



New Literacies in One Rural South African Elementary School

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ABSTRACT

This longitudinal qualitative research study addressed a three-year professional development project, Project South Africa, we conducted in one rural elementary school, Williams Primary School in the Western Cape of South Africa, with eight Reception to Grade 3 teachers. Our research investigated "What happens when teachers engage in professional development (PD) that is focused on the integration of simple technologies to teach literacy?" We also studied the extent to which this PD reflected success in children's literacy learning, both from the teachers' perspectives and on national and provincial standardized tests. We situated this study theoretically in critical literacy as social practice. We adopted a transformative constructivist grounded theory (CGT) methodological approach (Charmaz, 2005) that centralized the phenomena studied which contributes both to personal and societal transformation. This study presents findings from our analysis of a subset of data that focused directly on teachers' use of technology to teach literacy. We found personal transformation in all eight teachers in their use of technology to create classrooms in which new literacies were enacted. This, we argued, led to societal transformation in that teachers shared this knowledge locally, district-wide, and with other literacy teachers and researchers at an international conference.

Keywords: South Africa, teacher learning, professional development, literacy, new literacies

Nuevas alfabetizaciones en una escuela primaria rural de Sudáfrica

RESUMEN

Este estudio de investigación cualitativa longitudinal abordó un proyecto de desarrollo profesional de tres años, Project South Africa, que llevamos a cabo en una escuela primaria rural, Williams Primary School en el Cabo Occidental de Sudáfrica, con ocho maestros de recepción para el tercer grado. Se investigó ¿qué sucede cuando los maestros se involucran en el desarrollo profesional (DP) que se centra en la integración de tecnologías simples para enseñar alfabetización? También estudiamos hasta qué punto este DP refleja el éxito en el aprendizaje de la alfabetización de los niños, tanto desde la perspectiva de los maestros como en las pruebas estandarizadas nacionales y provinciales. Situamos este estudio en el marco teórico de la alfabetización crítica como práctica social. Adoptamos un enfoque metodológico de la teoría fundamentada constructivista transformadora (TCGT) (Charmaz, 2005) que centralizó los fenómenos estudiados que contribuyen tanto a la transformación personal como social. Este estudio presenta los resultados de nuestro análisis de un subconjunto de datos que se centraron en el uso de la tecnología por parte de los profesores para enseñar a leer y escribir. Encontramos una transformación personal en los ocho maestros en su uso de la tecnología para crear aulas en las que se promulgaron nuevas alfabetizaciones. Argumentamos que esto condujo a una transformación social, en el sentido de que los maestros compartieron este conocimiento a nivel local, en todo el distrito y con otros alfabetizadores e investigadores en una conferencia internacional.

Palabras Clave: Sudáfrica, aprendizaje docente, desarrollo profesional, alfabetización, nuevas alfabetizaciones



Introduction

The world's changing populations, demographics, globalization, and classrooms with children from diverse backgrounds and a range of linguistic repertoires have resulted in what it means to be literate and how to teach and research literacy. Of the 7.5 billion people in the world, 58.6% have access to the Internet, and 61% or 4.57 billion people are active users (<https://www.statista.com>). Such progress in the interconnectivity of global spaces is impressive. And yet, there continue to be under-resourced rural schools in which this access is not available nor are schools prepared to financially and pedagogically support this progress. With the increased use of the Internet and knowledge of technology, the need to support rural teachers to develop a set of practices around technology in the teaching of literacy is paramount.

Knobel and Lankshear (2007) define literacy as social practices through which people communicate and negotiate meaning through texts with the intent to participate in what Gee (2015) describes as (D)iscourses, the "socially based conventions that allow people to enact specific identities and activities" (p. 2). Literacy is organized around a set of social practices, for example, what we read, where and how we read, the experiences that we have had in our interpretation of texts, and our spoken, written, visual texts we produce. Thus, literacy comprises more than the teaching of skills to learn to read and write, but is more about how to apply knowledge of the social practices of literacy across a range of contexts, including digital spaces. For example, the reading of picturebooks occurs across many settings, home, school, parks, on YouTube, CDs, streaming, and so on. The practices around which we access, read, and negotiate meaning in picturebooks depend on the social practices we value (reading before bedtime, reading together, reading online, etc.). What makes literacies new, according to Knobel and Lankshear, is moving beyond just the use of technology to read and write in conventional ways (word processor on laptop to write an essay), but is about participation, collaboration, and ways in which texts are distributed. In new literacies, reading, interpretation, and production of texts are fluid, and engage readers across modes and for ranges of purposes. For example, reading a print-based picturebook is a different experience and social practice that is underpinned by the reader's beliefs and values than reading digital picturebooks and are often governed by past memories and experiences.

