specifically focused my lectures around the text and asked questions related to issues raised in the readings. Then I expected the students to listen and leave traces of themselves in the form of comments and questions on the voicethread. Students could build constructively on the comments of others. Sometimes I asked questions and sometimes I returned to answer their questions.

During the introductory week we all introduced ourselves to each other using a voicethread prompt so they could see each person in class and hear their voices. I speculated that whereas older faculty may have difficulty with or hesitancy about the distance, this is a new age where folks are more comfortable with the online environs. I reminded myself to embrace that. In the class design I set a weekly routine – discussion, journaling, and case studies. Activities spread from the readings to film, to video clips to Internet searches. The final activity had the students engage in mixed media analysis of selected topics that connected to their educational interests to those issues addressed in class. They created amazing final products.

ML wonders how to engage in her analytic process. She knows that the data-collection-analysis-interpretation occurs in a recursive process from the onset of the research design. Whether a general qualitative research study or more specifically a S-STEP, these processes may be difficult to distinguish in the midst of the work. The analytic process generally involves the organization, classification, and categorization along with a search for and a synthesis of patterns in the recursive research process. As researchers progress, determining missing information may extend exploration in the study. Making-meaning from findings develops as each piece of information is gathered. This iterative activity occurs from data collection to a study's conclusion. The recursive nature of data collection-analysis-interpretation enlivens the research process and pushes toward the evolution of ideas to uncover possible insights and oversights. Moreover this process generates questions and points to new directions as well as inspires continued reading by researchers in related literature to shape ideas over time. Particularly important to S-STEP research is vigilance given to the process and attention to rigor. That means that whatever analytic processes are used – choice and process should be transparent.

But how is analysis affected by the digital turn? We know that many studies/texts address QDAS – Qualitative Data Analysis Software and its value. For example, Davidson and di Gregorio note that the digital turn now includes twitter, crowd-sourcing, and folksonomies – an-ask-and-see-who-knows approach (Davidson & di Gregorio, 2011a, b). Paulus and Lester (2014) discuss ATLAS.ti as a way to document analytic decisions in transparent and systematic ways. Some researchers even speculate that the use of QDAS encourages researchers to disclose their ana-

lytic processes and how they substantiate their claims (Odena, 2011). Others, like Gilbert, Jackson, and di Gregorio (2014) offer warnings about attention to detail when using QDAS. In their work, Jorrín-Abellán, Rubia-Avi, Anguita-Martínez, Gómez-Sánchez, and Martínez-Mone (2014) recommend taking up the QDAS as critical friends pointing to the importance of accounting for "what the eye does not see". They suggest that creativity regarding data analysis may strengthen the rigor of our work. Regardless of the approach to analysis, Wang, Wiesemes, Gibbons (2012) encourage digital fluency in the recognition that learning takes place in complex 'live' contexts. Further, Fielding (2014) points out that the site analytics like Facebook Insights, Hootsuite, GoogleDocs, Socialbakers, Tweetreach, and Wordpress Analytics can now enhance our analytic processes by enable users to explore site demographics.

And how will ML interpret what she thinks she sees? She knows that interpretation has all to do with your ontological stance made transparent by the theoretical frame with no one way to analyze or interpret her work. Furthermore she knows that staying true to your theoretical framework and being explicit about what you do and how it fits in the broader literature and understanding of the research undertaken.

Authority of Experience

As Munby and Russell (1994) assert, the authority of experience emanates from the, "knowledge that resides in action" (p. 92) and too often gets discounted around the thinking and practice of teaching. Berry (2007) suggests that authority of experience captures, "the status of knowledge derived through personal experience, compared with other, traditional forms of authority such as the 'authority of position' or the 'authority of scholarly argument'" (p. 12). Our interpretation should reveal our authority clearly as we present our findings and provide our evidence. As S-STEP researchers we take an ontological stance to understand and improve practice. We are also determined to produce authentic, rigorous, trustworthy accounts of situations that are problematic, troubling, and curious. As a result, we need to attend carefully to the accounts of practice we capture and the technology of the digital turn supports our work.

Dialogue is an important facet of analysis in S-STEP research as it is in all aspects of this work. Whether engaged in formal collaborative S-STEP or working with critical others to support an individual S-STEP, dialogue occur. Skype, Google Hangout and sites like this facilitates these connections. We find the exact steps are secondary to the commitment for dialogue and transparency in our work.

Since analysis and interpretation are part of the iterative process each steps opens our work into deeper consideration. We are mindful that if we connect a piece of data with an assertion in analysis, readers should be able to connect our interpretation with our action. A significant difference between the general qualitative research and S-STEP in analysis/interpretation centers on the self-relation-to-Other. In S-STEP we complicate the self and situate the self-in-relation-to-Others dialogue to extend our iterative collection-analysis-interpretation process.

COMPLETED Inquiry Planner Reconsidered Round 3

What am I interested in exploring? What are my living contradictions? What issues do I want to further understand? …

Beginning … Given that I want to prepare the best students possible to reach the unseen children, what could I do to examine my practice? How could I inform myself about ways to improve my practice? How could I improve what needed improvement? What is a teacher educator to do? I examined my perspectives and considered my researcher beginnings. Unfortunately, most of their comments seemed to center on me as a person rather than any particular teaching strategy or idea. After reviewing the literature and the course content, I attempted to ascertain the breadth of student learning/my own learning. I wondered about how I could encourage students to engage wholeheartedly in the online classwork? Could I do something that creates a "need to know" for students?

RECONSIDERATION

In the reconsideration of this study, about a month after initiating it, I return for the first time to ask myself questions from the analytic frame. I return several times throughout the semester to ponder (not always at great length) the questions, my ideas and my developing understanding. Each time I return I focus on improvement of my teaching practice in my classroom. Each time I query myself about contradictions and tacit assumptions within my actions.

Analytic Frame

Purpose: My purpose here is to improve my practice as an instructor of students who want to teach. I also want to align my practice (action) with my beliefs. I plan to situate my understandings of theory next to my understanding of my practice to reveal my living contractions. I plan to present the study through my own eyes and situate my practice within the classroom context. The purpose of my study is to explore the tensions between my theoretical perspective, my methodological choices and my pedagogical approach.

Story of self: I notice in my first reconsideration that I seem heavy on the "I" of the study and light on the student input. What about how the students or context of this class differed? Do you want to change things in a vacuum or find out more about them? I ask myself each time: Am I reframing issues? Am I engaged in responsive practice? Where are my living contradictions? How am I grappling with issues?

How could I explore these concerns and issues? What contexts might be most fitting? …

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Beginning Since I believe that my materials are most current, I will formulate a plan to work with all students generally and identify willing students to who will discuss experiences as online learners – in style, in design, in content. I will open the discussion to all students who take the course. My current idea is to focus the course in a narrative direction, encouraging the creation of narratives that will describe student experiences as learners as well as my own. The context will be my summer classes. I will engage my students in the work as well as invite a graduate student to participate with me.

RECONSIDERATION

(Interestingly my online class composition had more diversity than my face-to-face classes with African-Americans/Asian-Americans/Hispanic/LGBTQ representation. I wondered about that but came to no conclusions.) My design focuses on my students and me. I planned to record my actions digitally, collect student work online, keep close records on actions, establish critical friends for dialogue, and keep documents, like lessons. I maintained this design. Over time I recorded my work with detailed notes recorded digitally. Often I asked my critical friends for recommendations and support. I am always (as much as possible) vigilant with regard to my overly idealistic views.

Analytic Frame S-STEP definition

I defined S-STEP using the works of Hamilton and Pinnegar 1998; Pinnegar & Hamilton, 2009 and LaBoskey, 2004. That is S-STEP is, "a methodology for studying professional practice settings and identify its most salient characteristics as 'self-initiated and focused; …improvement-aimed; … interactive; …[that uses] multiple, mainly qualitative, [strategies]; …a validation process based in trustworthiness" (LaBoskey, 2004, p. 817). Moreover, I recognize S-STEP as a methodology with more attention on the stance one takes than on specific strategies involved in the undertaking" (Berry, 2007). As I engage in my study, I attempt to stay steady in the S-STEP and stay true to these definitions as work progresses.

What strategies might I use? What would count as evidence?

Beginning We will write about our experience, I will write about my experience and students, will write about their experiences…. watching me and watching the students. I will explore the course, the teaching, the content, and more. I will invite the students to write. In other words, the strategies will include fieldnotes, observation, activities used at strategic times, student/teacher narratives, dialogue, and informal interviews. Evidence: Plans, journals, dialogue transcripts, student/teacher narratives, interview transcripts.

RECONSIDERATION

In my initial reconsideration I affirm most of strategies listed. I kept records of events. I used voice thread to monitor the ways students engaged with the

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topics and developed/elaborated their thinking. Returning to reconsider my work I asked myself if data I collected provided evidence for the understandings of the online experience. I wanted to insure against my work looking less than rigorous.

Analytic Frame

S-STEP methodology My methodology includes traditional qualitative research strategies like interviews, videos and observations. Plus, I include detailed journal entries that depict my own experiences. I kept those notes daily, to provide as descriptive a note-set as possible.

Research Practice To insure the strength of my research practice I established a critical friend network to monitor my work (including the software). I used former students, close colleagues, and distant colleagues for dialogue.

Evidence My evidence comes from the materials and notes and digital sources collected during the study. I intend to include strong excerpts from data to demonstrate connections between data collected and data analyzed. At my points of reconsideration I question my data collection and data analysis process. Use GoogleDocs for pre/post tests and other documentations.

What work in teacher education research (or other research fields) will guide my inquiry? …

Beginning Schwab, constructivist teacher education…curriculum theory, stuff about beginners, etc. Narrative. Knowledge Base: an understanding of the struggles…. both ends of the spectrum…. of the learning-to-teach process; role of narrative in constructing a need to know; the use of and development of personal practical knowledge; Using narrative as a strategy…. will allow me to test if narrative is a fundamental way to "see" in the learning-to-teach process.

RECONSIDERATION

At the initial reconsideration, I know I need to return to Fenstermacher and Greene. I also want to return to Clandinin and her colleagues. While I am not doing narrative inquiry, the scholars in narrative inquiry offer powerful ways to look at text. In my reconsideration process over time I come to believe more strongly in the power of narrative to help student explore their knowledge about teaching.

Analytic Frame

Authority of experience As I analyze and consider my experience I connect my assumptions with prior experience along with data collected.

Literature I situate that information alongside literature from previously completed teacher education research that I continue to complete. Further, I insure that I situate my own practice and ideas within this context. As a

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researcher, I set my authority as an experienced teacher educator against my experience as a teacher. Sometimes I use my authority of my years of experience to obfuscate the questions about my teaching. Just because I have experience as a teacher doesn't make me a good teacher and I must attend to that possible bias.

Ethical Action: Most important at this point is the query into my actions and whether or not they are ethical. I believe I have acted with integrity and in a trustworthy manner as I have interacted with my students and my critical friends. I believe I will present my work as true to my experience. While I cannot insure that others will find my work trustworthy. I plan to present my research, my findings, and my processes in a way that support readers in the believability of findings.

(Story of self) In my reconsiderations I attempt, each time I return to reconsider my study, to insure that that I see my self in the midst of the work, but more my-self-in-relation-to-Others than a self that seems center stage to the action. I want my experience to be alongside the practice and my students and so on.

Trustworthiness

As scholars in the digital turn we must ask good questions regarding ethics and new technologies (Paulus, Lester, & Britt, 2013). Understanding issues of privacy and distinctions between private and public spaces is critical (Redlich-Amirav & Higginbottom, 2014). Issues of confidentiality and ways to protect participants are on-going (Beneito-Montagut, 2011) and all strategies must be probed as we consider how to best represent those with whom we work. For ML she found so many perspectives that it became difficult to identify the best avenues. She opted to focus on her practices and avoid the use of student work because of privacy issues.

In the digital turn issues of trustworthiness and ethical choices are primary (Bassett & O'Riordan, 2002; Odena, 2013) throughout the research process. The overriding concern centers on quality research. Davidson and di Gregorio (2011a) have speculated across a variety of articles about the ways to approach the virtual site of study – and they encourage researchers to move carefully from a web of documents to a web of data (p. 636). Furthermore, they (2011b) caution against casual interactions with virtual data and point toward the critical nature of ethics in this work. Odena (2013) encourages researchers to work carefully and use software to tell a trustworthy, convincing and useful story. Hertlein and Ancheta (2014) find that consideration about whether to use/not use technology less important than recognizing the ways in which technology complicates relationships – with issues of distance, trust, and clarity in message and emotion. Attending to these issues is critical to rigorous work.

Summary

ML employed technology in instruction and learning and research. For her the experience had many layers and complexities. In this chapter we provided a discussion and example of the digital turn in S-STEP research. As we made apparent in the last few pages we see technology as a silent support. With a commitment to careful rigorous research we believe attention to trustworthiness, integrity and transparency. Commitment to rigor should be a part of any researcher's stance. Care for participants and contexts is an imperative aspect of quality research and we must take great care to strengthen our trustworthiness and transparency at every turn.

References

Ahumada, J. (2011). *The road to unknowing: Identity in postmodernity*. Downloaded from http://internationalpsychoanalysis.net/wp-content/uploads/2011/09/AhumadaIdentityinpostmodernity.pdf

Arizona Group. (2004). The epistemological dimensions and dynamics of professional dialogue in self-study. In J. Loughran, M. L. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 1109–1167). Dordrecht, The Netherlands: Kluwer Publishers.

Bassett, E., & O'Riordan, K. (2002). Ethics of Internet research…. *Ethics and Information Technology, 4*(3), 233–247.

Beddall-Hill, N., Jabbar, A., & Al Shehri, S. (2011). Mobile devices as tools for qualitative research in education…. *Journal of the Research Center for Educational Technology, 7*(1), 67–89.

Beneito-Montagut, R. (2011). Ethnography goes online: Towards a user-centred methodology…. *Qualitative Research, 11*(6), 716–735.

Berry, A. (2007). *Tensions in teaching about teaching: Understanding practice as a teacher educator*. Dordrecht, The Netherlands: Springer.

Bogdan, R., & Biklen, S. (2006). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Needham Heights, MA: Allyn & Bacon.

Craig, C. (2013). Opportunities and challenges in representing narrative inquiries digitally. *Teachers College Record, 115*(4), 1–45.

Davidson, J. (2014). Bruce's magnificent quartet inquiry, community, technology and literacy…. *E-learning and Digital Media, 11*(5), 475–481.

Davidson, J., & di Gregorio, S. (2011a). Qualitative research and technology: In the midst of a revolution. *The Sage Handbook of Qualitative Research, 4*, 627–643.

Davidson, J., & di Gregorio, S. (2011b). Qualitative research, technology and global change. In N. K. Denzin & M. D. Giardina (Eds.), *Qualitative inquiry and global crises* (pp. 79–96). Walnut Creek, CA: Left Coast Press.

Fielding, N. (2014). Qualitative research and our digital futures. *Qualitative Inquiry, 20*(9), 1064–1073.

Fielding, N., Lee, R., & Blank, G. (2008). *Handbook of online research methods*. Thousand Oaks, CA: Sage.

Gilbert, L., Jackson, K., & di Gregorio, S. (2014). Tools for analyzing qualitative data. In Koehler, Mishra, Kereluik, Shin, & Graham (Eds.), *Handbook of research on educational communications and technology* (pp. 221–236). New York: Springer.

Hamilton, M. L. (1995). Confronting self: Passion and promise in the act of teaching or my Oz-Dacious journey to Kansas! *Teacher Education Quarterly, 22*(3), 29–44.

Hamilton, M. L., & Pinnegar, S. (1998). Introduction. In M. L. Hamilton (Ed.), *Reconceptualizing teaching practice: Self-study in teacher education* (pp. 1–4). London: Falmer Press.

Hammond, S. (2014). Enhanced eBooks and multimodal publishing…. *Qualitative Research, 14*(4), 442–458.

Hanna, P. (2012). Using Internet technologies (such as Skype) as a research medium. *Qualitative Research, 12*(2), 239–242.

Hertlein, K., & Ancheta, K. (2014). Advantages and disadvantages of technology in relationships…. *The Qualitative Report, 19*(11), 1–11.

Hoban, G. (2006). *The missing links in teacher education design: Developing a multi-linked conceptual framework* (Vol. 1). Dordrecht, The Netherlands: Springer Science & Business Media.

Holt, A. (2010). Using telephones for narrative interviewing: A research note. *Qualitative Research, 10*, 113–121.

Hookway, N. (2008). 'Entering the blogosphere': Some strategies…. *Qualitative Research, 8*(1), 91–113.

Johnston, J., Anderson, R., & DeMeulle, L. (1998). Prospects for collaborative self-study on the internet. In M. L. Hamilton, S. Pinnegar, T. Russell, J. Loughran, & V. LaBoskey (Eds.), *Reconceptualizing teaching practice: Self-study in teacher education* (pp. 208–223). London: Falmer Press.

Jorrín-Abellán, I., Rubia-Avi, R., Anguita-Martínez, E., Gómez-Sánchez, A., & Martínez-Mone, A. (2014). Bouncing between the dark and bright sides can technology help qualitative research? *Qualitative Inquiry, 14*(7), 1187–1204.

LaBoskey, V. (2004). Moving the methods of self-study research and practice forward: Challenges and opportunities. In J. Loughran, M. L. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 1169–1184). Dordrecht, The Netherlands: Kluwer Publishers.

Mann, C., & Stewart, F. (2000). *Internet communication and qualitative research: A Handbook for researching online*. Thousand Oaks, CA: Sage.

Markham, A. (1998). *Life online: Researching real experience in virtual space* (Vol. 6). Lanham, MD: Rowman Altamira.

Marshall, C., & Rossman, G. (2006). *Designing qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.

Matias, C. (2012). Beginning with me: Accounting for a researcher of color's counterstories in socially just qualitative design. *Journal of Critical Thought and Praxis, 1*(1), 21–143.

Matthews, J., & Cramer, E. (2008). Using technology to enhance qualitative research…. *The Qualitative Report, 13*(2), 301–315.

Moylan, C., Derr, A., & Lindhorst, T. (2015). Increasingly mobile: How new technologies can enhance qualitative research. *Qualitative Social Work, 14*(1), 36–47.

Munby, H., & Russell, T. (1994). The authority of experience in learning to teach: Message from a physics methods classroom. *Journal of Teacher Education, 25*(2), 89–95.

Odena, O. (2011). *To use or not to use software?* Paper presented–BERA annual conference, London.

Odena, O. (2013). Using software to tell a trustworthy, convincing and useful story. *International Journal of Social Research Methodology, 16*(5), 355–372.

Paulus, T., & Lester, J. (2014). ATLAS.ti for conversation and discourse analysis studies. *International Journal of Social Research Methodology*, (ahead-of-print), 1–24.

Paulus, T., Lester, J., & Britt, V. (2013). Constructing hopes and fears around technology: A discourse analysis. *Qualitative Inquiry, 19*(9), 639–651.

Pinnegar, S., & Hamilton, M. L. (2009). *Self-study of practice as a genre of qualitative research: Theory, methodology, and practice* (Vol. 8). Springer Science & Business Media.

Postman, N. (1992). *Technopoly: The surrender of culture to technology*. New York: Alfred A. Knopf.

Redlich-Amirav, D., & Higginbottom, G. (2014). New emerging technologies in qualitative research. *The Qualitative Report, 19*(26), 1–14.

Richardson, L., & St. Pierre, E. (2005). Writing: A method of inquiry. In N. Denzin & Y. Lincoln (Eds.), *SAGE handbook of qualitative research* (3rd ed., pp. 959–978). Thousand Oaks CA: Sage.

Skågeby, J. (2015). Interpreting online discussions. *The Qualitative Report, 20*(1), 115–129.

Stern, D. (2004). *The present moment in psychotherapy and everyday life*. New York: W.W. Norton & Company.

Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. London: Psychology Press.

Thompson, S. (2004). Dishing discussion online…: Real e-different and yet virtual e-included. In D. Tidwell, L. Fitzgerald, & M. Heston (Eds.), *Journeys of hope: Proceedings of the fifth international conference. Herstmonceux Castle, East Sussex, England* (pp. 237–240). Kingston, ON: Queen's University.

Trier-Bieniek, A. (2012). Framing the telephone interview as a participant centred tool. *Qualitative Research, 12*(6), 630–644.

Wang, R., Wiesemes, R., & Gibbons, C. (2012). Developing digital fluency through ubiquitous mobile devices. *Computers & Education, 58*, 570–578.

Wesch, M. (2010). *Kansas State digital ethnography project*. http://mediatedcultures.net

Wilcox, S., Watson, J., & Paterson, M. (2004). Self-study in professional practice. In J. Loughran, M. L. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 273–312). Dordrecht, The Netherlands: Kluwer Publishers.

Part II
Digital Technology: Practice, Research and Scholarship

Chapter 3
Teaching About Teaching Using Technology: Using Embodiment to Interpret Online Pedagogies of Teacher Education

Shawn M. Bullock and Tim Fletcher

This research builds upon recent work where we have aimed to critique, understand, and interpret our pedagogies of teacher education in online modes (Fletcher & Bullock, 2015). Our self-study took place in two Canadian universities at a time when, for many reasons, higher education institutions across Canada – and indeed the world – are being called upon to offer flexible pathways for students to complete their degrees. In Canada and elsewhere, up until the beginning of this century the most likely interpretation of "flexible pathways" would have been an option to study in full-time or part-time modes. Some institutions, particularly those located in rural and regional contexts, may have offered off-campus learning options that relied largely upon mailing course packages (which comprised printed or video-recorded material) to students. With the relatively recent advent of online digital technologies, however, many universities in Canada and around the world – whether urban or rural – seem to now be firmly committed to offering courses that are taught in fully online or blended modes of instruction to students.

At Memorial University of Newfoundland – the institution where Tim taught while we conducted this research – there is a long history of providing distance education due to its geographic location. There are two main geographic factors to be considered. The first is that the province of Newfoundland and Labrador is made up of two very large pieces of land and its inhabitants are scattered throughout the landscape. Newfoundland is a large island comprised of many small communities that are a great distance from the capital, St. John's (where the university is located). Labrador is a large, mostly uninhabited part of mainland Canada and, like the island,

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has many small communities spread throughout. The university has a mission to serve the people of the province; therefore, providing access in various forms is crucial for the university to meet its current and future students' needs. The second factor is that St. John's sits in a fairly isolated spot on the easternmost edge of North America. In order for the university to attract more students from beyond the province, providing several flexible pathways to graduation is a strategic choice.

Prior to his current position, Shawn taught in a university that placed technology as a central part of its mission and strategic position in the Canadian university landscape. Despite not initially envisioning a research program that made technology a major focus of inquiry, enacting a pedagogy of teacher education in an institution that required teacher candidates to lease laptops, ostensibly for use during both teacher education coursework and the practicum, proved to be a major catalyst for Shawn to investigate critically the role of technology in teacher education programs. He has found considerable value in recent years in considering ideas developed from the history of technology to his own practice as a teacher educator and, in his current position, has began a major line of inquiry designed to explore the ways in which teacher candidates might learn from making and critiquing technological artefacts.

Despite us both experiencing the vast majority of our own teacher education as students in face-to-face settings, the now ubiquitous presence of online teaching and learning in higher education in Canada and globally has meant that we and other faculty members and students in teacher education programs are often expected to make use of digital learning environments and platforms (Clarke, 2013; Downing & Dyment, 2013). The two main contexts in which teacher education occurs – coursework and field-based experiences – now often make use of digital technologies to partially or wholly facilitate course delivery, and more commonly, to enable a common space for teacher-student and student-student interactions (such as chat rooms or discussion forums). Despite the appeal or drawbacks of using digital technologies in teacher education, both teacher educators and teacher candidates often do not have a choice of whether or not digital technology will be used for courses taught or taken: the choice is made for them by administrators or colleagues who previously taught a course. Whatever the basis for using digital technologies in teacher education, teacher educators are required to adapt teaching practices they have become accustomed to or found effective in face-to-face interactions to ones more suited to digital environments. As a corollary, teacher candidates are also required to adapt their learning to the online context.

In this chapter we draw from data gathered in a collaborative self-study we conducted that examined Tim's experiences in making the shift from face-to-face teaching to teaching online (Fletcher & Bullock, 2015). Tim teaches physical education, a subject where the overarching goals are to learn about and through movement (Arnold, 1988). Given the practical nature of physical education and the centrality of the body in the subject's content and pedagogy, it may seem puzzling that there is a growing prevalence of physical education being taught in digital formats (Fernandez-Balboa, 2003). Certainly for Tim, the bulk of his experiences teaching physical education prior to this study took place in the gymnasium and wholly

located his own and his students' movement at the heart of teaching about and learning about teaching. Tim's physical education course that provides the context for this chapter and Shawn acted as a critical friend. A critical friend is defined as a "trusted person who asks provocative questions, provides data to be examined through another lens, and offers critique of a person's work as a friend" (Costa & Kallick, 1993, p. 50). In this way, critical friend serve to challenge each other's assumptions, confront realities, and identify new ways of thinking about pedagogy (Baskerville & Goldblatt, 2009; Schuck & Russell, 2005). Although in self-studies critical friends might be perceived to play supporting roles to teacher educators whose practice is being examined, in this study Shawn's role was at least as conspicuous as Tim's. This is because Shawn had: (a) had several years of experience teaching teachers online, and (b) was interested in digital technology in teacher education as part of his research program (cf. Bullock, 2011). Shawn had both a lifelong interest in technology but has often been suspicious of its large-scale integration into education. Recent experiences at his first university appointment encouraged him to consider the effects that particular technological affordances, and spaces that are designed to enable technology usage, has on how teachers learn. Shawn has also had extended experiences teaching in fully online synchronous and asynchronous environments. As such, not only was Shawn able to draw from his extensive experience and knowledge that bridged theory and practice, he was also able to use the lenses offered by Tim's novel experiences to question his fundamental assumptions about teaching and learning online. And so, while Tim's immediate experiences provided much of the data (or stimulus to generate more data through conversation and written reflection) for this study, the problems of practice we identified applied readily to challenges and situations we both faced.

Identity theories provided the major theoretical perspective that shaped our original ideas about digital technology and teacher education. We use Jenkins's (2008) social constructionist view of identity, which is process-based and informed by the interplay between an individual's embodied view of the self (self-image) and their perception of how others see them (public image). In this way, identity processes rely upon social interaction (Goffman, 1959) and begin to take shape when there is an agreement between the individual's embodied view of self – how a person thinks about and views themselves – and that individual's understanding of how others view them. Although Goffman wrote from the metaphor of theatre performance, emphasizing the relationship between actors and other actors, as well as between actors and audience, we find his ideas about his ideas about *impression management* to be quite useful:

A social establishment is any place surrounded by fixed barriers to perception in which a particularly kind of activity regularly takes place … any social establishment may be studied profitably from the point of view of impression management. Within the walls of a social establishment we find a team of performers who cooperate to present to an audience a given definition of a situation (p. 238).

We interpret the types of worlds created for purposes of teaching and learning online as fitting with Goffman's definition. A course learning management system (LMS), for example has fixed barriers (notably, a user id and a password) and each

participant in the course, including the teacher educator, is constantly presenting her or his online self and thus "implicitly requests his [sic] observers to take seriously the impression that is fostered before them" (p. 17). It may be that online performances are particularly relevant if no face-to-face interactions (live performances) take place.

Identity is concerned with "seeing" and "viewing" others and ourselves, so the body tends to be the reference point upon which most of our seeing and viewing is based – a point which some believe is largely taken for granted. Although we were aware of embodiment as a key element of identification from a theoretical point of view (that is, from our reading and thinking) we did not fully grasp its importance until we experienced it in our teaching. Jenkins (2008) is forthright in his acknowledgement in the importance of the body in identification:

That human beings have bodies is among the most obvious things about us, as extensive communicative and non-utilitarian uses to which we put them. The human body is simultaneously a referent of individual continuity, an index of collective similarity and differentiation, and a canvas upon which identity can play. Identification in isolation from embodiment is unimaginable (p. 41).

If, as Jenkins (2008) suggests, our bodies are the starting point for knowing others and ourselves, there seems a logical connection between embodied ways of knowing and self-study of practice. Bullock (2014) offered one potential starting point for thinking about embodied ways of knowing in his description of his learning experiences as a lifelong student and teacher of martial arts. One important conclusion was that prior learning experiences in a highly physical environment had an important effect on how he understood his role as a teacher educator, a role that relies less on physical performance. While we have become more aware of the roles our bodies play in identification, several scholars have also called for more attention to be paid to the body as epistemology, a source of knowledge (Latta & Buck, 2008; Lindgren & Johnson-Glenberg, 2013). For example, Alibali and Nathan (2013) described the ways teachers' gestures represent embodied ways of thinking in mathematics. They demonstrated how teachers and learners use pointing, representational, and metaphoric gestures as forms of embodied cognition. Elsewhere, there has been a growing body of literature that calls for physical educators to place greater emphasis on embodiment in order to provide students with a more holistic experience of the subject itself, and of school more broadly (Armour, 1999; Stolz, 2014). While these works are indicative of an increase in discussions of embodiment in education, Forgasz (2014), Forgasz, McDonough, and Berry (2014), and Garbett (2014) have argued that embodiment is largely missing in teacher education scholarship. We acknowledge that our interpretation and understanding of embodiment is not yet as complex as that articulated by, for example, Smith and Ovens (2014). We believe strongly, though, in the central role that relationships play in teaching about and learning about teaching, and that the way our bodies feel and come to understand emotions – and therefore are implicated in practice – offers a useful frame to extend conversations about teaching teachers. However, despite the self-study community expressing and demonstrating strong commitments to understanding our selves-in-practice, there is scant evidence (the works cited remain an

exception) of the role the body has played in helping to articulate and understand the complexity of teacher education practice.

Objectives

In this chapter we explain how our developing digital pedagogies led us to new and different ways of thinking about the ways our bodies are inextricably implicated in the development of our pedagogies of teacher education. We used collaborative self-study to unpack and challenge our assumptions about teaching in face-to-face and online contexts. A main focus of our overarching inquiry is the ways in which teaching teachers using digital technologies shapes our practices and identities. Following our initial analyses (reported in Fletcher & Bullock, 2015), a particular lens through which we sought to interpret our practices and identities was by considering ways in which emotions and embodiment enabled or restricted the relationships we developed, encountered, and experienced with students. As such, we describe and identify ways in which embodiment has led us to think differently about teaching teachers.

Methods

Tim taught the course that provided the focus of inquiry. Students enrolled in the *Physical Education*, *Culture*, *and Society* course were practicing teachers or coaches seeking a Master of Physical Education degree. Most were located in various provinces across Canada, although one student was based in Norway. The course was taught in an asynchronous mode, which meant that both Tim and the students could access and engage with course material at non-specified times. As a result, there were no planned "real time" conversations or interactions (either verbal or textual) that occurred while Tim taught the course. All of the other courses students take to complete the degree are also online, with varying amounts of synchronous or asynchronous engagement.

Our research design was informed by LaBoskey's (2004) five characteristics of self-studies. Specifically, our inquiry was:

(a) self-initiated and self-focused,
(b) aimed at improving our understandings of self and practice,
(c) interactive throughout the project,
(d) driven by using several qualitative data gathering and analytic tools,
(e) seeking exemplar-based validation that is based in trustworthiness.

The focus of our research was on trying to understand the space between self and the practices our selves engaged in (Bullough & Pinnegar, 2001), and we take the stance that that space is best explored collaboratively through dialogue and reflection

(Pinnegar & Hamilton, 2009). Although Tim taught the course that is the focus of our study, our critical friendship provides a reflexive conversation surrounding one person's experiences; yet, that does not mean that only their pedagogy is the focus of discussion. As Shawn supported and challenged Tim's pedagogical decisions and actions, he often drew on his own experiences to make sense of what Tim was doing. In turn, Tim would respond with questions or comments that might resonate or contrast with Shawn's perspectives. Because we have conducted collaborative self-studies in the past, we were comfortable being honest with one another and exposing our respective vulnerabilities and uncertainties. This is a critical aspect of unearthing the self-in-practice: the person in the professional (Kelchtermans & Hamilton, 2004). In this way, we anticipate that others who work in teacher education might relate more readily to our findings and thus find our interpretations more trustworthy based on their own lived experiences of teaching teachers online.

Data Gathering and Analysis

The data that served as the initial catalyst for this line of thinking were collected while Tim was located in St. John's, Newfoundland and Labrador (eastern Canada) and Shawn in Burnaby, British Columbia (western Canada) – a distance of approximately 7,500 km. Meeting in person was thus rather difficult, and so we relied heavily on digital technologies to converse and gather data. The logic of using technology and the relative ease through which it made our interactions feasible is likely similar to the logic some prospective students use in deciding to take online courses. The facility of offering courses online often seems to play a major part in a university's decision to develop such courses and programs. It can also be reasonably argued that the move toward an increased availability of online courses and programs is grounded in the larger consumer culture of the neoliberal university.

The technologies we used provided us with two main sources of qualitative data:

Journal entries and emails. Tim often sent journal entries or emails to Shawn or vice versa. Although we corresponded prior to the start of the course (so we could both understand the course design and navigation of the learning management system, and Shawn could provide Tim with some advice on suggestions), most journal entries were made by Tim each week as reflections on his teaching in the *Physical Education*, *Culture*, *and Society* course and of critical incidents. We also sent emails to one another spontaneously, which might include a question about a technology issue, or an idea or insight we had gained from reading the literature, and so on.

Video calls. Each month during the term we conversed using a digital medium such as Skype or FaceTime. We recorded each of the calls with a voice recorder and transcribed the data. Most of the time our conversations began with reference to an email or journal entry that had been shared. This provided both of us with an opportunity to get a sense of the context in which the issue or incident took place,

and to probe and question decisions and actions. We also spent a lot of these conversations exploring new or unexpected areas of self and practice that evolved during the course of each discussion. This is important to note, because it was in one of these moments that the salience of embodiment in our identities and practices came to light.

Analysis

We began our analysis by coding data independently using inductive and deductive coding (Patton, 2002). In particular, we were searching for specific instances in the data when either or both of us came to a new or different understanding of teacher education practice as a result of collaborative self-study. Following this step, we shared and compared our individual coding patterns and results and began to identify commonalities and discrepancies. This process allowed us to begin establishing themes, which reflected both concepts and ideas from the literature, and new insights we had made. It was at this point in the analysis when we agreed that embodiment represented an important theoretical underpinning that we could use to interpret the data. This insight occurred because of the interesting combination of Shawn's feeling that synchronous online learning was a markedly difference experience than the more traditional asynchronous online structures and Tim's insight into how much he relies on non-verbal cues from students during interactions in face-to-face classroom environments. In addition to the themes we generated, which tended to rest mostly on our practices, we searched the data for "turning points" (Bullock & Ritter, 2011); moments when we came to new understandings of teaching online as a result of experiences that challenged our prior assumptions. This process makes explicit moments where the *self-in-practice* is the focus of analysis. Bullock and Ritter (2011) identify the following features of a turning point: (a) there is an affective element to the data; (b) the data frame a problem of practice; (c) the author of the data is implicitly or explicitly asking for help from the critical friend, and; (d) the data allow time to take action on the problem.

Outcomes

Thinking Differently About Embodiment

Given our previous work on and interest in identities in teacher education, we had at the outset of this research a general sense that aspects of identity theories would inform our findings; however, our understanding of those theories had not, to this point, given due consideration to the role of embodiment. As several of the following examples show, we may have had some tacit knowledge of embodiment and its

role in teaching teachers, but it is was not until our self-study brought forth that tacit knowledge that it made sense to us and we were to realize its salience.

The first example that led us to consider embodiment in more detail arose from a seemingly simple and fundamental part of teaching: learning and using students' names. Like many teachers and teacher educators who recognize the importance of building relationships, Tim had come to place a lot of value on learning students' names in his classes within the first week of class (Fletcher & Baker, 2015). Yet, while he had managed to do this with some ease in face-to-face teaching over the years, teaching online posed an unforeseen challenge to this aspect of his practice. The following journal entry at the end of the first month of our self-study documents Tim's realization that teaching online had created a new and more complex challenge to learning students' names, and what he had taken from this new awareness.

One of the first – and I feel, most important – things I do when I teach a new class is make extended efforts to learn the names of the students whom I am teaching. Although it is a relatively simple and straightforward task, I find that students find it meaningful and an indication that I value them. Using people's names therefore is a crucial step in the processes of building a sense of community – a foundational part of my stance on and approach to teaching. In university classes it is quite easy to maintain an anonymous identity and position in the face-to-face interactions of classes, which is often due to class size (sometimes in excess of 100 students). Something that I find helps me learn names is to be able to "put a face to a name". When I am able to do this I can usually learn and remember all students names in the class [in the first week] if my class is around 40 students.

Now that I am teaching online, 4 weeks into the course I have just realized that I don't know the names of my students [about 25]. I receive regular emails, read posts to discussion boards, allocate students to groups, and so on, so I have seen their names time and time again. Yet, perhaps it is because I don't have faces to put to names that has made me forget to value learning names in this environment.

When I first had to write a teaching philosophy (or similar), community was and still is easily the most salient issue for me. In those first attempts, I identified learning names as an important part of this process and just last year, did the same when I submitted my teaching dossier for my [annual review]. [Among the initial] aims of our self-study was to explore how community could be developed in an online environment, so why is it only now that I am recognizing this gap in my teaching? I think this might go some of the way to explaining why I am feeling a bit lost teaching in this new environment.

While this reflection demonstrates that Tim felt his abilities to remember names were an important part of the way in which he enacted his philosophies with regard to community, it also shows the ways in which our embodied senses play a central role in our pedagogies of teacher education. Tim claimed that his perceived loss of vision had limited how we remembered names and thus developed relationships with students. In turn, this influenced the way he felt that students identified him and he his students. We discussed this in one of our conversations and Shawn captured succinctly the ways in which some sensory capacities (in this example, he refers to

visual and auditory senses) are diminished – and thus impact teaching practices – in an online environment:

You know, when things are happening in a [traditional] classroom, an experienced teacher can stand in the middle of the classroom and have continuous partial attention to everything going on in the room. They can say "Well that group is fine, but then I need to get those people over there doing something different". In an online environment, there is none of that. There is no sensory input in that same way, even if it's a synchronous environment… I can't hear and I can't monitor everybody's breakout conversations simultaneously… If it's asynchronous it's even more challenging because you have to construct actions based on the text [from the screen] and you're not using the same senses.

Through our conversations we began to understand differently the ways in which we used our senses were used in the online environment. In particular, this led to a new and heightened awareness of the role our senses played in developing relationships in the classroom. Specifically, our inhibited senses of sight and sound limited our abilities to understand our own and our students' emotions. In one conversation, we were discussing Tim's discomfort with the move to teaching in a digital environment:

Shawn: These emotions and feelings of unease are the catalyst for getting you to think about how you construct your identity as an online teacher.

Tim: One of the big criticisms of computer-based communication is that is emotionless, or at least hard to convey emotion through email and so on. And if identity is interactive, then I understand my identity based on students' reactions to my teaching, which are conveyed through their emotions.

Shawn: I agree… but I would also say that I don't think that asynchronous is emotionless… Ultimately we create our own emotional reactions to stimuli… when all we have to base our emotions on is text, maybe communicating emotions is made much harder.

As is shown by Shawn's last statement, talking through the ways that senses, emotions, and relationships played in our pedagogies of teacher education led us to understand that it was not that teaching and learning online are disembodied, but that embodiment is "done" and has to be thought about very differently in the digital world than it is in face-to-face interactions. For example, people are still embodied while working on a computer; however, the relationships that are formed do not necessarily rely on embodied interactions, where, for example, one can use gestures or voice to help make rich interpretations of symbols or textual messages. It may be that this discrepancy highlights some of the concerns Shawn raised about the differences between synchronous online teaching, in which video and audio can be used by all members in the class to create a sense of being present with each other and at least being able to attend to facial cues, and asynchronous online teaching, in which participants are constructing an understanding of classmates solely through how they write, with perhaps the aid of a profile picture or digital avatar. This is not to say we like or agree with the new ways in which embodiment is implicated in digital teaching, but that we have come to recognize the new and different ways it occurs. As such, using self-study takes on greater relevance and power in helping teacher educators to understand their pedagogies of teacher education.

Privacy and the Presentation of Self

In the wake of former NSA consultant Edward Snowden's unprecedented release of documents revealing the extent of Internet surveillance perpetrated by intelligence agencies (including but not limited to the most well-known ones in the United States), more people seem to be paying attention to privacy issues. For example, private browsing software that masks a user's IP address known as TOR (The Onion Router) reported a sharp increase in use in 2014. Companies such as Blackberry, Apple, and Yahoo rushed to emphasize and update their ability to transmit and receive encrypted communications from users. Data privacy breaches of companies such as Apple, Sony, and Target occupy longer parts of the news cycle and face increasing public scrutiny.

The issues around privacy seem largely absent from most teacher education programs, with the potential exception of some discussions of protecting students' identities while they use particular online services. Many teachers' unions and associations have issued warnings and directives to members about the dangers of using, say, Facebook for classroom purposes. In our experience, teacher candidates seem more conditioned to thinking about digital technologies in terms of their potential use as tools for efficiency or enhancing the "fun" children might have in school.

danah boyd (who spells her name in lowercase letters) (2007, 2014) introduced the term *networked publics* as an heuristic for understanding the changing nature of private and public spaces in the digital age. Most recently, boyd (2014) characterized networked publics as persistent, spreadable, searchable, and visible. Significantly, these four characteristics of the new public spaces were all made possible via technology in the last 100 years. Prior to the late nineteenth-century, one had to be present in a public space to witness a particular occurrence, be it a speech, a rally, or a musical performance. With the invention of the phonograph, however, public spaces were suddenly recordable (persistent). Indeed, much of the early debate around the utility of early recording centered on the degree to which they faithfully created a persistent replica of a musical performance (Thompson, 2002). Video recording technology soon followed in the twentieth century with the ability to create visual and audio records, and within a few decades consumers were able to buy their own equipment to make movies and record audio using magnetic tape technology. Publics were now not only persistent, they were spreadable because the average consumer had the power to record whatever they wanted and make copies of their recordings for distribution. This trend has continued with the widespread adoption of first optical discs (CDs, DVDs, and Blu-Rays) and now purely digital files. In the last case, digital files have facilitated that mass *visibility* and *searchability* of previously private publics; the staggering growth of services such as YouTube and video sharing on sites such as Facebook attest to the increasingly networked nature of our public lives.