With Knobel and Lankshear's (2007) concepts in mind, this qualitative research study addressed a three-year professional development (PD) project, Project South Africa (hereafter, Project SA), that we conducted in one rural elementary school, Williams Primary School (WPS), in the Western Cape of South Africa (school name and project are pseudonyms). Our funded research investigated "What happens when teachers engage in PD that is focused on the integration of simple technologies to teach literacy?" We also studied the extent to which PD reflected success in children's literacy learning, both from the teachers' perspectives and on national and provincial standardized tests. We situated this study theoretically in critical literacy as social practice. We adopted a transformative constructivist grounded theory (TCGT) methodological approach (Charmaz, 2005) that centralized the phenomena studied which contributes both to personal and societal transformation. This study presents findings from our analysis of a subset of data that focused directly on teachers' use of technology to teach literacy. We end this work by theorizing the role of technology in the teaching and learning of literacy, the role of new literacies in under-resourced schools, and the possibilities for personal and social transformation.

Technology Access, Literacy Development, and Teacher Professional Knowledge in South Africa

Technology use and access to the Internet continue to grow. In 2017, about half of the world's population had access to or used the Internet, up from about 30% in 2010 (The World Bank, 2021). Distribution of access, however, is not even. Some countries (e.g., Canada, Iceland, United Kingdom) report over 90% of the population using the Internet, while other countries like Sub-Saharan Africa reporting less than 30%. On the African continent, South Africa reports the greatest use with 54%. How and where the Internet is accessed varies considerably across countries and communities. For example, in South Africa, use of mobile devices to access the Internet was higher (60%) than fixed broadband platforms (at work [16%] and home [10%]). In the Western Cape of South Africa, even more discrepancies existed between urban, metro, and rural communities, with rural communities reporting few or no opportunities for access in Internet cafes and educational institutions (0%), as compared to metro communities with 15% of households reporting access in cafes and schools (Stats SA, 2018). The inequities of access among countries and communities remain problematic in achieving educational goals, transforming teaching and learning, and improving skills for a globalized economy.

South African schools also face inequities in the quality of education when panoramically viewed. A study conducted by Amnesty International (2020) found that nearly 75% of nine-year-olds are unable to read for meaning across the country, and in some provinces, like Limpopo, the statistic is staggering at 91%. Further, this study identified the disparities in school infrastructure. Of the 23,471 public schools across urban, metro and rural communities, approximately 10% had substandard sanitation facilities, 72% had no Internet access, and 77% had no library. Of the OECD (Organisation for Economic Co-operation and Development) countries, 56% of South African head teachers reported that their physical infrastructure impinged on the quality of education of their children, in relation to 16% of the other 36 OECD countries.

South Africa's literacy rate is complicated by a number of factors including the incongruities between language in education policies, assessments, and curriculum; teachers' limited conceptual and pedagogic knowledge; and the disparity in the low socio-economic populations, especially in rural areas (Nel, et al., 2016). The Language in Education policy (DoE, 1997) advocates for teaching children in their home languages (particularly in the foundation grades), but parents and school governing boards regularly opt for the language of instruction to be English due to perceptions of English that advantages resources and upward mobility (Bangeni & Kapp, 2007). The lack of fit between home languages and language of instruction in the early grades, then, compounds children's academic performance in reading and writing in later grades.

Teacher training and ongoing access to PD are also areas of great limitation. Not only must teachers know the content they teach, they must also be able to integrate technologies into their classroom. According to Naidoo, et al. (2012), a challenge in children's learning is the lack of teacher qualifications and competency in teaching literacy and integrating technology. Teachers are often hired without practical training, and their more experienced colleagues must train them when they arrive at school. Further, in rural communities, PD is often fragmented, uncoordinated, and irrelevant to the individual school, and does not attend to improving quality of teaching and learning (Flint, et al., 2018a, 2018b). When teachers –and novice teachers in particular– are

expected to teach children in classes of 30-50 children, they are not prepared for this challenge.