One result of networked publics is that we need not be present in a public space to witness a public performance; moreover, we are able to search and index public recordings for as long as they remain (persistence). We accept Goffman's (1959)

concept of a walled social establishment as a metaphor for thinking about any classroom environment, including an online one. We are now compelled to consider the implications of the networked public within an online course. Networked publics, and their privacy considerations, affect our presentation of self. Tim wrote about the freedom associated with the non-persistent public space of a face-to-face classroom; his words and actions are in the moment and require that students are present with him in time and space. There is perhaps an additional sense of freedom for many people when they know that each word might not be scrutinized and revisited because it is being recorded in some way. In the following journal entry, Tim elaborated that a main reason why he was "quite nervous about delving into the online teaching world" was because his:

> … actions are given a type of permanence when posted online. In class, my words, whether positive, negative, influential, or muddy, can go in one ear and out the other, so to speak, and as such, a lot of things that I say in the class can be forgotten about fairly quickly.

In Schön's (1983) terms, the networked public space of the online world affected not only his behaviour in the *action-present* (that time when he could take future action in a moment of reframing), it also affected his behaviour in those reflection-on-action moments when he thought about his asynchronous online posts:

Teaching online seems to allow students a lot of time for reflection on postings, notifications, and musings, which seems fairly promising … It suggests that I need to be quite sure of what I write and, to be honest, I feel that it does not give much leeway for the messiness that often comes with teaching. For instance, if a student asks me to clarify something I wrote several days ago, I may find it difficult to regain the train of thought that I had at the time or be unable to grasp the issues as well as I was at that moment. Whether or not these issues and challenges arise remains to be seen but I cannot ignore that sense that my words can be used against me further down the path. Interestingly, I have never felt this with face-to-face teaching, even though I post my class notes/slides to the e-conference for the class to access whenever they choose. So what is it about the purely online teaching environment that causes this uneasiness? Perhaps I feel that I am responsible for making things crystal clear in the digital environment because, due to their physical isolation, students cannot ask fellow class members to clarify a point as it is raised.

In a subsequent conversation prompted by the written reflection above, Shawn pinpointed a larger problem stemming from the reliance on textual messages as the primary means of communication between teacher educators and students (as mostly occurs in asynchronous learning modes). He stated: "We construct images of who our students are based on our interactions and observations. Our ability to do so is greatly hampered by an asynchronous, text-only course. Essentially, you are getting to know someone by what they write." This comment reflects how we came to understand that the ways relationships formed were much different in an online environment. In particular, our taking for granted of the role our bodies played in relationship development – and therefore our pedagogies of teacher education – represents a central theme in our self-study.

Significance

In this collaborative self-study we have shown several ways in which we came to see how our bodies are implicated in the development and understanding of our pedagogies of teacher education. In particular, the feeling that Tim's and his students' bodies were absent in the asynchronous mode of online learning that provided the context for our research demonstrated to both of us that embodiment matters to how we go about teaching about teaching – whether online or in face-to-face environments – particularly if we believe in and enact our practice according to the maxim that "teaching is relational". Goffman's (1959) ideas about impression management help us interpret the ways in which the online environment presents, for some, a totally new medium and form through which to present ourselves to others, and interpret others' presentations of self. Importantly, it is in these spaces where emotions are expressed and relationships are formed – in essence, in these spaces, "teaching" occurs. Although Shawn had extensive experience with various forms of online teaching and learning, the novelty of teaching online for Tim helped both of us to come to new understandings and interpretations of our identities (and the role our bodies play in identification) in teacher education. We cannot overemphasize that we are not saying that online teaching is inherently "better" or "worse" than face-to-face teaching; we do suggest that both asynchronous and synchronous online teaching experiences provide useful catalysts for teacher educators to consider the role of embodiment in their teaching. We encourage those who are interested in digital technologies and teacher education to attend to the social consequences of using particular tools and meeting in particular temporal spaces; it seems that a great deal of research in technology and education continues to focus on devices and software packages.

In terms of the relevance of our research, we conclude this chapter with an excerpt from one of our recorded conversations where we consider the relationship between our face-to-face pedagogies of teacher education and those we develop and enact online:

> *Tim*: Something I've been mulling over since our last conversation If there is such a big emphasis on teachers (and teacher educators) teaching how we were taught, then teaching online – when so many of us weren't taught that way – throws up so many issues into the air.
>
> *Shawn*: I agree. Then it means that we are developing an online pedagogy that is necessarily based on our face-to-face pedagogy. So if we teach as we were taught, then our default reaction is going to be to try and make things equivalent to how they would be face-to-face.

One of the frustrations that we came to identify from our self-study is that teaching online often requires one to either (a) attempt to adapt face-to-face pedagogies to the online environment or (b) let go of many pedagogies that had provided satisfaction and meaning in the face-to-face environment. In this way, perhaps a useful starting point for those faced with teaching teachers online is to envision new and different pedagogies rather than trying to adapt pedagogies that were successful in another context. Using pedagogies deemed successful in face-to-face settings with

an expectation that they will quickly and easily translate to an online environment is akin to forcing square pegs in round holes.

Any discussion of *technology* in teacher education tends to bring to mind images of the latest gadget or online tool. A natural initial reaction is to think of ways in which a new piece of technology might help us to make our existing practice more efficient in some way. Such a view might promote the rhetoric one often hears around technologically enhanced or enabled learning. Our collaborative self-study sheds light, however, on the importance of re-imagining pedagogy from the ground up when a teacher educator explicitly commits to a new use of technology. The body is an important epistemology for teaching about teaching in any environment – new technologies offer new challenges for teacher education.

References

Alibali, M. W., Nathan, M. J., Church, R. B., Wolfgram, M. S., Kim, S., & Knuth, E. J. (2013). Teachers' gestures and speech in mathematics lessons: Forging common ground by resolving trouble spots. *ZDM, 45*(3), 425–440.

Armour, K. M. (1999). The case for a body-focus in education and physical education. *Sport Education and Society, 4*, 5–15.

Arnold, P. J. (1988). *Education, movement and the curriculum*. Lewes, UK: Falmer Press.

Baskerville, D., & Goldblatt, H. (2009). Learning to be a critical friend: From professional indifference through challenge to unguarded conversations. *Cambridge Journal of Education, 39*(2), 205–221.

boyd, d. (2007). Why youth (heart) social network sites: The role of networked publics in teenage social life. In D. Bucking (Ed.), *MacArthur foundation series on digital learning – youth, identity, and digital media* (pp. 1–26). Cambridge, MA: MIT Press.

boyd, d. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Bullock, S. M. (2011). Teaching 2.0: (re)learning to teach online. *Interactive Technology and Smart Education, 8*(2), 94–105.

Bullock, S. M. (2014). Exploring the impact of prior experiences in non-formal education on my pedagogy of teacher education. *Studying Teacher Education, 10*(2), 103–116.

Bullock, S. M., & Ritter, J. K. (2011). Exploring the transition into academia through collaborative self-study. *Studying Teacher Education, 7*, 171–181.

Bullough, R. V., Jr., & Pinnegar, S. (2001). Guidelines for quality in autobiographical forms of self-study. *Educational Researcher, 30*(3), 13–21.

Clarke, L. (2013). Virtual learning environments in teacher education: A journal, a journey. *Technology, Pedagogy and Education, 22*, 121–131.

Costa, A. L., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership, 51*(2), 49–51.

Downing, J. J., & Dyment, J. E. (2013). Teacher educators' readiness, preparation, and perceptions of preparing preservice teachers in a fully online environment: An exploratory study. *The Teacher Educator, 48*, 96–109.

Fernandez-Balboa, J.-M. (2003). Physical education in the digital (postmodern) era. In A. Laker (Ed.), *The future of physical education: Building a new pedagogy* (pp. 137–152). London: Routledge.

Fletcher, T., & Baker, K. (2015). Prioritising classroom community and organisation in physical education teacher education. *Teaching Education, 26*(1), 94–112.

Fletcher, T., & Bullock, S. M. (2015). Reframing pedagogy while teaching about teaching online: A collaborative self-study. *Professional Development in Education, 41*(4), 690–706.

Forgasz, R. (2014). Bringing the physical into self-study research. In A. Ovens & T. Fletcher (Eds.), *Self-study in physical education teacher education: The interplay of practice and scholarship* (pp. 15–28). Dordrecht, The Netherlands: Springer.

Forgasz, R., McDonough, S., & Berry, A. (2014). Embodied approaches to S-STEP research into teacher educator emotion. In D. Garbett & A. Ovens (Eds.), *Proceedings of the tenth international conference on self-study of teacher education practices* (pp. 82–84). Auckland, NZ: University of Auckland Press.

Garbett, D. (2014). Lessons on the hoof: Learning about teacher education through horse-riding. In A. Ovens & T. Fletcher (Eds.), *Self-study in physical education teacher education: The interplay of practice and scholarship* (pp. 63–74). Dordrecht, The Netherlands: Springer.

Goffman, E. (1959). *The presentation of self in everyday life*. New York: Anchor Books.

Jenkins, R. (2008). *Social identity* (3rd ed.). London: Routledge.

Kelchtermans, G., & Hamilton, M. L. (2004). The dialectics of passion and theory: Exploring the relation between self-study and emotion. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 12, pp. 785–810). The Netherlands: Springer.

LaBoskey, V. (2004). The methodology of self-study and its theoretical underpinnings. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 12, pp. 817–869). The Netherlands: Springer.

Latta, M. M., & Buck, G. (2008). Enfleshing embodiment: 'Falling into trust' with the body's role in teaching and learning. *Educational Philosophy and Theory, 40*, 315–329.

Lindgren, R., & Johnson-Glenberg, M. (2013). Emboldened by embodiment: Six precepts for research on embodied learning and mixed reality. *Educational Researcher, 42*(8), 445–452.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Pinnegar, S., & Hamilton, M. L. (2009). *Self-study of practice as a genre of qualitative research*. Dordrecht: Springer.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Schuck, S., & Russell, T. (2005). Self-study, critical friendship, and the complexities of teacher education. *Studying Teacher Education, 1*(2), 107–121.

Smith, W., & Ovens, A. (2014). Learning bodies – embedded, embedding and always emerging. In P. O'Connor & K. Fitzpatrick (Eds.), *Embodiment in education* (pp. 117–128). Auckland, New Zealand: Pearson.

Stolz, S. A. (2014). Embodied learning. *Educational philosophy and theory*, 1–14. iFirst: doi: 10.1080/00131857.2013.879694.

Thompson, E. A. (2002). *The soundscape of modernity: Architectural acoustics and the culture of listening in America, 1900–1933*. Cambridge, MA: MIT Press.

Zeichner, K. M. (2007). Accumulating knowledge across self-studies in teacher education. *Journal of Teacher Education, 58*, 36–46.

Chapter 4
Changing Our Practice and Identity Go Hand-in-Hand: A Self-Study of Our Efforts to Infuse Digital Technology into Our Literacy Courses

Clare Kosnik, Lydia Menna, and Shawn M. Bullock

As teacher educators, we often need to teach in ways that we did not experience as students, or in ways that we most likely did not use when we were classroom teachers. This chapter discusses the experiences of three teacher educators; two of whom substantially changed the way that they taught regarding the use of digital technology in their teacher education courses and one who was encouraged to reframe his understanding of the role of digital technology in teacher education as a result of the collaborative self-study. We, Clare and Lydia, were not experts in digital technology but we wanted to revise our teaching to include a greater use of technology. On the surface this may seem like a straightforward initiative but this paper shows how our efforts were not always successful, were at times muddled and counter-productive, and benefitted greatly from a collaborative self-study process. Shawn, our critical friend through the process, has devoted a considerable amount of research time over the past few years to investigating the ways in which digital technologies might be used to help student teachers analyse their teaching and learning experiences in teacher education courses (Bullock, 2011).

At the start of the study, we developed three research questions, which we returned to regularly as our work evolved.

1. How did our use of technology in our literacy courses change over a 2-year period 2010–2012?

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2. How did a greater focus on technology change our identities and practices as teacher educators?
3. What problems (technical) of practice (our own skills) did we encounter?

Context of the Study

Clare and Lydia teach a year-long literacy methods courses in a 2-year post baccalaureate program in at the University of Toronto. Although there is a specific technology course, all professors are expected to infuse digital technology into their courses because we are supposed to be modelling teaching with digital technology so that we are considered a "cutting" edge program and we are to prepare student teachers to use digital technology in their practice teaching placements. However, there is very limited professional development support for instructors. At the time this research was conducted, Shawn was an assistant professor of science education at a small university with a special commitment to the use of technology across all programs and faculties.

Clare has been teaching literacy methods courses for 15 years, is an active researcher, and a full professor. Lydia is a doctoral student conducting research that examines how student teachers construct and enact literacy pedagogy during their teacher education program. Shawn is an early-career assistant professor with a focus on science and technology education. We share a commitment to the power of self-study research for reframing our pedagogies of teacher education. The use of digital technologies, as pedagogical tools in the literacy education courses co-taught by Clare and Lydia, was limited, although they were comfortable using technology for writing and communication. Their literacy courses consistently received high evaluations but a recurring comment by students was the need for more technology integration. For convenience, this paper uses the term "we" to refer to Clare and Lydia's discussion of their literacy methods course. It is important to note, however, that this paper is about a shared journey among the three authors, which includes insights into ourselves, our practice, our identities as literacy and technology teacher educators, and our collective learning about that elusive goal of integrating technology into teacher education.

Literature Review

Digital Technology and Teacher Education

Teachers are being asked to conceptualize and teach literacy in ways they did not experience as students and most likely did not learn about in their teacher education preparation (Darling-Hammond, 2006; Kirkwood, 2009). Like many teacher educators around the world, we feel tacit and explicit pressure to integrate digital technology into teacher education programs for a number of reason: the acknowledgement

that fluency with digital technology is essential for day-to-day living; the pervasive assumption that student teachers fit into Prensky's (2001) concept of digital natives despite a lack of research evidence for the framework; the push to prepare students for a technology-driven world (National Council of Teachers of English, 2007); and the proliferation of communications technologies in contemporary culture (Kress, 2010; New London Group, 1996). Despite the seemingly overwhelming push to meaningfully integrate digital technologies into teacher education coursework, Mitchell (2012) highlights several reasons why "digital literacy poses a particular challenge to the research-led university," not least of which is the academy's reliance on "a scriptural economy that prioritises the printed word" (p. 1).

Despite a growing number of policy initiatives, attempts to incorporate digital technology into teacher education literacy programs are proving challenging (Kirkwood, 2009; Otero et al., 2005). If we accept the premise that the meaningful integration of digital technologies in teacher education is both crucial and timely, then it is important to examine the ways in which teacher educators have responded to the challenge. Kay (2006,) notes that "many faculties of education use the single-course strategy to teach technology," which results in the predictable shortcomings associated with learning about digital technologies in isolation. A more reasonable idea seems to centre around finding ways to meaningfully integrate digital technologies within teacher education curricula, perhaps through collaborative ventures among Faculty, teachers, and student teachers (p. 388). The effective integration of technology can, however, present various challenges for faculty. For example, often use of digital technology is an afterthought, something tacked onto a course (Bullock, 2011).

Within the context of teacher education we concur with Boling (2005) who noted: "research has revealed that teacher educators do not always have the knowledge, skills, or dispositions necessary for meaningfully integrating technology into their classes" (p. 3). Moreover, we would argue that there is a paucity of studies that focus explicitly on the challenges that the use of digital technologies might pose to teacher educator's professional identities.

Butler and Sellbom (2002) identified several barriers to the use of technology that likely ring true for many Faculty: 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. Otero et al. 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" (2005, p. 10). One factor that complicates the ability of teachers to incorporate digital technology into their literacy teaching is their own identity as "digital immigrants" (Prensky, 2011). This affects their capacity to see *how* digital technology can be used even among students in their classroom who appear at ease with technology, and to understand the importance of teaching digital technology to so-called digital natives. We need to learn more about how teacher educators are able to make the transition from teaching as they were taught to an orientation that integrates digital technology (Cervetti, Damico, & Pearson, 2008). Selwyn 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" (2011, p. 40).

Research Methodology

Self-Study Research

We, Clare and Lydia, began a self-study of our efforts to infuse technology into the literacy courses we co-teach. We were attempting to understand and improve the kinds of opportunities teacher education can create for student teachers to explore literacy in their lives, their classrooms, and the lives of the students they will be teaching. According to Samaras and Freese (2006), self-study involves "our personal stories and our teaching stories that arise out of our own challenges, frustrations, and dilemmas" (p. 2). La Boskey's premise is also relevant to this work: "Research in teacher education is attempting to answer questions about how best to prepare new teachers and facilitate ongoing teacher development. Typically, when teacher educators raise such questions, we are deriving them from our practice" (2004, p. 818).

Self-study research is particularly helpful for this work because we realized that we needed to deepen our understanding of our pedagogy before we could improve it. Drawing on the work of Hamilton and Pinnegar (1998) we can see that the "critical examination of the self's involvement both in aspects of the study and in the phenomenon under study" (p. 240) is applicable to our work where we are studying both our practice and ourselves. We understand that there are often many layers in a self-study: ourselves as instructors, the course content, and the work of the student teachers. "Thus, the purposes are layered and multifaceted with overlapping objectives and with the key purpose of refining, reframing, and renewing education" (Samaras & Freese, 2006 p. 14).

One of the benefits of self-study research methodology is that the researcher can frame and reframe a problem or situation. Reframing is important in self-study because it provides an opportunity for the researcher to think about things differently, change how he/she looks at what's going on in classrooms, and ultimately change one's practice (Hamilton and Pinnegar 1998 p. xii). During self-study researchers are encouraged to reframe their work as new findings emerge. Having a critical friend is an important aspect of self-study research. Costa and Kallick (1993) defined a critical friend as "a trusted person who asks provocative questions, provides data to be examined through another lens … [while taking] the time to fully understand the context of the work presented and the outcomes that the person or group is working toward" (p. 50).

Data Gathering

Our data sources were:

1. After each class, we debriefed and wrote reflective notes on our practice.

2. We kept a running tally of our efforts to incorporate technology into the courses.
3. Our detailed lesson plans.
4. At the end of the courses, we each wrote reflections on our efforts and responded to each other.
5. We had on-going discussions (f2f and online) with our critical friend, Shawn.
6. The student teachers gave us weekly feedback through a ticket out the door (TOTD) form.

Self-study methodology is exemplar-based, so we chose to evaluate our practice using Ottenbreit-Leftwich, Glazewski, and Newby's (2010) six different ways to incorporate technology:

1. information delivery,
2. hands-on skill building activities,
3. practice in the field,
4. observations and modeling,
5. authentic experiences,
6. reflections (p. 20).

In order for this study to be more than just a reflection on our efforts we had to ensure that we were attending to issues of validity and reliability. To this end, we went through a multi-step process in our data analysis. To help us understand some of the challenges we used the barriers identified by Butler and Sellbom (2002) when analyzing the data; for example, time to learn the technology and inadequate institutional support. All of the barriers were present in our data.

To study how our identities as literacy teacher educators shifted we identified key insights and/or turning points (e.g., feeling more competent) and then matched each finding to specific concrete actions (e.g., presenting at a conference). It was not sufficient to simply claim that we were more comfortable with the integration of technology into our courses we had to have evidence from our practice. At the end of the first year, we decided it was important to see how our identity and practices changed; therefore, we wrote detailed reflections under two main headings: how I see myself and changes in practice.

To chart changes in practice it was not sufficient to conclude that our practices had changed (e.g., more nuanced use of technology). There had to be evidence to support this claim through examples in our lesson plans (e.g., specific discussion questions on the video shown in class). It was very difficult to support any claims about increased student learning because we did not have pre- and post- data. However, in the weekly Tickets Out the Door feedback forms we regularly asked the student teachers to comment on their comfort level with digital technology, as well as our use of digital technologies in our teaching. We recognize this was a self-report; although not as rigorous as we would have liked, we did feel this was giving us some sense of student growth and their response to our work.

We used a grounded theory approach, which is a strategy used to generate theory that is grounded in the data (Punch, 2009, p. 130). The theory is developed inductively from the data using a set of techniques and procedures for collection and

analysis (Punch, 2009). Throughout the analysis, we first identified key themes before working together to select the themes that we felt captured our work. Some of the themes were connected to Ottenbreit-Leftwich et al.'s (2010) framework while others emerged because the topic/issue was commented upon repeatedly. Some were identified when we "stepped back" and asked ourselves what is the broader issue playing out in the data. Frequency of a type of comment (e.g., comfort level) indicated this was a relevant theme. Lydia and Clare did the initial analysis and discussed the findings with Shawn, who often brought in ideas from literature from the fields of history and sociology of technology. Both the discussion with Shawn and his feedback helped us refine the themes. As Strauss put it (2003), "The basic question facing us it how to capture the complexity of the reality (phenomena) we study, and how to make convincing sense of it" (p. 16).

Findings

Year 1

In the first year of the self-study we incorporated 32 different elements of digital technology into our courses. For instance, the *Read*, *Write*, *Think* website, the use of Blackboard as a communication platform, the creation of a photo history of the program posted on Shutterfly, and the viewing of websites of authors whom we read in class. Some of these were very basic but others were slightly more sophisticated. Nevertheless each was a new effort for us. In the next two sections we analyze our efforts.

Overlooking Student Learning

Self-study research requires the use of exemplars because the methodology is grounded in the importance of challenging one's prior assumptions. Applying Ottenbreit-Leftwich et al.'s (2010) framework revealed that the majority of our efforts were in information delivery and observations and/or modelling formats. Only five items were directly related to student teacher learning. We had simply presented information through another modality such as Powerpoint or a website. Our efforts to model and identify digital resources did provide student teachers with some information but the key revelation was we had not intentionally focused on student learning. Two faulty assumptions had blindsided us; namely the superficial assumptions that if we use digital technology (*more*) learning will occur, and that use of the technology was an end in itself.

In the analysis of our narratives, we realized that part of the reason for this superficial use of digital technology was that we had a very ad hoc approach. In planning for each class, we tended to surf the Internet looking for "something." This

non-systematic approach helped us become more familiar with the affordances of the web but did not substantially enhance our courses. We had become very good at using the web for the "Wow Factor". For example, as an introduction to content area literacy (i.e. all teachers are literacy teachers) we used a You Tube clip of a young man poetically recounting the experience of being unable to read, and yet pushed through the school system on account of his talent in basketball (e.g. http://www.youtube.com/watch?v=lByDfPOG0LA). We came to realize however, that beyond "grabbing" student teacher attention the viewing of the video seem to have minimal educational value. Regarding self-study we see that we were only at the first stage of looking at our practice. Our focus was completely on practice – not on our identity.

Acting and Feeling Like Novices

Developing skills required by the various technologies we used is only part of the story (Otero et al., 2005). Our written narratives and reflections helped us understand our "selves" in the process. Since we believed that our student teachers were digital natives (fully conversant with both the hardware and software), and we were at best digital immigrants, we felt intimidated from the start. As we examined our reflections we noticed a significant number of troubling comments: "What if this does not work?" "I am really feeling out of my league." The terms digital native and digital immigrant almost haunted us, and perhaps this is part of the reason why we felt so insecure.

Identity is, in part, how one thinks one is perceived by others; feeling like novices affected what we did as our own insecurities caused us to doubt ourselves, anguish over decisions, and focus on our failures. In many ways, we did not realize that our identity was going through a shift along with the revision in our pedagogical practice. We had not yet fully realized this shift in our identity because we were still in limbo regarding ourselves as literacy teacher educators who could capably use digital technologies. It was not until Year Two that we even became aware of this emerging facet of our identities.

At the end of the summer of 2011 we returned to our self-study research questions. Although humbled by our limited efforts we realized that we had made progress – we had started. We no longer were complete digital novices. Consistent with self-study methodology, we reframed some of our work and continued to be improvement-oriented. As a result of conversations between ourselves and with our critical friend, we decided to reframe our work to have a greater attention to student learning.

Year Two

During the summer we reviewed our course outlines to see where and how we could use digital technology to support student learning. Although we were not sure what to do, we at least had a destination in mind even if we were missing the road map. Developing the road map was done in fits and starts. No longer were we trying to simply layer digital technology onto our courses, we were trying to embed it into the design of the courses. To assist, we created a table with four columns: goal of the class; readings; large and small group activity; and digital technology. This organizing tool made our work more systematic and the "concreteness" of it made our initiative more tangible. In this section we describe three initiatives and the analysis of each.

(i) **Drawing on Our Strengths as Teacher Educators**. Our first step was reframing our courses around the question: What does it mean to be literate in the twenty-first century? This put us on familiar turf (typical academic course structure) but pushed us to rethink literacy practices in light of the influence of digital technologies on contemporary communication (Kress, 2010). We had one foot in the familiar (being teacher educators) and one in the less familiar realm (digital technology). We returned to this overarching question repeatedly in the course in both formal and informal ways. To support student learning, we expanded our readings to include articles about adolescent literacy (Alvermann, 2010), chapters on multiliteracies (Cope & Kalantzis, 2000), and texts on Web 2.0 (Davies & Merchant, 2009). With our student teachers we were exploring and refining our understanding of being teachers in the twenty-first century.

Given our planning in the summer, our work became much more nuanced; instead of inserting a video or website at the last minute, we began to draw on our strengths as literacy teacher educator (e.g., facilitate discussion) while using digital technology purposefully. For example, in the first class of the course as a group we generated ways we communicate in the twenty-first century, followed by a very effective video about communicating in the twenty-first century. After viewing the video, we returned to our initial question about contemporary communication, discussed issues of access for all students, as well as the potential implications for teachers and language use (e.g. digital abbreviations-LOL). This was a far more seamless integration of digital technology than our previous efforts and capitalized on what it could offer us as teacher educators. Shifting between familiar and unfamiliar worlds gave us the confidence to move forward.

Our lesson plans were much longer in the second year because they included much more detail. For example, we included notes on what we were trying to accomplish in each literacy class (something that Clare had not done for years). As noted in the literature review both in the self-study and digital technology sections, planning for improved courses takes substantial time. Looking over our lesson plans, we can see that they were much longer and had more detail as

we explicitly merged our knowledge of literacy pedagogy with our emerging knowledge of digital technologies to facilitate student learning. This level of integration was missing in the first year of the study.

(ii) **Building a Wiki**. In the first year of our self-study we had the broad goal of integrating digital technology into our literacy methods courses. Although a laudable idea, it was far too vague with no specific learning goals. In the second year, we became more focused – we wanted to use digital technology to support student teachers as literacy teachers. One of our strategies was mounting a course Wiki; since it is referred to so frequently in the literature (Reich, Murnane, & Willett, 2012), we assumed this was something we *should* be doing, which is a very superficial reason but it reflects our initial stage of development – very naïve. In Kosnik, Menna, and Bullock (2012a), we discussed the importance of building a wiki for our course at length. It was clearly an important feature of our journey, but time and space away from our original articulation has helped us situated this pedagogical approach in a new way.

Ottenbreit-Leftwich et al.'s (2010) levels of technology use framework provided not only a good analytic tool but, it also provided us with a language to articulate for our efforts (e.g., authentic experiences). This prompted us to determine why we wanted to create a Wiki. Stating the reasons for creating a Wiki proved to be a challenging, multi-step process. In our reflections after our first work session on creating the Wiki, we realized that we were not sure why we were creating a Wiki. Guided by the self-study process and grounded theory we decided that we needed to return to the literature. We had to determine how the Wiki would improve our teaching and student learning. It took us many hours to define goals for the Wiki but this process gave us an insight into our practice because we were learning how to use digital technology as a pedagogical tool rather than an end in itself. Our goals for the Wiki were:

- be a repository for materials related to literacy.
- demonstrate for students a way to organize materials.
- an on-going site to access and share materials, which students could use after graduation.
- model for students a way to use a Wiki in their classrooms with children (Kosnik et al., 2012a).

Knowing that we would face a number of the challenges identified by Butler and Sellbom (2002) we wanted to start small, learn to use the technology, study to see how students use it, and then re-evaluate. As novices we were unsure if we could master the technology; therefore, we did not want to launch an initiative that failed, thereby reinforcing our self-images as digital novices. Our Wiki grew over the year as we along with the student teachers contributed more and more information.

Our reflections show that launching the Wiki was a turning point for us; we felt like we had mastered the technology (improvement in practice), and there was a shift in our identity (more competent users of technology). Further when one of the IT staff in our university asked to be given access to the site

because it was the best educational Wiki he had ever seen we were overjoyed because it was a form of external validation from an acknowledged expert in our institution. In terms of student teacher learning we noted that student use of the Wiki spiked during practice teaching.

(iii) **Working Collaboratively With Our Students**. We were initially hampered by the pressure to be experts on the integration of digital technology, which was exacerbated by our limited repertoire of activities and lack of focus. In our reflections, we noted that we often monopolized the "discussion" or air-time. Clare noted this frustration in one discussion with Lydia where she lamented, "I either feel defensive or like I am proselytizing. I am not like this with other topics but when it comes to digital technology, I seem to go into a different mode." Over time, we stopped assuming that we had to be experts who were fully responsible for teaching student teachers "everything" about digital technology; rather, we had to learn in partnership with them. Creating space in the course for student teachers to explore the potential use of digital technologies as pedagogical tools happened in a number of ways. Some instances were quite deliberate while others were more spontaneous. For instance, we encouraged students to share examples of digital technology they were using in their practice teaching classrooms and in their own lives. To meet the criterion of supporting student learning we had to be more purposeful. In our reflections we see that we really struggled with this goal. We had a number of false starts (e.g., using podcasts from the *Read*, *Write*, *Think* website that were a total failure). Eventually, we took the productive step of revamping the final assignment that required student teachers to respond to a text on writing. In first semester they had to respond to a text on reading in an essay format. In the second term rather than use the traditional essay format we changed the modality. Student teachers were in small groups of five to seven students where they presented their response to the text using a digital technology, including an explanation of why they chose this particular technology.

The student teachers loved the assignment because they got to learn about five-seven different texts on writing, and also experience a number of ways to teach using digital technology. Since student teachers were teaching their peers, they had a much bigger investment in the assignment. The range of programs used was extensive: Prezi, Facebook, Twitter, BitStrips, voting using our smartphones, and so on. We extended the experience by discussing the differences between writing an essay and doing a presentation using a digital technology. The presentations were masterful; they were focused, organized, and engaging. Many student teachers took risks using a program with which they were unfamiliar. Many commented that they had seen us experiment with new programs so they felt comfortable trying out an unfamiliar technology. Most importantly for Lydia and Clare we learned a great deal from our students.

Discussion

Our 2-year journey was punctuated with highs and lows. We see that the integration of digital technology was much more than a tinkering with our practice; it had profound effects on our identities as teacher educators. Our view of ourselves changed from novice to modestly competent. We were surprised to the extent that our own self-image had to change if we were to fully embrace technology as a learning tool. Putting our practice under such close scrutiny and the weekly documenting of our efforts and reflections, allowed us to see the complexity of the task we had undertaken. In terms of practice we now appreciate that the use of digital technology does not replace us, the instructors. We cannot discount our many prior skills as literacy teacher educators. Edwards (2012) noted the stages that teachers go through when integrating digital technology, we see that we also went through a series of stages which we identified in Fig. 4.1.

As we received positive feedback from others (e.g., our students, our critical friend) and presented at conferences (Kosnik et al., 2012a, 2012b; Kosnik, Menna, & Bullock, 2012b), the external validation of our work strengthened our identity. Gee describes this as *discursive identities* (2002); socially constructed based on people's interactions with each other, how they interpret those interactions, and how they view those interactions in relation to the models of identity that exist within the community (Brown et al. 2008). By the end of the second year of the study we began to see ourselves as fairly competent users of technology. At the end of the second year not one student complained on the course evaluations that they wish there had been more attention to digital technology. Figure 4.2 shows how our new identity emerged over time.

Although we have presented the two figures about the development of our pedagogy (integration) and identity as though they were distinct, they were not balkanized. As we became more confident we became more adventurous with teaching strategies. And as our teaching with digital technology became more fluid, our identity as able users of digital technology increased. Development of pedagogy and identity were mutually supportive.

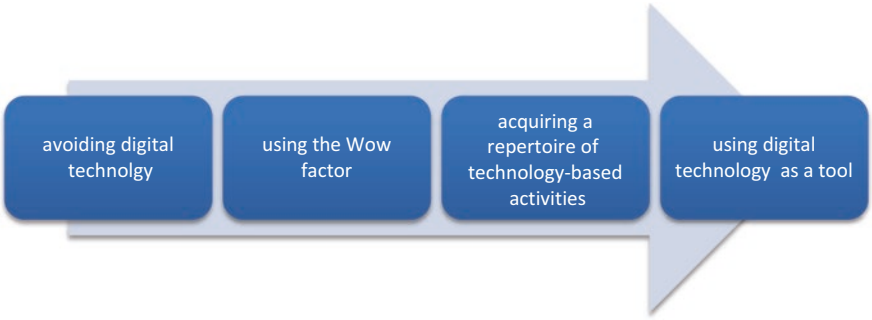

Fig. 4.1 Stages of integration of digital technologies

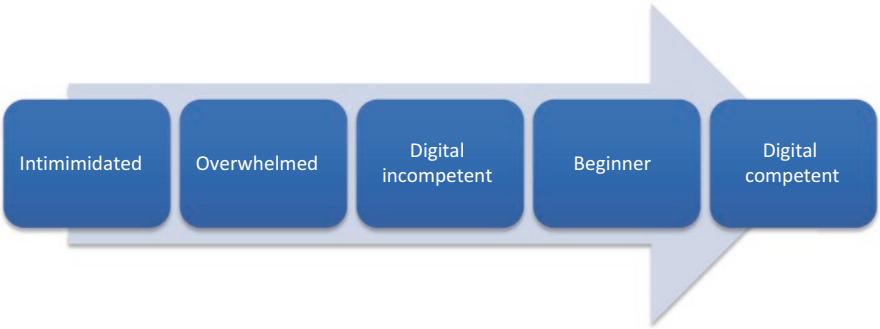

Fig. 4.2 Stages of identity development as technology users

Although the terms digital native and digital immigrant (Prensky 2001, 2011) are catchy and the idea that growing up with access to certain technologies might result in a higher comfort level with using technology as a tool for teaching and learning, we began to realize it is an unhelpful and not fully accurate dichotomy. Our figures suggest a continuum, rather than a dichotomy. Although we did not grow up with certain digital tools, focusing on our access to technologies over the years overlooks what we know about being effective literacy teacher educators. Teacher educators need to recognize their own strengths, not get caught up in the edu-babble, and develop a repertoire of technology-related pedagogies. They have to prioritize what student teachers need to know and develop a plan on how to reach that destination, which many do very capably with aspects of their literacy courses. We went on an assumption that our student teachers being digital natives could teach using digital technology. In their self-reports after practice teaching many revealed that they too struggled to incorporate digital technology into their teaching (e.g., technical difficulties, lack of knowledge of quality resources).

The three of us formed a small learning community where we could discuss our successes and challenges. Just writing to our critical friend about our work and getting Shawn's feedback, further enhanced our identity – "hey, we are working with a leading expert in digital technology." We started to feel that we might be members of the "junior" digital technology club. In our reflections, a number of times we noted, "thank goodness for each other." Advice we would give to others is: start small, get over the technical hurdles, have clear goals for what you are trying to accomplish, read the literature, do this work with others, and develop a road map with at least a vague destination in mind. Shawn felt that it was important to collaborate with other teacher educators because he valued learning about how technology might be implemented in an area outside of his expertise and because he believes, like Selwyn (2012), that it is important to "be certain only of the uncertainty of it all" (p. 214). Listening to how Clare and Lydia navigated challenges in their literacy course provided a fresh perspective on challenges he faces in his science education courses, particularly their use of class Wikis for community-building. In particular, Shawn noted that the Wiki represented the kind of *networked*

public conceptualized by danah boyd (who spells her name in lowercase letters). Network publics are a new kind of public space, one that is characterized by persistence (content remains online for a long time), visible (available to a wide audience), spreadable (content can be shared easily) and searchable (boyd, 2014, p. 11). It was enormously useful to him to participate in Clare and Lydia's discussions about the use of their Wiki as a way of understanding the implications of boyd's work (which is ostensibly about youth culture) for teacher education.

Conclusion

It has been a demanding process to revise our courses and reconceptualise our identities. As our repertoire of digital tools expanded and our self-study research unfolded, our practice became more focused and nuanced. We are now at the point where we are drawing on our strengths as academics. Our personal use of digital technology (Clare's use of Skype and Lydia using Twitter), professional practice (teaching), and research methods (e.g. NVivo9) became mutually supportive. We know we will continue to develop. As Dewey (1916) observed "the educative process is a continuous process of growth, having as its aim at every stage an added capacity for growth" (p. 63). We have grown and will continue to grow!

References

Alvermann, D. E. (2010). *Adolescents' online literacies: New literacies and digital epistemologies*. New York: Peter Lang Publishing.

Boling, E. (2005). A time for new literacies: Who's educating the teacher educators? *Teachers College Record.* http://www.tcrecord.org ID Number: 11742, Retrieved 18 June 2012.

boyd, d. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Brown, B., Reveles, J., & Kelly, G. (2008). Scientific literacy and discursive identity: A theoretical framework for understanding science education. *Science & Education, 89*, 779–802.

Bullock, S. (2011). Teaching 2.0: (re)learning to teach online. *Interactive Technology and Smart Education, 8*(2), 94–105.

Butler, D. L., & Sellbom, M. (2002). Barriers to adoption technology for teaching and learning. *Educause Quarterly, 25*(2), 22–28.

Cervetti, G., Damico, J., & Pearson, P. D. (2008). Multiple literacies, new literacies, and teacher education. *Theory Into Practice, 45*(4), 378–386.

Cope, B., & Kalantzis, M. (Eds.). (2000). *Multiliteracies: Literacy learning and the design of social futures*. New York: Routledge.

Costa, A. L., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership, 51*(2), 49–51.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300–314.

Davies, J., & Merchant, G. (2009). *Web 2.0 for schools: Learning and social participation*. New York: Peter Lang.

Dewey, J. (1916). *Democracy and education*. New York: The Macmillan Company.
Edwards, A. (2012). *New technology and education*. New York: Continuum.
Hamilton, M. L., & Pinnegar, S. (1998). Conclusion. In J. Loughran, M. L. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 235–246). Dordrecht: Kluwer.
Kay, R. H. (2006). Evaluating strategies used to incorporate technology into preservice education: A review of the literature. *Journal of Research on Technology in Education, 38*(4), 383–408.
Kirkwood, A. (2009). E-learning: You don't always get what you hope for. *Technology, Pedagogy and Education, 18*(2), 107–121.
Kosnik, C., Menna, L., & Bullock, S. M. (2012a). Diving into social media: Using digital technologies to support teacher learning. In S. Van Nuland & J. Greenlaw (Eds.), *Social media and teacher learning* (pp. 47–60). Oshawa, ON: UOIT E-Press.
Kosnik, C., Menna, L., & Bullock, S. (2012b). No longer digital novices: Integrating technology into our literacy methods. In J. Young, L. Erickson, & S. Pinnegar (Eds.), *Proceedings: The eighth interference on self-study of teacher education practices, Herstmonceux Castle, East Sussex, England.* Salt Lake City, Utah
Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.
LaBoskey, V. (2004). The methodology of self-study and its theoretical underpinnings. In J. Loughran, M. L. Hamilton, V. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 817–869). Dordrecht: Kluwer.
Mitchell, P. (2012). Digital literacy and the spaces of academic discourse. In P. P. Trifonas (Ed.), *Learning the virtual life: Public pedagogy in a digital world* (pp. 1–14). London: Routledge.
National Council of Teachers of English. (2007). *21st century literacies: A policy research brief.* http://www.ncte.org/library/NCTEfiles/Resources/Magazine/Chron110721CentLitBrief.pdf. Retrieved 4 Jan 2015
New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*, 60–92.
Otero, V., Peressini, D., Meymaris, K., Ford, P., Garvin, T., Harlow, D., et al. (2005). Integrating technology into teacher education: A critical framework for implementing reform. *Journal of Teacher Education, 56*(1), 8–23.
Ottenbreit-Leftwich, A., Glazewski, K., & Newby, T. (2010). Preservice technology integration course revision: A conceptual guide. *Journal of Technology and Teacher Education, 18*(1), 5–33.
Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon, 9*(5), 1–6.
Prensky, M. (2011). Digital wisdom and homo sapiens digital. In M. Thomas (Ed.), *Deconstructing digital natives* (pp. 15–29). London: Routledge.
Punch, K. (2009). *Introduction to research methods in education*. London: Sage.
Reich, J., Murnane, R., & Willett, J. (2012). The state of wiki usage in U.S. K-12 schools: Leveraging web 2.0 data warehouses to assess quality. *Educational Researcher, 41*(7), 7–15.
Samaras, A., & Freese, A. (2006). *Self-study of teaching practices*. New York: Peter Lang.
Selwyn, N. (2011). *Education and technology: Key issues and debates*. London: Continuum International Publishing Group.
Selwyn, N. (2012). Ten suggestions for improving academic research in education and technology. *Learning, Media and Technology, 37*(3), 213–219.
Strauss, A. (2003). *Qualitative analysis for social scientists* (14th ed.). New York: Cambridge University Press.

Chapter 5
Connecting Technology, Literacy, and Self-Study in English Language Arts Teacher Education

Benjamin Boche and Melanie Shoffner

Introduction

Given the evolving nature of both literacy and technology, English Language Arts (ELA) teacher educators must integrate technology into teacher preparation in authentic ways to foster preservice teachers' understandings of technology and literacy in the ELA classroom (Rosaen & Terpstra, 2012). Often, however, ELA teacher educators are unsure how to approach the integration of technology and literacy; they may have misconceptions about technology's role in literacy learning or personal experiences and beliefs that do not align with effective practices.

Self-study offers one avenue for teacher educators to consider the integration of technology and literacy in English Language Arts teacher education. Through self-study, English teacher educators have the means by which to examine and reframe their understandings of self, pedagogy, and subject matter. Self-study also provides an avenue to explore the tensions that emerge through that examination, as beliefs and practices shift and change.

This chapter shares two English teacher educators' – one experienced, one developing – use of self-study to examine their integration of technology and literacy in two ELA methods classes. Using the lens of self-study to examine, question, and develop our understandings and actions, we consider the place of technology in our own pedagogy while exploring how preservice teachers can meaningfully develop the literacy understanding they will need in their future teaching.