While teachers often rely on their experience to guide their instruction, our research (Flint et al., 2018a, 2018b), along with Gains and Graham (2011), found that teachers who are reflexive about their practice and have opportunities to extend their conceptual and pedagogical knowledge contribute to the success of their children's learning. Our studies identified three criteria in PD that led to transformation in teacher learning (Flint et al., 2018a): 1) theoretically-grounded PD allows for flexibility in working with the specificities in contexts; 2) genuine teachers' inquiry, concerns and needs are focal; 3) building relationships promotes opportunity for growth in teacher's conceptual and pedagogical knowledge of literacy. When these criteria are in place, teachers become advocates of their new knowledge, want to integrate new ideas into their practices and, in general, wish to create better learning spaces.

Critical Literacy as a Social Practice

Theoretically, we located our research in critical literacy as social practices informed by Vasquez, et al. (2019). We see critical literacy as a way of being, living, doing, and learning and not just a method of teaching literacy in a particular way. First, a critical literacy perspective invites critique of current and regulated practices that may run counter to teachers' beliefs about literacy development (e.g., fill-in-the-blank workbooks mandated in this rural school were contrary to teachers' desires to help children prepare for future success). Second, a critical perspective views learners' diverse knowledges, languages, and experiences as resources rather than deficits, and these multimodal/multilingual practices (Lau, 2012) are used to design curriculum which values both in and out of school practices (e.g., using technologies to offer space to remix texts to create more interesting and engaging texts and learning). Third, learning is best when situated within the lives of those involved in the learning (e.g., contexts in which learning takes place; available technology resources). Fourth, a critical literacy perspective understands that texts are never neutral; they are always produced from a set of beliefs and values that arise from social practices, some of which may or may not align with a learner's beliefs and values (e.g., noticing whose voices are represented in this text and whose are not.). And finally, critical literacy positions teachers and learners to imagine thoughtful ways of constructing and redesigning texts, images, and practices –print-based and digital– to convey socially just messages.

Critical literacy scholar, Janks (2010), emphasized the need for students to "produce texts that matter to them in different formats and for different audiences and purposes and [for teachers to] allow them to draw on and extend their range of semiotic resources" (p.156). In our research (Albers, et al., 2019; Flint et al., 2018a, 2018 b), we suggest teachers engaged in PD must also produce texts that matter to them to personally transform their beliefs. In turn, they make societal transformation by providing space for children to create texts that matter to them. Within these experiences, teachers shift their perspective on what constitutes literacy and for what purposes, and open up spaces that foster new discoveries and understandings of literacy both for them and their children.

Project South Africa

Project SA was a multi-year research project designed to extend teacher knowledge of literacy concepts and pedagogical practices with the intention to increase children's reading scores as measured by provincial and national tests. Interactive teacher

workshops were held after school for a period of two weeks twice per year (total of four weeks), and regularly scheduled Skype calls (when Internet connection permitted) ensured a sustained and ongoing relationship. Taught in English, our workshops were crafted to engage teachers in the very learning that we hoped their students would engage in. In general, we opened each workshop with a children's picturebook transposed onto a PPT. While teachers received hardbound copies of the picturebook, digitized picturebooks offered a feasible approach to reading a picturebook with classrooms when one copy only is available. Further, projecting picturebooks enabled 35-50 children in one class to see/read the story. We followed this with multimodal strategy instruction using music, drama, written, oral, visual movement, to demonstrate a range of ways to teach literacy. We ended each workshop with Exit Slips (Short, et al., 1995), teachers' written and artistic reflections of the day's activities. Teachers responded to what they learned, what they would like to learn, and illustrated their thinking, especially around technology and literacy. Exit Slips also enabled teachers to raise questions and describe how they might integrate their ideas into their practice. Exit Slips were instrumental in shaping our plans for subsequent workshops, and offered us insights into teachers' perceptions about this PD.

Methodology

Study Overview

This qualitative study focused on the analysis of a subset of data collected over a period of three years that addressed technology and literacy. Eight foundation phase teachers who worked in a rural primary school in the Western Cape were the primary participants in the study.

Research Question

The central research question for this study was "What happens when teachers engage in PD that is focused on the integration of simple technologies to teach literacy?"

Researchers

We are two white female teacher educators/researchers and critical literacy scholars at research institutions in the United States and have conducted onsite PD in both US and international settings. Both of us have over 40 years of combined experience working with diverse populations of teachers who work with children from early childhood to high school, and with pre-service and inservice teachers who work in urban and rural primary schools in metro and rural areas.

Setting and Participants

Williams Primary School (WPS) served children from a wine region in the Western Cape whose parents worked on wine farms. Approximately 400 children, grades R-8, attended this severely under-resourced school, with about 200 in the foundation phase. As a "no fee" school, families did not pay for school supplies which were provided, in part, from the government. WPS benefited from local service organizations who offered some budgetary respite for personal and infrastructural needs. They provided uniforms for many children, built an outdoor playset, painted the walls of the school, and installed a water fountain. When we started this project, the school had extremely limited Internet connection in a nonfunctional "computer lab."

Seven foundation phase teachers participated in the project, Nicky (Reception [Kindergarten]), Kay (Grade1), Cecelia (Grade 2), Ra'eesah (Grade 3), Jules (Grade 3), Rayleen, Grade R-1 teacher. Claire, Grade 4, asked to join the project in the second year. Teachers ranged in experience from newly certified teachers to those with years of experience. All teachers spoke Afrikaans; all spoke English, some with more fluency than others. One spoke Xhosa as her mother tongue. Teachers gradually integrated English in their instruction, increasing their use of English in Grade 3, to prepare students to learn in English from Grade 4 onwards. Teachers taught literacy from district-mandated fill-in-the-blank decontextualized workbooks. Teachers remarked that district-required PD was transmissive, predictable, and irrelevant. Two teachers had some knowledge of technology; they used SMS (short message service [text]) to communicate with friends/family, had Facebook pages, and/or knew how to construct PPTs. The others had extremely limited knowledge about and experience with technology.

Constructivist Grounded Theory

In theoretical alignment with critical literacy, we suggest that personal transformation must happen in order for societal transformation to occur. We understood our research had to be ethically grounded in the culture and experiences of this group of teachers in order for them to realize their own transformation. Only then will societal transformation happen in which children envision their futures differently. With that in mind, we adopted a transformative constructivist grounded theory (TCGT) methodological approach (Charmaz, 2005) that contributes both to personal and societal transformation.

TCGT involves open coding and purposive sampling in the study site and participants. We worked across a number of years with this group of teachers, and purposively selected technology-centered literacy PD as the phenomenon studied. We focused data collection on and initiated inductive middle-range theories to explain the extent to which transformation occurred in teachers' use of technology in their teaching of literacy. The importance of using grounded theory methods like TCGT is that they provide tools for analyzing processes aimed at transformation and hold potential in studying social justice issues (Charmaz, 2005).

Data collection and analysis were iterative and recursive, happened simultaneously, and were in alignment with TCGT. We collected and coded printed, audio and video data, and compared data to understand and interpret variation in the data. We combined codes into concepts/conceptual families, formalized into theoretical frameworks. Across the study, we continuously wrote memos in and outside the workshops, and engaged in pre- and post-workshop debriefs with teachers, and between ourselves that occurred to and from the research site. Memo-writing, coding, and comparison were central to theoretical sampling to initiate questions, posit relationships, determine what's missing and what data to collect next. We generated concepts around teacher learning and transformation through technology by integrating theory and empirical data through successive levels of data analysis. Theoretical saturation occurred when all of concepts in theories being developed were well understood and evidenced in data. Figure 1 represents data collection and analysis.

Findings

This paper reflects our interpretation and our attempt to represent the experiences of this group of teachers, understandings of these experiences, and our theoretical explanations of teachers'

conceptual and pedagogical transformations in literacy and technology integration.

Learning About, With, and Through Technology to Teach Literacy

We organize our findings around how teachers were open to learning about, with, and through technology to teach literacy. Learning **about** technology represented learning the tools of technology, for example, turning on a laptop, opening up and using software, cutting and pasting, connecting devices to their laptop to project image or download images/videos to their laptops, among others. Learning **with** technology represented how teachers engaged in and prepared technology-rich literacy lessons. Learning **through** technology involved application of their learning demonstrated through their students' learning.

Learning About Technology

There were reasons for the vast differences in experience with technology among teachers. Only four of the teachers had personal phones but limited their use to SMS because Internet access was very expensive. Of the eight teachers, only two teachers were familiar with laptops and PowerPoint (PPT). Nicky, the youngest at 21, had more facility with technology relatively speaking to those of her older colleagues; she did "PowerPoints for my minister" and knew "that the charger goes in here." Six had little to no knowledge of computers or software. None of the teachers had personal laptops or classroom computers. Although a technology course is required in their teacher preparation program, teachers remarked that they couldn't remember how to use computers. Thus, knowledge about the potential of using technology was severely limited.