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Context

Literacy and Technology

Expanded understandings of literacy (referred to as multimodalities and/or multiple literacies) are fundamentally changing the way teachers understand and enact literacy in today's secondary English Language Arts (ELA) classrooms (NCTE, 2007, 2013; Shoffner, de Oliveira, & Angus, 2010). An expanded understanding may seem to challenge previous approaches to literacy, but understanding literacy as multiple, varied, and changing enhances and supplements, rather than replaces, established literacy teaching and learning (Rowsell, Kosnik, & Beck, 2008). Literacy as multiple literacies does call upon different skills and knowledge (NCTE, 2008), however, it also requires educators to reconsider and adjust their pedagogy to respond more accurately to literacy as evolving and multiple. One specific element educators must continuously examine is the range of technology that supports, alters, and shapes literacy learning and understanding.

Technology plays an increasingly important role in the expanding concept of literacy in ELA, from the use of digital texts (Hobbs, 2006) to the creation of multimodal texts (Doering, Beach, & O'Brien, 2007) to the development of digital writing (Hicks, 2009). This expansion of literacy requires educators to prepare students for a multi-literate future (Labbo & Reinking, 1999), allowing students to compose with multimedia and multimodal tools that reflect collaborative and constructive social practices (Myers, 2006). ELA teachers who purposefully connect literacy and technology "help students understand how to move between and across various modes and media as well as when and why they might draw on specific technologies to achieve specific purposes" (Borsheim, Merritt, & Reed, 2008, p. 87). In this way, students are able to understand and respond through many different representations that, in turn, change possible expression and representation (Walsh, 2010).

In addition to diversifying content and expanding outcomes, technology influences the pedagogy needed to successfully engage adolescents in literacy. Before entering the classroom, ELA teachers must develop an understanding of the connections between content, pedagogy, and technology, articulated as technological pedagogical content knowledge or TPACK (Mishra & Koehler, 2006). TPACK extends from Shulman's (1986) conceptualization of pedagogical content knowledge, in which pedagogy and content interact in specific ways to create a defined body of knowledge needed for the teaching of that content. Likewise, TPACK emphasizes the need for teachers to approach technology as an integral component of the content area rather than a set of decontextualized tools. The evolving thinking and knowledge required of teachers to meaningfully and purposefully integrate technology in students' learning necessitates that they understand technology, pedagogy, and content as integrated aspects rather than isolated elements.

To prepare them for the twenty-first century classroom, English teacher education must address how ELA teachers can successfully use technology to support, enhance, and strengthen student literacy. English teacher educators are tasked, then,

with developing preservice teachers' understanding of the affordances and constraints of technology, generally, while using technology for student literacy learning, specifically (Koehler & Mishra, 2009). Knowing that technology will shift and change, teacher educators must challenge preservice ELA teachers in ways that develop and extend TPACK while also contributing to their ability to "structure meaningful, design-based tasks that will encourage robust technology learning" (Hicks, 2013, p. 28) for their future students. In other words, preservice ELA teachers must understand the continuously evolving nature of literacy, pedagogy, and technology in order to respond to their students' learning needs, now and in the future. While TPACK is not the only means by which to support such understanding, it provides one way to develop "a nuanced understanding of the complex relationships between technology, content, and pedagogy, and [use] this understanding to develop appropriate, context-specific strategies and representations" (Mishra & Koehler, 2006, p. 1029). In developing TPACK, then, ELA teachers develop a clearer and more flexible framework to "emphasize the differences in thinking across available modes rather than the final product" (Graham & Benson, 2010, p. 94).

Self-Study

As ELA teacher educators, we must consider how we conceptualize the connections between technology and literacy as well as how we reveal that understanding through our pedagogy. Self-study is one way to make our beliefs and actions more explicit – for ourselves and for our preservice teachers – since we are able to "illustrate how [we] have developed a perspective that is pedagogically informed and professionally reasoned" (Loughran, 2010, p. 225). By demonstrating and articulating what comprises our expertise, we are able to make explicit the complexity inherent in teaching for our preservice teachers. As Tidwell and Fitzgerald (2007) discuss, many changes occur during the self-study process, as teacher educators primarily focus on evaluating effective practices, making connections between practices and beliefs, and constructing one's teacher self. Completing these changes takes time, however; engaging in self-study helps illuminate and describe the different changes that take place.

Additionally, sharing our own struggles and tensions concerning the integration of technology and literacy may help preservice teachers recognize the "problematic nature of practice" (Loughran, 2005, p. 9) as well as how to interrogate pedagogical principles and knowledge in their own teaching. Rosaern and Terpstra (2012) utilized self-study in a similar fashion; remaining open and collaborative in order to reframe and expand ideas about literacy, they made explicit the complexities involved in exploring such abstract concepts as the changing nature of literacy. In this regard, self-study assists teacher educators in identifying pedagogical challenges and promising approaches to authentic learning. Kosnik, Menna and Bullock (2012) see self-study as a means to break free from the traditional mindset of

teaching and learning while thinking broadly about literacy. They argue that self-study allows for research to be conducted outside the single silos of technology or literacy; rather, it supports teacher educators' efforts to learn integrated uses of technology in teaching rather than implementation in a stand-alone manner. Building on this work, we can examine our efforts to understand the connections between literacy and technology in order to develop understandings of the same within the field.

Teacher Educators

At the time of the study, Ben and Melanie taught at a large Research 1 university in the midwestern United States. Ben, a developing teacher educator, was a graduate student in the ELA education doctoral program; Melanie was beginning her seventh year as an ELA teacher educator in that program.

In the fall of 2013, Ben taught a 6-week literacy methods course required for preservice ELA teachers in the same semester as their student teaching; this was Ben's first time teaching the course. Despite the short timeline, this course covered a range of literacy topics applicable to the secondary ELA classroom, including secondary reading and writing, assessment, and technology. Ben taught the course again in the spring of 2014, which allowed him to apply realizations developed through the self-study. Additionally, Ben's revisions to the course were influenced by the inclusion of iPads; through an internal grant, Ben was able to provide each student with an individual iPad mini for use during the literacy methods course.

That same fall, Melanie taught a semester-long required literature methods course for the eleventh time. Typically taken by preservice ELA teachers in the year prior to their student teaching, this course focused on the many issues connected to the teaching of literature, including text selection, multimodality, and lesson planning. In the spring semester, however, Melanie taught the capstone methods course, taken the semester before student teaching; this course focused on the development of ELA-specific pedagogy, including student engagement, diverse instructional strategies and forms of assessment. She, too, was able to apply some of the understanding offered by the self-study, albeit in a different context.

Aims and Objectives

In order to develop preservice ELA teachers' understandings of and approaches to literacy and technology in the secondary English classroom, teacher educators must support their ability to "think critically about pedagogical concerns…and about the intellectual, social, cultural, political and economic impact of using [technology]" (Swenson, Young, McGrail, Rozema & Whitin, 2005, p. 219). As Melanie has noted, however (Shoffner, 2013), this objective does not apply only for preservice teachers; English teacher educators "can only implement and integrate technology

meaningfully if we consider its place in our content area and our teaching" (para. 16). Moreover, examining the use of technology in our teaching requires us to consider our preservice teachers' literacy development in multiple and different ways. The purpose of this self-study, therefore, was twofold: (1) to examine how we, as teacher educators, used technology in our methods classrooms and (2) to consider how that usage informed the teaching and learning of literacy in those classrooms. By engaging in this self-study, we hoped to develop our own – and, by extension, our preservice teachers' – understandings of the connections between literacy and technology.

Methods

Guided by LaBoskey (2004) and Loughran (2005), we engaged in a self-study in the 2013–2014 academic year to examine how we used technology in our methods teaching and how that usage informed our beliefs about and teaching of literacy. In order to focus on improving our practice (LaBoskey, 2004), we identified specific data to guide our self-study, which included instructional materials related to technology and/or literacy, such as course assignments, lesson plans, and classroom activities. We also completed a written reflection at the end of the fall semester, addressing our individual understanding of technology use in our methods courses, the factors that contributed to our pedagogical decision-making, and our preservice teachers' interactions with technology and literacy.

Throughout the semester, we engaged in bi-weekly conversations to reflect on our current understandings and teaching of literacy and technology. In our conversations, we posed questions to each other focused on our teaching, our beliefs about technology and literacy, and our understanding of connections in the field of English education. When possible, Melanie captured key points of the conversations through quick notes. These interactions reflect what Loughran (2005) emphasizes as a crucial component of self-study: the need for interaction with others in order to go beyond solely personal reflection. This systematic reflection also helped clarify the experiential knowledge gained through the process, as "teacher knowledge can best be understood, transformed, constructed, and articulated by the teacher self in collaboration with others" (LaBoskey, 2004, p. 826). Our collaboration supported our efforts to move beyond personal reflection in order to examine our individual practice and assist each other with framing and reframing experiences so that we might identify more valuable learning outcomes (Loughran, 2007).

We used content analysis (Patton, 2002) at the conclusion of the study to identify items in the data that stood out as repeating or interesting elements. We then focused our second analysis to consider these findings and discuss implications of these findings for our teaching, specifically, and ELA teacher education, in general.

Outcomes

Our self-study resulted in identifying issues for additional consideration as well as necessary revisions in our methods curriculum. Through our study in the fall semester, we recognized the need to engage in curriculum redesign over the semester break to integrate technology more meaningfully in our spring methods courses. Additionally, we understood previously unrecognized discrepancies between our approach to technology with preservice teachers and our approach to technology in our own pedagogy.

Revising Our Methods Courses

First, this self-study allowed us to consider how we might revisit our teaching of literacy in order to better support our preservice teachers' literacy learning with technology. We considered both course curriculum and personal pedagogy fair game for revision, using our conversations to explore possible activities and instructional strategies. On the surface, neither course required significant revision; Ben was provided with the previous instructor's syllabus and Melanie had a working syllabus from teaching the course in the previous academic year. Moreover, both syllabi were edited prior to the fall semester to incorporate different readings and revised assignments, making the syllabi current and specific to the instructor. During the study, however, we saw a need to rework the courses in order to better address current technology and better prepare our preservice teachers to work with literacy in their future ELA classrooms. Our understanding of literacy meant we did not want to address technology as a separate component of study or create an isolated technology assignment. Rather, we saw the need to incorporate technology in our teaching in multiple, meaningful ways that supported and extended our preservice teachers' understanding of literacy.

Ben's revisions focused on finding ways to meaningfully integrate technology into the methods course so that it did not feel like a separate, specialized topic for the course. Much of Ben's revision was guided by his previous experience as a middle school ELA teacher. As an ELA teacher, Ben focused exclusively on the final product created with technology rather than the learning that accompanied creating materials with technology or with the particular affordances or constraints of the technology. In the methods course, Ben wanted the product to be important – as preservice teachers would have similar expectations for their future students – but he also wanted his preservice teachers to focus on the process, as he believed the process was as or more important than the final product in helping the preservice teachers consider the place of technology in their literacy learning and pedagogy.

To achieve this goal in the fall semester, Ben made a curricular revision to the preservice teachers' reflection by requiring them to create video logs (vlogs) instead of written reflections. The vlogs fulfilled a practicum component for informal

reflection while requiring preservice teachers to videotape their reflective thinking rather than complete them in the traditional written format. In addition to the creation of the vlogs, Ben also engaged his preservice teachers in discussion about the affordances and constraints of using technology in this manner. Discussion centered on the goals and purposes of reflection as well as what technology enabled them to do in relation to reflection and digital literacy. As discussion continued, Ben noticed the preservice teachers made more deliberate choices in the creation of their vlogs. For instance, preservice teachers changed backgrounds to match the topic of their reflection, created special effects to emphasize emotions, and streamlined the reflections using different technological tools. By the end of the course, the vlogs showcased conscious decision-making regarding technology's purpose and role in the shaping of literacy. As such, the preservice teachers were able to demonstrate more critical thinking in their understanding of how technology impacts literacy learning.

Because Melanie was not teaching the same methods course in the spring semester, her focus was on analyzing her teaching of literature methods for future iterations of the course. In revising the syllabus for the fall semester, Melanie was aware that, in past course iterations, she had often included technology as adjacent to literacy, assigning a specific reading or creating an informal assignment that supported discussion of technology in that particular moment. Even though Melanie was well aware that technology should be integrated into methods work, she recognized that technology in the literature methods course was addressed briefly and somewhat superficially.

To address this issue in the fall semester, Melanie reworked a book review into an annotated book trailer. For this assignment, the preservice English teachers reviewed a Young Adult novel for reader engagement as well as pedagogical possibilities in the secondary ELA classroom. Instead of the typical written analysis, however, they were required to create the book trailer using their choice of technology. Utilizing a familiar (to them) technology kept the focus of the assignment not on their technological skills but on their understanding of the novel, their ability to engage students with the novel, and their analysis of the novel's potential in the classroom. In this way, technology became an organic aspect of the assignment rather than the focus of the work, allowing preservice teachers to engage with literacy in different yet purposeful ways.

The value of this approach to technology was made clear to Melanie in the quality of the annotated book trailers. In keeping with TPACK (Mishra & Koehler, 2006), technology was a naturally occurring element of both subject matter and pedagogy, allowing the preservice teachers to work with technology for authentic purposes. By embedding technology in the assignment, its use was an accepted part of students' literacy development rather than a supplemental aspect of the assignment. The preservice teachers used various applications (such as iMovie and PowerPoint) to create their trailers, leveraging the specific technology to address various points in different ways. For example, one trailer was crafted as multiple paths corresponding to multiple areas of interest; this approach required the preservice teacher to identify multiple themes in the novel, explain the significance of

those themes, and embed hyperlinks, multiple slides, and images to direct the viewer along the appropriate path.

Revising Our Pedagogy

Second, the self-study forced us to reconsider our own pedagogy in the methods course related to literacy and technology. To our chagrin, we realized that, too often, we failed to model the technology use expected from our preservice teachers in their future classrooms. Granted, we could not control every factor in our technology use; for example, our classrooms were equipped with chalkboards, document cameras and projector systems rather than the SmartBoards increasingly found in the local secondary ELA classrooms in which our preservice teachers student taught. We were responsible, however, for how we approached literacy through the technology we had.

Ben's discrepancy did not necessarily occur with a specific technology but rather with his integration of technology and literacy. In the fall semester, Ben had limited the topic of technology and literacy to just 1 week for the course. During one class focused on writing at the secondary level, a preservice teacher asked if the class could discuss technology's role in writing. Rather than seeing technology as an innate component to writing, Ben asked if the preservice teacher could save his question for when the class discussed technology and literacy. During a conversation with Melanie later that week, Ben realized he had rejected what he knew and believed about technology and literacy with his unwillingness to engage the preservice teacher's question at that moment. In effect, Ben believed one thing and did another. This realization helped Ben reevaluate his constrained approach to technology in the methods course and, subsequently, he revised the course accordingly in the spring semester.

During the fall semester, Melanie was cognizant that she used very little technology in her classroom instruction. Occasionally, she would show a media clip or several PowerPoint slides on the classroom projection system but instruction typically utilized the chalkboard. A difference from previous classes, however, was Melanie's conscious incorporation of mobile devices in her instruction. During lectures, she would ask the preservice teachers to use their phones to find the answer to a question; during group work, she encouraged the preservice teachers to utilize their laptops to complete the given task. Despite her lack of modeling, Melanie believed the preservice teachers gave meaningful consideration to technology throughout the semester; they offered no resistance to using different technology throughout the semester and readily engaged with the discussions of and readings about technology. Without prompting, the preservice teachers considered how they would use different technology with their future students, they incorporated technology into lesson plans, and they addressed technology in discussions about other issues. Still, Melanie did question the lack of technology in her instruction, given her understanding of technology's place in literacy today.

At the conclusion of the self-study, we recognized that our understandings of literacy and technology, our pedagogy, and our course design had changed. Therefore, in the spring, we made deliberate choices to revise our respective methods courses.

In the next semester, Ben again taught the 6-week literacy methods course. Drawing on the self-study, Ben knew that technology should be integrated into all aspects of his course, not just a 1-week topic as had happened in the fall. Therefore, Ben reworked his spring methods course to be rooted completely in technology, and in this particular instance, with individually assigned mini iPads. Now technology was present from the beginning and topics of conversation, class assignments, and class activities were all filtered through the preservice teachers' iPads. As both Ben and his preservice teachers were unfamiliar with iPads in relation to literacy teaching and learning, much of the focus was on the process of learning how and why to use the technology rather than the final product the preservice teachers would create with the technology.

Once again, Ben rooted his practice and his conversations with his preservice teachers in the affordances and constraints of technology while also more clearly matching up his beliefs with his practice. Ben spent much of the methods course experimenting with his preservice teachers, helping himself and them to realize that there was no one right way to use technology – indeed, technology need not be used at all. However, when considering the affordances and constraints of iPads, specifically, or technology, in general, Ben and his preservice teachers were better able to make more informed decisions about using technology for literacy purposes. Additionally, Ben noticed that through the experimentation with the iPads and the class discussions that followed, his preservice teachers more clearly articulated their thinking behind their choices to use (or not) the iPads when teaching, as well as the rationale behind their thinking. In this regard, Ben felt validated in the changes he made, both for his own understanding of technology's role in literacy learning and teaching and for his preservice teachers' understanding.

As noted earlier, Melanie did not teach the literature methods course in the spring so she could not copy Ben's efforts in using the self-study to make immediate revisions. She did use the self-study, however, when revising the course prior to teaching it in the fall of 2014. Like Ben, she made a concerted effort to integrate discussion of technology throughout the methods course rather than confining preservice teachers' considerations to certain topics or texts. For example, Melanie deliberately chose readings on certain literacy topics that also addressed technology use, allowing preservice teachers to explore the interaction of the two elements in a more authentic manner. Melanie also formalized the incorporation of social media in the methods class. While preservice teachers were still encouraged to use smart phones or laptops as appropriate, they were now required to use two different forms of social media for specific academic purposes: Goodreads for content area literacy and either Pinterest or Twitter for literacy professional development. In the first instance, preservice teachers completed book reviews incorporating both reader response and pedagogical analysis in Goodreads that were then available to classmates for review and comment. In the second, preservice teachers used their choice

of the two applications to "collect" resources connected to their individual development as ELA teachers; while some preservice teachers used Pinterest to bookmark ideas for potential lessons, others used Twitter to follow educational news. Lastly, Melanie enhanced the annotated book trailer assignment by attaching its completion to a more authentic purpose: presentation to the community. Working with the local library, Melanie arranged for her preservice teachers to offer an hour-long presentation on Young Adult literature using their book trailers and drawing on their understanding of both literacy and pedagogy.

Significance

Our goal as teacher educators is to support our preservice teachers in developing "nuanced and critical understandings of these technologies and the literacies with which they are associated". By engaging in this self-study, we were able to confront the tensions in our own practice, better understand our own beliefs about literacy and technology, and better articulate our reasoning for integrating technology into literacy teaching and learning.

Ben recognized the importance of matching up his beliefs to his practice. He could not expect to hold his preservice teachers accountable for failing to use technology in their literacy teaching and learning if he did not also engage in the process as well to better understand the integration of technology and literacy. More importantly, Ben would not be able to articulate his thinking behind technology's use with literacy teaching and learning if he had not undergone the same experience as his preservice teachers. Ben reasoned that more learning occurs when preservice teachers focus on the process rather than the product since it is in the process that they question whether they have the necessary TPACK to use technology for specific outcomes as well as whether technology is indeed necessary to support literacy learning in that moment.

Like Ben, Melanie was able to see the discrepancies in her own pedagogical approaches to literacy and technology. While it was relatively easy to teach these elements in the methods course after multiple iterations, it was much more complicated to model their use in meaningful ways. Rethinking how she incorporated technology in the course, from when it was discussed to how it was used, allowed Melanie to create more authentic opportunities for her preservice teachers to interact with technology. In this way, the preservice teachers were able to consider how they might leverage technology in literacy teaching and learning while examining the affordances and constraints of technology in their future teaching.

This self-study allowed us to recognize important aspects of how we approach curriculum and pedagogy for literacy learning, providing "ways of considering what [we] do, how and why" (Loughran, 2010, p. 225). By examining our practice, we also considered how to best incorporate technology in ways that might support and extend preservice teachers' understandings of literacy while engaging them in

meaningful consideration of technology's different roles in the English classroom. This deliberate consideration of how best to connect technology with new conceptions of literacy allows us – and our preservice teachers – to more accurately frame and validate our understandings and pedagogical practices (McLean & Rowsell, 2013). In this way, our self-study provided a meaningful and engaging way of reconceptualizing the interactions of literacy and technology, exploring these interactions as they relate to secondary ELA, and understanding how we, as teacher educators, can better support these interactions for our preservice teachers.

References

Borsheim, C., Merritt, K., & Reed, D. (2008). Beyond technology for technology's sake: Advancing multiliteracies in the twenty-first century. *The Clearing House, 82*(2), 87–90.

Doering, A., Beach, R., & O'Brien, T. (2007). Infusing multimodal tools and digital literacies into an English education program. *English Education, 40*(1), 41–60.

Graham, M., & Benson, S. (2010). A springboard rather than a bridge: Diving into multimodal literacy. *English Journal, 100*(2), 93–97.

Hicks, T. (2009). *The digital writing workshop*. Portsmouth, NH: Heinemann.

Hicks, T. (2013). Developing technological pedagogical content knowledge through English teacher research and a pedagogy of multiliteracies. In C. Young & S. Kadjer (Eds.), *Research on technology in English education* (pp. 3–32). Charlotte, NC: Information Age Publishing.

Hobbs, R. (2006). Multiple visions of multimedia literacy: Emerging areas of synthesis. In M. C. McKenna, L. D. Labbo, R. D. Kieffer, & D. Reinking (Eds.), *International handbook of literacy and technology* (pp. 15–28). New York: Lawrence Erlbaum.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education (CITE Journal), 9*(1), 60–70.

Kosnik, C., Menna, L., & Bullock, S. (2012). *No longer digital novices: Integrating technology into our literacy methods courses*. Conference proceedings, the 9th international conference on self-study of teacher education practices: Extending inquiry communities: Illuminating teacher education through self-study.

Labbo, L. D., & Reinking, D. (1999). Negotiating the multiple realities of technology in literacy research and instruction. *Reading Research Quarterly, 34*(4), 478–492.

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 817–869). Dordrecht, The Netherlands: Springer.

Loughran, J. (2005). Researching teaching about teaching: Self-study of teacher education practices. *Studying Teaching Education, 1*(1), 5–16.

Loughran, J. (2007). Researching teacher education practices: Responding to the challenges, demands, and expectations of self-study. *Journal of Teacher Education, 58*(1), 12–20.

Loughran, J. (2010). Seeking knowledge for teaching teaching: Moving beyond stories. *Studying Teaching Education, 6*(3), 221–226.

McLean, C. A., & Rowsell, J. (2013). (Re) designing literacy teacher education: A call for change. *Teaching Education, 24*(1), 1–26.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054.

Myers, J. (2006). Literacy practices and digital literacies: A commentary on Swenson, Rozema, Young, McGrail, and Whitin. *Contemporary Issues in Technology and Teacher Education, 6*(1), 61–66.

National Council of Teachers of English. (2007). *Adolescent literacy: A policy research brief*. Urbana, IL: NCTE.

NCTE (2008). *NCTE position statement on multimodal literacies*. Retrieved from http://www.ncte.org/positions/statements/multimodalliteracies

NCTE (2013). *NCTE position statement on multimodal literacies*. Retrieved from http://www.ncte.org/positions/statements/multimodalliteracies

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (Vol. 3). Thousand Oaks, CA: Sage.

Rosaen, C., & Terpstra, M. (2012). Widening worlds: Understanding and teaching new literacies. *Studying Teacher Education, 8*(1), 35–49.

Rowsell, J., Kosnik, C., & Beck, C. (2008). Fostering multiliteracies pedagogy through preservice teacher education. *Teaching Education, 19*(2), 109–122.

Shoffner, M. (2013) Editorial: Approaching technology in English education from a different perspective. *Contemporary Issues in Technology and Teacher Education*, *13*(2). Found at http://www.citejournal.org/vol13/iss2/languagearts/article1.cfm

Shoffner, M., de Oliveira, L., & Angus, R. (2010). Multiliteracies in the secondary English classroom: Becoming literate in the 21st century. *English Teaching: Practice and Critique, 9*(3), 75–89.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14.

Swenson, J., Rozema, R., Young, C. A., McGrail, E., & Whitin, P. (2005). Beliefs about technology and the preparation of English teachers: Beginning the conversation. *Contemporary Issues in Technology and Teacher Education, 5*(3), 210–236.

Tidwell, D., & Fitzgerald, L. (2007). Self-study as teaching. In J. J. Loughran (Ed.), *International handbook of self-study of teaching and teacher education practices* (Vol. 12). London: Springer.

Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice? *Australian Journal of Language and Literacy, 33*(3), 211–239.

Chapter 6
New Literacies and Technology: Keeping Current in a Writing Methods Course

Susan D. Martin and Sherry Dismuke

Introduction

> *Teachers hunch over their papers, focused in the quiet recesses of mind and memory, as the pens gripped in their hands scrabble out thoughts. With uneven rhythms, papers fill up. In this first activity of a writing methods course, teachers write their way to understandings about themselves and their histories as writers. Thoughts are immediately shared with classmates face-to-face. Products are handed in to the professor…In contrast, at the next class session, pen-and-paper technologies give way to those of computers. Keyboards clack quietly and screens glow as teachers engage in a second freewrite, What is Writing? Completed products are sent through virtual space to emails and drop boxes.*

These contrasting activities set a foundation for a focus on new literacies (Coiro, et al., 2008) and composition in digital environments in a writing methods course. When Susan first began teaching writing methods courses for preservice and inservice teachers, freewriting to particular prompts was an instructional approach that allowed for and modeled writing as a way to foster thinking. Prompt writings were accomplished exclusively with paper-pencil and designed simply to activate student's prior knowledge about themselves and writing. Computers for students were not even available in the classroom. Fast-forward 9 years to the scenario above, and note how the freewrites and their purposes have expanded and evolved over time. Keyboarding is required for one of the freewrites. Although both freewrites still serve the initial purposes, they are also intentionally used to demonstrate comparisons between composition tools and the ways in which these tools alter writing processes. After students complete the two freewrites, the class debriefs comparisons between handwriting and keyboarding. Students clearly recognize such things

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as differences in physical processes of writing and altered revision processes through computer cut-and paste functions.

As writing teacher educators, we felt a need to make time to learn and make changes to our courses. This has developed significantly over the last 5 years, as Sherry, the technologically-savvy colleague and collaborator, began teaching sections of the same writing courses. We still discuss children's paper-pencil writing in K-8 classrooms, but preparing teachers to take students into new realms of digital composition and multiple literacies has become an important goal in our courses. We have worked to keep current with new technologies and the sweeping changes to writing in our society (Leu, 2002) – changes that have actually expanded understandings about literacy and literacy processes. Our students have led the way at times, as they opted for digital products rather than more traditional ways of representing their ideas. Other times, elementary classroom observations presented opportunities in which we awakened to new understandings after seeing what children were capable of accomplishing when using computers for composition. Additionally, working collaboratively has contributed to growing awareness, as well as provided support for implementation of digital products and processes in our courses (see Martin & Dismuke, 2015a).

Recognition of these changes led us to systematic examination of what we were currently doing about technology in our writing courses, why we were doing it, and how these had changed over the years. Thus, the purpose of this self-study was not simply to focus on how technological tools have affected our own teaching, but how our practices have changed in order to adequately prepare teachers to engage in effective literacy instruction that prepares children for current technological environment. The questions we asked ourselves were:

1. What changes have we made regarding technology and writing in our courses?
2. How have these changes affected our pedagogical practices?
3. How do students perceive our new practices and their future teaching?

Contexts for Change

The perspectives that undergird this study are situated in understandings of reading and writing in digital environments, referred to as new literacies. Although these new literacies "build on, but do not usually replace previous literacies" (Leu, 2002, p. 315) changes to literacy involve new types of text and composition processes, as well as abilities to use compositional tools integral to computers. For example, digital technologies have opened up a wide array of possibilities for written representations. Digital text is typically non-linear and malleable (Karchmer- Klein, 2013; Moline, 2012). Multiple modes or pieces of meaning, such as words, audio, image, hyperlinks, and video (Jewitt, 2011; Karchmer- Klein, 2013) intersect in digital genres in ways that contribute to rich and varied products. Authors of digital text are required to master this complex relationship between verbal and visual meaning,

blending text and images on the screen (Wysocki, 2001). Furthermore, with Internet access, issues of audience take on new meanings (Litt, Martin, & Place, 2014), and transactional relationships can develop between the writer and their audience (Karchmer- Klein, 2013). Not surprisingly, for over a decade, some have been calling for a new definition of what we consider writing (Hock, 2003). In sum, we have come to realize that technology does not just support writing; it changes what we write, the way we write, and who we are writing to (Herrington, Hodgson, & Morgan, 2009).

As with their students, teachers of writing will need to embrace and envision new written products and processes. They will need a different set of knowledge and skills (Litt et al., 2014): teacher practices will need to shift (International Reading Association, 2002), so that children can achieve the "literacies of their future" (Leu, 2002, p. 310). Unfortunately, in many countries, including the United States where we teach, writing instruction and research that could inform effective writing practices is limited (National Commission on Writing (NCW), 2003). Furthermore, existing studies, such as that of Karchmer-Klein (2013), suggest that even when teachers report use of technology applications with their students, they are still emphasizing linear and static understandings of writing in their instruction.

As the work of teachers is intimately bound up with what we do as teacher educators (Darling-Hammond, 2005), we need to also embrace and envision new understandings regarding technology and literacy. If experiential learning, and practice-focused teacher education is foundational to effective teacher education pedagogies (Ball & Forenzi, 2009; Grossman et al., 2009; Martin & Dismuke, 2015b), we teacher educators need to develop our own knowledge and skills in this area. Keeping current, as we found out, can be challenging, as we all are constrained by time and the limits of our own experiences with technology. Furthermore, new literacies change regularly with technological shifts (Coiro et al., 2008). Thus, ongoing and constant reflection on our practices to effect change, is even more critical when dealing with new literacies.

Digging Deeper Through Self-Study Methods

For this inquiry, we moved purposefully beyond reflection on practice and informal collegial conversations, to systematic and collaborative examination of changes to our practices. Underlying assumptions about self-study of teacher education practices as a reflective and dialogic mode of inquiry focused on critical examination of the space between self and practice (Bullough & Pinnegar, 2001; Pinnegar & Hamilton, 2009) were central to this study.

We began by organizing our "reflective processes around a particular focus" (Tidwell & Fitzgerald, 2007, p. 85). Investigation of changes to our practices began with memory work (Richardson, 2000), accomplished through cycles of individual writing/journaling and dialogue as a method of inquiry (Pinnegar & Hamilton

2009; Richardson, 2000). We read each other's journals – corroborating memories and seeking emerging themes.

Collaborative discussion led us to deeper understandings. Production and analyses of data thus intertwined through iterative processes (Griffiths, Poursanidou, Simms, & Windle, 2006; Tidwell & Fitzgerald, 2007) of individual and collaborative examinations of our past and current practices. Furthermore, as we engaged in laying a foundation of understanding from this systematic examination of practice, nodal moments (Bullough & Pinnegar, 2001) began to surface in our practices: we made new connections and saw opportunities for improved practice. We expanded our dialogical processes by reading scholarly literature about new literacies and digital writing. As commitment to improving practice was central to our purposes (Pinnegar & Hamilton, 2009), we extended the study and made changes to practice in the midst of it. We thus added another cycle to our study – that of moving iteratively between investigation and practice.

Additionally, we investigated our students' understandings of the changes we made to our courses by analyzing their written responses to prompting questions focused on what they learned as writers and teachers from the changes we instituted. Students responded anonymously to prompts on end-of course evaluations and self-reflections at the conclusion of a writing assignment with specific expectations for multi-modal digital presentation.

We kept on eye on trustworthiness throughout our inquiry. Reviews of documents and syllabi from previous years assisted us in identifying differences. Additionally, collaborative discussion allowed us to explore from more than one perspective, to question individual understandings more critically, and to seek disconfirming evidence (LaBoskey, 2004; Loughran, 2007).

Changes to Products and Processes

Some of the changes we made to students' learning opportunities evolved gradually over the last 9 years. Others changes blossomed quickly, especially in the last 2–3 years, as issues of technology and writing took center stage in decision-making for this course. As we reflected on and discussed what had changed in our courses, we found that these changes clustered around two categories – written products and writing processes – and how these affected our knowledge and teaching practices.

Written Products and Models

Since we considered it essential that teachers engage in experiences as both writers and teachers in our courses (Martin & Dismuke, 2015b), our courses were structured to foster student writing across multiple genres, including interview/feature article, poetry, memoir, and reading response. We chose products that we felt were

typical for K-8 classroom, that teachers could use in practice, but that also purposefully engaged students as adult learners in order to foster development of powerful experiential understandings. Genres varied and were far-removed from the academic papers that were the only type of writing for an audience that most of our students had done in years. New technologies opened up a wide array of possibilities for written representations and how these intersected with visual and auditory modalities (Coiro et al., 2008). In order to equip our preservice and inservice teachers with the tools needed to engage K-8 students in twenty-first century writing formats, we both altered the genre products that we had already been using and included new technology-based genres.

Alterations to Products

Alterations to required genres focused on shifts from paper to digital products. Some alterations had to do with embedding visual and auditory representations into these products. For instance, final products for cinquains, a structured, five-line poem, changed significantly over time. At first, we provided no expectations for presentation. Some students turned in their poems like any other assignment – on lined notebook paper with a student heading. Not at all what we had in mind, and not what we would expect K-8 students to do either. So, the next semester we set simple presentation expectations in place, "You may not turn in your poem on lined paper looking like an assignment." Resulting products began to include hand-made and computer-generated drawings, attached objects, and selection of fonts that varied in size, color, and spatial orientation. Thus, multi-modal products were an expectation for the cinquain since the beginning of our teaching this course.

Despite the creativity and quality of these products, we were blind to potential opportunities for self-expression in the cinquains. That changed, when two students, on their own, took the cinquain presentation well beyond our expectations. Each opted for digital presentations – one in PowerPoint and one in Animoto. Using composition tools available within these programs, each of their texts worked in combination with visual imagery, photos, and music to create depth and a sense of movement inherent to each poem. What a wake-up call for us! As we debriefed with these students as to why they had chosen digital products, each referred to a guest speaker, a poet who had shared his digital poetry products – a blending of poetry, historical photos, music, and social studies content, with the class. These two had wanted to try it as well. We realized that if we wished to expand teachers' presentation options, as well as visions for what they can facilitate in classrooms, we needed to suggest programs other than *Word*, as well as consciously model digital products with explicit purposes in mind.

So, the next semester Susan, who was the only one teaching the course, grappled with and learned about compositional tools in PowerPoint that she'd never used or even considered using in conference presentations. With a deep breath, she shared her cinquain in class, digitally rudimentary, but complete with visuals, movement,

and sound as a model for students. This model of digital options and presentation resulted in a broader range of products. Four students opted for computer presentations that went beyond her model in digital sophistication. Visual and auditory components that fostered mood and tone to enhance text varied across the products in exciting ways. One student used dark color and music to invoke the eeriness of her cinquain. Another projected photos of Rosa Parks, Martin Luther King, and Cesar Chavez to underscore themes of social justice in her five lines. Seeing these varied responses set the stage for us to encourage our students' explorations of ways, digital and otherwise, to broaden and expand their work in all of their products.

New Genres

We had long required a travel brochure product with options for the subject matter content in our courses. Brochures served as an interesting genre by blending both informational and persuasive writing. They also presented a great opportunity for teachers to explore integration of graphics and text in a product and explore the computer further as a composition tool. We began to wonder, however, how we could squeeze more genres and digital products into the course. While most of our students were digital natives and understood some new technologies, they did not always know to use these technologies to enhance and motivate student learning in content areas.

Furthermore, the newly required Common Core Standards for Literacy, with emphasis on literacy in academic subjects, was looming on students' horizons in our state.

As writing teacher educators, we felt a need to make time to learn and make changes to our courses. The tipping point came when we found a version of *Romeo and Juliette* written in a texting format – complete with the language conventions (e.g. LOL). After discussion, we replaced the required travel brochure with a multigenre project (Tompkins, 2011) that allowed teachers to self-select from among an array of genres. Several genres required complex digital composition and/or products, ranging from texting to movie trailers. Self-selection allowed teachers to work from their current levels of technological skill or to work with their partners to explore with new technologies. Students could also self-select digital products that fit their learning styles and talents. For example, some formats depended on visual representations to make meaning, favoring those with strong visual-spatial skills and interests, while others were more text dependent. Some formats invited students to use their artistic or musical talents, while others focused on skills with written language. These features enhanced motivation. When the list of choices was revealed in class, students often shared with us their excitement with the choices.

This multi-genre project provided students with opportunities to explore and create a product integrated with science content, as six to eight science facts/concepts needed to be embedded in the product. (For further information on these integrated curricular projects, see Martin & Dismuke, 2014a.) We focused on broad content

like “solar system” and “severe weather” to provide opportunity for student dyads to choose their particular topics. We discovered early on that we needed to model and scaffold heavily for our students to understand how to integrate writing into science. Additionally, the resulting panoply of products provided our students with experiential understandings and visions of how children’s content knowledge can be displayed in a variety of ways that motivate engagement in writing. Experienced teachers in particular, seem surprised at the variety of ways students can represent content knowledge, while at the same time learning composition processes. Developing these understandings was important if teachers were to provide rich learning opportunities for children that included diverse, personal pathways for writing.

Sharing these products with each other was one of the highlights of the course. We have learned along with our students – often amazed at the quality and diversity of products. Movie trailers have been particularly engaging, and one “breaking news story” on tornadoes featured a student as on-the-scene reporter (in rain gear!) with a video clip of an actual tornado playing on the screen behind her. We can envision intermediate students engaged in such an activity. In this process, we have also learned about composition tools that we can, in turn, share with others – such as programs like iMovie that support development of short videos and texting templates available online for teacher use.

Writing Processes and Modeling

We were busy congratulating ourselves on how we were increasing levels of technology in our courses with the inclusion of digital products, when we came to a sudden realization: while we had well considered *what* new products we needed to include in our courses, we had given little thought to *how* teachers engaged in composition processes as they completed these products. Models, or mentor texts (Dorfman & Cappelli, 2007), are critical, but not sufficient for effective writing instruction. Explicit instruction and teacher modeling are equally important. We, however, had left students without guidance to complete products new to them through novel composition processes: the very kind of practices that we admonish them to avoid in their own teaching! Furthermore, because our understandings were limited, we were not able to foster explicit linkages from course experiences to classroom teacher practice.

We began to consider what new processes, skills, strategies, and ways of thinking were used to compose complex multimodal texts. Understanding changes to invisible processes, skills, and strategies wrought by composition tools has not been as easy as changes to the visible course products. In order to develop our own understandings and provide effective teacher education around writing and technology, we have made four major changes to our practices – each grounded in our own experiences and professional development.

Composing Digitally Ourselves

Writing with students, sharing one's writing, and modeling processes are effective practices both in the K-12 and teacher education classrooms (Kaufman, 2009; Martin & Chase, 2010). Importantly, immersion in one's own composition processes on specific products reveals the challenges of composing in that genre. We think it likely that we didn't even consider issues of process in multi-modal composition, because we had not done it ourselves. For convenience, we simply used others' models for digital products, even though we used our own writing as models for other genres. Despite issues of time, we began to create our own digital models. Once we got started, we couldn't stop, as immediately we realized how complex these processes can be. For instance, we discovered that choosing music and graphics to complement text to be challenging. We realized that even understanding that these modes should complement the text might be a concept foreign to developing writers. In order to effectively model and help teachers understand, taking this time to write and reflect along with our students in these new communicative forms was critical. As Sherry commented in her journal, "You can't scaffold what you don't know."

Decomposing Composition Processes with Teachers

Although decomposition, or analysis of composing process (Martin & Dismuke, 2014b), with students has been integral to our course since its inception, we learned that broad understandings must be refined and situated in specific genres. For instance, planning strategies are quite different for writing a five-line cinquain than for a five-paragraph essay. We found it invaluable to engage our students in reflective processes and debriefing around these new digital composition processes, particularly for multimedia formats, as composing multimodal forms of text changes writing processes (Karchmer- Klein, 2013). For instance, composing in digital text is naturally more recursive and less sequential than with paper-pencil writing, as the writers can more easily revise and edit through insertions and cut-and-paste functions. Relationships between verbal, spatial, and visual elements of multimodal text exist in "dialogic relationships" rather than "binary opposites" co-existing on the same page (Hock, 2003, p. 631). Thus, in multi-modal compositions, the writer must weave even more between roles as of composer, reviser, and editor, monitoring the text for how visual images, and sound will compliment and elaborate meaning.

In order to effectively decompose these processes with our students, we found that just composing pieces in the genre was not enough. We also had to deepen our understandings of multi-modal composition through reading of relevant literature. Then, in turn, we had to add readings to the course that provided students new concepts and vocabulary for these composition processes – such as re-composing and visual thinking (Moline, 2012). Additionally, these readings helped students develop

skills to guide their reader through non-linear texts using signposts and typography. Together with our students, we began to deepen understandings of composition processes, develop positive dispositions towards these processes, and learned how to provide instruction in the future.

Making Time for Explicit Technology Instruction

Finding time for new topics in already-filled courses was (and is) ever challenging, but we began to include a session that allowed us to discuss instruction around processes of digital technologies. We chose to present this lesson with the first piece of the course, an interview/feature article written about a classmate. (For further information about this activity see Martin & Dismuke, 2013.) Students came to class with rough drafts of their interviews, created on computers in a typical paper fashion. We then displayed models of various newsletter-type products – with two and three column formatting, font decisions, insertion of photos and other digital features, and engaged students in conversation about what composition tools writers would need in order to complete the product. We discussed what teachers would need to explicitly teach to students. We also modeled more advanced features, such as how to use a newsletter template, and challenged students to go beyond what they already knew about technology to create their final products. Every product demonstrated strong presentation. This was not the case when we left students to create only what they already knew. Our efforts to bolster students' confidence in writing had been sometimes undone, when products varied drastically in presentation, and those with less developed products did not feel good about their work or sharing it in class.