The grant enabled us to purchase technology suites for each teacher, including on-site technical support to configure each of the laptops. The school was wired for Internet connection, however, no one in the school or the district knew the password. Boosters were purchased and installed to enhance the Wi-Fi infrastructure, a new password generated, and wireless access was available to the entire school. Initial workshop time was designated to ensuring laptops were properly configured for the needs of the teachers, and registering email and Skype accounts. These activities required time but in the end were invaluable for establishing important communication pathways.

One of our first workshops engaged teachers in learning about the pedagogical possibilities that technology, specifically PowerPoint, could offer in reading to children. We started each workshop with a picturebook projected on a white board. Teachers were fascinated with PPT, the digitization of a printed book, and how PPT could facilitate whole class collective reading. Demonstrations using PPT featured digital photos of teachers' engaged in PD workshops. We used speech bubbles as interactive and simple features to engage teachers in the PD (Figure 2). Teachers noted how PPT could engage children actively through speech bubbles and digital photos, "They like to see how was their reaction. Interaction is very important and motivates them to read and speak."

Teachers responded excitedly in their Exit Slips to newfound knowledge about PPT and the possibility of child engagement (Figures 3a, b, c).

For example, Cecelia was less confident with technology integration and was thankful that she was able to learn a technology new to her (Figure 3a). She was no longer fearful of technology, but wanted to know more—projecting PPTs on the wall. Her

visual representation showed joy in her learning. In combinatorial relationship, Cecelia's smiling sun, birds flying free among the mountains that surrounded this rural school, and the tag line, "Sun has come up," expressed her openness to learning about technology. The sun rising, for her, was metaphorical; integrating technology gave rise to new ideas for teaching. Although knowledgeable about PPT, Nicky wanted to know more about how to insert music, and enjoyed her "learningful" engagements (Figure 3b). Rayleen, less comfortable writing in English, expressed in both Afrikaans with English how she loved to get together with her colleagues, was learning lots about technologies, and how she loved working with us (Figure 3c).

Across our photos and videos, we noted that learning about technology for this group of teachers was a collective endeavor. Figures 4a and 4b presented a significant moment in our thinking about teacher emotions and technology.

Learning about technology was an intimidating experience for all, more so for some than others. We interpret Figure 4a as a collective and shared experience; teachers huddled around our laptop while we demonstrated presentation software. Figure 4b is a close-up of Cecelia holding onto the arm of Nondimiso, both of whom had little to no experience with technology. Their arms were linked, emotionally supporting each other. We interpreted this as a symbol of solidarity; they would learn about technology together.

In their learning about technology, teachers also noted the convenience of taking laptops home to develop instructional ideas, and allowed them to teach family members to learn about this technology. For example, Nondimiso used her knowledge to teach her son how to use a computer and presented what she had learned in workshops to teach her son to read and write.

Learning with Technology

We identified instances of learning with technology in which teachers reported how technology was used to build their conceptual and pedagogical knowledge about literacy, a major goal of the project, and also children's motivation to learn.

Through PD workshops, teachers learned about teaching content using open-access Internet resources. Word cloud software, Wordles and Tagxedo (<http://www.wordles.com> and <http://www.tagxedo.com/>), were their favorites. This software offered them ideas to think about how to work with more sophisticated non-fiction texts, highlight key vocabulary, and address the required curriculum standards around vocabulary (Figure 5).

Teachers created their own Wordles/Tagxedos on selections of texts pulled from child-friendly Internet sites on topics such as Nelson Mandela and democracy. They saw this software as a fun way for children to explore language. Teachers shared this software with colleagues in other schools. This led to an invitation for Kay to present a workshop at a district PD session, an idea that teachers "liked it very much!" Teachers also enjoyed Zooburst (<https://edshelf.com/tool/zooburst/>), an open-access software that allowed them to create pop-up books on self-selected topics. Teachers took digital pictures of their families and photos in their photo albums to create their own pop-up books. Initially afraid of software, Nondimiso, in particular, loved Zooburst. Her eyes opened in surprise and she laughed when she saw the pictures pop up in her family book, a book she eagerly shared with her family. This experience was pivotal in Nondimiso's transformation; she learned to create digital and interactive stories, and significantly built her confidence to use other software.

Motivation for learning increased across the grade levels as teachers noted instances of engaged learners. For example, Ray-

leen included videos of her children in her lessons. "The children are so much more engaged! They want to answer my questions because they saw themselves in videos!" Nondimiso noted, "They all want to participate. The weaker ones, they are hearing something different, learning something." Teachers printed out and displayed digital photos of children and their school surroundings which motivated children to want to read and write about themselves. Figure 6 represented a caption that one child in Kay's class wrote, "I have three friends."

Children also used digital cameras to take photos for projects. They integrated them into PPTs and shared with their class peers (Figure 7). Teachers reported a significant change in children's motivation to learn because children saw themselves in their learning and had opportunities to create new learning with technology.

Learning with technology for this group of teachers was significant. They not only learned about technology, but experienced it through projects which workshops provided, PD that they valued.

Jules:It's [workshops] really nice because you do practically (sic) [practical] something. You sit in [district] workshops, so boring, and you listen. And I mean it's the same thing over and over again. Like there's a workshop tomorrow at the district office. Already we know they're going to ask that, and they're going to say that. But like here, with you guys, you first do your thing, and then we have to do something practically (sic) [practical] and that's nice because there's involvement with us. I like that.

Kay:And we go practice.

Ra'eesah: And we are so excited we want to try it out on our children and see how they will do.

Nicky:Yes. And I normally share my stuff with other friends of mine, like Wordle or ZooBurst.

Peggy:So you're sharing these ideas with other teachers in other schools?

Nicky: Yes. Yes. My friend Barbara is very excited. She said, 'Yes give it. Send those Reading Project people to our school as well.' I have shared some good stuff from you guys.

Claire:In my short time, these few sessions, I've learned so much. I really feel I've grown so much.

Peggy:What sort of learning did you like the most?

Claire: You weren't standing the whole time explaining things; we could do things also and in a practical way. You really stimulate a person's mind. Yes, you make me think, man! And I want to think!

Across two years, teachers' perspectives on PD evolved and transformed their thinking about what teacher learning ought to look like. Effective PD is not someone "standing the whole time ...explaining things," but is someone who asks them to "do things also." In this discussion, teachers spoke against and critiqued their required district PD, PD that was exhaustive both physically and intellectually. They had to "sit there and you listen... It's the same thing over and over again." This group of teachers valued PD that was interactive with time for them to "go practice." Learning about teaching literacy through technology meant "growth" for them, "stimulating a person's mind" because teachers like Claire "want to think!" That teachers shared "good stuff from you guys" at district PD and "with friends" indicated to us that these experiences were personally transformative for them and a move towards social transformation.

Learning Through Technology

When teachers learn about and with technology, they open themselves to learning through technology. At the request of the teachers, we designed a number of workshops focused on language development and vocabulary taught through a number of children's books (e.g., *My Map Book*, *Wolf Won't Bite*, and *Woolbur*) and songs (e.g., "Kalimba") We introduced strategies associated with vocabulary development: words specific to a concept (place: *My Map Book*) and word clouds. Teachers immediately implemented vocabulary strategies and ideas in the classroom. For example, after working with the ideas in *My Map Book*, Nicky showed us her children's drawings of their school. She extrapolated the concept of "maps" to extend children's thinking and vocabulary on other aspects of their day. We used "Kalimba" by Dr. Victor because a kalimba is both an African musical instrument and directly connects to the culture of this school. The song "Kalimba" was about taking a journey with repetition of directions across the song, "we going South, we going West". The use of "Kalimba" supported supported children's fluency and language development. "Kalimba" energized the teachers as they loved to sing songs with their children to teach literacy. They learned how to download and search for songs to work with language development. Two teachers used their digital cameras to video-record their children singing and projected these videos on retractable white screens so their children could see themselves in their learning.