From Jigsaw to Collaboration

Enhanced social interactions, in part, define new literacies (Coiro et al., 2008; Leu, 2002). Products can be collaboratively composed in virtual environments via Internet sites. Workplace writing utilizes shared spaces such as Google sites, drop box and others to invite feedback and provided digital spaces for co-authored documents. Through writing a piece side-by-side on classroom computers or tablets, students learn to share the decision-making and become co-authors. Additionally, computer screens provide more easily viewed products with ensuing informal student-student interactions, as well as teacher-directed social interactions.

Engaging teachers in writing as purposeful social and collaborative activity was central to our writing courses. We worked diligently to establish and model communities of writing and learning in our courses. We fostered teachers' abilities to engage in sharing across all aspects of process writing. In setting up our multigenre project, however, we went a step further. We wanted our students to experience the

nature and benefits of collaborative writing, as well as experience collegial collaboration around instructional planning. So, we did away with the minimal class time for collaboration, which typically resulted in students jig-sawing work outside of class, rather than meeting and working together. Instead we dedicated several class sessions to collaborative work. This engagement in collaborative writing and planning processes provided our students crucial experiential understandings, that we deemed important for effective classroom instruction. For instance, children in our elementary schools are typically expected to compose face-to-face in class settings. Our students, however, particularly preservice teachers, still college students, had strongly developed senses of writing alone – at home. Some even resisted this collaborative work foundational to effective elementary writing instruction.

Again, in order to speak knowledgeably about what we were asking out students to do, we engaged in the experiences ourselves. Through collaborative writing processes, we composed an American Pioneer West "tall tale" with many facts/concepts about the moon. We had such fun doing it and were laughing so much in one of our offices that colleagues came in to see what we were doing! Speaking from this experience provided much credibility with our students to counteract the resistance to and challenges of co-authored pieces. In class we can also seize the opportunity to debrief the experiences, asking our students to move from their roles as writers to teachers. We can address issues of what social tools, as well as those for writing, do students need to know to be successful in collaborative writing. We discuss important roles of the teacher.

Preparing for Teaching and Learning

Despite the fact that most of our students were digital natives, these changes to our practices fostered new insights into writing in digital environments. Importantly for us, comments concerning new understandings about written products and composition processes, intersected with students' understandings of teacher practice – understandings gained through our modeling and instruction, as well a their engagement in their own writing. We provide a glimpse into these new understandings with representative quotes below.

Written Products and Teacher Practices

Digital products and composition like all of those shared in the class, provided models for composition and visions for future practice to all in the class. As one student commented, "There are so many different kinds of writing that I will be teaching, and all genres can be benefitted with technology is some way." Another stated, "I learned genres and how to make writing fun and individualized for all students." Composition in multimodal formats – far removed from the academic papers they

typically wrote – fostered thinking about voice and presentation, two important traits of written products. When speaking of the interview products, one student commented, "I think the presentation really adds or removes from the 'voice.'"

Comments also indicated that creating Animoto products for their cinquains and use of newsletter and other templates were particularly effective learning opportunities, as students had not typically composed with these prior to the courses. Students noted our sharing of our own pieces, as well as understandings the purposes for this sharing, "I will show my students my Animoto before I let them present their products in order for them to understand that there are no limits in how they can create their final form." Another student remarked on the interview products, "I also loved looking at everyone else's pieces. It shows me that everyone thinks so differently, which makes that creativity so different. Everyone did great!"

Writing Processes and Teacher Practices

After they had engaged in creating their own digital products, various thoughts about the processes emerged. One student remarked explicitly on this link between process and product: "This genre can be so great to have students write in because it can really broaden their abilities."

Comments included references to choosing color, creating something of "visually high quality," use of fonts, and matching layout with the text. Students also described the challenges they faced in composition: "Technology can be a great tool, but it can also cause problems. When I inserted my photo, I struggled to get the text to wrap around it." These challenges appeared to foster understandings of what their students might face, "I also learned that using pictures instead of text is harder than it may seem. This gave me insight on how LEP (limited English proficiency) students feel when they want to express themselves and cannot find the words."

Our modeling brought home the importance of teaching and guiding students' composition in digital environments: "Guiding is very important, especially using computers," "The most important things that I have learned is the importance of modeling for my students," "As a teacher, I think providing basic tools for my students would be helpful, such as explaining, where to find a text box or find templates on Word." Some students, however, recognized the balancing act between guidance, student choice, and allowing for exploration of the new tools. Several comments echoed these particular thoughts, "Giving student's options when it comes to technology is best, because then students will be able to work as they feel comfortable."

And finally, we noted that the experiences in our courses provided strong understandings of the critical purposes for preparing students for the digital writing of the present and future. For instance, one wrote, "Given that technology is all around us and we are immersed in it daily, supporting the use of technology with students is important." On the other hand, as we had learned ourselves and shared in class, some students noted the importance of using technology as a meaningful tool, not

just to engage children in technology for technology's sake. A few described how they would "need to continually increase [their] knowledge in how to use technology in the classroom. Finally, students also noted the critical role they would play in meeting the needs of all their students by providing them with "access to the same tools."

Conclusion

Despite the infusion of new digital products and processes into our courses, we do not feel as if the curriculum has been watered-down or as if we were jumping on the technology bandwagon for technology's sake (Fullan, 2013). Instead, our evolving curriculum and instruction seems richer to us and thoughtfully interwoven as we continue to focus on and build understandings of writing and effective writing instruction. As one of our students reminded us, "…writing is more than just putting words on paper."

Obviously, as communication and technology in our society continue to change, we will need to continue to make changes to our writing courses. But, we are excited about the directions we have taken and feel more prepared now to anticipate and respond to on-going change. We are excited by the feedback and comments from our students. The key to our efforts has been that we are journeying in concert with our students, teachers, colleagues, and each other (Tysseling & Laster, 2013) towards greater understandings writing and technology. But, we have also learned that adaptation to new literacies and technology has to occur systematically, with teacher educators in the lead, not left haphazardly to factors such as teachers' prior knowledge or dispositions about digital tools. If we do not step up now, eventually some teachers, as well as some children will be left behind.

References

Ball, D., & Forenzi, F. M. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education, 60*(5), 497–511.

Bullough, R. V., & Pinnegar, S. (2001). Guidelines for quality in autobiographical forms of self-study research. *Educational Researcher, 30*(3), 13–21.

Coiro et al., (2008). Central issues in new literacies and new literacy research. In J. Coiro, M. Knoble, C. Lankshear, & D. J. Leu (Eds.), *Handbook of research on new literacies* (pp. 13–23). New York: Routledge.

Darling-Hammond, L. (2005). Educating the new educator: Teacher education and the future of democracy. *The New Educator, 1*, 1–18.

Dorfman, L. R., & Cappelli, R. (2007). *Mentor texts: Teaching writing through children's literature, K-6*. Portland, ME: Stenhouse.

Fullan, M. (2013). *Stratosphere: Integrating technology, pedagogy, and change knowledge*. Don Mills, ON: Pearson Canada.

Griffiths, M., Poursanidou, D., Simms, M., & Windle, J. (2006). Defining workspaces, defining ourselves. In L. Fitzgerald, M. L. Heston, & D. L. Tidwell (Eds.), *Collaboration and community: Pushing boundaries through self-study* (pp. 288–289). Cedar Falls, IA: University of Northern Iowa.

Grossman, P., Compton, C., Igra, D., Ronfeldt, M., Shahan, E., et al. (2009). Teaching practice: A cross-professional perspective. *Teachers College Record, 111*(9), 2055–2100.

Herrington, A., Hodgson, K., & Morgan, C. (2009). *Teaching the new writing: Technology, change and assessment in the 21st century classroom*. New York: Teachers College Press.

Hock, M. (2003). Understanding visual rhetoric in digital writing environments. *College Composition and Communication, 54*(4), 629–656.

International Reading Association. (2002). *Integrating literacy and technology in the curriculum. A position statement of the international reading association*. Retrieved from: http://files.eric.ed.gov/fulltext/ED462709.pdf.

Jewitt, C. (2011). An introduction to multimodality. In C. Jewitt (Ed.), *The Routledge handbook of multimodal analysis* (pp. 14–27). New York: Routledge.

Karchmer- Klein, R. (2013). Best practices in using technology to support writing. In S. Graham, C. MacArthur, & J. Fitzgerald (Eds.), *Best practices in writing instruction* (pp. 309–333). New York: Guilford Press.

Kaufman, D. (2009). A teacher educator writes and shares: Student perceptions of a publicly literate life. *Journal of Teacher Education, 60*(3), 338–350.

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. In J. Loughran, M. L. Hamilton, V. K. La Boskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 2, pp. 817–869). Dordrecht, The Netherlands: Kluwer Academic.

Leu, D. J. (2002). The new literacies: Research on reading instruction with the internet. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 310–336). Newark, DE: International Reading Association.

Litt, D. G., Martin, S. D., & Place, N. A. (2014). *Literacy teacher education: Principles and practices*. New York: Guilford Press.

Loughran, J. J. (2007). A history and context of self- study of teaching and teacher education practices. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 1, pp. 7–39). Dordrecht, The Netherlands: Kluwer Academic.

Martin, S. D., & Chase, M. (2010). Sharing our writing with students: Examining tensions and questioning our motives. In L. B. Erickson, J. R. Young, & S. Pinnegar (Eds.), *Navigating the public and the private: Negotiating the diverse landscape of teacher education* (pp. 156–159). Provo, UT: Brigham Young University.

Martin, S. D., & Dismuke, S. (2013). Engaging teachers in digital products and processes: Interview feature articles. In K. E. Pytash, R. E. Ferdig, & T. V. Rasinski (Eds.), *Preparing teachers to teach writing using technology* (pp. 97–108). Pittsburgh, PA: ETC Press.

Martin, S. D., & Dismuke, S. (2014a). Writing across the curriculum: An integrated, multigenre project. In D. Litt, S. Martin, & N. Place (Eds.), *Literacy teacher education: Principles and practice* (pp. 127–138). New York: Guilford.

Martin, S. D., & Dismuke, S. (2014b). Composing and decomposing: Understanding the complexities of the writing process through visual representations. In D. Litt, S. Martin, & N. Place (Eds.), *Literacy teacher education: Principles and practice* (pp. 119–123). New York: Guilford.

Martin, S. D., & Dismuke, S. (2015a). Maneuvering together towards developing new practices: Examining our collaborative processes. *Studying Teacher Education, 11*(1), 3–15.

Martin, S. D., & Dismuke, S. (2015b). Teacher candidates' perceptions of their learning and engagement in a writing methods course. *Teaching and Teacher Education, 46*, 104–114.

Moline, S. (2012). *I see what you mean: Visual literacy K-8*. Portland, ME: Stenhouse Publishers.

National Commission on Writing (NCW). (2003). *The neglected "R": The need for a writing revolution.* Retrieved from http://www.collegeboard.com/prod_downloads/writingcom/neglectedr.pdf

Pinnegar, S., & Hamilton, M. L. (2009). *Self-study of practice as a genre of qualitative research: Theory, methodology, and practice*. New York: Springer.

Richardson, L. (2000). Writing: A method of inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 923–948). Thousand Oaks, CA: Sage.

Tidwell, D., & Fitzgerald, L. (2007). Self-study as teaching. In J. Loughran, M. L. Hamilton, V. K. La Boskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 1, pp. 69–102). Dordrecht, The Netherlands: Kluwer Academic.

Tompkins, G. (2011). *Teaching writing: Balancing process and product*. New York: Allyn & Bacon.

Tysseling, L. A., & Laster, B. P. (2013). Taking technology from clinic to classroom. In E. T. Ortlieb & E. H. Cheek Jr. (Eds.), *Advanced literacy practices: From the clinic to the classroom*. Bingley, UK: Emerald.

Wysocki, A. (2001). Impossibly distinct: On form/content and word/ image in two pieces of computer-based interactive multimedia. *Computers and Composition, 18*, 209–234.

Chapter 7
Rethinking Technological Resources in Self-Study of Teacher Education Practices: The Case of Taking and Teaching Online Courses

Brian Rice

I view online education as the intersection of online instruction (the lessons, the selected readings, assignments, and instructional feedback the educator provides throughout the course) and online learning (the experiences and knowledge the student gains throughout the course completion). I have both taught and taken online courses in teacher education programs. My experiences in this domain have been fully online, rather than blended, and that will be the mode I focus on in this chapter. In my experience with online education, as both an educator and student, instruction and communication was not only fully online, but also totally asynchronous. In this format, the students are supposed to be able to access and complete prepared lessons and view instructions at their convenience and irrespective of when and where their classmates are completing their work for the course.

In this chapter, I review research about teacher education in (fully) online contexts in terms of theories about technology as a tool for learning. Then, I describe in greater detail the courses I taught and that I took from which I drew and analyzed data for my study. These courses were taken during the same semester of my first year in my doctoral program in curriculum and teaching. Next I give an account of how technological tools facilitated this, my self-study of teacher education practice. Finally I share the findings of my study with a particular emphasis on the technological elements present in the study.

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Literature Review

There has been an increase in the number of online courses offered in response to population growth, increased tuition costs, teacher shortages, personal and professional time constraints, and travel costs for traditional classroom attendance (Steinweg, Davis, & Thomson, 2005). While educators are instructed in ways to incorporate technology as part of their curriculum and lesson delivery this is intended to be part of their traditional classroom instruction and not in an exclusively virtual learning environment. The quality of online education programs must be questioned as they grow in popularity (Muirhead, 2000).

With the rapid emergence of new technologies it is easy to incorporate the new technology as part of prepackaged online courses rather than focusing on the organizational structures and quality pedagogy that actually create and support quality online education programs and experiences (Moore, 2013). What's more, digital immigrants, with the belief that it will be digital natives the students who understand and maximize technology's potential as a learning tool, are making many of the decisions of what technologies to use. What Kist and Pytash (2015) conclude is that many digital natives, individuals born in the 1990s, are not readily adept at using new technologies and can therefore be considered digital immigrants themselves. The any time any place (Harasim, 1996; Wallace, 2002) guise of online education is attractive to many nontraditional learners. According to Moore (2013), providing students with programs that are not meeting the needs of online students is a product of universities and online institutions creating and practicing in the dark without theory, research, or understanding of ways of connecting quality pedagogy and learning.

Quality instruction is connected to teacher identity (Bullough, 1997). According to Wallace (2002) one's academic identity may be perceived as that of a production worker or as Fletcher and Bullock describe (2014), as an evaluator when assigned to teach in an online education setting rather than as the more capable other (Vygotsky, 1978). The educator then is positioned best to create and maintain relationally educative spaces that influence student engagement and ultimately student learning (Rice, in press).

Through understanding the unique features of the online educational setting relational spaces can be negotiated and identities can be configured and reconfigured in ways that support instruction and learning (Garrison, Cleveland-Innes, & Fung, 2004). This does not absolve students of their part in accessing these relationally educative spaces. According to Rice (2014) such "spaces are co-constructed by the educator and student and by the student and their classmates as peers" (p. 180).

For online learners to experience success Garrison et al. (2004) states, "that a learning community must be established and sustained" (p. 62). This corresponds with Dewey's (2007) declaration that positive learning experiences lead to future positive learning experiences. It is the educator's responsibility then to create and maintain these relationally educative spaces that allow participants, both educator and students, to apply technology toward desired learning outcomes. Glassman

(2001), explaining Vygotsky and Dewey, states that social interactions are part of the human condition. It is through relationally educative spaces that experience helps to define identity.

Green, Wolodko, Stewart, Edwards, Brooks, and Littledyke (2013) reconceptualize online pedagogy as relationally educative spaces where knowledge and "expertise [are] being developed in dialogue with, and between, students, rather than something expert lecturers bring to the table" (p. 173). In this way, students' experience of engagement leads to the support of relational educative spaces, and learning. The technology used in online education courses should allow students to recognize theory and practice as an integrated process.

The Course I Taught as Teacher Educator

The online course I was assigned to teach was a prepackaged curriculum and design course offered to students seeking a teaching English as second language endorsement. I was asked to do this because of my history with working with preservice teachers who were pursuing their English as a second language teaching endorsement and from my personal experience instructing second language learners in the public school setting. I had no experience with teaching an online course prior to this assignment, but was informed that the class "ran itself" and students would simply follow the course schedule, independently completing their readings, watching video lessons, and assignment submissions.

According to the course schedule, students were expected to complete specific readings from the assigned textbook, make and respond to discussion board comments, watch educational videos, view and respond to video lesson through VoiceThread, and complete assignments. Each video lesson was divided into segments. Students were expected to leave comments and reflections to each segment of the video lessons using specific technology that imbedded their comments as part of the video lesson for peers to read and respond to. Actual student assignment submissions came from the readings and required students to make personal connections to the topic discussed. My responsibilities included sharing my own personal teaching experiences, grading assignment submissions, answering questions and providing feedback.

The intent of this course was to provide students with an understanding of multicultural education and ways of creating and supporting a more inclusive classroom. This course fulfilled a requirement towards a certificate in teaching English as a second language. The course examined the effects of such issues as race and ethnicity in the United States, the melting pot theory, separatism, cultural pluralism, the tourist based approach to multicultural responsiveness, and bilingual education upon the curriculum and instruction in today's classrooms. Field experiences was a part of this course as students were tasked with interviewing an ESL student or parent regarding issues and experiences discussed throughout the semester.

The Course I Took as a Student

The online course I registered for as a student was intended to examine the foundations of curriculum and instruction. I took this course for four reasons. First, this class fulfilled a graduation requirement. Second, I wanted to understand curriculum better, specifically the policies and theories behind its development. I also wanted to examine the tension between curriculum goals, development, classroom application, and its impact on student learning. Third, because I would be participating as a facilitator with a private university at the foot of the Rocky Mountains I knew I would not be able to physically attend a traditional classroom course the entire semester. Fourth, my spouse, for the afore mentioned reason also was enrolled in the course.

This online course consisted of a similar format to the one described above with the exception that no video lessons were included. Although VoiceThread appeared as part of the syllabus, intended to be used during the semester, this never materialized after the first week. The first and only VoiceThread of the course elicited three student responses, including mine, with one asking for clarification if student responses should appear as part of VoiceThread or as a Blackboard discussion thread. Students were expected to follow the course schedule, included as part of the syllabus, completing readings prior to submitting assignments online and participating in discussion threads.

It was expected that throughout the course students would explore and broaden their understandings of contemporary thinking in regards to school curriculum. From the assigned readings, core concepts of the course were drawn from the theories that emerged from the texts. The course activities were intended to engage students in the analysis, learning, and application of curriculum models applicable to both elementary and secondary school contexts.

According to the syllabus students would be provided with a multi-faceted online learning experience. Student engagement would be realized through various media: textbook resources, peer reviewed journal articles, online documentaries, student group presentations, online discussion threads, response papers, and VoiceThread. According to the syllabus more detailed weekly assignment descriptions and schedules would be provided, through Blackboard, the Saturday before the described week, in order to introduce a richer learning experience and tailor activities to meet the emergent needs of the class.

Assignments included alternating discussion threads and reflection papers throughout the semester, a group presentation, and final paper. Discussion threads emerged from the readings and included opinions, insights, questions, and experiences. Students were expected to respond to two peer posts, but were not required to read or respond to comments made to their posts. In essence, a prompt and two responses meant the week's assignment was concluded. Reflection papers were actually responses from provided prompts. These too came from the readings.

Methods for Focusing on Technology in Self-Study

According to Britzman (2012), learning to teach involves a negotiation of conflict with authority, imagination, and aspects of ones' autobiography that seem to return whenever least expected. It is in the negotiation of that conflict that identities emerge for teachers. My study required me to confront similar conflicts. As a student and a teacher, I had to confront issues of authority. I also had to consider the imaginative possibilities of the class, of the pedagogical and technological tools I had for my work. Finally, I had to consider these things as aspects of my autobiography threatened to thwart my experience.

My initial study was a self-study of teacher education in professional practice settings (Pinnegar, 1998). Using the guidelines LaBoskey suggested, this is a *self-initiated study* that was grounded in my own concerns as I took up my work as a scholar. The impetus for this self-initiation was a desire to learn about how to be a better teacher educator in online settings by studying my engagement with coursework as both a teacher and a student.

These various sites of inquiry and the nature of what I was doing to study my work made the study *interactive*. The techniques involved were primarily *qualitative* in nature. I collected data about the courses, saved my interactions within them, and conducted interviews with my peers. The medium of the Internet as a site of instruction actually made data collection easy. What was difficult was considering which data were appropriate for the study, which data fit within the parameters of the agreement I had made with the university ethics board, and then, of course, there is always an ethics of interpretation.

This interpretation of the data is reported as *exemplar-based* validity. In particular, I used emblematic narratives (Mishler, 1990) to report my findings. In selecting exemplars I looked for instances where Britzman's (2012) questions of authority, imagination (represented as curriculum, technology, or both), and autobiography intersected. I was also keen to identify stories that I believed would resonate with my colleagues (Bullough & Pinnegar, 2001). As my findings emerged, I realized the interconnectivity of the data that I was able to collect and the ways in which I was understanding my findings. The next section of this chapter reports the findings of my initial study. After sharing these findings, I follow up with commentary about how what I learned was both enlarged and limited by data collection strategies rooted in technology or with strong technological components.

Major Findings from My Study

I experienced great difficulty as a teacher and as a student in online courses. Narrative-based exemplars (Mishler, 1990) frame my findings. In this section I present two examples of assignments. In the first case I describe a student enrolled in my online course and how she responded to me and my feedback after she submitted an

incorrectly completed assignment. This is followed by a parallel case when I, as the student, inadvertently did not fulfill all of the assignment requirements and my interactions with the professor. I then show the differing reactions and responses of students and educators to these similar situations and how positive relational space was impacted.

A student contacted me, through email, concerned about the grade she had received for an assignment she had submitted and I had graded and provided feedback in addition to sending an email to her university account 2 weeks earlier. In the feedback to her assignment I indicated which elements in her submission were strong, what areas needed improvement, and a specific item that was missing altogether. I also provided her with the option to redo and submit the assignment for full credit. Either she did not receive the email or used an alternate email as her email was a result of her checking her grade through Blackboard and not, I believe, reading my feedback to the assignment.

The student's initial email to me expressed concern over what she felt was an error on my part. I did not read her email until 3 days after she sent it. I immediately emailed her back and included the original feedback with the option to redo the assignment for full credit. I was surprised when 3 days later I received a second email containing harsh criticism of my ability to grade her work, even going so far as to question whether I had actually read her submission. She concluded her email with a demand for more specific information as to what I believed her assignment submission lacked. I found her email a few days after she sent it and immediately responded by referring her directly to the assignment's rubric and provided a point-by-point analysis of where her submission rated. I concluded this email with yet another invitation to redo the assignment for full credit. Her email response arrived days later. She reiterated that I was incorrect in my assessment of her submission and that she did not merit the assigned grade.

In my frustration I prepared an email that affirmed her conclusion that I was in error.

> I appreciate your persistence in correcting this oversight on my part. You are correct. The grade you received for this assignment is not indicative of the grade you actually earned. I was over generous in my evaluation of your work. According to the rubric, which I have referred to in a previous email, you only identified and defined two of the five elements. Additionally, you failed to make any personal connections to the readings. As a result your score should be a 2/10 rather than a 5/10. I apologize for my charitable evaluation of your work and appreciate your diligence in correcting this matter. You have three options moving forward: (1) accept the original grade, (2) accept the lower grade that aligns more closely with the rubric, or (3) complete and resubmit the assignment. Please let me know which option you would prefer.

I did not send this email. I resent my response to her previous email, which included the comparison of her submission to the rubric and the invitation to redo and resubmit the assignment for full credit.

This email exchange appeared to have little effect in either helping the student fully complete the assignment or for me, as the instructor, to acquiesce to her wishes and award her credit for a less than acceptable effort. I did not send the above email,

because I did not believe it would support the relationally educative environment I wished to create. Sending such an email would affect any positive relationship that could be created during our experiences in this online course and future ones as well.

As an educator my intent is to be helpful and supportive. Agreeing with Cochran-Smith (2008) a positive educative environment can promote students' learning and the enhancement of their life opportunities and success. This after all is my goal as an educator. Responding in frustration through the email I composed would not have supported that objective.

This email experience with my online student is different from the exchange I had as the student in my online course. The syllabus for the course indicated that a reflection from the readings was to be submitted each week. I received an email from the instructor early in the semester indicating that I had not responded to the specific questions as part of the assigned readings. I returned to the syllabus and found the explanation that the online course included weekly reflections on the readings, but I also found the question prompt under the assigned readings later in the syllabus. The confusion arose from the use of reflection earlier in the syllabus to describe the assignment instead of response. What the instructor wanted was a response to a question that may relate to the readings and not a reflection of the readings themselves.

At the end of the instructor's email, similar to my email to my student, was an offer to redo the assignment for full credit. I attended to the instructor's feedback and responded via email, but not until the next week of his having sent it. I was not looking for an email from the instructor and thus did not find it or attend to it within the timeline he had given me.

My reaction to the poor grade and offer of the instructor was different than my student's was toward me. I felt a sense of embarrassment that my submission was not what the instructor intended and that I had received a poor grade. Yet, I was grateful for the invitation to redo and submit the assignment for full credit. In my email response to the instructor I sought to reduce any tension the reflection-response confusion may have created and attached a submission more in line with instructor's expectation for the assignment.

Applying VoiceThread The use of VoiceThread, a web-based application intended to facilitate lesson instruction through the use and creation of video threads, was a challenging experience. Students could view the video lessons segments and contribute comments, in either video or text form, to the video lesson segments themselves or to peer responses. I was unfamiliar with how to navigate VoiceThread and prior to being assigned to teach this online course had never heard of the application. This became an issue when students, who were also unfamiliar with VoiceThread, looked to me to help them complete these assignments. I felt inadequate as I, a digital immigrant (Kist & Pytash, 2015), quickly attempted to learn how to use this web-based application, through trial and error and without university supported training and to then teach my students how to navigate their way through the assignments.

Some of the problems experienced in our attempts to use VoiceThread included the time dilemma of having to communicate through email, students' access to a digital video camera as well as their knowledge of how to use it, and students' unfamiliarity with video threads. All these factors contributed to difficulties in successfully implementing technologies in an online course. The time dilemma with email was discussed earlier. Rather than send individual emails containing instructions on how to access and navigate VoiceThread instructions were posted on Blackborad and a mass email was sent to students using the digital email list the university provided. This email list consisted of university-created email addresses and did not necessarily reflect the email addresses students favored or consistently used. In essence, I believed I had addressed the VoiceThread issues by sending out an email that many students needed, however the emails were sent to an email address students were not expecting to receive it in and as such they did they find it. Students who had sent personal inquiries to me were expecting one in return.

Once students were able to access the VoiceThread many still experienced difficulty responding to the lesson segments and peer threads. Problems included students not knowing how to use their digital video camera or not owning one altogether. Because I lacked the ability to train students how to use their individual digital cameras with their computers, to use their computer's built in camera, and could not require that students purchase a video camera I deemed it appropriate that these students be allowed to post text responses.

Students' unfamiliarity with VoiceThread was evident in many ways. One example included the lack of responses after the first video segment in early lessons. It was as if students were unaware that the lesson consisted of multiple video segments and they were required to view and respond to each video segment. Again I sent a mass email, but to limited success.

Reading and Responding to Feedback I also questioned whether students attended to comments made by their peers or even to my feedback to their responses. As an online student, I gave little thought to my assignment after its submission other than the grade received and admittedly did not read the feedback the instructor provided after a few weeks into the term. If my grade was acceptable that was the end of it. I feel my experience as an online student is not unique and that many of my online students behaved similarly and did not read the feedback or comments of their peers or even my own after they had clicked "submit" having successfully completing the week's appointed tasks.

As I simultaneously experienced online courses as educator and student I wondered as to the effectiveness of the feedback provided by the online course instructor. As the educator I consistently made comments and shared experiences that supported and built from students' submissions and personal experiences. I have no sense that students actually read or attended to my feedback. From my position as the student, other than the initial email exchange I did not attend to instructor feedback, mainly because, according to my grade for my assignment submissions, reading the feedback was not warranted and would not have improved my grade much if at all. The online experience was in many ways solitary. In fact I learned, after the

conclusion of the online courses, that a couple of my friends were enrolled in the same online course. The opportunity to collaborate together existed, but the relational component of knowing was missed.

Technology's Role in Stifling Online Relationships

Both of the above online courses contained similar elements. Both required blog posts through Blackboard, responses to assigned readings, and collaborative projects. The online course I taught had the added elements of students having to use VoiceThread and redesign a unit plan that incorporated course teachings. The technology choices for each online course were intended to support learning. The question then becomes, in examining this self-study, is in what ways did the use of technology support or constrain the creation and maintenance of relationally educative spaces so that learning was the result.

Although VoiceThread placed a face on the screen there is an assumption that users would be digital natives (Kist & Pytash, 2015), able to use and adapt to new technology with ease. While it would appear some online students were digital natives, as they were able to access and leave threads, many students, including myself as the instructor, had difficulty accessing VoiceThread, creating a video, and then posting said video. With the isolated nature of the online course students had little recourse other than to appeal to my abilities through email pleas. So when the time came to act as the more capable other (Vygotsky, 1978) I found myself unable to provide needed support and only responded a few days later with tentative suggestions.

Blog Posts and Their Unfulfilled Spaces Beginning with the blog posts, the goal was to create a conversational space where each student had a voice, where their understandings, beliefs, and experience could be shared. Having the educator and students make commentaries was to share insights, make connections, and support relationally educative spaces. For both of the above online courses, students were expected to write about their understandings and connections to course readings rather than produce summaries. Students were also expected to then read and comment on at least one peer's blog posting.

Early blog contributors were limited as to their ability to comment on a peer's blog because a majority of blog posts were submitted just before the due date. Early bloggers had to frequently check back in order to find blogs they felt inclined to contribute to or simply picked from the only available options. Additionally, because so many submissions were made prior to the deadline there was often a rush to read and submit a peer response. This often did not provide students with enough time to reflect on peer submissions and form a carefully thought-out response. But it did comply with the parameters of the assignment. This is similar to what Bullock and Christou (2009) describe in their study, where not all students engaged in rich dialogue.

The blog posts from my study often felt like an attempt at minimal compliance. A quick hero story (Bullough & Pinnegar, 2001) to demonstrate one's instructional prowess was the norm. Additionally, there was neither a rubric nor instructions for myself as a student to generate blog posts or as the instructor, with which to assess them. Where blogs can be used as a means to develop and extend relationships (Ragoonaden & Bullock, 2014) this was not my experience with either of the two online courses mentioned above. Blogs were more of an attempt to keep students honest about completing assigned weekly readings rather than as a relationally educative experience where problems and challenges with teaching could be shared and examined. When positive experience is the foundation of a quality education then relationally educative experiences can be viewed as a social process (Dewey, 2007). In such a paradigm the teacher forgoes the position of power and takes up the position of more capable other (Vygotsky, 1980).

The power (Foucault & Deleuze, 1977) then should emerge from engaged interactions of all participants. The educator's maturity and power is manifest in their influence to create relationally educative spaces (Bullough & Pinnegar, 2001). Power is not about being in control or having authority over students, something I do not feel I was able to communicate with my disgruntled student. I worried that she saw me as wielding power over her where I was simply attempting to act as the more capable other, helping, and encouraging my online student to successfully complete the assignment, precisely what my online instructor did with me. According to Bullock and Christou (2009) the interrogation of traditional practices and "our own assumptions about theory and practice in teacher education" (p. 87) can lead to a disruption of the prevailing culture creating space for a study on one is teaching practice.

According to Bullough and Pinnegar (2001) "to study a practice is simultaneously to study self: a study of self-in-relation to other (p. 14). In reflecting upon my experiences with simultaneously teaching and taking online courses I found little space in which to build relationships with others. My online experiences as an instructor and student were ones of isolation. Apart from the lone challenge to my credibility by the one student there were only a few early semester queries regarding how to navigate the technology and one prolonged exchange with a student who had great difficulty understanding how to take an existing unit he had created and remake it using the principles from the course which occurred at the conclusion of the semester. In the role of student, exchanges with the instructor occurred the one time early in the semester. I read the feedback he provided on my assignment submissions, but only for the first few weeks. It quickly became apparent to me that the instructor had a different philosophical approach to teaching. I saw no benefit in reading his comments and discontinued the practice.

The majority of students, regardless of the online course, submitted their blog posts just before the submission deadline. What ensued was akin to a mad dash to find a peer's blog entry from which to quickly form and submit a response as the blog posts and responses had identical deadlines for submission. Students' focus was on completion and submission of the assignments rather than on the formation of relationships. Any teacher comments added to student submission likely went

unnoticed as students were now focused on the next week's readings and assignments. There was no system in place that would notify students that the instructor or peer had contributed a comment thread. To find if any threads to their blog entries were created students would have to return to the previous assignment link. There was no incentive to do this as the grading for the assignment had closed. Because of this teacher feedback was all too often unrecognized if not unread. Echoing Bullock and Christou (2009), my attempts to model through connecting readings with personal experiences was ineffective because students failed to recognize the attempts of the instructor to model how to create and respond to a blog, successfully complete an assignment, or remake a unit plan through directly applying course learnings.

Attempts to establish an identity as a more capable other (Vygotsky, 1978) through the role of the online instructor were hampered by the structure of the prepackaged online course. Students did not know who the instructor was apart from their name. The common introductions that occur in a traditional face-to-face setting never occurred. There was no face, voice, or history from which to establish identity. Dewey (1985) advocates for space where both students and educators share in the experiences that support the development of identity. Educators, in developing online courses, must consider how readings, lessons, activities, and assignments allow students to engage socially within a digital space.

Thinking About My Findings

I found that it was incredibly difficult to establish a rapport between myself and my students and between myself and my instructor through these online courses. I attributed this to the lack of contact. It became apparent that after students submitted their assignments, which were then graded with occasional feedback added, that student interest was in the grade received and not the instructor's comments. There was little exchange outside of these parameters unless the student had a question or the teacher recognized an issue with a student's performance. In my study, I also found that communication from the educator occurred in two ways: first the educator could leave feedback remarks as part of and in addition to the grading process and second, they could send an email, which was slightly more detailed in its content. The student had the option to email the educator when they wished to communicate a question, concern, or grievance as well.

Training and Communication It was a problem for me as a teacher and as a student that no training was provided on how to use or navigate Blackboard, my university's designated electronic learning management system. It is my belief that there exists an underlying assumption, by the university, that, regardless of being an educator or a student, ability and knowledge of how to navigate the online educational system was inherent or easy to learn. This assumption however, is invalid as the experiences in both administering and taking online courses demonstrated. Of

course, then, my lack of familiarity with the technological tools has implications for my learning, my position as a teacher educator, and my self-study research. None of these roles could be executed optimally as I was struggling to figure out how to use the tools. However, since I was studying my practice and wanted to look at what was being produced as data, I had additional incentive to learn more about how to use the tools quickly. If I ran this self-study again, in similar circumstances, I doubt I would uncover the same results of acrimony and mistrust. Hopefully I would be able to use the tools at my disposal to do what I really prefer to do as both a student and teacher: meet people, learn about people, and love people.

The course syllabi, for both my online courses, could be accessed by students through Blackboard in addition to the electronic pathway for assignment submissions, and reviewing of grades. Assignment submission was the first issue that arose, as many students did not know how to submit assignments. Instructions on how to submit assignments were posted on Blackboard and a mass email was sent to each student using the university's email address list for the course.

Communication from online students came in the form of emails when there was confusion, as in how to submit assignments, clarification was required, as in how to complete the week's assignment, or to communicate concern and disproval over a grade received for a submitted assignment. My many attempts to successfully email students resulted in limited success as many students preferred using an alternate email address to what the university had listed, email responses by students were non existent, which left me unsure if students actually received the email messages. Communication from myself, as the online instructor, or my online instructor to me came through grades, feedback on assignments, and emails. This is still a sad aspect of online learning to me: that for some students, I will only have contact with them when they want information about their grade or to contest it. This is actually an issue worth looking at in a future self-study.

Personal Subjectivities Can Negatively Impact Relational Spaces I was distraught that my experience as an online educator did not seem to afford the same opportunities to learn about students' interests and lives in ways that built and support relationally educative spaces. Having taught students with disabilities at a public junior high for over a decade, I considered myself adept at building quality student-teacher relationships (Frelin & Grannäs, 2010). When I tried to think about my findings, I determined that educators in brick and mortar schools had multiple opportunities to physically interact with students as well as observe student interactions. Such face-to-face interactions to me, were naturally more supportive of the development of relational spaces that are conducive to both teaching and learning (Wubbels, denBrok, Tartwijk, & Levy, 2012). Creating positive teacher-student as well as student-peer interactions is, after all, what leads to educative experiences (Dewey, 2007). In this sense, I allowed my autobiography to interfere with my learning about how to be a teacher educator and how to be educated online. It was not until I had my findings laying in front of me that I was fully forced to confront my subjectivities on this issue.

The result of my inability to respond to the needs of my students contributed to my feelings of non-personhood as a teacher educator (Rice, Newberry, Cutri, Pinnegar, & Whiting, 2014). Through the asynchronous component of each of these online courses a difficulty in establishing relationships consistently emerged (Fletcher & Bullock, 2014). While my attempts as the instructor to provide feedback that would established my identity as a more capable other (Vygotsky, 1978) without the students' reading the feedback or, if they did without their recognizing its form as a model, its purpose to support relational space became muted.

Relational experiences are a connection between personal learning processes and the learning environment influenced by the other stakeholders present (Barak, Tuval, Gidron, & Turniansky, 2012). When the learning environment is one of isolation there exists little space for others to negotiate their identities as part of the collective in ways that influence both group and individual identity formation. What remains are interactions that see online participants as "entit[ies] that represent…a particular category of being" (Rice et al., 2014, p. 183). When students resisted, I became more isolated and so it was likely that they took their cues of limited engagement from me. What Rice and her colleagues make clear is that teacher educator identities are built from experiences where they (as teacher educators) kept going back to the students to try to get them to engage relationally. If this is important in the offline spaces they were writing about, surely that applies to me as an online teacher educator.

In terms of new ways to consider authority, imaginings, and autobiography, I have wonderings about what types of spaces would have been more supportive of my learning in these virtual spaces that would also not be too difficult to implement. It would have been beneficial for both online courses if a space existed where instructor and students could participate in an open discussion thread at their convenience throughout the week or implement what Fletcher and Bullock (2014) suggest, a chat room where virtual conversations could occur in real time. In this way experiences and outcomes can be shared, guiding students to avoid negative outcomes, such as difficulty in accessing technology and completing assignments or guiding them toward more positive outcomes where participants can teach and learn ways to more easily access technologies which can serve to support relationally educative space.

Final Thoughts

Preservice and in-service teacher education programs must consider ways to prepare educators to instruct students in a digital space where asynchronous lessons and communication may be the norm. Teacher educators must also be aware of the potentially isolating aspects of technologies that were designed to promote sociality. Online educators and teacher educators must actively consider ways to create relationally educative spaces student engagement is supported, identity is manifest, and learning occurs. It is imperative that both online educators and teacher

educators become familiar and adept at identifying and incorporating new technologies as part of their online curriculum. Additionally, online educators must not lose sight of which and in what ways elements of a traditional classroom instruction, such as positive experiences (Dewey, 2007), and relationally educative spaces can exist in cyberspace and ways to establish identity for both the educators and students in the course.

References

Barak, J., Tuval, S., Gidron, A., & Turniansky, B. (2012). Being in the between: Teacher education as a relational transitional space. In J. R. Young, L. B. Erickson, S. Pinnegar (Eds.), *Extending inquiry communities: Illuminating teacher education through self-study*. Proceedings of the ninth international conference on the self-study of teacher education practices (pp. 40–43). Provo, UT: Brigham Young University.

Britzman, D. P. (2012). *Practice makes practice: A critical study of learning to teach*. New York: SUNY Press.

Bullock, S. M., & Christou, T. (2009). Exploring the radical middle between theory and practice: A collaborative self-study of beginning teacher educators. *Studying Teacher Education, 5*(1), 75–88.

Bullough, R. V. (1997). Practicing theory and theorizing practice in teacher education. In J. Loughran & T. Russell (Eds.), *Purpose, passion and pedagogy in teacher education* (pp. 13–31). London/Washington, DC: Falmer Press.

Bullough, R. V., & Pinnegar, S. (2001). Guidelines for quality in autobiographical forms of self-study research. *Educational Researcher, 30*(3), 13–21.

Cochran-Smith, M., & Fries, K. (2008). Research on teacher education: Changing times, changing paradigms. *Handbook of Research on Teacher Education: Enduring Questions in Changing Contexts, 3*, 1050–1093.

Dewey, J. (1985). In J. A. Boydston & P. Baysinger (Eds.), *Democracy and education, 1916*. Carbondale, IL: Southern Illinois University Press.

Dewey, J. (2007). *Experience and education*. New York: Simon and Schuster.

Fletcher, T., & Bullock, S. (2014). Pedagogies and identities disrupted: A collaborative self- study of teaching about teaching online. In D. Garbett, & A. Ovens (Eds.), *Changing practices for changing times: Past, present and future possibilities for self-study research*. Proceedings of the tenth international conference on the self-study of teacher education practices (pp. 79–81). Auckland, New Zealand: The University of Auckland.

Foucault, M., & Deleuze, G. (1977). Intellectuals and power. *Language, counter-memory, practice*, 205–217.

Frelin, A., & Grannäs, J. (2010). Negotiations left behind: In-between spaces of teacher–student negotiation and their significance for education. *Journal of Curriculum Studies, 42*(3), 353–369.

Garrison, D. R., Cleveland-Innes, M., & Fung, T. (2004). Student role adjustment in online communities of inquiry: Model and instrument validation. *Journal of Asynchronous Learning Networks, 8*(2), 61–74.

Glassman, M. (2001). Dewey and Vygotsky: Society, experience, and inquiry in educational practice. *Educational Researcher, 30*(4), 3–14.

Green, N., Wolodko, B., Stewart, C., Edwards, H., Brooks, M., & Littledyke, R. (2013). Collaborative self-study of online teaching in early childhood teacher education. *International Journal for Academic Development, 18*(2), 166–177.

Harasim, L. (1996). Online education. *Computer networking and scholarly communication in the twenty-first-century university* (pp. 203–214).

Kist, W., & Pytash, K. (2015). I love to flip the pages": Pre-service teachers and new literacies within a field experience. *English Education, 47*, N2.

Mishler, E. G. (1990). Validation in inquiry-guided research: The role of exemplars in narrative studies. *Harvard Educational Review, 60*(4), 415–443.

Moore, M. G. (Ed.). (2013). *Handbook of distance education*. New York: Routledge.

Muirhead, B. (2000). Interactivity in a graduate distance education school. *Educational Technology & Society, 3*(1), 2000.

Pinnegar, S. (1998). *Introduction: Methodological perspectives*.

Ragoonaden, K., & Bullock, S. (2014). Challenging our pedagogies of teacher education: Crossing boundaries through collaborative self-study. In D. Garbett, & A. Ovens (Eds.), *Changing practices for changing times: Past, present and future possibilities for self-study research*. Proceedings of the tenth international conference on the self-study of teacher education practices (pp. 171–173). Auckland, New Zealand: The University of Auckland.

Rice, B. (2014). Relational space in cyber space: A self-study of taking and teaching online courses. In D. Garbett & A. Ovens (Eds.), *Changing practices for changing times: Past, present and future possibilities for self-study research*. Proceedings of the tenth international conference on the self-study of teacher education practices (pp. 180–182). Auckland, New Zealand: The University of Auckland.

Rice, M., Newberry, M., Cutri, R., Pinnegar, S., & Whiting, E. (2014). Exploring teacher educator identity through experiences of non-personhood. In D. Garbett & A. Ovens (Eds.), *Changing practices for changing times: Past, present and future possibilities for self-study research.* Proceedings of the tenth international conference on the self-study of teacher education practices (pp. 183–185). Auckland, New Zealand: The University of Auckland.

Steinweg, S. B., Davis, M. L., & Thomson, W. S. (2005). A comparison of traditional and online instruction in an introduction to special education course. *Teacher Education and Special Education, 28*(1), 62–73.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1980). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard university press.

Wallace, M. (2002). Managing and developing online education: Issues of change and identity. *Journal of Workplace Learning, 14*(5), 198–208.

Wubbels, T., den Brok, P., van Tartwijk, J., & Levy, J. (Eds.). (2012). *Interpersonal relationships in education: An overview of contemporary research* (Vol. 3). Rotterdam, The Netherlands/ Boston: Springer Science & Business Media.

Chapter 8
Building Community and Capacity: Self-Study and the Development of Social Constructivist Online Teaching

Helen Freidus and Mary Welsh Kruger

Introduction

In 2011, the administration at Bank Street College of Education in New York City decided to move into the world of online education. They charged faculty with the task of migrating existing face-to-face courses into the online venue and/or developing new courses. The first reaction to this was silence. Then, a small number of faculty members volunteered to participate in the endeavor. Those of us who volunteered were excited and curious about the possibilities that lay before us. We participated in a series of professional development workshops designed to acquaint or reacquaint us with the theory behind online teaching and the tools we might use. Then, the real work began. It was a given that any teaching that Bank Street faculty would do – whether face to face or online – would be constructivist in nature. As we sat at our desks planning the sessions of our individual courses, we realized that there were few available models of online constructivist pedagogy to guide us. Apprehension grew as we realized that we would need to be our own resources. To deal with our anxiety and to provide opportunities for shared learning and support, we came together, forming a Community of Practice (Wenger, 2013) that has come to be known as the Online Research Group (ORG).

In this chapter, we tell the story of how members of ORG worked to design and implement constructivist practices for online courses. We began the self-study journey by reflecting on our first steps into online classrooms and asking our students to share their perceptions of these experiences. As we were doing this, we came together in monthly meetings with other faculty to share and problematize our teaching and learning. Together we generated questions about our online teaching

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experiences, and how the self-study process might help us move our work forward (Korthagen & Kessels, 1999).

What follows is a description of our collaborative endeavor and our initial findings. We offer examples of constructivist digital pedagogy developed within a community of practice, identify ways in which this digital pedagogy has also been a tool for generating data, and discuss how the self-study process has enabled us to reframe and deepen our identity as social constructivist teacher educators.

Context of the Study

Bank Street College of Education has a long and rich tradition in which faculty and students share a belief that the process of learning is socially constructed. Teacher education at Bank Street is experiential; new understandings and ways of thinking are seen as emerging through ongoing interactions and relationships (Grinberg, 2002; Nager & Shapiro, 2000).

In 1916, Bank Street founder, Lucy Sprague Mitchell called for ongoing "flexibility when confronted with change and an ability to relinquish patterns that no longer fit the present". Later, Mitchell wrote:

> We are not interested in perpetuating any special school of thought. Rather, we are interested in imbuing teachers with an experimental, critical and ardent approach to their work. If we accomplish this, we are ready to leave the future of education to them. (Mitchell, in Antler, 1987, pp. 309)

Despite this call for flexibility and experimentation, change does not always come easily at Bank Street. The vigilance that has long guarded the tradition of constructivist inquiry tends to fend off forms of pedagogy that are not perceived as part of the tradition. Online teaching is one such form. Those of us who had agreed to pioneer this work believed we had been given an opportunity to examine and extend our practice in meaningful ways; nonetheless, we felt vulnerable. Some of us were veteran faculty members, working at the college for 20–25 years; others were new to the college. Some brought extensive technology experience to this endeavor; others were relative novices. All of us believed that we could bring constructivist practice online, but we worried that as we bumbled through the process of learning how to enact our beliefs, we would be perceived by our colleagues as compromising the institutional vision.

We formed the Online Research Group to share new ways of teaching and learning and to support each other's professional growth as we did so. We were determined to stay true to our vision of constructivist and social constructivist teacher education, to examine the ways in which we were currently enacting our beliefs and practices, and to develop new insight into teaching and learning within the world of online education – synchronous and asynchronous, fully online and blended.

Five years later we have found that the world of online teacher education offers us powerful opportunities to push at the boundaries of our knowledge base. Our

experiences have enabled each of us to come closer to becoming "the teacher learners [we] always strived to be" (Troy, personal communication, 1/2014).

Conceptual Framework/Theoretical Framework

This study draws on three sets of perspectives: constructivist and social constructivist theory, self-study research, and narrative inquiry. Constructivist theory argues that new learning grows out of prior knowledge. As individuals interact with others, they expand their understanding of both new and familiar constructs. It is a basic tenet of this theory that relationships and context shape the learning process (Bruner, 1986; Dewey, 1933/1998; Vygotsky, 1978). In the literature of teacher education, Rogoff, Turkanis, and Bartlett (2001) argue that when teachers have the opportunity to participate and work within a community of learners, giving voice to their own beliefs and experiences and listening to those of others, they engage in a process that leads to new and more complex understandings of what is and what can be. Current research in the study of the brain supports the relevance of constructivist and social constructivist theory to education by documenting how new ways of thinking and learning can be developed in learners of any age when pathways are first grounded in familiar knowledge and experience (Brooks, 2008; Wolfe, 2008).

Much of the literature from the field of online teaching and learning calls upon social constructivist theory as a foundation for online learning experiences (Doolittle, 1999; Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Meier 2015; Swan, 2005; Swan, Garrison, & Richardson, 2009). Like Dewey and Bruner, these theorists contend that student engagement is more effective when students have opportunities to interact with and learn from each other in varied forms of social interaction. Online students, like their face-to-face peers, learn best from authentic tasks, meaningful problem-based thinking, and experiences in which they are able to negotiate meaning and reflect on what they have learned (Jonassen et al., 1995; Meier 2015).

Research shows that in the online classroom, constructivist practices are particularly important. Digital tools have the potential to elicit a sense of isolation and stand between students' connections to each other and to instructors (Cutri, Whiting, & Pinnegar, 2015; Guðjónsdóttir, Gísladóttir, & Jónsdóttir 2015). When this happens, engagement can be compromised and learning obstructed. While there is broad acknowledgement that constructivism and social constructivism form a theoretical basis for the future of meaningful online teaching, a recent survey of studies identifying constructivist practices in the online setting (Thorman & Zimmerman, 2012) and documenting implementation of constructivist methods in the online classrooms suggests that this literature is just beginning to emerge (Tang & Lam, 2014).

Participants in the Online Research Group are deeply committed to social constructivist pedagogy. We "know" that context matters. We are grounded in the Deweyan perspective that learning emerges from both action and reflection on that

action (Dewey, 1933/1998). All participants have worked over time with graduate students encouraging them to question practices, unearth underlying assumptions and reframe prior understanding in light of new information and perspectives (Freidus, Baker, Sgouros, & Wiles-Kettenmann, 2006; Grinberg, 2002; Lyons, Halton, & Freidus, 2012). However, few of us had previous experience enacting this pedagogy in an online world. We came together to explore how the social constructivist pedagogical practices we used could be transformed, reconstructed, and/or restructured to provide a core of pedagogical tools applicable to online learning.

The second set of perspectives that frames this chapter are those of self-study research. Self-study requires educators to focus on the beliefs, actions, and learning of their students and themselves, encouraging educators to consider multiple perspectives, come to grips with cognitive dissonance and carefully explore the juxtaposition of their own needs and the needs of their students (Loughran 2004). In the self-study model, research has the potential to become transformative, leading to new ways of visioning and envisioning teaching and learning, new ways of sharing knowledge and authority, and new ways of understanding and implementing practice (Elliott-Johns & Tidwell, 2013; Samaras & Freese, 2006).

Bank Street faculty participating in the Online Research Group knew and valued the power of dialogue. With this in mind, we documented our discussions and reflected on meeting notes. We paid close attention to students' responses to the experiences they were having. One of our members had long focused on self-study research, and so supported by her experience, we began to frame our inquiry into the development of constructivist online practice as a self-study. We soon discovered that both the instructional tools we were developing and the artifacts our students produced formed additional data sets. From these, we identified common concerns and core questions that would guide our ongoing work. We came to see that instruction, reflective analysis, and research were inextricably linked in a process that was supporting our own growth as well as that of our students. These discoveries deepened our motivation, for we knew that, as Kosnik (2001) writes, "If we are to help our students develop we too must develop" (p. 65).

Our third conceptual frame for this study emerges from the literature of narrative inquiry. Like self-study and constructivist theory, narrative theory acknowledges the importance of the specific context or setting of the story that is being told. The actual context, how teachers and students perceive that context, what they know and what they think they know shapes and is shaped by the teaching and learning that occur (Barton et al., 2000; Clandinin & Connelly, 2000). Until the mid–twentieth century, it was rarely thought that the knowledge claims of teachers could provide meaningful insight into the process of teaching and learning. However, beginning with Bruner and extended by the work of Clandinin and Connelly (2000), story as a way of knowing has gained a new legitimacy in the world of educational research.

When teaching and learning are seen as situated experiences, "storying" the classroom (face-to-face or virtual) offers a way to bring the values and assumption, claims and practices underlying classroom dynamics closer to the surface, making them easier to probe and more open to scrutiny and analysis (Clandinin, 2010;

Clandinin & Connelly, 2000). In a voice reminiscent of Lucy Sprague Mitchell, Clandinin (2010) writes:

> Our work is not to create spaces that educate us for fixed identities, fixed stories to live by. It is to create education spaces in which teachers can compose stories to live by that allow them to shift who they are, and are becoming, as they attend to the shifting subject matter (p. 281).

Within this framework, teachers and teacher educators become active agents in the ongoing examination and documentation of their practice.

Each of these perspectives is particularly relevant for the work described in this chapter. The desire to extend the enactment of constructivist and social constructivist practice to the online venue was and is the purpose for our work. The decision to conduct our work as a self-study offered a critical lens. The stories we told, the documentation of these stories, and the analysis of that documentation provided a means to achieve the outcomes herein described.

Methods/Data Sources

The work described in this chapter is a collective self-study, written in narrative form by Mollie and Helen with the consent and collaboration of all members of ORG. It is important to note that when we discuss our process and our findings, we are embedding our own experiences and growth within the experiences of the group. This is not research "on" but research "with" and "within".

A range of data generating instruments have been used to conduct this study including:

- Field notes from monthly ORG meetings (2012–2015)
- Student work samples including written reflections, digital photographs, and graphic organizers posted in small group online forums
- Questionnaires and focus groups in which students were asked to describe and evaluate their experiences in online sessions, both asynchronous and synchronous
- Recorded interviews with and written statements from faculty involved in developing and examining the practices described

Our self-study process began (and continues) with the sharing of stories in monthly meetings. Research and practice were woven together as participants brought examples of their digital practice to meetings for colleagues to discuss and analyze. For example, when Troy was beginning to teach an online course for the Child Life program (a program that prepares educators to work with children in hospital settings), she realized that while the tools she was using provided rich instructional opportunities, she was not offering any synthesis of the concepts and information explored in the session. Troy felt that a synthesis was necessary to help students internalize their learning and to scaffold deeper understanding. She decided

to prepare a brief video integrating the questions and comments students had posted online with the teaching points she had set for the session. When she presented the video as an artifact of her work at the ORG meeting, some members questioned whether a synthesis that looked like a "talking head" could be considered social constructivist pedagogy. As we teased the process apart, we came to see in Marvin's words "that it is how you use the practice that matters". In this case Troy was using her students' interactions to scaffold her own teaching and her students' learning in mutually beneficial ways. Although the process was on the surface a tool of transmissional pedagogy (Freire, 1984), the way in which the content mediated both the understanding of students and that of the instructor could be viewed as social constructivist. Subsequently, the student postings and the video made in response to these postings together became data sources not only for Troy's individual process of reflection and analysis but for the group's process of reflection and analysis as a well.

After each ORG meeting, notes recording both the stories shared by individual participants and the group's responses to them, were circulated to check for inaccuracies and omissions and to give further opportunity to consider the practices, their theoretical underpinnings, and their applicability to other courses. Themes were generated in a recursive process consistent with the principles of "grounded theory" (Strauss, 1987; Thomas & James, 2006). These themes informed the individual and collective work of group members as they moved forward to document, communicate, and improve their practice, both online and face-to-face.

What We Have Learned: Pedagogy

Examination of data suggests that a range of social constructivist online pedagogical practices are emerging from the work of the Bank Street Online Resource Group. We discuss one of these here and show how it plays out in methods classes in two different disciplines: literacy (Helen and Mollie) and mathematics (Marvin). For the past five years, we have been using online photography assignments in literacy and mathematics methods classes as tools for helping students construct, extend, and document their understanding of effective instruction. As we assess students' learning, we use their completed assignments as artifacts for analyzing our own practice – the worthiness of the task, the clarity of our instructions, the viability and reliability of the digital tools. It is our students' work and their voices that provide evidence that our pedagogy is helping us to attain our goals (Pinnegar & Hamilton, 2010).

In an online session of a blended literacy methods class, we ask students to visit a classroom of their choice (kindergarten – second grade) and identify parts of the room that are used for traditional literacy instruction (e.g., a book corner or writing table) and spots that, at first glance, might not be identified as opportunities for literacy instruction (e.g., a gerbil cage complete with labels; a skylight which might open up investigations of space or poems about flight). In essence, we are asking

them to move beyond the box, to expand their notions of how to teach reading and writing in student-centered ways.

Students take a series of photographs documenting the areas they choose. They post these photographs together with a rationale linking their choices to readings and class discussions on a small online group forum (four to five members). Students then look at their colleagues' photographs and post a response to each set. In these postings, they are asked to discuss:

- Diverse ways in which teachers create environments, choose materials, and implement instructional practices
- Questions that emerge from the similarities or differences between their own photographs and the photographs of others
- Ways that the photographs extend their understanding of effective ways to teach literacy

This part of the session is asynchronous. Students must adhere to the dates for postings, but they can do so at any time before the deadline set for each posting. A synchronous component follows. This can be "high tech" or "low tech", i.e. forum groups may complete the assignment using online tools such as Blackboard Collaborate, Google Hangout, Skype, or they may choose to meet in person. Reviewing the postings together, students identify common themes that emerge from their pool of photographs, discuss the significance of what they have seen and documented, and create and post a visual representation, usually a form of graphic organizer, that names the themes and connects them to research and theory.

This online session provides multiple data sets for both assessing student learning and evaluating our pedagogy as we engage in the process of self-study research. The photographs document a baseline of student perceptions of literacy instruction. As students work together in small groups to make a visual representation of themes emerging across the photographs, they negotiate meaning and think about instruction in increasingly nuanced ways. The visual representation of themes provides a data source documenting a wide range of ways in which they make meaning of the task.

Faculty interpretation of this thematic representation is triangulated by post- session evaluations of the process. In these evaluations, a large majority of students have commented that the process of taking and responding to photographs, reading the feedback from colleagues and having the opportunity to visit and revisit the postings has deepened their understanding of course content. Elena wrote:

> I have broadened my definition of reading. (Through this experience) I now see that reading is not only decoding words. Reading encompasses looking at the pictures, comprehending the story, and discussing it too. The photography assignment helped me realize the extent that anything in the classroom can relate to literacy. (EO, reflection paper, 2014)

Students also state that the collaborative synchronous component of the assignment (the creation of visual representations) helped them to "bond" and to trust their colleagues. They began to feel that they could take risks and share not only what

they understood, but also what they were struggling to understand about teaching literacy.

Students' postings including words, pictures, and graphic representations of their understanding provide a multi-modal data set further documenting emerging perceptions of effective literacy instruction. Here, online work presents evidence of understanding that is not always captured in the traditional writing assignment of a paper, journal or log. The data suggest that many students, not yet able to demonstrate competency in the lessons they design and implement, may have a more significant knowledge base than appears in their lesson planning and implementation. The data also suggests that there may be a continuum of teacher development, moving from receptive to expressive understanding, similar to that which Vygotsky (1978) discusses in his description of children's zones of proximal development.

Students' emergent understandings are not always visible in early postings. Many first comments read: "Great work. I liked seeing your pictures". However, the increasing thoughtfulness of student postings suggests that faculty can scaffold students' thinking by sharing and deconstructing examples of exemplary posts found among forum entries. This can be done face to face in a blended class or through a summative video posted on the website following each session in a fully online class. For example, having received student permission to do so, Helen shared the following posts in her class. She explained that when Irene wrote to Sophia, "I rarely ever see kindergarten classrooms outside my own school, so it is interesting to see how other teachers organize their classroom" (forum posting 10/14), Irene was validating Sophia's professional perceptions, naming organization as a criteria of effective teaching, and making a connection to the reading assigned for that week. Helen showed how Irene's post could serve as a model of a professional posting.

Another example of scaffolding can be seen through Lily's post to Danielle,

> [I] really appreciated how you were able to compare this classroom to your experiences in a 4th grade classroom, where there are only words and almost no pictures. [Your pictures] made me think about the challenges that readers who are still mastering grade level skills, or are learning English, must have as they get older and as more and more is expected of them. It's seems like it would be almost impossible to catch up if by 4th grade nothing is labeled in pictures, and everyone just expects you to know (forum posting 10/14).

When Helen shared Lily's post in class, she asked students to consider how Lily's words related to what they were reading. Students articulated the importance of linking words with pictures for learners of all ages, especially those with limited language and literacy mastery.

Wanda was acting as a critical friend when she commented to Dani:

> In looking over your photographs and reflection, your description of the vowel chart caught my eye. You label the photograph with the text "The corresponding photos connect to concepts kids already know." I'm curious, how do you know the children understand these concepts? For example, it seems on the vowel chart that 'E' is represented by a man named Ed (or, at least, a guy wearing a t-shirt that says Ed on it). What if someone who looks at the picture thinks the vowel E represents boys, or blonde people, or t-shirts? (forum posting 10/14)

When she shared the posting in class, Helen asked students to consider the usefulness of posing a question like this. Her goal was to show students that it is acceptable to challenge each other's assumptions and the inferences based on these inferences. Subsequent assignments document that over time students began to be more candid with each other, freer to suggest different perspectives, more willing to make a "Have you thought …?" posting.

Marvin uses digital pedagogy in similar ways within Mathematics framework, He takes his students on a field trip to a series of empty early childhood classrooms. There, students are asked to use smart phones to photograph actual examples of math instruction as well as things they infer to be relevant to mathematical thinking. They post the photographs in a Google community, along with questions that are emerging in their minds throughout the experience. What would they want to ask the children? The teachers? The theorists they have been reading? They then post a reflective journal entry, read the journals of classmates, and participate in a dialogue responding to posted questions.

Marvin points out that the beauty of this assignment lies in its simplicity. The assignment has practically no learning curve. Students all have the mathematical and the technological skill set needed for the task. The assignment is a natural form of differentiated instruction. There are no rights and wrongs, only opportunities to envision greater possibility. Students become a community of learners, deepening their understanding through their interactions.

As the students deepen their understanding, Marvin is deepening his own understanding. He writes:

> Teaching online has been harder for me than I imagined. I have been a faculty member for 30 plus years, enacting my vision of social constructivist practice in one particular way and doing it well (or so I thought). Now I am giving new meaning to the words I have been using all these years. I have a new set of goals, a new set of ground rules (Interview 1-14).

Reflecting upon this work and the conversations around it, we can identify some important ways in which self-study has transformed our thinking about both online and face to face teaching. We see anew the power of choice – in these online sessions, students use digital photographs to capture classroom learning environments; they choose which of these images to share and how to connect the images to the readings. They synthesize information and choose which themes to focus on.

We see the importance of time. Our students are given clear deadlines but may move toward those deadlines at their own pace. They are free to read and reread the words and pictures their peers have posted. They revisit these postings thinking about their own classrooms. They begin to see new possibilities for their practice. Given the gift of time, students engage with the assignment in more authentic ways.

Looking at our online data, we see that many of our students are technically and conceptually are more advanced than we had recognized. This has significant implications for our face to face practice. Now that we see what is possible, we feel that it is incumbent upon us to find ways to expand the opportunities for choice and time within our face to face classrooms. When we began our work together, we thought that we had been implementing meaningful social constructivist practice –

multimodal activities to access different funds of knowledge, peer groups in which students share understanding, hands on activities in which diverse voices can be heard. And yet, we see that with greater opportunities for time and choice, students are willing to take on greater responsibility for their own learning and that of their peers.

Each member of ORG came to online teaching thinking that he/she had been enacting social constructivist practice. Each now sees new complexity and new possibility in enacting this practice. Troy writes:

> When I began to convert the child life program into an online format, I had to look long and hard at my beliefs and practices. I wanted the sharing of information to be a collaborative process in which voices were equal. I would have said that this is what I have always done, but when I looked closely, I began to realize that in practice my approach had been less social constructivist than I had thought. (Troy, written reflection, 1-14)

Each of us, at some point, has had a similar aha moment, has shared the story of this moment with ORG members. These stories and experience of documenting and engaging in reflective analysis have changed our vision of good teaching.

What We Have Learned: ORG and the Self-Study Process

In the August 2013 issue of *Studying Teacher Education*, editors Elliott-Johns and Tidwell present a series of self-studies that document the ways in which self-study research can contribute to a transformative process. Our work supports and extends their content. The data show that close examination of practice, an inherent part of the ongoing work of the Online Research Group, enables individual members and the group as a whole to have the courage to take risks, explore the uncharted waters of constructivist online pedagogy, and grow both personally and professionally. Neither we nor our students could have learned as much we have without the ORG community and the conduct of self-study within that community.

To gather foundational data for this chapter, we asked ORG members to respond to the following questions: How has our time together in ORG helped me to move forward in the practice of constructivist online teaching? How has it helped me to think more deeply about my own teaching and learning and that of my students? The responses triangulated by meeting notes and formal and informal writings elicited the following themes.

The Power of a Community of Practice

As stated earlier, the call for online teaching elicited concern among a number of faculty members that the relational aspect of the Bank Street vision of teaching and learning would be discarded. Those of us pursuing this work believed in our hearts

that this was not so. Nonetheless as we worried about the perceptions of our colleagues as we worked to find our way. Robin, a new faculty member, who had been charged with the development of an online program in mathematics leadership articulated her initial anxiety. In ORG, she describes finding a community where others shared her vision that "the 'cockamanie' idea of online learning was not a bad thing." Like Robin, we each felt vulnerable when colleagues whose opinions we valued were disdainful of the work. However, when we saw the examples of practice that members of the ORG put forth for feedback in our meetings, we stood proud.

Sharing work with like-minded colleagues has proven to be motivating and "inspiring" (a term that surfaced repeatedly in interviews). In this context "like-minded" does not mean completely agreeing. The data show that it was from the differences in opinions, perspectives, disciplines that the ORG members brought to the discussions that hard questions arose. Grappling with these differences pushed members to identify, question and reframe their deeply held assumptions and pedagogical practices, and to consider the implications of those practices for their own work and that of their colleagues.

As the ORG members engaged more and more with the digital world, our interest and commitment grew. Being part of a community of practice rather than "an heroic isolate" (Marvin, interview 2014) encouraged each of us to work through our anxieties, extend the boundaries of our knowledge base, and continuously craft our work.

A Sense of Possibility

In the monthly ORG meetings, feedback is candid, leading members to look closely at assumptions and practices. However, it is also thoughtful and encouraging. Frequent responses of "Yes, you can do that" when a member is near despair coupled with an "I can help you with that" makes it possible to find ways to solve what seemed to be overwhelming obstacles.

This sense of possibility leads faculty participants to set higher and higher goals. Individually, we have become more knowledgeable and more confident in our practice. Collectively, we have come to believe that we can implement social constructivist practices in online venues. In Troy's words,

> At the risk of sounding like a cliché, the ORG community has been the foundation of the work that led me to the point where I felt like I could do this work. It has been so much more meaningful than I had expected. (Written communication, 1–14)

Self-Study: "Know thyself"

There is a large body of self-study literature that documents the ways in which self-study within communities of practice supports professional growth and development (Freidus, 2002; Freidus, Baker, Wiles-Kettenmann, Sayres, & Sgouros, 2004, 2006; Little, 2007; Lyons & LaBoskey, 2002). Bringing technology into the realm of self-study and self-study into the realm of technology creates new opportunities for and new ways of documenting classroom practice as research.

It is significant that each member of the ORG has come to see new ways of implementing social constructivist practices in both online and face-to-face settings. These new visions appear to have emerged from: (1) the discussions held within a trusted community, (2) the process of making the familiar (teaching teachers) unfamiliar (teaching teachers in the online world), and (3) the digital artifacts that made it possible to systematically document and analyze our practice individually and collaboratively.

The ways in which these artifacts enriched our ability to think critically cannot be overestimated. A written blog post, a set of photographs, a video would be projected onto the large screen during our meetings, and immediately we were all engaged in the process of looking at what was being asked of students, how they were responding, and what the responses suggested about their construction of knowledge. Each participant brought the lens of his/her discipline and experience to the table. Each contribution helped us to question and reexamine our instructional practices, extend our understanding about these practices, and identify ways to reshape the practices in order to make them more deeply constructivist.

As we observed and examined our colleague's instructional practices, we became motivated to adapt them in part or as a whole to our own online instruction. This process identified a core of online practices that proved to be trustworthy across programs and disciplines within the college. Mitchell wrote so many years ago that the mission of Bank Street was:

> to nurture an attitude of eager, alert observations, a constant questioning of old procedure in the light of new observations; a use of the world as well as of books as source material; an experimental open-mindedness; and an effort to keep as reliable records as the situation permits in order to base the future upon actual knowledge of the experiences of the past. (Mitchell, in Antler, 1987, pp. 309)

It appears that entry into the digital world is pushing faculty to apply these same attitudes and practices to their own work as they nurture them in the teachers with whom they work.

In sum, our self-study research has taken us across the frontier of the digital world. We are more comfortable and knowledgeable in the ways in which we wed constructivist practice to online learning. We have revisited, reconceptualized, and reframed our pedagogical practice in both online and face-face settings. We have learned that for us as well as our students, learning never stops as long as we are willing to take risks.

References

Antler, J. (1987). *Lucy Sprague Mitchell*. New Haven, CT: Yale University Press.

Barton, D., Hamilton, M., & Ivanic, R. (Eds.). (2000). *Situated literacies: Theorising reading and writing in context*. New York: Routledge.

Brooks, J. G. (2008). *Big science for growing minds: Constructivist classrooms for young thinkers*. New York: Teachers College Press.

Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.

Clandinin, D. J. (2010). Sustaining teachers in teaching. *Teachers and Teaching: Theory and Practice, 16*, 281–83.

Clandinin, D. J., & Connelly, M. (2000). *Narrative inquiry: Experience and story in qualitative research*. San Francisco: Jossey Bass.

Cutri, R., Whiting, E., & Pinnegar, S. (2015, Fall). *Activating students' emotional and analytic engagement with a blended learning format multicultural education Course* (Bank Street College Occasional Paper. Edition 34). http://www.bankstreet.edu/occasional-paper-series/34/

Dewey, J. (1933/1998). *How we think: A restatement of the relation of reflective thinking to the educative process*. New York: Houghton Mifflin Co.

Doolittle, P. E. (1999). *Constructivism and online education*. Available online: http://www.trainingshare.com/resources/doo2.htm

Elliott-Johns, S. E., & Tidwell, D. (2013). Different voices, many journeys: Explorations of the transformative nature of the self-study of teacher education practices. *Studying Teacher Education, 2*, 91–95.

Freidus, H. (2002). Narrative research in teacher education: New questions, new practices. In N. Lyons & V. LaBoskey (Eds.), *Narrative inquiry in practice* (pp. 160–172). New York: Teachers College Press.

Freidus, H., Baker, C., Sgouros, C., & Wiles-Kettenmann, M. (2006). Looking at ourselves: Professional development as self-study. In L. M. Fitzgerald, M. L. Heston, & D. L. Tidwell (Eds.), *Collaboration and community: Pushing boundaries through self-study* (Proceedings of the Sixth international Conference on the Self-study of Teacher Education Practice, pp. 88–91). Cedar Falls, IA: University of Northern Iowa.

Freidus, H., Baker, C., Wiles-Kettenmann, M., Sayres, B., & Sgouros, C. (2004). Facing ambivalence: Finding our ways through the cracks of externally imposed standards. In L. M. Fitzgerald, M. L. Heston, & D. L. Tidwell (Eds.), *Journeys of hope: Risking self-study in a diverse world* (Proceedings of the Fifth international Conference on the Self-study of Teacher Education Practices, pp. 117–120). Cedar Falls, IA: University of Northern Iowa.

Freire, P. (1984). *Pedagogy of the oppressed*. New York: Continuum.

Grinberg, J. (2002). I had never been exposed to teaching like that: Progressive teacher education at Bank Street during the 1930s. *Teachers College Record, 104*, 1422–1460.

Guðjónsdóttir, H., Gísladóttir, K., & Jónsdóttir, S. (2015). *Creating meaningful learning opportunities online* (Bank Street College Occasional Paper. Edition 34). http://www.bankstreet.edu/occasional-paper-series/34/

Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Haag, B. B. (1995). Constructivism and computer-mediated communication in distance education. *American Journal of Distance Education, 9*(2), 7–26.

Korthagen, F. A. J., & Kessels, J. P. A. M. (1999). Linking theory and practice: Changing the pedagogy of teacher education. *Educational Researcher, 28*(4), 4–17.

Kosnik, C. (2001). The Effects of an inquiry-oriented teacher education program on a faculty member: Some critical incidents and my journey. *Reflective Practice, 2*(1), 65–80.

Little, J. (2007). Teachers' accounts of classroom experience as a resource for professional learning and instructional decision-making. In P. Moss (Ed.), *Evidence and decision-making* (106th Yearbook of National Society for the Study of Education, pp. 217–240). Malden, MA: Blackwell.

Loughran, J. (2004). Learning through self-study. In J. Loughran & T. Russell (Eds.), *Improving teacher education practices through self-study*. London: Routledge Falmer.

Lyons, N., Halton, C., & Freidus, H. (2012). *Extending inquiry into learning over time across professions: Promoting teaching and learning within a self-study* (Proceedings of the Ninth International Conference on the Self-Study of Teacher Education Practices, pp. 191–194). Cedar Falls, IA: University of Northern Iowa.

Lyons, N., & LaBoskey, V. (2002). *Narrative inquiry in practice*. New York: Teachers College Press.

Meier, E. (2015, Fall). *Beyond a digital status quo: Re-conceptualizing learning opportunities for a digital era* (Bank Street College occasional paper 34). http://www.bankstreet.edu/occasional-paper-series/34/

Nager, N., & Shapiro, E. (Eds.). (2000). *Revisiting a progressive pedagogy*. Albany, NY: State University of New York Press.

Rogoff, B., Turkanis, C. G., & Bartlett, L. (2001). *Learning together: Children and adults in a school community*. New York: Oxford University Press.

Pinnegar, S., & Hamilton, M. L. (2010). *Self-study of practice as a genre of qualitative research: Theory, methodology and practice*. Dordrecht, The Netherlands: Springer.

Samaras, A., & Freese, A. (2006). *Self-study of teaching practices*. New York: Peter Lang.

Strauss, A. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.

Swan, K. (2005). A constructivist model for thinking about learning online. In J. Bourne & J. C. Moore (Eds.), *Elements of quality online education: Engaging communities*. Needham, MA: Sloan-C.

Swan, K., Garrison, D. R., & Richardson, J. C. (2009). A constructivist approach to online learning: The community of inquiry framework. In C. R. Payne (Ed.), *Information technology and constructivism in higher education: Progressive learning frameworks* (pp. 43–57). Hershey, PA: IGI Global.

Tang, E., & Lam, C. (2014). Building an effective Online Learning Community (OLC) in blog-based teaching portfolios. *The Internet and Higher Education, 20*, 79–85.

Thomas, G., & James, D. (2006). Reinventing grounded theory: Some questions about theory, ground and discovery. *British Educational Research Journal, 32*(6), 767–795.

Thorman, J., & Zimmerman, I. (2012). *The complete step-by-step guide to designing and teaching online courses*. New York: Teachers College.

Vygotsky, L. (1922, 1935, 1978). In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wenger, E. (2013). *Communities of practice*. Retrieved from http://wenger-trayner.com/theory/ http://wenger-trayner.com/theory/

Wolfe, M. (2008). *Proust and the squid*. New York: Harper.

Chapter 9
Pedagogical Hesitations in a Mobile Technology Rich Learning Environment. A Self-Study of Redefining Expertise.

Constanza Tolosa, Rena Heap, Alan Ovens, and Dawn Garbett

Introduction

At a time when advances in technologies continue to demand swift responses from education at all levels, we have used self-study to frame a critical discussion of the issues surrounding the impact of mobile technologies on teacher education and on ourselves as teacher educators. The significant evolution in the way technologies are used in schools and higher education has enabled new ways to store and produce learning materials, has raised the possibilities of more flexible learning opportunities through digital learning, and more recently has tapped into the ubiquitous possibilities of mobile learning. These advances parallel the wide proliferation, use and affordability of these technologies in educational settings where increasing number of students of the 'Net Generation' worldwide have access to computers. This new landscape has prompted numerous authors (Dede, 2005; Jones, 2010; Jones, Ramanau, Corss, & Healing, 2009; Kukulska-Hulme, 2012; van Braak, 2001) to suggest that educators will have to rethink the forms of pedagogy that are appropriate to teaching today's tech savvy student body (Dede, 2005). As has become standard for those in teacher education, this raises the dual dilemma that such an issue affects both the pedagogical processes and the desired outcomes of our field.

In this chapter we start by briefly reviewing three key concepts underpinning our study: mobile learning as a 'conversational framework' (Laurillard, 2007), feedback to 'make learning visible' (Hattie, 2009) and transformational teacher education. We then describe the way we conducted our collective self-study. The main section of the chapter presents self-study data collected over a year under three headings which represent the most revealing tensions we found in our discussions: vulnerable/

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experienced teacher educators, invisible/visible mobile learning, transmissive/transformational teacher education. The last section of the chapter draws conclusions and implications from our collective self-study where we made sense of the place of mobile technologies in our practices and what that means for our teacher education pedagogy/ies.

Mobile Learning (M-Learning) as a Conversational Framework

Generally, definitions of m-learning are underpinned by concepts of mobility, ubiquity, and wireless ability (Deegan & Rothwell, 2010). Most definitions focus on the technical aspects of the process, seeing m-learning as learning "using mobile devices such as cell phones, lap tops, pocket PCs, PC tablets, PDS and other handheld devices in conjunction with wireless Internet network to enable multimedia communication using text, voice, video and graphics data" (Gupta & Koo, 2010, p. 271) while others state that m-learning is "a type of e-learning that blends wireless and mobile technology for the learning experience" (Wains & Mahmood, 2008, p. 31). The promise of mobile technology seems to be its potential to bridge learning contexts and facilitate the delivery and construction of knowledge while allowing for personal and ubiquitous connections among learners and between learners, teachers and their learning environments. As an encompassing term, m-learning encapsulates different attributes of learner-centred pedagogies including discovery learning, constructivist learning, problem-based learning and socio-constructivist learning (Crompton, 2014). According to Traxler (2011), m-learning is authentic, situated, context-aware, personalised and contingent (i.e. allows learners to respond and react to the environment and changing experiences).

We concur with arguments that the research and pedagogical focus should be the communicative interaction between the learner and the technology, thus defining m-learning as "the processes of coming to know through conversations across multiple contexts amongst people and personal interactive technologies" (Sharples, Taylor, & Vavoula, 2007, p. 225). These conversations follow Laurillard's (2002) definition of 'Conversational Framework' for learning as the process between teacher and learner as a dialogical process on two interactive levels: discursive and experiential. While at a discursive level the learning focuses on theory and concepts, at an experiential level the focus is on the practices and activities taking place.

Making Learning Visible Through Feedback

It has been argued that although student-centred approaches to learning have led to changes in conceptions of teaching and learning, "a parallel shift in relation to formative assessment and feedback has been slower to emerge" (Nicol & MacFarlane-Dick, 2006, p. 200). Within the typical teaching and learning model in university settings, formal assessment tasks such as assignments and exams, enable summative judgments to be made about students' level of attainment. Less common is the use of assessment to provide the kind of formative feedback "with which a learner can confirm, add to, overwrite, tune, or restructure information in memory, whether that information is domain knowledge, metacognitive knowledge, beliefs about self and tasks, or cognitive tactics and strategies" (Winne & Butler, 1994, p. 5740).

We adhere to a view of feedback where knowing what students know or do not know is a key element in developing effective learning conditions because "[w]hen teachers seek feedback from students as to what students know, what they understand, where they make errors, when they have misconceptions, when they are not engaged – then teaching and learning can be synchronized and powerful" (Hattie, 2009, p. 173). However, we are aware that even when 'good' feedback has been given, the gap between receiving and acting on feedback can be wide (Taras, 2003). Furthermore, providing feedback in traditional tertiary education settings can be problematic, particularly given the large size of classes and the short duration of courses. Technology, conceived within the 'conversational framework' describe above, demonstrates a potential to overcome this problem and provide alternative forms to give, seek and respond to feedback.

Transformational Teacher Education Pedagogies

Traditionally, teacher education pedagogy emerges in two dominant forms (Myers, 2002). The first is based around the traditional lecture, where the pedagogy enacted is one of 'telling' students the key information they are expected to learn. This approach is supported by lecture theatres and classrooms that are furnished and equipped so that the student's gaze and attention is focused on a 'teaching wall' at the front of the room where the teaching lectern and lecturer are located. The second form is based around modelling good practice, where the pedagogy enacted is 'demonstrating' to students the key information they are expected to learn. This approach is supported by classrooms that simulate school classrooms and allow the lecturer to show, or model, particular teaching ideas. These pedagogical forms are often used interchangeably throughout a course. In our view, both are problematic because they are based on the assumption that teaching and learning are different activities connected through a process of transmitting knowledge from the teacher to be acquired by the student. Teaching in this way assumes that knowledge about

teaching can be distilled from the context of teaching, refined and taught to learners as though it was an object that is capable of being passed around (Britzman, 1991).

The desire to explore beyond transmission pedagogies draws on new understandings from a range of different disciplinary areas about how teachers learn and develop their teaching. Collectively, the contribution from these multiple perspectives has been to explore forms of pedagogy that are oriented around active participation in meaningful communities of learning and inquiry. Such a shift places increased attention on enabling student teachers to engage meaningfully and authentically in situations that allow the knowledge, skills and dispositions that underpin quality teaching to emerge in forms of deliberate practice. It also draws attention to the way learning is an open and social process where students, as active contributors in that process, engage the material, social and human capital necessary for enhancing the experience and the potential for learning (Barab & Roth, 2006). Moving beyond transmission forms of pedagogy is supported by classrooms designed to enable students to be active participants interacting and connecting with learning networks both within and extended beyond the boundaries of the classroom. Such an approach also draws attention to the way technology can afford opportunities to facilitate connections and flows of information that can enhance feedback to the teacher and to the learner that enable learning to be more emergent than transmissive. The use of mobile technologies does not alone ensure teachers move away from transmission style teaching. However, their use can provide a catalyst for significant, powerful shifts in classroom climate, pedagogy and learning (Davis, 2003).

Context

The impetus for this study emerged from the institution-wide initiatives at the University of Auckland to respond to being in, and working with, the net generation. One key response by the Faculty of Education was to re-develop some of its teaching rooms to become ‘Computer Assisted Learning Spaces’ (CALS) that provided ready access to technological resources and wireless connectivity. These spaces afforded the opportunity to explore new pedagogies and flexible forms of learning. The four of us as teachers and lecturers in the Faculty began to explore the possibilities of using mobile technologies in new environments, and recognised the need to work collaboratively to support and examine how we, as individuals and experienced teacher educators, adapted to these settings. We questioned the effect these contextual features, coupled with significantly increased class sizes, may have on our pedagogical practices and were concerned about whether we would know what, and if, students were learning. We were interested in the many possibilities afforded by mobile technologies in a range of teacher education programmes (Bachelor programmes of Early Childhood and Physical Education; Graduate Diplomas in Primary and Secondary Education) and across different subject specialisations. Students shared their learning and understanding in response to questions or tasks, using software platforms such as Piazza, GoSoapBox, Socrative, and

EduCreations. They were able to connect with course content, question their own and others' understanding and reflect on their peers' responses, thus making their learning visible to the lecturers and to themselves.

From a self-study perspective, we recognised an alignment between our view of mobile learning as a conversation across contexts, our view of teacher education as emergent and participatory, and our view of feedback from the students. Therefore, we identified an opportunity to explore how feedback generated around mobile technologies catalysed shifts in pedagogy and learning for our students and ourselves.

Method

Self-study enabled a way for us to collectively perform research as diffractive readings of our teaching as sets of practices, artefacts, knowledge, experiences and behaviours emerging from the dynamic interaction of people, objects, and places present in our teacher education settings. The opportunity to work collectively helped us to imagine our teaching differently and enabled a sensitivity to pedagogy as a complex process. Alan teaches Physical Education students and increasingly finds himself teaching in a lecture theatre setting. In an effort to utilise this space constructively he has trialled the use of the *Socrative* app to help facilitate interaction with the class. Dawn and Rena both teach Science Education and have seen a shift from workshop sessions, where theory and practical activities were closely integrated, to a combination of mass delivery of content (lectures) and large class workshops for practical work (60 students). They have used a number of different tools including *Piazza* and *GoSoapBox* to make feedback and learning visible synchronously in the lectures. Both of these apps and *Socrative* have a quiz function as well as an online forum that students can respond to open ended questions. E-portfolios have been used as a site for students to showcase their learning for assessment purposes; and *PeerWise* has been a repository of student-generated multi-choice questions which students have used for ongoing self-assessment. Constanza teaches future teachers of foreign languages in primary and secondary programmes. She has explored the possibilities afforded by technology to the teaching of languages, especially because her classes, which are never greater than 30 in number, include up to 6 different specialist language specialisations. She used Educreations, a platform where students created multimedia mini-lessons that were recorded to be shared and accessed by their peers and their language-specific tutors. The videos were mostly used for providing individualised feedback to the students' effective and pedagogic use of the app.

Theoretically we drew from post-structural, post-human, and neo-material theories in order to bring fresh ways of reading, writing and thinking about the self as materiality in motion (Barad, 2007; St. Pierre, 2011). In this way, both human and non-human actors (such as the mobile technologies in use) could be viewed as

"performative mutually intra-active agents" (Barad, 2007) that act on and influence the ongoing emergence of pedagogical artefacts actions and identities.

Being informed by such ways of thinking we adopted an approach that involved two primary moments (Jackson & Mazzei, 2013). In the first moment, we purposely generated a set of narratives at the end of each semester as a means to 'materialise' the actual and virtual elements at play. At the end of the first semester we did this by writing survival memos (Brookfield, 1995), a method that elicits foundational knowledge and assumptions from the writers. Our memos focussed on imagining what we would say in our last day in our job to a teacher educator who would replace us, concentrating on the advice we would give the newcomer to 'survive' the integration of mobile technologies to his/her practice. In order to elicit the most salient advice, the writing of the individual memos was constrained within a 30 min time limit. We used the memos to uncover influential sentiments and reasoning towards the new experience of teaching with mobile technologies. We found them most appropriate for making tacit our implicit yet powerful assumptions and expectations about the influence of technology in our established pedagogical practices. The resulting four memos were read and discussed in a 73 min meeting which generated a 9,000 word transcript of the discussion. At the end of the second semester we used a modified process of collective biography (Davies, 2006) where we each shared a memory of responding to some feedback we had gathered while teaching. Instead of writing this memory down, each shared it at a meeting (69 min long) and the discussion was recorded and later transcribed.

Both the survival memos and the collective biography were not meant to be an accurate representation of events external to the individual's perception (as in traditional studies). Rather, we see them as containing the tracings of the individual's subjectivity in relation to performing as a teacher and self-study researcher. We accept that our memories and representation of events that we use as 'data' are partial, incomplete, and are always in a process of being re-told, reimagined and 'superimposed' onto other experiences (Denzin & Lincoln, 2003). The methodological implications of this view are that we, as researchers, are able to question together our own privilege and authority in listening and narrating experience as data, deconstruct why one story is told and not another, while simultaneously acknowledging these are the materials from which we must reconstruct our pedagogical understandings (Jackson & Mazzei, 2013).

This leads to the second primary moment in which we used dialogic self-study conversations to challenge the patterns, structures, or conceptions that sustained our teaching and may prevent us from building new understandings and ways of performing as teachers (Placier, Pinnegar, Hamilton, & Guilfoyle, 2005). We were able to provoke and concentrate our tacit knowledge; challenge interpretations; offer alternatives and, thus rethink our experiences with technology in our lessons and our students' responses. In our discussions, we searched our narratives for the elements and fragments that constituted a pedagogical event as meaningful; the bodies, discourses, practices, concepts, relationships, and exchanges that constitute our thinking and performing selves. Done collectively, sharing such memories also enabled a simultaneous critical questioning of own views and representations in/of

the same moment. In this way, we became sensitive to ourselves as enactors of the teaching-learning process.

In what follows we share our analysis of key moments in our narratives and draw common threads of changes in our pedagogical practices attributable to our use of mobile technology in multiple forms and context-specific settings to generate feedback. The particular applications, devices and contexts and the difficulties we had integrating them, faded to the background as we focused on exploring our reactions and responses to those changes through self-study. Intertwined themes recurred throughout our conversations. They are addressed here as separate themes which are based on our collective over-riding sense of three tensions that mobile technology has brought about to us as teacher educators: vulnerable/experienced teacher educators, invisible/visible mobile learning, and transmissive/transformational teacher education.

Vulnerable/Experienced Teacher Educators

Our initial survival memos indicate that in many ways the journey we have been on has taken a similar path to others implementing technology into their teaching (Kukulska-Hulme, 2012; Shim & Shim, 2001). We, too, have found the inadequacy of resources, and the limitations and unreliability of the infrastructure to be a potential barrier and source of frustration in our everyday practice, yet one over which we had minimal control. Excerpts from the advice given in the survival memos point at the salience of these frustrations:

- *The key thing you need to know is how unreliable and frustrating it* [*teaching with iPads*] *is. Our infrastructure seems to be built in an* ad hoc *way*, *largely quick solutions built on quick solutions. Consequently*, *there is not a good coverage*, *coherence of systems or support*.
- *Don't ever assume that you are going to be able to connect wirelessly to the internet*, *wherever you are teaching*!
- *The infrastructure in the Faculty is inadequate and is <u>one</u> of the biggest barriers to adopting technology*.

After the initial venting of our frustrations, we recognised that our practices are always situated and co-dependent on the institutional infrastructure to support optimal access and use of technology.

Beyond the infrastructure, we found that we also needed to be able to problem-solve the various technological issues that were ever present. This was a constant sword of Damocles; the only certainty was that we would inevitably be faced with an issue to solve – on the spot with an audience of students and a ticking clock of time being wasted. From the small to the large; from poor to no connectivity; from batteries being flat on the microphone, to screens, programs and entire systems shutting down at random; there was always the worry of something falling over.

As became apparent through our survival memos, we each dealt with the frustrations of implementing technology with varying degrees of success. We saw it as either being something external over which we had minimal control or as something that was a challenge to be worked around and overcome. Regardless of our position, we came to the conclusion that underpinning these frustrations was a loss of our self-efficacy and confidence in front of our classes. For four experienced teacher educators, integrating technology became a source of insecurity and anxiety when we lost control over the technological circumstances surrounding our teaching. We concluded that we could disown the sense of incompetence or inadequacy when it was tied to external factors (such as a system failure), yet we still had to teach our students. The solution that we all used was to turn these situations to our pedagogical advantage by making explicit to the students that they, too, would be faced with similar barriers, challenges and frustrations in their own classrooms. We felt as though ongoing transparency strengthened the common understanding of difficulties teachers and students faced and developed a camaraderie of us vs. infrastructure. This helped ameliorate the feeling of vulnerability when technology failed.

We found that in order to take advantage of the possible learning opportunities afforded by mobile technologies, we needed to be competent with any program or application we chose to use. Initially this was developed through spending many, many hours 'playing' with the technology outside of normal teaching time. However, the difference between being able to use particular technology adeptly in private and being able to demonstrate its use in front of a class was wide. When we knew that it was our lack of familiarity, competence, expertise, and confidence in the technology that was impacting our teaching, rather than infrastructure issues, we were left feeling even more exposed and vulnerable.

Furthermore, as the term progressed, even when we were publically competent with the tool, the much deeper questions about whether or not the different uses of technologies we were implementing were pedagogically best practice weighed heavily on our minds. The doubts that we had around whether or not we were improving our pedagogical practice surfaced in our survival memos. We all emphasised the importance of foregrounding pedagogy rather than technology but, even so, we acknowledged how overwhelming the technological tool, and appropriate use of it in front of our classes, could be. As Dawn wrote in her memo:

> *Don't you think to yourself, why change effective pedagogy? Why would you go off your top branch and slither all the way back down into the mud and be stomping around thinking you're going to be in a different tree… is that tree going to be any better?*

Our collective response at the time was that good teaching is always angst ridden.

> *It doesn't matter if you're using a whiteboard or mobile technology you are always going to be worried that your teaching didn't connect with the students. If you are a caring teacher – and the whole reason that you're trying to be at that forefront is that you do care about your teaching – you are trying to think about a different, more effective way of doing it.*

At the end of the year we analysed the students' feedback, reflected more deeply on the year and considered more circumspectly our pedagogical undertaking. One theme within the student feedback to us, was that they wanted us to be experts, and leaders of the learning. They did not us want us to be co-learners. Indeed, this made them feel less confident in us and less secure. Some students provided explicit feedback about this through anonymous end-of-course evaluations, commenting that although they had found the use of technology interesting, they did not like feeling like 'guinea pigs'.

We recognised that our practice has always been to make our implicit thinking explicit to the students – so with technology we have been honest and shared our own learning journey (including our frustrations) with the students. We had thought that this was sound pedagogical practice in preparing our students for the reality of teaching and in enabling them to see the complexity of teaching (Loughran, 2010). However, if they feel bewildered, confused and frustrated, then despite our assurances they may well internalise negative messages about the effective use of technology. Realising that they may forget what we do and say but that will not forget how they feel in our class was salutary. We discussed the need for students to feel secure as fundamental to learning and this caused us to question how pedagogically sound it was for us to expose the myriad of difficulties we encountered when integrating mobile technologies to our classes. We have never wanted to position ourselves as 'sage on the stage' or 'expert of all'. However, the deep and abiding source of our vulnerability now rests in whether our explicit approach, and co-learner positioning is meeting the immediate needs of our students.

Invisible/Visible Mobile Learning

Our primary purpose was to explore how technology might be used to make the students' learning visible, and how it would mobilise their learning and our pedagogies. Our data shows that generating feedback on student learning was not a problem. Each of us designed classroom activities and tasks to create various artefacts (e.g. videos, journals, portfolios) and experiences (e.g., peer feedback, reciprocal teaching) that were easily collected and available as 'evidence' of learning. These were then used by us as lecturers to provide feedback to the students on their learning, by the students to provide feedback to each other and to provide feedback to us as teachers to shape our teaching. Technology indeed facilitated and enabled this process as evidenced by an example from Rena's experience.

Rena's aim was for her students to use a *Piazza* as a tool to deepen conceptual understanding of a particular context and to facilitate meaningful class interaction synchronously. Students were invited to contribute anonymous posts throughout the session. About three-quarters of the way through the session Rena looked at the online comments and was stunned. The students' contributions reflected a genuine level of concern about the breadth and depth of knowledge required to teach science effectively and the importance of science for young people's education. This

feedback prompted Rena to change her session to address the students' feelings of being overwhelmed and build on their appreciation of the relevance of science.

Similarly Constanza described in the collective memory exercise an instance where she planned the use of *Educreations* for reciprocal teaching of some key principles to the teaching of languages. Her pedagogical interest was to have the students reflect on the most effective way to teach the principles using the technology. However, in her observation of the groupwork it was obvious that the students were more concerned about the app itself than on discussing, planning and teaching the principles. This resulted in a quick change of the rest of the lesson and a subsequent homework assignment. Both actions were, in Constanza's opinion, less desirable for her pedagogical purposes.

We could each recount similar experiences, where there was a sharp mismatch between the learning we thought was happening in our classroom and our students' perspective. We sometimes made assumptions of what the students would know, or that the content would be easy to understand or that they would come prepared. Mobile technology enabled additional feedback which provided a chance for us to 'see' the students differently and to identify issues or aspects that students were struggling with.

In our collective discussion we recognised that the feedback we received challenged the assumption that we know what is happening in the class. Mobile technologies allowed feedback, often synchronously, to make our students' learning visible, yet there are also layers of invisible learning which may prove to be different to what we think (or hope) may be happening as a result of our teaching. As Dawn reflected:

> *When we think we see learning happening in our classes, that's not necessarily learning- it can be studentship behaviour. The learning possibly doesn't happen until long after they have left us. I have to be careful about reading too much into students' actions as 'learning'. I think I should stop looking for such overt feedback from them.*

Making our teaching actions transparent to one another in our collective biography discussions allowed us to articulate the actions we took in response to students' feedback. Through our dialogic conversations reflecting on the feedback and on our subsequent response (or lack of response) to this feedback, new understanding and insight was generated and we were able to better reflect on the efficacy of our action (or inaction). Technology *can* provide a vehicle to show us what is actually happening, it can make learning visible and provide the teacher understanding to shift teaching in response. However, harnessing the full potential of technology in this regard is an ongoing challenge yet to be fully realised in our practice.

Transmissive/Transformational Teacher Education

As a group of experienced teacher educators, we took the opportunity to integrate mobile technologies to our teaching with different degrees of enthusiasm, yet committed to high quality pedagogy. Our initial Survival Memos were full of advice to the incoming teacher about foregrounding good pedagogy, such as:

- *Always start with a goal and then see what technology can best augment, modify or fundamentally redesign the learning experiences to meet this goal.*
- *Pedagogy must always remain first and foremost, with technology as the tools for learning*
- *The goal is not to have students learn about technology, but to have them using technology to learn something.*

However, by the time we started to remember specific instances where feedback collected from the students indicated difficulties, we were disappointed to find that while there was evidence that we responded to some of the feedback that we received, there was also evidence that the way we made sense of the situation was through a set of discourses associated with transmission styles of teaching.

For example, in one meeting Alan shared his experience of using the app *Socrative* to facilitate feedback and interaction in the class. He was teaching students about writing learning outcomes and had some examples on *Socrative* for students to identify the components of a learning outcome such as the stem statement and the verb. It was meant to be a simple, revision task, but as he observed the students' interactions, he quickly realised that many were having difficulty building appropriate learning outcomes. He realised he had to make some changes to the lesson, but also felt there was a risk in the class becoming spread-out with some finished and beginning to go off task while others were struggling to understand. He felt unsure what to do and was not sure where the class was heading. Although giving autonomy to the groups was important, he knew that at least one group would be disadvantaged. To him, it was easier to bring the class together, see what each group had accomplished and explain what a learning outcome was. The tension here was between what would be more comfortable and allowing the students to solve a problem.

In our discussion about the stories, we were surprised and disappointed that when faced with the challenges of integrating technology and although we wanted to follow our 'best pedagogical' instincts, we would handle the situations by reverting to what we felt was a transmission style of teaching. These situations challenged us to consider our roles and abilities to engage students at different levels of learning. Before these reflections and subsequent discussions, we had maintained beliefs that our teacher education pedagogies had overcome the stage of being transmissive. However, the reflections triggered by the feedback collected when using technology indicated otherwise.

In our meeting to share instances of feedback, we also discussed at length, even questioned, what we meant by modelling good practice. For us, being prepared to

share with students the difficulties we were having and the time it took to plan for integrating technology was powerful transformational teacher education pedagogy. In fact, we commented that we would do our students a dis-service if we pretended that using technology was risk-free and unproblematic. However, as discussed before, some of the students' anonymised feedback indicated that these instances fed their insecurity and confusion about teaching. They expected us as their lecturers to know where we were going in the learning journey and were disconcerted when this appeared not to be the case. The impact this had on us was equally unsettling.

Conclusion

The opportunity to integrate mobile technologies in some of our established teacher education courses motivated the present self-study where we aimed to understand the implications of such integration to our practices while striving to maintain high quality teacher education pedagogies. We started with the certainty that technology will continue to develop and expand its capabilities and affordances for teaching so we wanted to learn how our teaching would co-evolve with the devices and tools available. Three issues arose from our analysis of the self-study data: issues of vulnerability, issues about the way we discerned and acted upon the feedback provided by our students, and the tension in our model(s) of teacher education.

The first realisation was that as teacher educators we experienced vulnerability caused by the lack of control over the learning environments, by failures in the technology, and by our emerging (read lack of) expertise in using the technologies. Underneath all these external, often unavoidable, shortcomings was a deeper sense that we had lost our position as experts in front of our students thus being unable to lead learning the way we thought we could. A response to that (transitory) loss of control was to make our students aware that these were the realities of teaching with technology. We thought we were 'walking the talk', yet to our dismay, some students reacted negatively to these vulnerabilities and our exposed selves. As time has passed these initial vulnerabilities have changed and have provided us with opportunities to reflect on how we position ourselves as pedagogues. We have come to the realisation that we are not modelling expertise and that our students also need to reposition themselves not as consumers of the expertise of their teachers, but as students learning about becoming teachers.

As we entered in conversations with our students mediated by the mobile technologies to make their learning visible, we realised that discerning feedback presents challenges at different levels. As class size increases and our teaching moves to different spaces, we need to be able to read our students' learning in new ways. We now know that mobile technologies enable us to read our students through different media, at different rates and with different results. What has become apparent through the technology, is that there is a tension between what we think is happening as a result of our teaching and what the students are learning or consider

important to learn. Finally as teacher educators, the most important realisation was that the changing landscape of our courses and classes prompted a deep reflection into the true nature of our pedagogies. Integrating mobile technologies made us realise that the key challenge is the need to constantly adapt and evolve our pedagogies to ensure that high quality learning remains the key outcome.

Self-study as a method provided us with the opportunity to research our own practices in a way that helped us to imagine our teaching differently and enabled a sensitivity to pedagogy as a complex process. We worked as a collective and the ongoing collaboration continually provoked and prompted purposeful reflection. Similar to our framing of mobile learning as a conversation, self-study opened a dialogue amongst the four of us and allowed the creation of a supportive collective in the midst of changes to our teaching. The resulting community developed a set of languages and values to describe and reflect on the practices as they evolved and forced us to articulate the underpinning philosophical basis of our practice. This community of practice evolved into a supportive environment where we collectively explored pedagogical principles as we brought criticality to our adoption of technology.

We embarked on this project because we were interested in a critical discussion of the issues surrounding the impact of mobile technologies on teacher education and on ourselves as teacher educators. This self-study has prepared us to consider that technology will challenge, change and transform our pedagogy in ways we had not thought possible before. As teachers we should be lifelong learners engaged in constant reflection about our own teaching as inquiring practitioners. However, in the busyness of our academic lives, this can easily slip and we can become complacent with our practice, thinking that it is transformative. Using technology, which requires constant upskilling and constant pedagogical consideration, challenged us to be learning all the time and reflecting constantly.

The frustrations and the pedagogical hesitations have provided a sense of renewal in our teaching. As Constanza said “I feel like a new teacher again. I’ve had to think of the pedagogy every step of the way and that’s refreshing”. Most importantly, the on-going challenge for us becomes one of not focussing on the tools, but considering what the tools could enable. Our explorations are of reflecting on the educative value of mobile technologies to our practice as teacher educators. We are, first and foremost, teaching about teaching. Teaching in the future will almost definitely become more and more dependent on technology yet expert teachers will always be defined by their expertise in the teaching role rather than their technical prowess.

References

Barab, S. A., & Roth, W. (2006). Curriculum-based ecosystems: Supporting knowing from and ecological perspective. *Educational Researcher, 35*(5), 3–13.

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.

Britzman, D. (1991). *Practice makes practice: A critical study of learning to teach*. New York: State University Press.

Brookfield, S. (1995). *Becoming a critically reflective teacher*. San Francisco: Jossey-Bass.

Crompton, H. (2014). A diachronic overview of mobile learning: A shift toward student-centered pedagogies. In M. Ali & A. Tsinakos (Eds.), *Increasing access through mobile learning* (pp. 7–16). Vancouver, Canada: Commonwealth of Learning. Retrieved from http://www.col.org/PublicationDocuments/pub_Mobile%20Learning_web.pdf

Davies, B. (2006). The practices of collective biography. In B. Davies & S. Gannon (Eds.), *Doing collective biography: Investigating the production of subjectivity* (pp. 12–26). Maidenhead, UK: Open University Press.

Davis, S. (2003). Observations in classrooms using a network of handheld devices. *Journal of Computer Assisted Learning, 19*(3), 298–307. doi:10.1046/j.0266-4909.2003.00031.x.

Dede, C. (2005). Planning for neomillenial learning styles. *Educause Quarterly, 28*(1), 7–12.

Deegan, R., & Rothwell, P. (2010). A classification of m-learning applications from a usability perspective. *Journal of the Research Center for Educational Technology (RCET), 6*(1), 16–27.

Denzin, N. K., & Lincoln, Y. S. (2003). *The landscape of qualitative research*. London: Sage.

Gupta, B., & Koo, Y. (2010). Applications of mobile learning in higher education: An empirical study. *International Journal of Information and Communication Technology Education, 6*(3), 75–87. http://dx.doi.org/10.4018/jicte.2010070107.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.

Jackson, A., & Mazzei, L. (2013). Plugging one text into another: Thinking with theory in qualitative research. *Qualitative Inquiry, 19*, 261–271. doi:10.1177/1077800412471510.

Jones, C. (2010). A new generation of learners? The net generation and digital natives. *Learning, Media and Technology, 35*(4), 365–368. doi:10.1080/17439884.2010.531278.

Jones, C., Ramanau, R., Corss, S., & Healing, G. (2009). Net generation or digital natives: Is there a distinct new generation entering university? *Computers & Education, 54*, 722–732. doi:10.1016/j.compedu.2009.09.022.

Kukulska-Hulme, A. (2012). How should the higher education workforce adapt to advancements in technology for teaching and learning? *Internet and Higher Education, 15*, 247–254. doi:10.1016/j.iheduc.2011.12.002.

Laurillard. (2002). *Rethinking university teaching: A framework for the effective use of learning technologies* (2nd ed.). Abingdon, UK: Routledge Falmer. http://dx.doi.org/10.4324/9780203304846.

Laurillard, D. (2007). Pedagogical forms of mobile learning: Framing research questions. In N. Pachler (Ed.), *Mobile learning: Towards a research agenda* (pp. 153–175). London: WLE Centre, Institute of Education.

Loughran, J. (2010). *What expert teachers do: Enhancing professional knowledge for classroom practice*. London: Routledge.

Myers, C. B. (2002). Can self-study challenge the belief that telling, showing and guided practice constitute adequate teacher education? In J. J. Loughran & T. Russell (Eds.), *Improving teacher education practices through self-study* (pp. 130–142). London: Routledge Falmer.

Nicol, D. J., & MacFarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*, 199–218. doi:10.1080/03075070600572090.

Placier, P., Pinnegar, S., Hamilton, M., & Guilfoyle, K. (2005). Exploring the concept of dialogue in the self-study of teaching practices. In C. Kosnick, C. Beck, A. Freese, & A. Samaras (Eds.), *Making a difference in teacher education through self-study* (pp. 51–64). Dordrecht, The Netherlands: Springer.

Sharples, M., Taylor, J., & Vavoula, G. (2007). A theory of learning for the mobile age. In R. Andrews & C. Haythornthwaite (Eds.), *The Sage handbook of e-learning research* (pp. 221–247). London: Sage.

Shim, M. K., & Shim, S. J. (2001). Mobile computing in higher education: Faculty perceptions of benefits and barriers. *Journal of Educational Technology Systems, 29*(4), 345–354. doi:10.2190/WG4N-BQA0-UF4E-AV0U.

St. Pierre, E. A. (2011). Post qualitative research: The critique and the coming after. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (4th ed., pp. 545–561). Los Angeles: Sage.

Taras, M. (2003). To feedback or not to feedback in student self-assessment. *Assessment and Evaluation in Higher Education, 28*, 549–565. doi:10.1080/02602930301678.

Traxler, J. (2011). Mobile learning – starting in the right place, going in the right direction? *International Journal of Mobile and Blended Learning, 3*(1), 57–67.

van Braak, J. (2001). Factors influencing the use of computers mediated communication by teachers in secondary education. *Computers and Education, 36*, 41–57.

Wains, S.I., & Mahmood, W. (2008). *Integrating m-learning with e-learning*. Proceedings of the 9th ACM SIGITE conference on information technology education (pp. 31–38). New York. doi:http://doi.acm.org/10.1145/1414558.1414568

Winne, P. H., & Butler, D. L. (1994). Student cognitive processing and learning. In T. Husen & T. N. Postelthwaite (Eds.), *The international encyclopedia of education* (2nd ed., pp. 5739–5745). Oxford, UK: Pergamon.

Chapter 10
Thinking in Space: Virtual Bricolage Self-Study for Future-Oriented Teacher Professional Learning

Kathleen Pithouse-Morgan and Anastasia P. Samaras

See from a broader and alternative space
Think in space
Opened a space for sharing
Sources of inspiration
Communicating about the why of our work
Authority of vulnerability
Confluence
Complementary colleagues
Wide futures

Introduction

Self-study of professional practice has brought to centre stage the resourcefulness and autonomy of professionals in their own processes of learning and knowing (Hamilton, 2004; Loughran, 2007). Professionals who choose to undertake self-study research are positioning themselves as "enthusiastic learners who want to improve their practice" (Webster-Wright, 2009, p. 728). Self-study learning communities can offer these enthusiastic learners supportive spaces for research conversations, with participants' contributions enhancing each other's learning as well as that of the group (Crowe & Dinkleman, 2010; Lunenberg & Samaras, 2011).

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Transdisciplinary self-study learning communities can further result in generative dialogue between diverse fields of professional expertise and multiple disciplinary backgrounds (Harrison, Pithouse-Morgan, Conolly, & Meyiwa, 2012; Samaraset al., 2014).

We (Kathleen and Anastasia) are teacher educators involved in facilitating transdisciplinary self-study learning communities in our respective home countries of South Africa and the USA and with higher education teachers located in various disciplines inside and outside of teacher education. We have each worked with other colleagues to research our practice of supporting transdisciplinary self-study, highlighting how the role of a mentor, supervisor or facilitator in self-study research requires a stepping back and an invitation to professionals to take the lead in their own learning (Harrison et al., 2012; Pithouse-Morgan et al., 2015; Samaras, 2013, Samaras et al., 2014).

In this chapter, we focus on our digital and arts-based dialogic research that evolved in an in-between space: between the continents in which we live and work, between our diverse personal and professional experiences and interests, and between disciplinary and methodological domains. We reflect on the intersections we found in an online research conversation in which the two of us dialogued for a 3 month period about working with higher education teachers in facilitating transdisciplinary self-study learning communities in South Africa and the USA. While our initial research purpose was to compare our experiences of facilitating transdisciplinary self-study learning communities, the dialogic process itself took us in a new direction as we began to refocus our gaze on our personal and professional impetus for working with others to enable self-study research. The chapter demonstrates how developing a virtual bricolage self-study method provoked new insights for us about *why* we are drawn to facilitating transdisciplinary self-study learning communities. We describe this virtual dialogue as *thinking in space* and our discovery of bricolage self-study method as a future-oriented research approach to promote teacher professional learning. We conclude the chapter by considering the significance of professionals understanding and openly communicating the 'why' of their practice.

Context

Where does seeing from a broader and alternative space in educational research begin? As university teachers working within the research genre of self-study of professional practice, we begin with our own learning and our reflections on our collaborative experiences with self-study colleagues. In our quest to become better teachers, we follow a path of studying, thinking deeply about and questioning our professional practice. For us, self-study of professional practice is more than a research methodology. It is a continuing process of seeking out innovative and responsive ways of knowing and re-knowing, seeing and becoming as teachers in higher education.

Since 2011, Kathleen has been working in South Africa with colleagues from a university of technology (Durban University of Technology), a research-intensive

university (University of KwaZulu-Natal) and a rural comprehensive university (Walter Sisulu University) to lead a transdisciplinary self-study project, known as the *Transformative Education/al Studies* (*TES*) project (see Harrison et al., 2012; Pithouse-Morgan et al., 2015; Van Laren et al., 2014). Project participants are 40 higher education teachers from a range of academic and professional disciplines who are engaged in self-study research in diverse university contexts. These participants meet at least twice a year for inter-institutional workshops and have regular virtual contact via an online social learning platform. There are also TES groups that meet weekly or monthly at each of the three host universities. The central self-study research question of "How do I transform my educational practice?' is explored in relation to participants' particular contexts and also across the learning community, becoming "How do *we* transform our educational practice?" The project aims to enhance and study the collaborative development of self-study research and supervision capacity as participants respond to these questions. As one of the project's research supervisors, Kathleen is supporting the self-study doctoral research of participants who are teacher educators across a range of academic specialisations, as well as of those who are university educators in the professional disciplines of clothing and jewellery design.

Anastasia's initiative to launch a transdisciplinary self-study group was inspired by the goal of introducing self-study research across a large public research university (George Mason University) and to extend it to faculty who were not all teacher educators. In 2010, 11 faculty from 11 specialisations and four different colleges were competitively selected to participate in *Scholars of Studying Teaching Collaborative* (*SoSTC*), a three semester research project to conduct a self-study of their professional practice. Each participant developed a self-study project situated in their practice while also engaging in a meta-study where they asked, "What is the nature of our progress and development as a faculty self-study of teaching collaborative invested in studying professional practice?" (see Samaras, 2013; Samaras et al., 2012, 2014).

Subsequent to this group, in 2012 Anastasia co-facilitated *Studying Teaching Collaborative on e-Learning* (*SoSTCe-L*), a year-long transdisciplinary faculty self-study group where 12 faculty from different colleges and specialisations conducted a self-study of a facet of their distant teaching they wanted to improve. Participants shared the challenges and rewards of e-learning and found, regardless of discipline, they encountered similar dilemmas.

In 2014, Anastasia co-facilitated *Self-Study Scholars*' *Collaborative* (*S^3C*) *on the Visually Rich Digital Learning* including 15 faculty devoted to the self-study of teaching and learning in and with visually rich digital learning environments. The goal was for the project to link participants across disciplines and Colleges in professional inquiries using a wide variety of visually oriented digital tools; not only on learning to use these tools (the practical), but on broadening participants' understanding of what is possible in visually rich digital active learning environments (the potential). As with SoSTC, individual studies focused on pedagogical or curriculum challenges and a collaborative meta-study of self-study as a tool for reimagining teaching practices within visually rich digital active learning environments. A key

element to success in each of these faculty self-study groups was the creation of transdisciplinary critical friend subgroups within which pedagogies were exchanged and individual projects were debated, analysed, and shaped.

These related experiences brought us (Kathleen and Anastasia) together with the goal of learning from each other's experiences in facilitating transdisciplinary self-study research communities. From a theoretical perspective, our collaborative research is based on the understanding that personal knowledge and knowing are extended through dialogue and openness to other's standpoints. Actions and thoughts are culturally mediated, "indirectly shaped by forces that originate in the dynamics of communication" (Wertsch, 1985, p. 81). Vygotsky (1981) asserted that learning, thinking, and knowing arise through collaboration and reappropriating feedback from others and a willingness to learn with and from each other. The community extends and transforms individuals' understandings while the individual internalises cognition when working outside her own perspective (Lave & Wenger, 1991).

We are also interested in making encounters with diverse ways of seeing and knowing – what we have called "polyvocal professional learning" – a focal point of our self-study research (Pithouse-Morgan & Samaras, 2015b). Polyvocality can quite simply mean many voices, but it also has associations with the potential richness of bringing into dialogue multiple perspectives. In understanding what this might mean for professional learning through self-study research, we have drawn on Bakhtin's (1984) explanation of polyvocality (which he refers to as polyphony) as a literary device in a novel: "What unfolds…is not a multitude of characters and fates in a single objective world, illuminated by a single authorial consciousness; rather a plurality of consciousnesses…combine but are not merged" (p. 6). To illustrate, Toni Morrison (e.g., Morrison, 1992) and William Faulkner (e.g., Faulkner, 1977) use polyvocality as a literary device when they interplay different voices in their work. Characters in their novels come in and out of dialogue set within a meta-story that brings together their unique voices and perspectives. This chapter illustrates how self-study of professional practice can serve as a conduit for polyvocal learning conversations and also how such conversations can enhance professional learning and knowing about and for practice.

Methods

The research genre of self-study of professional practice has its roots in work done by teacher educators in the early 1990s, which evolved into the Self-Study of Teacher Education Practices (S-STEP) Special Interest Group (SIG) of the American Educational Research Association (AERA) (http://www.aera.net/sstepsig109). While the work done by the S-STEP community continues to serve as a foundational resource, self-study research is now being done across multiple professions and contexts (see Pithouse, Mitchell, & Moletsane, 2009; Pithouse-Morgan & Samaras, 2015a; Samaras, 2013).

Self-study research is paradoxically collaborative (LaBoskey, 2004; Loughran & Northfield, 1998) and we add transdisciplinary in nature and practice. Teacher educators have worked on individual studies within a collaborative (e.g., The Arizona Group, 2000), while others have noted that one method of self-study is the collaborative or collective self-study method (Davey & Ham, 2009; Samaras & Freese, 2006; Tidwell, Heston, & Fitzgerald, 2009). Self-study teacher educators have also facilitated and participated in faculty self-study of professional practice groups composed of teacher educators (Grierson, Tessaro, Cantalini-Williams, Grant, & Denton, 2010; Hoban, 2007; Kitchen, Ciuffetelli Parker, & Gallagher, 2008; Lunenberg, Zwart, & Korthagen, 2010; Samaras, Kayler, Rigsby, Weller, & Wilcox, 2006). These groups worked collaboratively with the goal of solving practical problems about teacher education while generating knowledge that was negotiated and tested.

Self-study methodology is characterised by the use of multiple and diverse methods, with the aim of developing complex and nuanced understandings of research phenomena (LaBoskey, 2004; Samaras, 2011). In our research process we used two main self-study methods: a) *collective or collaborative self-study* – through which researchers "make [their] collaboration the focus of the study itself" (Davey & Ham, 2009, p. 187); and b) *arts-based self-study* – which involves using "art forms to represent and reinterpret, construct and deconstruct meaning, and communicate" (Samaras, 2011, p. 100). As Weber (2014) explains:

> visual and other arts-based methodologies such as creative writing and performance enable researchers to cast a wider net during data collection and offer a panoply of valuable lenses for analysing experience in meaningful ways…. (p. 10)

In what follows, we show how our online discoveries made through "select[ing] different interpretive practices and methodological tools" (Badley, 2014, p. 665) evolved into what we call a virtual bricolage self-study method. Kincheloe (2001) described methodological bricolage as "using any methods necessary to gain new perspectives on objects of inquiry" and explained that "as researchers draw together divergent forms of research, they gain the unique insight of multiple perspectives" (p. 687). The "multiperspectival" (Kincheloe, 2001, p. 682) dialogue we portray in this chapter is an invitation to others to extend the conversation about digital technologies and bricolage self-study for future-oriented teacher professional learning.

Data Generation

Our mutual interest in transdisciplinarity provided intellectual and methodological nourishment for the virtual *thinking in space* process that evolved over a 3 month period as we played with a bricolage of dialogic tools to generate data: (1) emails (2) letter-writing, (3) the co-creation of online mood boards, (4) photographs, and (5) research poetry. At the end of the 3 months, we had produced a total of 40 pages of emails and letters, as well as two co-constructed virtual mood boards. Our bricolage approach thus involved employing a set of diverse tools available and practical

in informing our collaborative, arts-based self-study inquiry. Digital technologies made available new ways of connecting with each other and allowed us to explore in a virtual space, which illuminated and documented developing and iterative sets of data.

We began with a series of emails in which we used letter-writing to express our thinking about our research (see Pithouse-Morgan, Khau, Masinga, & van de Ruit, 2012; Samaras, 2011, Samaras & Sell, 2013). We migrated to also using the visual and literary arts to deepen, extend and make sense of our written communication, including using mood boards. A mood board is a visual canvas which designers use to develop, demonstrate and discuss their design concepts (see Eckert & Stacey, 2000; Lucero, Aliakseyeu, & Martens, 2007, 2008). In the past, these boards have generally been pin boards on which, for example, clothing or textile designers have arranged images, colour swatches, fabric samples, and so on to communicate their ideas for new designs. As Eckert and Stacey (2000, pp. 528–529) explain:

> Mood boards play an important role in design communication in the knitwear and fashion industries. These constitute descriptions of the overall aesthetic impression the items in a category should create.

Recent technological advances that have allowed for the development of digital mood boards have expanded possibilities for using mood boards for the interactive communication of design concepts (Lucero et al., 2007, 2008).

In an email sent early in our research process, Kathleen explained how her interest in the use of mood boards arose from her work with self-study researchers who are located in the design field:

> At our TES workshop in March this year we were talking about types of evidence that we might use to demonstrate the writing process in our self-study writing. Two TES participants with design backgrounds brought up mood boards as a way in which designers develop and demonstrate the design process. The idea of mood boards really captured my imagination. I started thinking about how we might draw on this way of knowing from the design world in educational writing and research.
>
> I've used collage, storyboarding and concept mapping before as part of a research process, but mood boards are something new for me….I've been playing around a bit with the idea of a mood board as a collaborative, visual method for bringing into dialogue our thinking about transforming self with/through our work with others from other disciplines….The frame of a mood board seems to offer a possible space for the imaginative play that is central to generative thinking.
>
> I've sent you an invitation to a programme that facilitates collaborative, online mood board making….I've made a very rough start with a mood board – adding some visuals and text. I was wondering if you might like to add a photo from your visit to the Grand Canyon and/or a photo of your seashells – along with some of your ideas about these or anything else? (Kathleen to Anastasia, June 24, 2013)

In developing our mood board, we used Mural.ly (https://mural.ly), a free programme that allows for collaborative online construction of virtual mood boards. Using this software allowed us to work together across continents to co-create mood boards on which we arranged and re-arranged images and text to craft visual representations of our ongoing *thinking in space* (see Fig. 10.1).

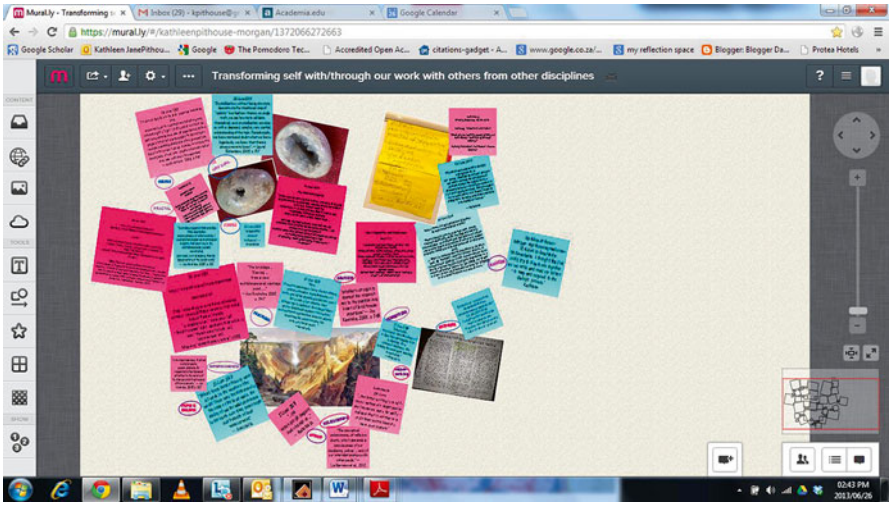

Fig. 10.1 A screenshot of our virtual mood-board as work-in-progress

During the *thinking in space* process in the mood board platform, we also posted our relevant writings, research literature, visual artefacts, and photographs as memory-work self-study (Mitchell & Weber, 1999) to help contextualise our current thinking. Here, our research process intersects with recent scholarship on "digital memory-work", which is described as "the use of digital media to create digital artefacts (e.g., digital albums, collages, stories, movies, photograph collections, portraits, sound recordings) to remember the past so as to change the future" (Strong-Wilson, Mitchell, Morrison, Radford, & Pithouse-Morgan, 2014, p. 442). Our use of a digital mood board has correspondences with Naicker's (2014) "digital memory box" technique. Naicker explains how he created digital memory boxes by combining "artefacts such as photographs, newspaper clippings, documents, e-mails, video clips, and audio clips that were representative of [his] personal and professional self" (p. 55). These artefacts were scanned and curated to form video clips that served as digital memory boxes that were shared with research participants with the aim of prompting reminiscences of common past experiences. In our case, the mood board offered us insights into each other's experiences. Unlike in Naicker's study, these experiences were not shared in the sense that we had both been present at the time of the events taking place. Instead, the digital mood board allowed us to find commonalities between our individual experiences that had occurred miles and (sometimes years) apart.

Our emails and letters communicated and catalogued the 'big ideas' that emerged as we read and responded to each other's letters and began our data set for analysis. Adding virtual sticky notes to the mood board also forced us to condense the thinking that we were expressing in our letters and enabled us to map out significant ideas as we went along (see Fig. 10.1).

Data Analysis

Data generation and analysis were conducted in a hermeneutic fashion using dialogic self-study with each data source informing an ongoing interpretation and analysis. As illustrated in the following extracts from our emails and letters, our dialogic data generation tools simultaneously became our analysis tools (East et al., 2009). The extracts show how, as a vital part of our collaborative meaning-making process, we shaped our big ideas into two research poems to represent our interpretations from the data (see: Kathleen to Anastasia, August 5; Anastasia to Kathleen, August 23). From these poems, we extracted four themes for further discussion (Furman, Lietz, & Langer, 2006). We built our research and meaning-making process brick by brick with an openness that positioned our research process as inquiry-guided (Mishler, 1990). To enhance trustworthiness, in the section that follows we express and demonstrate significant features and processes of our study, showing how our ideas were brought into dialogue and how mutual insights evolved.

Dialogic Extracts from Emails and Letters

Kathleen to Anastasia, *June 19*, *2013*:

As I was reading your 'Twelve Shells' story, the image of a celestite crystal came to my mind….Like your seashells, this crystal has been transformed by its interactions with the world – both physically and in the sense of the metaphysical meanings that human beings have ascribed to it. This crystal certainly holds symbolic meaning for me. On a personal level, it reminds me of the friend who gave it to me 12 years ago when I was starting out on my Masters' research. He said that it reminded him of me and also that one of its purported properties was it was supposed to enhance learning…. My friend had a way of listening to me that made me feel unique and remarkable and I remember that he also seemed to have this effect on many other people….In the year that my friend gave me the crystal he finally decided to take the risk of giving up his profitable business in order to go to university as a mature student to study psychology. Sadly though, not long after he gave me the crystal, he was killed in an accident. For me, then, while the celestite crystal evokes a sense of loss, it also represents my friend's vitality and his avid, wide-ranging curiosity about our world…. Like my friend, I am developing a taste for wide-ranging learning. My remembrance of my friend and the physical form of the crystal remind me that such learning will be enhanced through bringing an attentive, multipersectival awareness to my encounters with the world and the people who inhabit it.

Anastasia to Kathleen, *June 21*, *2013*:

…the story of your friend moved me and reminded me of the ways people impact and change us and especially as we look back. I have continuously found that the

artefact of research pedagogy prompts us to capture some of the nodal moments of our work and life….Of course, I have Claudia Mitchell…to thank for her influence on me as she introduced me to memory-work in self-study which in turn prompted my pedagogical design of the research artefact.

What a beautiful circle of influence to now find myself working with you who studied and researched with Claudia. How wonderful we have both had the opportunity to participate in, and facilitate, as you so beautifully stated, "multifaceted educational encounters that excite my curiosity and expand my ways of knowing, seeing and being in the world…continually changed by these interactions…developing a taste for wide-ranging learning."

Kathleen to Anastasia, *June 26*, *2013*:

Your letter of 21 June sparked so many ideas for me that I feel that I could write a whole series of letters in response! I've been playing with some of these ideas on the mood board – trying to see how different fragments might fit together or connect in a variety of ways. When I look at the mood board as a whole (in its current form), what stands out for me most vividly is the visual resonance between the shape of the inside of the celestite crystal and the Grand Canyon. I wonder if it was this visual correspondence that brought the Grand Canyon image to your mind as you were writing your letter?.... I wonder if it was the fractal (irregular or fragmented) spatial patterns of the crystal and the canyon that brought these images or artefacts to our minds as we were thinking about our experiences of transforming self with/through our work with others from other disciplines?

Anastasia to Kathleen, *July 5*, *2013*:

I too wonder if your crystal image resurrected my image of the Grand Canyon and I see just what you mean when seeing the objects on the mood board; they do certainly stand out. They both have those deep crevices and roundness and yes, fractals.…. I too like to think of "going to my wide future", even, or especially, at my age. It's the creative side that I must nourish. When the director for the Center of Teaching and Faculty Excellence asked me, "What next Anastasia?", I thought, she knows me well. I am now playing with the idea of creating a mood board with digital and visual art faculty at the university for a third faculty self-study group. That's a lot of bricolage and sparked by my letter writing with you.

Kathleen to Anastasia, *July 11*, *2013*:

When I re-read your letter of 7 July today, what really stood out for me was SPACE:

See from a broader and alternative space
Think in space
Opened a space for sharing

Anastasia to Kathleen, *July 15*, *2013*:

After I sent the email about framing, I realised you have been framing with each of your letters; making sense of what stands out like the common themes you noted:

See from a broader and alternative space
Think in space
Opened a space for sharing
….

Big ideas for us?

See from a broader and alternative space
Think in space
Opened a space for sharing
Sources of inspiration
Communicating about the why of our work
Vulnerability of authority
Confluence
Complementary colleagues

Kathleen to Anastasia, *August 5*, *2013*:

I see one more big idea then to add to the list you compiled:

See from a broader and alternative space
Think in space
Opened a space for sharing
Sources of inspiration
Communicating about the why of our work
Authority of vulnerability
Confluence
Complementary colleagues
Wide futures

Looking at our big ideas in this way, I see the makings of a poem (or poems). Recently, I've been working with some of my Masters' students on using creative analytic strategies in their self-study research. Poetry is one avenue that we've been exploring. My reading… (e.g., Furman, 2006; Furman et al., 2006) on poetry-as-research has introduced me to the pantoum as a poetic form (based on patterned repetition of lines). I have experimented with it here as a possible way to start framing our paper:

Complementary Colleagues

Complementary colleagues
Communicating the *why*
Sources of inspiration
Confluence

Communicating the *why*
Opened a space for sharing
Confluence
Wide futures

Opened a space for sharing
Sources of inspiration
Wide futures
Complementary colleagues

Anastasia to Kathleen, *August 23*, *2013*:

These are the main themes I found across our data sets that were not already included in your piece of Complementary Colleagues:

Energised by the heart of our communication
Thinking in space with less text dependency
Making uncertainty and vulnerability our companion
Mentors in our life and letting go

Transformed by our interactions with the world
Multifaceted educational encounters excite curiosity
Expand ways of knowing, seeing and being in the world
Develop a taste for wide-ranging learning
What a beautiful circle of influence

So grateful for this opportunity

Kathleen to Anastasia, *August 23*, *2013*:

I've pulled these key features of our *thinking in space* process out from our poems:

Complementary colleagues
Less text dependency
Making uncertainty and vulnerability our companions
Communicating the '*why*'

Outcomes

As demonstrated above, we employed diverse theoretical and methodological perspectives to distinguish key features of our *thinking in space* as a dialogic self-study process and the knowing generated.

Complementary colleagues

We see ourselves in Eckert and Stacey's (2000) description of "complementary colleagues…who have different concerns, expertise,…, and frames of reference", but who have a common purpose (p. 535). Our common purpose was initially to learn more about facilitating and researching transdisciplinary self-study learning communities. As our *thinking in space* evolved, we became intrigued by what we might learn from understanding how and why our dialogue was unfolding in particular ways. We communicated several times a week, and sometimes several times a day, despite other demands on our time and not knowing each other very well. Sharing a common, albeit evolving purpose, contributed towards our commitment to, and perseverance in, our online conversation.

Less text dependency

The interactive and extemporary process of co-creating and revising online mood boards to portray our evolving thinking helped us to become more aware of possible meanings embedded in the data itself and also of how we were making sense of the data (Furman & Dill, 2015). Due to the six hour time difference between our locations in South Africa and the USA, we were not often working on a shared mood board at the same time. But because the Mural.ly programme sent an email alert

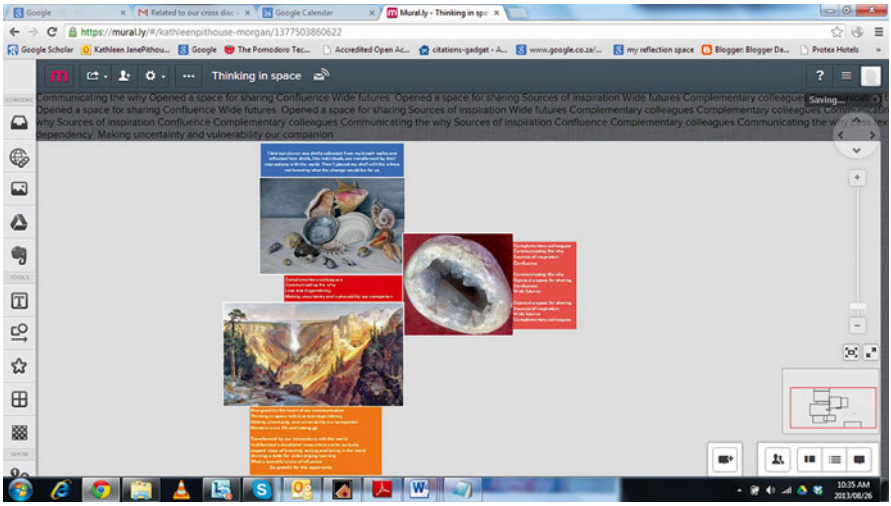

Fig. 10.2 A screenshot of our second, less text dependent virtual mood-board

when a mood board had been edited, we were aware of any changes made to the mood board as soon as we logged on to our email for the day. Thus, we were constantly mindful of and responding to each other's meaning making. The mood boards not only made visible the "interillumination" (Holquist, 1981, pp. 429–430) of ideas that was happening through our emails and letters, but they also provided stimulus for our continuing correspondence through emails and letters.

In co-creating our initial mood board (see Fig. 10.1), we mapped the thinking we were doing in reading and responding to each other's emails and letters. We juxtaposed visual images and text in an effort to explore the "relationship between visual and verbal description" (Eckert & Stacey, 2000, p. 531). The visual medium of a virtual mood board helped us to see that, because we were more familiar with communicating through written text than through visual design, our first mood board was text heavy. The images on the board were overpowered by sticky notes that were crammed with dense text. Although the board made sense to us, we came to see that it would not easily communicate our ideas to others. As we embraced becoming less text dependent, our meaning-making became more translucent. We distilled two research poems from 40 pages of emails and letters and used these poems to create a second, less text dependent, mood board representation to 'see' the 'essence' of our dialogic thoughts in space (see Fig. 10.2). In our second mood board, we aimed for balance between visual images and typescript.

Making uncertainty and vulnerability our companions

As our dialogue progressed, we became aware of a significant absence of the feelings of anxiety that can accompany and sometimes stifle academic writing

(Wellington, 2010). We acknowledged and embraced our feelings of vulnerability as we opened our minds and hearts to each other and our feelings of uncertainty as we played with unfamiliar methods and technologies (e.g., the mood board) and expressed tentative ideas. Our dialogue created "a space where we [could] reveal our minds and our ideas without holding back and with a willingness to be challenged" (Guilfoyle, Placier, Hamilton, & Pinnegar, 2002, p. 98). Russell (2002) noted that the act of recognising and sharing tensions with colleagues allows researchers to work towards a professional and transformational change in teaching. We came to see our shared uncertainty and vulnerability as companions and with an awareness of "vulnerability as liberating us to discard old notions" (Samaras et al., 2012, p. 253) to and be shared publically. That disposition of an open mind encouraged us to learn by taking an "unknowing stance as an approach to research, pedagogy, and scholarship" (Vasudevan, 2011, para. 4).

Communicating the 'why'

We began our online conversation expecting to discuss the 'how' of facilitating transdisciplinary self-study learning communities, but soon found ourselves delving into *why* we are drawn to this work. Although we are from very different worlds, we discovered similar sources of inspiration, confluence, and influence (Eckert & Stacey, 2000). This facilitated deeper self-awareness as well as empathetic understanding of each other's experiences of and interest in transdisciplinarity.

After deep reflection, Kathleen wrote to Anastasia:

> I'm reminded of the final line of Grace Nichols' beautiful metaphor poem, "A Praise Song for my Mother"[1]: "Go to your wide futures, you said"
>
> It is that sense of spaciousness and possibility – of wide futures – that I feel when I am engaged in learning through multidisciplinary conversations with others (both colleagues and students). And here, I come back to your story of standing on the edge of the Grand Canyon, gasping at the "depth and breadth", the "massive transformation of earth and colors", "the wonder of the world!" (June 26, 2013)

These mutual insights emerged through the interillumination of our diverse perspectives as we communicated the why and looked out towards our wide futures:

See from a broader and alternative space
Think in space
Opened a space for sharing
Sources of inspiration
Communicating about the why of our work
Authority of vulnerability
Confluence
Complementary colleagues
Wide futures

[1] http://www.poetryarchive.org/poetryarchive/singlePoem.do?poemId=15613

Conclusions and Implications

Our online research as "liquid network" (Johnson, 2010) fuelled our creativity to discover virtual bricolage self-study method, which holds much potential for further collective self-studies on a wide range of topics. For us, this work illustrates the power of 'we' for transformative personal and professional learning in teaching in higher education. Our self-study offers evidence of how we each grew in our individual understandings because and only because of our collaborative use of digital technologies. We experienced the potential and value of virtual bricolage self-study as a powerful, diverse, and accessible method for dialogic professional learning across geographical, cultural, and disciplinary contexts. Our work suggests and we recommend that as universities strive to support faculty development, they might consider facilitating access to virtual spaces for dialogue and exchange that can contribute to polyvocal professional learning. Within our transnational digital worlds, we worked to document the process of our discovery of why we facilitate self-study and share it broadly so others might consider how they might adapt virtual bricolage self-study in their teacher professional learning and inquiries. We have also since extended our transcontinental virtual bricolage self-study exploration to include other colleagues in our conversation about why we facilitate transdisciplinary self-study learning communities (Samaras et al., 2015).

Recognising our sources of inspiration through an online dialogic self-study process provoked new insights about the generative potential of understanding and openly communicating the why of our work. As Leipzig (2013) demonstrates, appreciating the personal impetus for our professional practice can help us to feel more purposeful and motivated as we see more clearly what we love to do, who we do it for, what we think those people want or need and what they might gain as a result of what we do. For us, discovering the why included unearthing our gravitation towards transdisciplinary scholarship, which offers higher education teachers a wide range of possibilities for learning from each other. Our demonstration of collaborative professional learning through virtual bricolage self-study will be useful to others interested in exploring dialogue, polyvocality and transdisciplinarity in higher education teacher development.

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References

Badley, G. (2014). Six characters in search of an author: A qualitative comedy in the making. *Qualitative Inquiry, 20*(5), 659–667.

Bakhtin, M. (1984). *Problems of Dostoevsky's poetics* (Ed. and Trans. C. Emerson). Minneapolis, MN: University of Michigan Press.

Crowe, A. R., & Dinkleman, T. (2010). Self-study and social studies: Framing the conversation. In A. R. Crowe (Ed.), *Advancing Social Studies education through self-study methodology: The power, promise, and use of self-study in Social Studies education* (pp. 1–19). Dordrecht, The Netherlands: Springer.

Davey, R., & Ham, V. (2009). Collective wisdom: Team-based approaches to self-study in teacher education. In C. A. Lassonde, S. Galman, & C. Kosnik (Eds.), *Self-study research methodologies for teacher educators* (pp. 187–203). Rotterdam, The Netherlands: Sense Publishers.

Faulkner, W. (1977). *Collected stories of William Faulkner*. New York: Vintage.

Eckert, C., & Stacey, M. (2000). Sources of inspiration: A language of design. *Design Studies, 21*(5), 523–538.

East, K., Fitzgerald, L. M., & Heston, M. L. (2009). Talking teaching and learning: Using dialogue in self-study. In D. Tidwell, M. Heston, & L. Fitzgerald (Eds.), *Research methods for the self-study of practice* (pp. 55–72). New York: Springer.

Furman, R. (2006). Poetic forms and structures in qualitative health research. *Qualitative Health Research, 16*(4), 560–566.

Furman, R., & Dill, L. (2015). Extreme data reduction: The case for the research Tanka. *Journal of Poetry Therapy, 28*(1), 43–52.

Furman, R., Lietz, C. A., & Langer, C. L. (2006). The research poem in international social work: Innovations in qualitative methodology. *International Journal of Qualitative Methods*, *5*(3), Chapter 3. Retrieved from http://www.ualberta.ca/~iiqm/backissues/5_3/PDF/furman.pdf

Grierson, A., Tessaro, M. L., Cantalini-Williams, M., Grant, C., Denton, R. (2010). *Exploring the tensions of teacher education through collaborative self-study.* Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Guilfoyle, K., Placier, P., Hamilton, M. L., & Pinnegar, S. (2002). Exploring the concept of dialogue in the self-study of teaching practices. In C. Kosnik, A. Freese, & A. P. Samaras (Eds.), *Making a difference in teacher education through self-study*. Proceedings of the fourth international conference on self-study of teacher education practices (Vol. 1, pp. 96–103). [Herstmonceux Castle, UK]. Toronto, ON: OISE, University of Toronto.

Hamilton, M. L. (2004). Professional knowledge, teacher education and self-study. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 1, pp. 375–419). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Harrison, L., Pithouse-Morgan, K., Conolly, J., & Meyiwa, T. (2012). Learning from the first year of the Transformative Education/al Studies (TES) project. *Alternation, 19*(2), 12–37.

Hoban, G. (April 2007). *Creating a self-study group.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Holquist, M. (1981). Glossary for Bakhtin, M. *The dialogic imagination: Four essays* (C. Emerson & M. Holquist, Trans., M. Holquist, Ed.). Austin, TX: University of Texas Press.

Johnson, S. (2010, July). Where good ideas come from. *TEDGlobal*. [Video file]. Retrieved from http://www.ted.com/talks/steven_johnson_where_good_ideas_come_from.html

Kincheloe, J. L. (2001). Describing the Bricolage: Conceptualizing a new rigor in qualitative research. *Qualitative Inquiry, 7*(6), 679–692.

Kitchen, J., Ciuffetelli Parker, D., & Gallagher, T. (2008). Authentic conversation as faculty development: Establishing a self-study group in an education college. *Studying Teacher Education, 4*(2), 157–177.

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 1, pp. 817–869). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

Leipzig, A. (2013). *How to know your life purpose in 5 minutes*. TEDxMalibu. [Video file]. Retrieved from http://tedxtalks.ted.com/video/How-to-Know-Your-Life-Purpose-i

Loughran, J. (2007). Series editor's foreword. In A. Berry, A. Clemans, & A. Kostogriz (Eds.), *Dimensions of professional learning: Professionalism, practice and identity*. Rotterdam, The Netherlands: Sense Publishers.

Loughran, J. J., & Northfield, J. (1998). A framework for the development of self-study practice. In M. L. Hamilton, S. Pinnegar, T. Russell, J. Loughran, & V. K. LaBoskey (Eds.), *Reconceptualizing teaching practice: Self-study in teacher education* (pp. 7–18). London: Falmer.

Lucero, A., Aliakseyeu, D., & Martens, J.-B. (2007). *Augmenting mood boards: Flexible and intuitive interaction in the context of the design studio.* Paper presented at the second annual IEEE international workshop on horizontal interactive human-computer system. Retrieved from http://www.researchgate.net/publication/4292092_Augmenting_Mood_Boards_Flexible_and_Intuitive_Interaction_in_the_Context_of_the_Design_Studio/file/9fcfd50f09f1984ee1.pdf

Lucero, A., Aliakseyeu, D., & Martens, J.-B. (2008). *Funky wall: Presenting mood boards using gesture, speech and visuals.* Paper presented at the working conference on advanced visual interfaces, Napoli, Italy.

Lunenberg, M., & Samaras, A. (2011). Developing a pedagogy for teaching self-study research: Lessons learned across the Atlantic. *Teaching and Teacher Education, 27*(5), 841–850.

Lunenberg, M., Zwart, R., & Korthagen, F. (2010). Critical issues in supporting self-study. *Teaching and Teacher Education, 26*(6), 1280–1289.

Mishler, E. G. (1990). Validation in inquiry-guided research: The role of exemplars in narrative studies. *Harvard Educational Review, 60*, 415–442.

Mitchell, C., & Weber, S. (1999). *Reinventing ourselves as teachers: Beyond nostalgia*. London: Falmer Press.

Morrison, T. (1992). *Jazz*. New York: Alfred A. Knopf.

Naicker, S. (2014). Digital memory box as a tool for reflexivity in researching leadership practice. *Educational Research for Social Change (ERSC), 3*(2), 51–65. Retrieved from http://ersc.nmmu.ac.za/view_edition.php?v=3&n=2#

Pithouse, K., Mitchell, C., & Moletsane, R. (Eds.). (2009). *Making connections: Self-study & social action*. New York: Peter Lang.

Pithouse-Morgan, K., Khau, M., Masinga, L., & van de Ruit, C. (2012). Letters to those who dare feel: Using reflective letter-writing to explore the emotionality of research. *International Journal of Qualitative Methods, 11*(1), 40–56.

Pithouse-Morgan, K., & Samaras, A. P. (Eds.). (2015a). *Polyvocal professional learning through self-study research*. Rotterdam, The Netherlands: Sense Publishers.

Pithouse-Morgan, K., & Samaras, A. P. (2015b). The power of 'we' for professional learning. In K. Pithouse-Morgan, & A. P. Samaras (Eds.), *Polyvocal professional learning through self-study research* (pp. 1–20). Rotterdam, The Netherlands: Sense Publishers.

Pithouse-Morgan, K., Muthukrishna, N., Pillay, D., Van Laren, L., Chisanga, T., Meyiwa, T., et al. (2015). Learning about co-flexivity in a transdisciplinary self-study research supervision community. In K. Pithouse-Morgan, & A. P. Samaras (Eds.), *Polyvocal professional learning through self-study research* (pp. 145–171). Rotterdam, The Netherlands: Sense Publishers.

Russell, T. (2002). Can self-study improve teacher education? In J. J. Loughran & T. Russell (Eds.), *Improving teacher education practices through self-study* (pp. 3–10). London: RoutledgeFalmer.

Samaras, A. P. (2011). *Self-study teacher research: Improving your practice through collaborative inquiry*. Thousand Oaks, CA: Sage.

Samaras, A. P. (2013). Twelve shells: Learning by leading cross-disciplinary faculty self-study of professional practice. *Reflective Practice, 14*(4), 519–535.

Samaras, A. P., & Freese, A. R. (2006). *Self-study of teaching practices primer*. New York: Peter Lang.

Samaras, A. P., with Karczmarczyk, D., Smith, L., Woodville, L., Harmon, L., Nasser, I., Parsons, S., Smith, T., Borne, K., Constantine, L., Mendoza, E. R., Suh, J., & Swanson, R. (2014). A pedagogy changer: Transdisciplinary faculty self-study. *Perspectives in Education*, 32(2), 117–135.

Samaras, A. P., Karczmarczyk, D., Smith, L., Woodville, L., Harmon, L., Nasser, I., et al. (2014). A pedagogy changer: Transdisciplinary faculty self-study. *Perspectives in Education, 32*(2), 117–135.

Samaras, A. P., Kayler, M. A., Rigsby, L. C., Weller, K. L., & Wilcox, D. R. (2006). Self-study of the craft of faculty team teaching in a non-traditional teacher education program. *Studying Teacher Education, 2*(1), 43–57.

Samaras, A. P., Pithouse-Morgan, K., Chisanga, T., Conolly, J., Constantine, L. S., Meyiwa, T., et al. (2015). Breathing under water: A trans-continental conversation about co-facilitating trans-disciplinary self-study learning communities. In K. Pithouse-Morgan, & A. P. Samaras (Eds.), *Polyvocal professional learning through self-study research* (pp. 231–252). Rotterdam, The Netherlands: Sense Publishers.

Samaras, A. P., & Sell, C. (2013). Please write: Using critical friend letter writing in teacher research. *Teacher Education Quarterly, 40*(4), 93–109.

Samaras, A. P., Smith, L., Harmon, L., Nasser, I., Smith, T., Borne, K.,… Karczmarczyk, D. (2012). Reforming in the first person plural: Explorations of a faculty self-study collaborative. In L. B. Erickson, J. R. Young & S. Pinnegar (Eds.), *Extending inquiry communities: Illuminating teacher education through Self-Study*. Proceedings of the Ninth International Conference on the Self-Study of Teacher Education Practices (pp. 251–255). [Herstmonceux Castle, UK]. Provo, UT: Brigham Young University.

Strong-Wilson, T., Mitchell, C., Morrison, C., Radford, L., & Pithouse-Morgan, K. (2014). Using digital memory-work in teaching for transformation. In L. Thomas (Ed.), *Becoming teacher: Sites for development of Canadian Teacher Education* (pp. 442–468). E-book published by the Canadian Association for Teacher Education at https://sites.google.com/site/cssecate/fall-working-conference

The Arizona Group: Guilfoyle, K., Hamilton, M.L. Pinnegar, S., & Placier, P. (2000). Myths and legends of teacher education reform in the 1990's: A collaborative self-study of four programs. In J. Loughran & T. Russell (Eds.), *Exploring myths and legends of teacher education*. Proceedings of the third international conference on self-study of teacher education practices (pp. 20–25). [Herstmonceux Castle, UK]. Kingston, ON: Queen's University.

Tidwell, D. L., Heston, M. L., & Fitzgerald, L. M. (2009). *Research methods for the self-study of practice*. Dordrecht, The Netherlands: Springer.

Van Laren, L., Pithouse-Morgan, K., Chisanga, T., Harrison, L., Meyiwa, T., Muthukrishna, N., et al. (2014). 'Walking our talk': Exploring supervision of postgraduate self-study research through metaphor drawing. *South African Journal of Higher Education, 28*(2), 639–659.

Vasudevan, L. (2011). An invitation to unknowing. *Teachers College Record, 113*(6), 1154–1174. Retrieved from http://www.tcrecord.org. ID Number: 16136.

Vygotsky, L. S. (1981). The genesis of higher mental functions. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 144–188). Armonk, NY: Sharpe. Original work published in 1960.

Weber, S. (2014). Arts-based self-study: Documenting the ripple effect. *Perspectives in Education, 32*(2), 21–36.

Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. Review of Educational Research, 79(2), 702–739.

Wellington, J. (2010). More than a matter of cognition: An exploration of affective writing problems of post-graduate students and their possible solutions. *Teaching in Higher Education, 15*(2), 135–150.

Wertsch, J. V. (1985). *Vygotsky and the social formation of mind*. Cambridge, MA: Harvard University Press.

Chapter 11
Using Multiple Technologies to Put Rhizomatics to Work in Self-Study

Adrian D. Martin and Kathryn J. Strom

This chapter interrogates the methodological processes of a self-study (Strom & Martin, 2013), which was guided and informed by rhizomatic concepts (Deleuze & Guattari, 1983, 1987), in relation to the technological resources and digital tools employed. We (Adrian and Katie) are educators and teacher educators who position ourselves within a social justice paradigm. We share similar teaching backgrounds, both having taught in urban, high-poverty schools serving culturally diverse students. Originally, we came together over the juncture of education and critical theory, and found ourselves discussing facets of "corporate education reform" (Ravitch, 2010, 2013) and the ways these perpetuate the logic of the market by privileging privatization, increasing competition, and emphasizing individual autonomy. Invigorated by these discussions, we engaged in a co/autoethnography (Taylor & Coia, 2009) – a collaborative self-study methodology – during the summer and fall of 2012 to deepen our awareness of the influence of neoliberalism in our praxis. Acknowledging that we are products of a society with deeply ingrained discourses privileging capitalism, our aim was to "deterritorialize," or interrupt, teaching practices informed by neoliberal norms (Strom & Martin, 2013). Part of this process entailed our employment of Deleuzian/Deleuzo-Guattarian concepts as both theoretical and methodological tools.

We have revisited this original self-study to gain further insight on our praxis. However, Katie's relocation to San Francisco and Adrian's continued work in the metro New York City area necessitated a rethinking of the collaborative nature of our work and the adoption of technology to facilitate our communication and

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research. Rather than meeting face to face over dinner or coffee, we now faced each other through computer monitors, iPad screens, and/or our smartphones. Rather than writing into Microsoft word files saved on a thumb drive, we used a Google Doc from which we could both write into simultaneously (even with each of us on opposite sides of the country). These circumstances prompted us to consider the ways that the various technological components facilitated continued self-study research informed by rhizomatic concepts.

To support this endeavor, we returned to our primary data source (our online journal), numerous drafts of our paper, and the analytic memos and notes we wrote. Holding a metaphorical magnifying glass on our original work, we retraced our research steps, not to reconsider the influence of neoliberalism on our teacher-selves, but to theorize technology as rhizomatically enabling. Moreover, a secondary aim of this work is to serve as an entry point for those new to rhizomatics, the umbrella term for the Deleuzo-Guattarian concepts described in *A Thousand Plateaus* (1987). As part of the post-qualitative paradigm, these concepts informed the non-linear progression of our self-study work and our inquiry suggests that they are technologically reflected.

In this chapter we highlight the concepts, the rhizomatic characteristics of the digital resources we employed, and their productiveness in our self-study. Importantly, while the research genre of self-study has been chiefly rooted in the lived experiences of the researchers (LaBoskey, 2004), we found the conscious and deliberate reading of our data through and with a theoretical lens both useful and enlightening. Rather than suggesting a definitive analytic protocol, however, we seek to provide a theoretically based and technologically oriented methodological example that self-study researchers may find helpful. In the sections that follow, we begin by discussing rhizomatics and examine the concepts of lines of flight, affect and cartography. We connect these to digital resources of the text or comment features for online journaling, video conferencing, and digital mapping. Throughout the chapter, we attend to the ways that self-study not only informed an understanding of our professional practice in relation to neoliberalism, but also facilitated the recognition of these digital technologies as rhizomatically enabling.

Rhizomatics

Rhizomatics is a philosophy created around the figuration of the rhizome, a tubular plant that grows unpredictably in all directions (Deleuze & Guattari, 1983, 1987). Offered by Deleuze and Guattari (1987) as a non-linear "antidote" to the type of dichotomous structure characterizing Western thought, which they call "arborescent" or "tree" thinking. While the tree operates via binary, "The fabric of the rhizome is the conjunction, and…and…and" (p. 25), ever-expanding via multiple, heterogeneous connections. Rhizomatics appealed to us because it offers a completely alternate view to the more traditional linear thinking resting upon cause and effects models that tend to be privileged in Western society. In contrast, a rhizomatic

orientation embraces non-linear descriptions of phenomena that acknowledge the complexity of "what is," the possibilities for "what can be," and the myriad influences that reverberate and affect our work, our perspectives, and our teacher-selves. In other words, we recognized rhizomatics as a way to break away from individualistic, reductionist, linear thinking patterns in education and instead began viewing our classrooms and teaching practice in connected, ever-shifting multiples. Both rhizomatics and self-study facilitated the weaving together of our experiences, knowledge, and understandings of teaching and learning in our micro and macro-level contexts.

Rhizomatics represents a shift not only in thinking about the nature of knowledge or what counts as knowledge, but also in relation to what constitutes "being" something. That is, rhizomatics explores the seminal Deleuzian questions, *How does it work? What can it do?* (Buchanan, 2000; Deleuze & Guattari, 1987). This approach veers away from the notion of a normative ontology and moves towards the Deleuzo-Guattarian concept of *becoming*, or the ever-changing, influenced and influencing self (Martin & Kamberelis, 2013). In this particular collaboration, this meant we focused on investigating how tools like Google Docs, Facetime and Inspiration software enabled us to construct our understanding about our teaching practices rather than aiming to define these tools as any one "thing" in relation to our research. In brief, we were less interested in what these tools mean or represent than in what they can do for us as self-study researchers.

Thinking rhizomatically, we considered how our experiences as teachers and teacher educators were continuously shifting and in flux, affecting and influenced by our surroundings and the deeply ingrained discourses of neoliberalism in ourselves, our educational settings, and society at large. This lens influenced how we examined our data – rather than seeking to identify patterns or themes within our work, we considered how multiple factors, both immediate, past, and future, coalesced in the production of the practices we documented. For example, when examining our pedagogical decision-making and the observable events that we perceived as related to them, our data yielded a finite number of considerations – such as who our students were, what the objective of the lesson was, and/or our own immediate reflective stance. Yet methodologically, working with a rhizomatic co/autoethnography supported how our joint understandings shed light on teaching practices, how larger influences beyond the classroom walls shaped our work, and how our enacted teacher-selves influenced and shaped the outcomes in our work.

Because rhizomatics reflects a non-linear framework to describe phenomena, we did not reduce the complexity of our practice using cause-and-effect models to "find" themes. The real-time capabilities of Facetime and Google Docs facilitated a melding of our professional experiences and a recognition of the multiple layers of influence that played into our work as teachers. The ability to co-write and construct our work in real time troubled the modern notion of the "thinking subject" (St. Pierre, 2004) by considering the self *in composition* with exterior influences, both fixed and shifting, upon oneself and one's practice. The following sections on lines of flight, affect, and cartography illustrate these considerations.

The Comment Feature: Lines of Flight

As we worked to continue our self-study work on opposite sides of the country, we decided to employ online writing and use the "comment" feature of Google Docs to express new thoughts spurred by what we had written previously to each other. Rather than proceeding in our selves-directed inquiry from a beginning to an end in a linear fashion, this process allowed us to pick up in the middle of our thoughts and produce new lines of thinking – which in turn, contributed to new connections, understandings, and ideas. We considered our use of the comment feature to have produced multiple rhizomatic lines of flight, a notion Deleuze and Guattari (1987) employ to conceptualize breaks from the status quo of thought or activity.

Lines of Flight

According to Deleuze and Guattari (ibid.), rhizomes consist of lines of articulation, or lines that express how a particular rhizome works. There are three types of rhizomatic lines – molar lines, molecular lines, and lines of flight. Our overall existences are encoded by rigid molar lines, or forces that bind us to normalized societal/institutional discourses and expectations (Strom, 2014). These might be external – for example, a bell schedule that dictates teachers' days, or the standardized test teachers are mandated to give their students – or could be internal, like the often-invisible conditioning of teachers to discourses of what it means to be a "good" teacher or a "good" student. However, the day to day activity of individuals are made up of molecular lines, supple lines of thought or activity that have the potential to reinforce the molar status quo (e.g., if the teacher follows the external guidelines set for them) or produce a disruption of it in the form of a line of flight (e.g., a teacher having an unplanned, conversation with her students that takes a critical view of the nature and use of standardized assessments) (Strom & Martin, 2013). A line of flight, then, is a type of molecular line that breaks from patterns of normalized activity, producing a mutation of some kind (Albrecht-Crane & Slack, 2003). Importantly, lines of flight are temporal. In other words, because we live in a tightly controlled society, escapes from the norm are always recaptured by the norm – the teacher has to eventually give her students that test, at least if she wants to keep her job. However, in that moment of escape from the status quo, changes have the potential to occur, and upon the recapturing of the line of flight, those changes may shuffle the system and lead to greater transformation over time (Strom, 2014).

When writing in a Google Doc, an author can highlight a piece of text and, under the tab "Insert," select "Insert Comment." Out to the side of the text, on the margins of the page, a box appears in which she can type her comment. Other authors can respond directly to the comment, creating a new conversation produced by an original phrase, statement, or idea. Because they represented a break from the practice of

linear research and writing processes, we considered our comments and offshoot conversations to be lines of flight. From analyzing these "on the margin" interactions, the comment feature allowed us to make various connections and put theory to work for us, as we show below.

Making Connections

Multiple connections were made in our comment discussions, forming a rhizome with offshoots linking to our other scholarly projects, our own lives and experiences, and each other. Some of these made linkages to specific pieces of literature that resulted in lines of flight producing new thoughts and understandings. In one case, Katie commented on a statement Adrian had made regarding "attention to 'feeling'" as missing in research on teacher education. Katie mentioned that this made her think about a piece she was planning to read: "Deleuze talks a lot about affect. I just got a chapter from a book I ordered through interlibrary loan called 'The Pedagogy of Affect.' Can't wait to share it with you." Offline, Katie sent the chapter to Adrian, who read it and folded his understandings back into the document in a subsequent comment responding to Katie's reflection that, after a particularly learner-centered class, she had inadvertently become rigid because she was worried about class going well. Adrian made a connection both to a previous sentiment of Katie's and the recent chapter: "I think as you noted, and as highlighted from the Crane and Slack chapter, this line of flight must be continuously 'reborn'… I guess the lines of flight must be actively sought and reconstructed."

We also made connections to other writing and research projects, such as Adrian's linking an entry about teacher beliefs to his work on the subject – "My research and investigation into the literature have led me to 'believe' that beliefs are sorely unexamined. I think we need to make more space in teacher education for the exploration of beliefs, as they profoundly influence practice." At times, these comments became a site to push our own work in other contexts, which produced unanticipated changes. For instance, from re-reading and thinking about a previous entry discussing rhizomatics as "a lens to hone in on the multiple dimensions and facets involved in the construction and enactment of the teaching and learning process," Katie commented, "This makes me wonder if rhizomatics needs to be paired with a theory of learning to be used in empirical studies regarding classroom learning." Indeed, this wondering contributed to Katie's eventual reworking of her dissertation's conceptual framework, moving from a purely rhizomatics frame to one that incorporated both theories of teaching for social justice and rhizomatics as a way to theorize the enactment of such pedagogy.

Putting Lines of Flight to Work

Elsewhere, we have discussed the value of "putting philosophy to work" for practical ends in classroom settings (Strom & Martin, 2013). Questions of function are fundamentally Deleuzian – as previously noted, Deleuze himself stated that the only questions that existed for him were "Does it work? How does it work? How does it work for you?" (Deleuze, 1995, p. 8). Although at first we were tentative, as we attempted to actively employ concepts that felt "slippery" to us, we started to become more comfortable and even empowered in our use of Deleuzo-Guattarian philosophy. As Adrian commented in relation to his first post, which discussed his worries about "getting it right" (in terms of his understanding of Deleuze's concepts), "I still question if I am getting it right….but I am more at ease with the openness of Deleuze's terms." Our comments showed an increasing boldness as we started to experiment by "plugging in" concepts that were still relatively new to us – a line of flight that breaks from normalized understandings of what doctoral students (both our roles at the time) are "allowed" to do. For example, in response to Adrian's note about understanding his own life and family in relation to his students', Katie attempts to use her new understanding of "the fold" (Deleuze, 1992) in relation to Adrian's words: "I think this could be related to Deleuze's notion of the fold. The personal/professional fold, each informing the other; the past and present, doing the same; the teacher and the student as two halves of a whole, folding into each other and unfolding…".

By putting the lines of flight concept to work in our comments, we produced new ideas and ways of understanding our teaching practices and research. For instance, Adrian, who was working on a research project regarding teacher identity, commented on the phrase, "undoing of the subject," employing the concept of assemblage (as analyzed through a cartographic map) as a way to understand the process by which identities and subjectivities are constructed through societal discourse. Moreover, employing these concepts contributed to our realization that rhizomatics was an immanently practical philosophy, because of its concern with "how" questions. Recognizing that this would be an important part of our rationale for using a rhizomatic frame in our various works, Adrian said, "This is powerful, because poststructuralism/postmodernism is so often criticized for having no practical value or for not drawing conclusions."

Digital Dialogues and Affect

Although our analysis yielded multiple insights on our practice, one of the most powerful was the focus on affective productions that suffused our writings. Rather than solely referring to an emotional state or feeling, our reading of affect follows Deleuze's Spinozan reading of affectus, which "measures…your embodied subjectivity, as the result of an encounter" (Hickey-Moody, 2012 p. 80). The Deleuzian

concept of affect as a productive force occurring as bodies and elements collide was particularly fruitful for us. Thinking with and through the concept of affect, we explored the notion of the unknowability of teaching, its perpetual not-quite-yet-ness (Gregg & Seigworth, 2010), and embracing moments ripe with promise of what is to come – whether it "fits" the structures we have imposed on the class (lesson plans, objectives, and so on) or not.

Affect

The concept of affect seeks to reflect more than the emotional resonance of a situation or circumstance. While the concept does relate the physiological response that we experience as embodied beings, it also denotes the interplay between such responses and productions. Thus, affect is not solely an examination of feeling and emotion in oneself. Rather, it is the exploration of feeling and emotion as a co-construction, reverberating and impinged upon throughout a sphere of influence. In our self-study work, we acknowledged that individually, this sphere of influence resonated outward from our classrooms, and inwardly as the manifold policies, regulations, and norms of education flooded into our work. Thinking with affect aided us in recognizing that the emotional climate in the classroom is not solely the product of the individual, but a confluence of the affective responses between and among students and teachers.

Emotional Perception, Expression and Reception

The ability to converse through Facetime and Google Chat highlighted the affective dimensions of our work, not just as teachers, but as researchers. Rather than a sole reliance upon the written word (digital or print) through which to convey experience or construct meaning, the real time conversations that we digitally engaged in enabled us to examine our practice and attend to the affective dimensions of self in relation to our work. Despite physical distance and the time difference, we were able to see and hear each other, jointly writing into our Google file, watching each other's words appear on the screen. The immediacy of the co-construction of the text in union with being able to speak to each other and see each other called attention to the influence of our affective responses in our work.

For example, when writing about the rigidity of the schedule of classes taught during the school day, Adrian expressed frustration, the audible discernment of which was apparent to Katie. Being able to see Adrian's disgruntled facial expressions and the vocal nuances suggestive of frustration in his voice influenced Katie in her own reflection on the experiences he was describing, and in turn surfaced as an affective response. Her response, both written in the digital journal, and immediate (through the spoken words across one computer screen to another) shaped the

construction of the work, expanding our data beyond traditional, written files to evolving co-constructed digital entries. In this way, our self-study research was as shaped by our written words as by our conversations as we wrote, and the affective field discursively constructed through the process.

Putting Affect to Work in Self-Study

Considering the concept of affect, we reframed our practices and the activity that took place in our classrooms not only in terms of the rhizomatic connections between the micro (e.g., classroom context) and macro (e.g., school and social contexts), but also how our teaching produced affects that recursively influenced/were influenced by these connections. We wrote about the emotional responses that were produced when class sessions with students did not unfold as we had hoped and the ways these influenced our in-the-moment pedagogical decisions; we explored our concerns about the neoliberal influence that taken root in public education in the United States (Gabbard & Atkinson, 2008; Giroux, 2011); we reflected about our feelings towards our own prior schooling.

For example, Adrian related an incident that occurred in a second grade classroom that he co-taught in at the time. Part of the anecdote suggested feelings of both elation and uncertainty as he veered away from a scripted lesson on vowel sounds and commenced a conversation with a student on potential identities that she could enact in the future, whether as dancer or doctor, teacher or chef. Holding affect as a central concept with which to think through, this instance highlighted how the student was influenced by the conversation in which she partook, in addition to how Adrian was influenced (both felt and understood) by moving away from a scripted lesson toward a new and yet unknown path. Adrian's experienced feelings and the student's imaginative curiosity produced an affective response that guided the learning past the confines of a scripted teaching approach. These actions and interactions constructed an influence, or a potentiality that expands and contracts among the student and teacher and (rhizomatically) extends past the walls of the classroom to the world outside. While we will not know the myriad tactic ways in which this dialogue ultimately influenced the student or Adrian, we acknowledge that the affective dimension of this pedagogical instance make us aware of our own connections to our students, our praxis and our community. It reflects how affect is produced by emotions and is an integral and often neglected influence on classroom activity (Albrecht-Crane & Slack, 2003). This experience illustrated the rhizomatic linkages between seizing a teachable moment, retaining fidelity towards a status quo pedagogical approach, and the multiple affective responses produced.

Our emotional condition and bodily responses bear a strong influence on ourselves as teachers (Zembylas, 2007) and self-study researchers. The recognition of affect as an integral aspect of our work led us to focus on our emotional and physiological responses in the classroom. The "side conversations" previously discussed as lines of flight were in concert with the primary journal entries and highlighted the

affective dimension of our work – the ways that our thinking, manifested in our comments, were affecting each other.

Charting a Digital Landscape with Cartography

Cartography, or map-making, was used to illustrate the connections we made in our data. It served to depict our becomings, demonstrating how our feelings/emotions changed in response to our contexts and how our contexts changed in response to our feelings. Employed as a vital element in our self-study analysis, we found cartography to be productive for expressing the multiplicity of variables that coalesce to produce phenomena. In our work, we used cartography as a means of depicting the interplay between macro influences on the classroom, local influences, the myriad activities therein, and our own backgrounds/prior history woven throughout. Because cartography is open-ended (always becoming), we consider it an analytic tool (Strom, 2014) rather than a fixed or finished product.

Cartography

Unlike traditional maps that aim to represent a particular landscape or terrain, mapping in the Deleuzo-Guattarian tradition seeks to express the constellation of factors that merge to facilitate the "happening" of "something." Traditional mapping is likened to the reinforcement of traditional norms, forms of research and epistemological ventures. The term "tracing" is used to refer to such an inquiry approach. Our work was enabled by veering away from tracings and the employment of mapping to visually articulate the connections between and among the theories we read about, our past histories, professional experiences and the present day policy context. Whereas traditional mapping presents an opportunity to trace a path from one point to another, Deleuzian cartographic representations magnify the connectedness of variables as a non-sequential construction.

This type of mapping neither depicts a physical landscape nor offers a route in any one direction or path. Instead, Deleuzian mapping identifies elements and showcases their interrelatedness. In contrast to linear cause and effect visual representations, cartographic images highlight how elements function when conceptualized as operating via a rhizomatic network. For teacher educators and self-study researchers examining teaching practices, this suggests attentiveness to factors beyond the immediately discernable (e.g. the teaching practices themselves) to that which is less obvious (the impact of breaks from business as usual – lines of flight – or the affective dimensions of professional practice).

Traversing a Digital Landscape

Our self-study research utilized the "Inspiration" software program to construct our maps. Each element was placed upon the blank screen in the form of a bubble. We recognized that particular elements connected with others and drew lines between the bubbles. As we further developed the map, the nexus of elements increased beyond the immediate and observable in the classroom and extended to encompass our own positionalities and the socio-cultural/political influences that undergird our work as teachers and teacher-educators. These included the current United States education system's obsession with quantitative measures of teacher and school accountability, standardized assessments, and the nationalization of academic standards. Since the software program did not have an online interactive component allowing us to work on the map simultaneously, we each took turns adding to and modifying the map, which resulted in numerous versions of the map emailed to one another. These versions served as a visual depiction of our progression of thought (mirrored throughout the Google Doc journal). As time progressed, the map began to reflect our joint selves, a conceptual illustration of our self-study work and inquiry.

Our mapping included the elements of what we considered to be social justice-oriented structures and practices. Yet, as we progressed in identifying these elements in our own teaching, we acknowledged that despite our best efforts, the striated nature of present day, twenty-first century educative practices that are characteristic in the United States repeatedly surfaced (e.g., "giving" students knowledge through lecture). By including rhizomatic concepts among the elements of our practice, the tension between teaching to enact social change and the entrenched patterns of teaching that run counter such practices were highlighted. Although our teaching practices are connected to democratic principles for social change and justice, the very structures and systems that we teach in continue to operationalize status quo educational inequities and power differentials. Thus, the non-linear facet of our map facilitated our research from numerous points, both theoretical and practical. This aided our ability to ascertain trustworthiness, as we were able to traverse theory into practice and practice into theory. In short, cartography expressed that there is no theory without practice and no practice without theory.

Putting Cartography to Work

One critical incident that we examined in Katie's practice focused on a particular lesson that she taught her pre-service teachers. Positioning herself as an educator for social justice and intentionally working towards dismantling power differentials that curtail learning in the classroom, she sought to cultivate democratic practices in her classroom. A few weeks into the semester, the classroom conversation

gravitated towards a previously un-thought direction. However, as the educative value of this line of flight was apparent, she decided to be open and receptive to the dialogue rather than stifle its organic trajectory in favor of her pre-determined lesson. The end result was a classroom context, albeit temporal, in which all the individuals (teacher and students) mutually co-constructed a body of knowledge and insight.

Our initial meaning-making process for this incident began by rereading the journal entry on this incident and the subsequent reflective commentary that we each posted. We discussed the incident through a rhizomatic lens, consciously framing the events and reflections with concepts such as the rhizome, affect and lines of flight. As we sought to describe and gain an understanding of how the theoretical lens informed our understanding of our lived practice, we constructed a cartographic figuration mapping the "who" and "what" and considering the ways these elements interacted to produce particular becomings.

In this instance, we understood that the realized possibilities for democratic practice in Katie's classroom (depicted on our map) emerged from a temporary confluence of elements encompassing not only her own commitments and values to and for social justice, but also the dispositions, emotions, motivation, and co-constructed epistemology of the students themselves. These elements, and the ways they "came into composition" during that specific class, produced affects that facilitated the organic morphing of Katie's lesson into a co-constructed becoming between her and her students.

Deleuzo-Guattarian mapping served as a visual expression of our lived teaching practices and experiences illuminated by rhizomatic concepts. Rather than representing our practice or construct a depiction of abstract theoretical considerations, the use of mapping in our self-study functioned to illustrate the theory-practice assemblage. In so doing, the fallacious divide between these domains was erased (albeit temporarily) in favor of a holistic representation that maintains epistemology (theory) and ontology (practice) as the central foci.

Discussion

The technological tools we have discussed in this chapter created affordances for theoretical and methodological experimentation, which enabled the appearance of lines of flight as a productive emergence, and facilitated a non-linear self-study journey for us. These tools helped us break the status quo of "doctoral student" (our roles at the onset of our initial self-study collaboration) by facilitating our putting dense, difficult theories to work. We were also able to interrupt the norm of the linear thought and writing path and recognize the importance of affect in our work, a facet of teaching we are conditioned to ignore. We began to see ourselves/our teaching/our research occurring fundamentally in composition with a multitude of elements, as well as each other.

This work and our investigation into rhizomatics and technology has led us to reflect on the potential for digital tools to support inquiry into one's teaching practices as enmeshed within a network of influences. The capabilities of the technologies that we employed meant that our work was fashioned and refashioned as we wrote and responded to each other through simultaneous side dialogues, constructed cartographic representations, and dialogued in cyber space. Reflecting upon these processes, we provide the following considerations that may inform the self-study of teacher education practices.

We have found rhizomatics to be a productive framework for self-study inquiry. It allows the examination of self in composition with the educational institution, one's students, curriculum, and socio-cultural context. Considerations of one's teaching practices extend beyond what one has done to how what one has done fits into a larger picture. As such, and because teacher development and teacher education development is a non-linear process (Strom, 2014; Strom & Martin, 2016), a rhizomatic approach complemented by technological tools allows teachers and teacher educators to conceptualize their development as recursive and perpetually becoming. Moreover, the non-linear modes of thought push the prior limits of self-study, allowing us to reframe the object of self-study inquiry from the *self* to the *self-in-composition-with* (Strom, 2014)*;* and from *being a teacher educator* to processes of *becoming-teacher-educator.*

For those who engage in collaborative self-study work, the employment of digital tools as a means of gaining insight and understanding of one's teaching practices and how those practices connect with others is enhanced through real-time capabilities. This facilitates collaborative, long distance inquiry, which is often a necessity in today's turbulent and often unstable academic environments. The knowledge base of teacher education practices through self-study can further develop by teacher-educators anywhere in the world in concert with one another.

Nonetheless, we do provide a cautionary note with regard to the application of technological innovations and tools in the field of education. Often, technology is presented as one of the panaceas of the corporate reform agenda (e.g., we need more technology, less teachers and teaching). Many standardized assessments are now being given on computers, such as the PARCC in the United States, and are enabled by technology in generating and scoring tests. Teachers are being evaluated by sophisticated statistical formulas, the computation of which would not be possible without technology. Given such circumstances, while technology has the ability to enable, as explored through our work, it also has the capability to reinscribe the status quo, to force the field of education toward a one-size-fits-all model. Consistent with the aforementioned Deleuzian concern, the question is not so much what the technology is, but rather *what it does* and *how it is done*.

The enabling capacity of digital tools and resources will continue to evolve given the continuous changes and development in technology and communications capabilities. We continue to consider how communication via Twitter, Vine, and other forms of sending and receiving information will develop, and how such platforms would be situated in self-study work. We suggest future research employing these tools would be useful to education research in general, and in relation to self-study

and rhizomatics, to provide concrete examples of how rhizomatic concepts are mirrored through research data and ultimately, through lived experience.

(Non)Conclusion

In order to reflect the Deleuzo-Guattarian notion of self as continuously enmeshed "in the middle", situated between what was and what will come, we term the closing section (non)conclusion. Our self-study has led us towards recognizing particular manifestations in our teaching and theorized the technology we used. Yet, we are aware of the temporality of such acknowledgements. Therefore, we offer a (non) conclusion for teacher-educators seeking to work rhizomatically in self-study.

As a methodology, rhizomatics provides a window to understand the complex constellation of influences on our own teaching and learning. Framing technology in conjunction with particular rhizomatic concepts helped us "put rhizomatics to work" and recognize the connections and influences within ourselves, our school communities, and larger socio/cultural and political contexts. This approach facilitated the recognition of productive linkages across and between ideas, theory, stories, and other data sources and turned us toward the often-neglected affective dimension. In (non)conclusion, researchers adopting a rhizomatically oriented lens in self-study can extend beyond linear notions of casualty towards an acknowledgment of the complexities inherent in teaching and learning, opening up their research to multiple entry points and multiple angles of analysis.

References

Albrecht-Crane, C., & Slack, J. (2003). Toward a pedagogy of affect. In J. Slack (Ed.), *Animations of Deleuze & Guattari*. New York: Peter Lang.

Buchanan, I. (2000). *Deleuzism. A metacommentary*. Edinburgh, UK: Edinburgh University Press.

Deleuze, G. (1995). *Negotiations, 1972–1990*. New York: Columbia University Press.

Deleuze, G. (1992). *The fold: Leibniz and the Baroque*. Minneapolis, MN: University of Minnesota Press.

Deleuze, G., & Guattari, F. (1983). *Anti-Oedipus: Capitalism and schizophrenia*. New York: Continuum.

Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis, MN: University of Minnesota Press.

Gabbard, D., & Atkinson, T. (2008). Stossel in America: A case study of the neoliberal/neoconservative assault on public schools and teachers. *Teacher Education Quarterly, 34*(12), 58–85.

Giroux, H. A. (2011). *Education and the crisis of public values*. New York: Peter Lang.

Gregg, M., & Seigworth, G. J. (2010). *The affect theory reader*. Raleigh, NC: Duke University Press.

Hickey-Moody, A. (2012). Affect as method: Feelings, aesthetics, and affective pedagogy. In J. Ringrose & R. Coleman (Eds.), *Deleuze & research methodologies* (pp. 79–95). Edinburgh, UK: Edinburgh University Press.

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 817–869). Dordrecht, The Netherlands: Kluwer.

Martin, A. D., & Kamberelis, G. (2013). Mapping not tracing: Qualitative educational research with political teeth. *International Journal of Qualitative Studies in Education, 26*(6), 668–679. doi:10.1080/09518398.2013.788756.

Ravitch, D. (2010). *The life and death of the great American school system: How testing and school choice are undermining education*. New York: Basic Books.

Ravitch, D. (2013). *Reign of error: The hoax of the privatization movement and the danger to America's public schools*. New York: Random House.

St. Pierre, E. (2004). Deleuzian concepts for education: The subject undone. *Educational Philosophy & Theory, 36*(3), 283–296.

Strom, K. J. (2014). *Becoming-teacher: The negotiation of teaching practice of first-year secondary science teachers prepared in a hybrid urban teacher education program* (Unpublished doctoral dissertation). Montclair State University

Strom, K. J., & Martin, A. D. (2013). Putting philosophy to work in the classroom: Using rhizomatics to deterritorialize neoliberal thought and practice. *Studying Teacher Education: A Journal of Self-study of Teacher Education Practices, 9*(3), 219–235. doi:10.1080/17425964.2013.830970.

Strom, K. J., & Martin, A. D. (2016). Pursuing lines of flight: Equity-based preservice teacher learning in first-year teaching. *Policy Futures in Education, 14*(2), 252–273. doi:10.1177/1478210315615475.

Taylor, M., & Coia, L. (2009). Co/autoethnography: Investigating teachers in relation. In C. A. Lassonde, S. C. Galman, & C. M. Kosnik (Eds.), *Self-study research methodologies for teacher educators* (pp. 169–186). Rotterdam, The Netherlands: Sense.

Zembylas, M. (2007). The specters of bodies and affects in the classroom: A rhizo-ethological approach. *Pedagogy, Culture & Society, 15*(1), 19–35.

Part III
Reflecting on Possibilities for Self-Study in a Digital World

Chapter 12
The Future of Self-Study: Through and With Technology

Charity Dacey, Linda Abrams, Katie Strom, and Tammy Mills

At first, it appeared that technology would save us. That is, technology would preserve our self-study community once Katie moved to California and Tammy left for Maine. Rather than being able to meet once a month in person in New Jersey, we would meet on Google Hangout regularly. Being able to see each other through the screens of our computers, meeting in whatever space was convenient, did allow us to continue working together on a self-study project on 'Thinking with Theory,' which we were set to present at the 2014S-STEP conference. Yet, as we sat in the picturesque courtyard of Herstmonceux Castle in the English countryside, we came to the realization that it had been only sustaining—we had become complacent behind the screens of our computers, slipped into comfortable roles, and ignored the critical relational and embodied work of our self-study community (a point also touched on by Bullock and Fletcher, this edition).

In this chapter, we look across the contributions included in this book to highlight the affordances and challenges presented when using technology with/in the Self-Study of Teacher Education Practices (S-STEP). Authors used technology as both tool and resource in their teacher education practice, and in so doing, transformed their understandings of themselves as well as their pedagogical beliefs and approaches. A second major focus was technology as part of self-study assemblages prompting us to argue that when technology is understood as coming into composition with teacher educators and other elements of teacher education context,

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we gain a more cogent and complex vision of the transformative potential of technology. In this chapter, we explore these themes against a backdrop of our own experiences as a self-study collective to trace, and problematize, the development of our relationship with and through technology. We also offer recommendations for reframing the relationship between self-study, technology, and teacher education practice for the future.

Technology and Transformation

> *From intense, hours-long in-person conversations during the Castle conference and a subsequent sojourn to Paris, we made new commitments and gained new inspirations for continuing the work of studying our practices and constructing new understandings through dialogue. We recognized that technology was not a panacea—just the fact that we had access to each other through our computers was not enough to continue to deepen our relationships, the factor we have realized is at the heart of our collective work together. Technology was just the tool that enabled us to continue the work until we could be together in person again. At that moment, we started to define more explicitly the role technology would play in our group. Specifically, we agreed that we needed to commit to a certain number of in-person meetings per year in addition to our virtual convenings. We agreed that there was something essential about being in close proximity—close enough to touch, to hug, to see a smile tug at the lips or a tear slide down the cheek. As a testament to the importance of our bodies in our collective work, we each inked a symbol of commitment on our wrists—an ampersand, a bodily expression of the connection and expansion we experience together. Yet there was no denying that through this experience of inviting technology into our self-study lives that we, and the nature of our collective itself, had changed.*

Transformation of Practice

Over time, rather than using technology as an "add-on" to practices, several authors in this volume more fully and intentionally integrated technology with their teaching practice, an act that produced various transformations for these researchers. For example, Kosnik, Menna, and Bullock (this edition) describe their collaborative self-study as "transformational" because through this experience they successfully repurposed technology to enhance their students' learning experiences. Initially, the authors used technology to generate the "wow factor" in their lessons. As they sought to more purposefully integrate technology, they were better able to address their students' learning needs, an occurrence that cultivated their own understanding of ways technology and pedagogy can intersect to improve practice. Likewise, Martin and Dismuke (this edition) report that from their own modeling of collaborative writing using technology, both their students' and their own dispositions about and understanding of the composition processes changed. The authors suggest that this understanding in turn changed their approach to teaching writing. As a third illustration, Boche and Shoffner (this edition) found that when they folded technology into their understanding of literacy as "multiple, varied, and changing",

technology itself became a "naturally occurring element" of both what they taught and how they taught it. These chapters show that technology is more than a tool—it is also an element within the teaching context which, when examined, has the power to transform.

New technological initiatives in self-study also present opportunities to examine teacher education practices in a new light, leading to transformed practice. As members of a community of practice (CoP) assembled to support the enactment of social constructivist pedagogy in online courses, Freidus and Kruger (this edition) report that the development of constructivist online pedagogical practices required community members to take risks and explore "uncharted waters of constructivist online pedagogy." By examining artifacts from their online courses, members of the CoP were able to "question and reexamine" instructional practices and reshape them as more authentically constructivist, suggesting that technology facilitated teaching and learning and helped the authors refine the connection between theory and practice. Similarly, a 2-year collaborative self-study by Tysseling et al. (this edition) uncovered ambiguities in critical literacy terms commonly used in their respective Literacy Lab/Reading Clinic courses. Although the aim of their project was not necessarily to uncover inconsistencies in their practice, technology afforded them access to each other's conceptions of literacy and compelled them to challenge previously taken-for-granted assumptions about common terminology. In these studies, technology transformed teacher educators' understanding and enactment of theory in their practice.

Transformation of Identity

Authors of these chapters almost universally acknowledged that their knowledge of technology and the skills necessary to use it effectively for teaching did not come easily. Some felt pressured to use technologies that they were not acquainted with, and because the authors did not identify as "digital natives," nearly all fumbled during early phases of their studies. Some even retreated to more traditional teaching tools, such as chalkboards. Committed to walking the talk, these authors challenged their traditional identities as "experts" in their brick and mortar classrooms, and embraced their new identities as vulnerable novices willing to learn from their students. For instance, Kosnik and Menna (this edition) and Martin and Dismuke (this edition) reported that in their virtual classroom they too were learners, a new identity that reinvigorated their sense of purpose, shifted their perceptions of their practices, and reestablished their relationships with students. Bullock and Fletcher (this edition) pushed our thinking about teaching through technology in a virtual classroom as a problem of dis-embodiment because in these spaces teacher educators are not able to perform their identities by teaching. Rather, the virtual classrooms are explained as "persistent public spaces" which require teacher educators to be "crystal clear and accurate" when they represent themselves. They advise fellow teacher educators to carefully consider "the challenge of constructing an image of self and

managing others' ideas about us" in one-dimensional spaces that leave a wide margin for error in our students' understanding. Along with the other chapters in this section, this one suggests teacher educators' identities are transformed with and through technology in ways that other teaching implements, like chalkboards, have not.

Technology's Role in Self-Study Assemblages

> *A few months later, the four of us sat around a table at the Marriott pool (a quiet space amid the chaos of the large yearly research conference we all attend) collaboratively analyzing data from the past year of narrative writing. Voices and thoughts mingled in dialogue, floating through the warm, humid air, while our written ideas simultaneously melded on the Google Doc we were collectively using to chart evidence from our narratives into initial themes that had been identified from our narratives (the importance of trust to collaborative self-study work, self-study as embodied process, pushing and evoking each other's identities, and making space for collaboration). Although we were 'in person,' technology was an inseparable part of our self-study assemblage. It was Charity and Katie and Linda and Tammy and computers and IPads and phones and… (and, and, and).*

While multiple authors (Kosnik, Menna, & Bullock, this edition; Freidus, Goss, & Welsh-Kruger, this edition; Martin & Dismuke, this edition) persuasively articulated the challenges and the feelings of discomfort and vulnerability they often experienced, they also highlighted the productivity of traversing those difficulties as part of a larger collective. For example, Freidus, Goss, and Welsh-Kruger (this edition) not only acknowledged how using technology unleashed unsettling emotions as they engaged as learners rather than experts, but they also highlighted the affordances of collaborative risk taking. The act of making themselves vulnerable, and sharing and supporting each other through this process, contributed to building a community of "like-minded" colleagues despite their differing perspectives. These authors illustrated the point others have made (e.g. Hamilton and Pinnegar, 2014) emphasizing the merits of exploring different perspectives and pushing boundaries, given the new understandings, insights and the positive feelings gained by authentically engaging with others. As Freidus, Goss, and Welsh-Kruger (this edition) explain of their collaboration: "Hard questions arose. Grappling with these differences pushed members to identify, question and reframe their deeply held assumptions and pedagogical practices, and to consider the implications of those practices for their own work and that of their colleagues" (p. 89). Bullock and Fletcher (this edition) similarly reflect, "Because we have conducted collaborative self-studies in the past, we were comfortable being honest with one another and exposing our respective vulnerabilities and uncertainties" (p. 9). Our self-study experience echo the voices in many chapters of this edition emphasizing the importance of having a trusting, supportive group with which to share in the emotional facets of self-study work.

Being part of a self-study assemblage (Strom, Abi-Hanna, Dacey, Abrams, & Duplaise, 2014) requires trust, commitment, and skill. It tends to fuel members

courage to take risks (even in the face of past failed attempts) when embarking into the unfamiliar. As an illustration of this point, from participation in their own assemblage, Tolosa, Heap, Ovens, and Garbett (this edition) reconnected with their identities as learners, an uncomfortable process. Yet, the authors acknowledge, "good teaching is always angst ridden" (p. 162). They reflect, "Regardless of our position, we came to the conclusion that underpinning these frustrations was a loss of our self-efficacy and confidence in front of our classes. For four experienced teacher educators, integrating technology became a source of insecurity and anxiety when we lost control over the technological circumstances surrounding our teaching" (p. 161). While perhaps disconcerting, the disequilibrium described by Tolosa et al. is a cornerstone of learning. For those teacher educators who challenge themselves to take risks, trying out new pedagogies, the support provided by colleagues in self-study assemblage undergirds the foundation and keeps members forging ahead. When teacher educators experienced difficulties walking metaphorically in their students' shoes, as many of the authors in this edition did, they retreated at first, and then regrouped with scaffolding provided in their self-study assemblage, which fortified them to venture forth again. In this way, many authors featured in this edition have eloquently captured two essential components of the journey of authentic teaching and learning—flexibility and a willingness to reinvent one's self and practice. Just like the authors of these chapters, we too have become more adept at leading ourselves, and each other, through the complexities of integrating new information, reinventing ourselves, making connections, and synthesizing knowledge into meaningful actions; all endeavors that shape the heart of self-study work.

While we have spent 4 years engaged in our work primarily in person, this year we had to push ourselves, experiment, and test our openness to new ideas and experiences, engaging with technology in order to sustain and continue our assemblage. We met on Google hangout and collaborated on Dropbox and Google Docs in between in person retreats. As the composition of our assemblage shifted, we began to have a more nuanced understanding of our relationship to technology: we even now think of technology as a new member of our assemblage. In this neo-material, post structural, post-human understanding, technology has enabled us to escape some of the physical and normative conditions and limitations of our situations—just one of the many powerful affordances of utilizing technology in our self-study work.

Once we considered technology an enabler of our relationships, over time we reconceived our technology-enabled exchanges as love letters to one another. This, then, positioned technology as a courier for our "with each other" thoughts rather than an inadequate substitute for real, in-person dialogue. Like Freidus, Gross, and Welsh-Kruger (this edition), we feel a renewed sense of motivation for the work and prefer it to becoming "heroic isolate[s]" (p. 89) separated by thousands of miles. Pithouse Morgan and Samaras (this edition) eloquently characterized the self-study relationships that can develop in and through technology as being "complementary colleagues" who share a common purpose despite different expertise, roles, and contexts (p. 184).

Considerations for the Future of Self-Study

> *In the past year, we recognize that we have not so much studied ourselves in practice as much as we have studied ourselves-in-practice. By reflecting and dialoguing about our processes as a self-study community, we have constructed an understanding that while technology was always a part of our assemblage, prior to our study we were passive users of the technology. Now that we have accepted it as an active part of our work, we no longer position it as a necessary evil that has to be tolerated, just as necessary. Rather than setting up a binary—EITHER we are working together in person OR we are using technology as a poor substitute—we began to see our collaboration as one that comes into composition with technology in multiple ways. Meetings occurring through technology (as when we meet on Google Hangout) or with technology (when we are in person working, or typing individual narratives to share at a later time) but do not necessarily produce better or worse collaborative learning and thinking; they are merely different in what they enable us to do. We recognize the relationship that exists between ourselves and technology, and like other contributors to this volume, we are still learning how to be agents in this ongoing interaction—an activity that pushes us to be vulnerable with each other as we continually construct and reconstruct ourselves/identities as self-study researchers in-composition-with technology.*

As the studies in this volume show, the rapid evolution of digital technology has influenced ways teacher educators consider and reconsider their relationship to self-study research and to teacher education practice. Amid the context of escalating pressures to engage with digital technology, researchers are searching for ways to harness technology to meet their own ends while they continue to challenge assumptions, illuminate tensions, and forge new directions for self-study research and for teacher education practice.

In education, many assume that the adoption of digital technology will create more and better learning opportunities, thus increasing the demand for the use of digital technology in teacher education. We argue, like many of those in this edition, that we must continue to focus on sound practices as the terrain of digital technology continues to be contested and explored as a tool for teacher education practice and for self-study research. As Bullock and Fletcher (this edition) and Tolosa, Heap, Ovens, and Garbett (this edition) note, the successful harnessing of technology will entail the development of new pedagogies and self-study methodologies created at the intersection of teacher education and digital technology uniquely suited to specific contexts.

As a tool for self-study, digital technology presents possibilities for boundary-crossing, transformative, collective and collaborative self-study that pushes us into the more-than-human sphere. Scholars who espouse this view of boundary crossing envision the use of digital technology as a tool or as a context with the potential to influence the development of teacher identity (Chao, 2015). Several authors in this volume provide insights into the boundary-blurring power of technology-in-composition that offer fodder for thinking about the future of self-study. Tysseling et al. (this edition) offered a view of how digital technology facilitated their efforts to dismantle geographic boundaries and collaborate within the context of a digital shared space to create improved literacy teacher evaluation tools. Pithouse Morgan

and Samaras (this edition) employed digital technology to transcend "geographical, cultural, and disciplinary contexts" (p. 122) and pushed the boundaries of methodology and artifacts to document their research; and Strom and Martin (this edition) shared how digital technology transformed the physical boundaries of their collaborative work, offering new perspectives into their thinking.

We suggest that by employing such a neo-material, post structural, post-humanist vision of digital technology, teacher educators can span geographic and disciplinary boundaries to harness decisional capital in which to continue the inter-disciplinary nature of self-study work within collaborative spaces (Hargreaves & Fullan, 2012; Martin & Dismuke, 2015). Building on the work of Strom and Martin (this edition), these collaborative spaces can be theorized rhizomatically to consider the complex interactions of myriad influences on one's thinking and decision making. Forging ahead, these collaborative online spaces have the potential to afford teacher educators opportunities to engage *with* each other *through* and *with* technology, helping us to think differently and in more complex, non-linear ways about ourselves, our relationships, our teaching, and our self-study practice.

References

Chao, C. C. (2015). Rethinking transfer: Learning from call teacher education as consequential transition. *Language, Learning and Technology, 19*(1), 102–118.

Hamilton, M. L., & Pinnegar, S. (2014). Interpretation and gender within the zone of inconclusivity. In M. Taylor & L. Coia (Eds.), *Gender, feminism, and queer theory in the self-study of teacher education practices* (pp. 45–60). Rotterdam, The Netherlands: Sense Publishers.

Hargreaves, A., & Fullan, M. (2012). *Professional capital. Transforming teaching in every school*. London & New York: Routledge.

Martin, S. D., & Dismuke, S. (2015). Teacher candidates' perceptions of their learning and engagement in a writing methods course. *Teaching and Teacher Education, 46*, 104–114.

Strom, K., Abi-Hanna, R., Dacey, C., Abrams, L., & Duplaise, J. (2014). Exploring and connecting lines of flight. In M. Taylor & L. Coia (Eds.), *Gender, feminism, and queer theory in the self-study of teacher education practices* (pp. 31–44). Rotterdam, The Netherlands: Sense Publishing.

Chapter 13
The Digital Impact on Self-Study

John Loughran

> … the beliefs and values underpinning most forms of recent education change and reform have … been simple … first, that a knowledge economy requires an information-skilled workforce in order to succeed, and second that the key to an information-skilled workforce is education and learning. … [Thus the] significance of the use of digital technologies in … education that underpin the digital age, information society and knowledge economy …[D]igital technology is now an utterly integral but wholly unremarkable component of educational conditions and arrangements around the world. (Selwyn, 2013, p. 5)

There is little doubt that since self-study emerged from the shadows of reflective practice and practitioner research in the early 1990s (Loughran, 2004) that it has become increasingly helpful in defining and refining teacher education practices. The allure of self-study is embedded in the value for teacher educators of learning about, and therefore seriously critiquing, their practice (Brandenburg, 2008; Bullock, 2009) and in offering new ways of seeking meaningful data about the nature of the learning of their students of teaching (Berry, 2007; Kosnick, 2007).

Teacher education carries a great deal of baggage in terms of the expectations placed upon it by the many stake-holders involved in the enterprise (e.g., schools, politicians, education bureaucrats, students of teaching, the academy), but it is teacher educators themselves that ultimately carry the responsibility for what goes in a program, how and why. Therefore, self-study as a way of positively influencing teacher educators' practice and the learning of students of teaching by focusing attention on teaching (and program) actions and intents, is indicative of the personal commitment necessary for embracing the interplay between teaching and research as a relationship as opposed to distinct and separate activities.

Meaningful teacher education is a process not an event; self-study offers a powerful way of concentrating on the process and supporting educational change. It

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could well be argued that the digital era has led to: new approaches to practice through digital platforms and tools; and, new forms of data being more readily available to self-study researchers. As a consequence, new forms of both practice and data allow access to alternative frames (Barnes, 1992) from which new insights into practice can emerge.

Teacher Education in the Digital Age

At one level, self-study in a digital world is inevitably about the impact of digital tools on the nature of pedagogy and how that in turn influences a pedagogy of teacher education (Korthagen, 2016). Clearly, as the tools and platforms available to students and teachers continue to expand, so innovation in practice is encouraged. For teacher educators, that can be both challenging and inviting. Challenging in terms of the perceived pressure it can place on teacher educators to teach in new ways in digital classrooms (Clarke, 2013), but also inviting in terms of the new opportunities available for teacher educators to seriously challenge transmissive teaching practices and, to actively engage in highlighting ways of placing learning at the centre of teaching and the teaching of teaching (Fletcher & Bullock, 2015).

Teacher education is consistently confronted by calls for teacher educators to be able to 'practice what they preach' or to have 'recent and relevant' classroom experience. Northfield (1993) offered compelling arguments about the relevance of 'recent and relevant'. As he intimated, such calls tend to be based on an assumption that the teaching of teaching is dominated by an emphasis on academic content to the detriment of practical classroom experience. Therefore, the recent and relevant debate can easily morph into something more akin to a perceived need for teacher educators to be able to pass on the 'tips and tricks' of classroom practice, rather than the development of teachers' professional knowledge *of*, *for* and *in*, practice.

With the demands placed on teachers to be able to 'perform' from day one of their teaching careers, it is not hard to see why teaching as doing can dominate arguments about the nature of teacher education. When considered in terms of the proliferation of approaches to accessing and creating knowledge in the digital age, the expectation that beginning teachers are classroom ready (TEMAG, 2014) can also further reinforce assumptions underpinning the recent and relevant experience debate. So what does that mean for teacher educators' practice, especially as the teaching of teaching becomes increasingly diversified through such things as online platforms and flexible delivery?

Falloon (2011) set out to 'explore students' perceptions of the virtual classroom in terms of the impact they considered it made on their transactional distance. It concentrated on three key areas: relationship formation, knowledge development, and communication of information' (p. 191). Clearly, each of the three key areas would be seen as important in shaping the nature of quality in any form of pedagogic relationship. So in one sense, as Falloon's study suggests, the challenge for teacher educators is to find ways of developing meaningful pedagogical experiences

in environments that are new and ever-changing as digital platforms continue to evolve. Interestingly, one of Falloon's conclusions was that 'the use of the virtual classroom can potentially, at least, contribute to the development of quality dialogue, but consistent with Moore's theory, it is something of a "double-edged sword", in that the extent this is possible is dependent on structural aspects and, consequently, student perception of learner autonomy' (pp. 204–205).

It seems reasonable to suggest that learner autonomy is inevitably influenced by the ways in which a teacher educator encourages and supports such autonomy as the nature of teaching influences the nature of learning; and the perceptions therein. Hence, although teacher education might be mediated in new and different ways in the digital age, for teacher educators, it is as much about using the tools productively to build on approaches to quality pedagogic relationships as it is about digital platforms per se. The overarching issue then is about accepting the challenge and taking the risks necessary to learn about how to enhance teaching and learning when away from the traditional face to face classroom experience. From a self-study perspective, accepting such a challenge is de rigueur.

Changing Practice: New Data

Henderson and Phillips (2015) conducted an interesting study that nicely captures the essence of the intent of what working in a digital age can mean in shaping teacher educators' practice. Although they did not develop their work with self-study in mind, their work clearly offers ways of seeing into practice with new eyes and so has much to recommend it to those interested in pursuing learning about teacher education practices through self-study.

Henderson and Phillips could be described as having stepped out and taken a risk by implementing video-based feedback on student assessment. They noted that, 'despite the literature agreeing on the importance of assessment feedback as part of the learning process … students do not value the feedback comments but simply skip to the grade' (p. 52). What they demonstrate in their study is recognition of a particular ongoing 'problem' (problem being interpreted as Dewey (1933) described, it is not as meant to carry negative connotations, rather to be considered as something that is curious, puzzling or intriguing; something that causes one to stop and reconsider a situation), from which they sought to view the problem from alternative perspectives (i.e., reframing as per, Schön, 1983). As a consequence they developed a new way of acting from which they actively sought data to determine the impact of their new actions on their students' learning. That new action being the video-based assessment feedback.

It is not difficult to see how by breaking from traditional approaches to written feedback that digital tools (in this case video) can help to create a different sense of personal interaction – both for the assessor and the student. Clearly, the ease of use of video in the digital age and the abundance of ways for accessing both production and viewing also carries advantages that immediately address the problem with

which they were concerned to confront. Returning to one aspect of Selwyn's (2013) quote at the start of the chapter, 'digital technology is now an utterly integral but wholly unremarkable component of educational conditions and arrangements around the world' (p. 5), offering assessment feedback through the data rich digital environment so ubiquitous today appears common sense. What Henderson and Phillips have done is take that common sense and apply it in a sensible way in their practice. The digital age has therefore clearly created new opportunities for enhancing teaching and learning.

It is not just the use of technology in this case that is the point I think is important to make here. Although their research was not methodologically designed as a self-study, reading their paper leads one to see how unconsciously close to self-study they were in attempting to better understand their practice and for their pedagogical intents to translate into meaningful student learning.

> The evolution from teaching strategy to research project over several years means that the nature of the data is messy and difficult to compare (e.g., unsolicited and unstructured emails compared with survey responses). In preparing this paper there is some pressure to simplify the project by excluding the emails. However, they provide a valuable unstructured response that has not been influenced by research instruments, such as the wording of questions in the survey. Therefore, due to the complexity of data, and the fact that this was an exploratory research project without hypothesis or goal we adopted a grounded theory approach with the aim of revealing possible themes and patterns that may inform further research. Open coding of the documents created by students and teachers (email, discussion forum posts, videos, presentation materials and lecturer observations and video blog) as well as the student survey led to the development of categories of positive and negative issues in design and implications … (p. 54)

How well does that quotation resonate with those more experienced with self-study? The very act of researching one's practice leads to further research opportunities: new data sets; alternative frames; confirming; and, disconfirming data. In self-study, those outcomes are highly valued, for enhancing teacher education practices they are crucial elements that shape an agenda for seriously exploring teaching teaching, results of which can positively reshape learning about teaching (Pinnegar & Hamilton, 2009). In researching their own practice, Henderson and Phillips have come to recognize, and begin to reap the benefits of, the mana that feeds ongoing professional learning as a teacher educator. As their study clearly illustrates, the opportunities able to be grasped through the use of digital technologies has led them to better understand, and begin to extend, their practice.[1]

> An unexpected aspect of the video-based feedback was the rejuvenation we experienced from engaging with the concepts, issues and structures that are too hard to explain easily in text-based feedback annotations … The move from dealing with the minutiae of text errors and citation problems to being concerned about argument and future directions made the marking process one of intellectual stimulation … "I feel like a teacher rather than an editor,

[1] I shared a copy of this chapter with Henderson and Phillips in order to check my interpretation of their work with their own views. They agreed with how I had translated the outcomes of their study into this chapter with particular attention to digital technologies and the implications for self-study.

> and I find myself saying that I almost enjoy marking." The emphasis on feed forward shifted a perception … [to] a purposeful enthusiasm and curious anticipation. (p. 63)

Henderson and Phillips' study brings to the fore the range of issues that illustrate the sophisticated nature of practice (Loughran, 2015) that is central to quality teaching and which creates opportunities for development through self-study (Berry, 2013; Garbett, 2011; Russell, 2007). One clear value of digital technologies is the increasing ease in which data is able to be made available and therefore open to enhancing one's practice, again as Henderson and Phillips illustrate, 'Open coding of the documents created by students and teachers (email, discussion forum posts, videos, presentation materials and lecturer observations and video blog) as well as the student survey led to the development of categories of positive and negative issues in design and implications' (p. 54).

One of the ever present issues with self-study is the need to be able to make the transition from gathering informal feedback on practice to more formalised and purposeful data from which evidence of impact is able to be determined. The use of digital technologies (e.g., email, discussion forum posts, videos, presentation materials and lecturer observations and video blog) supports that shift as gathering data can genuinely be a part of ongoing 'normal' practice. Digital technologies offer ways of developing quality feedback mechanisms for teaching through which researching practice can be supported without excessive additional 'interventions' crowding out practice in order to gather data. A major advantage of digital technologies then is as their use in teaching increasingly becomes integral to practice, their use complements the intents and approaches to researching practice whilst simultaneously minimizing the likelihood that participants' data is influenced by the research imperative; through digital technologies, data is more in line with the reality of the situation at the time.

Conclusion

The impact of digital technologies on self-study, I would argue, is positive. Despite the fact that it is inevitable that the incorporation of digital technologies into teaching may initially create issues and concerns for the individual pedagogue in respect to learning how to use the technologies, the opportunities made available to apprehend alternative perspectives on situations is powerful.

The essence of quality teaching teaching is in seeking to make the problematic nature of practice clear to students of teaching so that they can see beyond their *Apprenticeship of Observation* (Lortie, 1975) and begin to see how to teach in ways that go beyond transmission. As Forgasz (2013) noted, becoming comfortable with the uncertainty of teaching is challenging, hence the need to reposition the attention of students of teaching from the visible performance of teachers' work to the invisible work that supports it. It seems fair to assert that the use of digital technologies not only supports that shift but allows it to occur in the cauldron of practice in which

learning to teach is conducted; the teacher education classroom – however that might be envisaged (virtual through to face to face).

As the research literature increasingly illustrates, the quality of teacher education practices is enhanced when innovation and creativity in learning is not only encouraged, but also actively supported. The digital age offers ways of enhancing quality by supporting risk-taking in pedagogy; as a consequence, invitations to learn about the complex nature of practice become more readily available.

References

Barnes, D. (1992). The significance of teachers' frames for teaching. In T. Russell & H. Munby (Eds.), *Teachers and teaching: From classroom to reflection* (pp. 9–32). London: Falmer Press.

Berry, A. (2007). *Tensions in teaching about teaching: Understanding practice as a teacher educator*. Dordrecht, The Netherlands: Springer.

Berry, A. (2013). *Teacher educators' professional learning: A necessary case of 'on your own'?* Paper presented at the International Study Association on Teachers and Teaching (ISATT), Ghent, Belgium.

Brandenburg, R. (2008). *Powerful pedagogy: Self-study of a teacher educator's practice*. Dordrecht, The Netherlands: Springer.

Bullock, S. M. (2009). Learning to think like a teacher educator: Making the substantive and syntactic structures of teaching explicit through self-study. *Teachers and Teaching: Theory and Practice, 15*(2), 291–304.

Clarke, L. (2013). Virtual learning environments in teacher education: A journal, a journey. *Technology, Pedagogy and Education, 22*, 121–131.

Dewey, J. (1933). *How we think*. Lexington, MA: D.C. Heath and Company.

Falloon, G. (2011). Making the connection: Moore's theory of transactional distance and its relevance to the use of a virtual classroom in postgraduate online teacher education. *Journal of Research on Technology in Education, 43*(3), 187–209.

Fletcher, T., & Bullock, S. M. (2015). Reframing pedagogy while teaching about teaching online: A collaborative self-study. *Professional Development in Education, 41*(4), 690–706.

Forgasz, R. (2013). *Why it is hard to learn to teach.* Paper presented at the International Conference on Teacher Education: Professional education for teachers in the Asia-Pacific region – The insights into a new paradigm, Bandung, Indonesia.

Garbett, D. (2011). Developing pedagogical practices to enhance confidence and competence in science teacher education. *Journal of Science Teacher Education, 22*(8), 729–743.

Henderson, M., & Phillips, M. (2015). Video based feedback on student assessment: Scarily personal. *Australasian Journal of Educational Technology, 31*(1), 51–66.

Korthagen, F. A. J. (2016). Pedagogy of teacher education. In J. Loughran & M. L. Hamilton (Eds.), *The international handbook of teacher education*. (pp. 311–346) Dordrecht, The Netherlands: Springer.

Kosnick, C. (2007). Still the same yet different: Enduring values and commitments in my work as a teacher and teacher educator. In T. Russell & J. Loughran (Eds.), *Enacting a pedagogy of teacher education: Values, relationships and practices* (pp. 16–30). London: Routledge.

Lortie, D. C. (1975). *Schoolteacher*. Chicago: Chicago University Press.

Loughran, J. J. (2004). A history and context of self-study of teaching and teacher education practices. In J. J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (Vol. 1, pp. 7–39). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Loughran, J. J. (2015). Thinking about teaching as sophisticated business. In D. Garbett & A. Ovens (Eds.), *Teaching for tomorrow today* (pp. 5–8). Auckland, New Zealand: Edify.

Northfield, J. R. (1993). The relevance of 'recent and relevant' experience. *Research in Science Education, 23*(1), 208–213.

Pinnegar, S., & Hamilton, M. L. (Eds.). (2009). *Self-study methodology: Ways to explore practice*. Dordrecht, The Netherlands: Springer.

Russell, T. (2007). How experience changed my values as a teacher educator. In T. Russell & J. Loughran (Eds.), *Enacting a pedagogy of teacher education: Values, relationships and practices* (pp. 182–191). London: Routledge.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Selwyn, N. (2013). *Education in a digital world: Global perspectives on technology and education*. London: Routledge.

TEMAG. (2014). *Action now: Classroom ready teachers*. Canberra, Australia: Department of Education.

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Chapter 12
The Future of Self-Study: Through and With Technology

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In Chapter 12 titled "The Future of Self-Study: Through and With Technology", the name of the author is incorrect.

The name should be **Charity Dacey** on the online and print version.

The author name is also updated in the TOC of the Frontmatter.

The updated original online version for this chapter can be found at
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