We found that teachers used technology suites in their classrooms in powerful and important ways. Ra'eesah, initially very fearful of technology, taught her students to take digital photos purposefully to document information to present their learning on units of study like nature. Her experiences and knowledge with laptops and PPT in PD workshops enabled her to teach her students to create and share their own presentations with their peers (Figure 8). All teachers integrated digital photos in reading and writing. They posted photos on classroom and hallway walls to invite children to write captions in their mother tongues (Afrikaans, Xhosa, English) and stories to accompany images. Teachers reported that the personal connections that children had with the images created stronger associative links, thereby enhancing their relationship between images and words. The generative nature of these engagements suggested that teachers learned through technology to transform their pedagogical approaches to literacy teaching, which they noted increased children's level of engagement. Cecilia's statement indicated her desire for more workshops, "It's too little that you stay...we ENJOY it. For me I can't explain it." Cecilia, like the others, were clearly affected by engagement in PD workshops.

Learning through technology was personally transformative for teachers. They built enough confidence to share ideas with colleagues; however, evidence of societal transformation occurred when they presented interactive workshops at the Pan African/Reading Association of South Africa (RASA) conference, the first professional literacy conference any of them had attended. Teachers developed session presentations focused on technology integration and children's literature to teach literacy. In pairs, they presented what they had learned, showed children's artifacts, and facilitated discussions on their own understandings of literacy development (Figure 9). They organized how they could maximize their collective learning and, in pairs, attended a range of sessions. Claire summed up her experience, "In South Africa, we have a saying that when we achieve or win a game or something, we say, 'Okay guys, we are on the map.' Now after the RASA Conference, we are going back and saying 'Okay, guys, we are

on the WORLD map!'...This [conference] has been a life changing experience."

Discussion

During the time in which we conducted this study, advances in technology continued. Stronger networks and infrastructure, smaller devices (tablets), virtual reality and an explosion of apps for laptops and phones have led to even greater Internet usage. These sophisticated uses of technology will surely impact what is possible in classrooms around the world. Important, however, in this study, was to honor the "simple" technologies (e.g., digital cameras, screens, projectors, laptops) that made personal and societal transformation possible for these teachers in a rural community and school whose physical and technology infrastructure was severely limited. In light of our research question, "What happens when teachers engage in PD that is focused on the integration of simple technologies to teach literacy?", we present several points of learning.

First, for professional development to be effective and transformative, it must be situated within the lives of those learning. Teachers in this school were hungry for PD that was interactive, participatory and collaborative. Teachers in this school did not experience or participate in PD at the district level. Rather they "sat and listened" and knew what presenters would say and do. Teachers were disconnected from district PD because their context was not considered. When teachers' lives are central to their learning, whether it be through speech bubbles, Wordles on South Africa, and careful attention to what they have learned and what they want to learn through Exit Slips, they develop a critical literacy perspective on teaching as a way of being, living, doing, and learning (Vasquez et al., 2019). In so doing, they began to critique predictable and passive approaches to teaching and learning, and imaginatively engaged children in literacy learning that was interactive, fun, and still addressed district literacy standards.

Second, while technologies and streaming have become highly sophisticated, and social media has changed how we think and act, rural schools like WPS are mired in conventional approaches to teaching because of the fiscal inequities and disparities that exist between public and private, black and white, and urban and rural schools. Yet, while not as sophisticated, simple technology tools like digital cameras, retractable white projection screens, and laptops with Word suites served this group of teachers very well. They transitioned from a nonfunctional computer lab and no password to a suite of tools through which they could begin to imagine their teaching and their children's learning differently. Digital cameras provided the impetus for Ra'eesah's Grade 3 students to create beautiful PowerPoint presentations on their inquiry into stories about their lives. Videos taken on digital cameras inspired Rayleen's Reception and Grade 1 children to respond to questions about their learning. These are moments that show new literacies in action. This is the "good stuff" that emerges when technology tools and experience are used for participation, collaboration and distribution of texts (Knobel & Lankshear, 2007). For this group of teachers, simple technologies with sustained and situated PD represented a "quantum shift" (Knobel & Lankshear, n.p.) in which teachers evolved in how they perceived literacy. They implemented innovative ideas into their practice which necessarily involved "different kinds of values, emphases, priorities, perspectives, orientations and sensibilities from those that typify conventional literacy practices" (n.p.). Children moved from passively filling-in-the-blanks to writing about their lives, photographing their learning, and designing multimodal presentations which were then projected for all to see.

Design, as Jewitt and Kress (2003) argued, is the most sophisticated aspect of multimodal creating and learning.

Third, we suggest that we were in the right place at the right time to awaken a dormant desire in teachers to work with technology. The computer lab was a visible symbol of what could be; their personal mobile devices were communicative reminders of an interconnected world. We were able to start with familiar features of technology tools, photographs on their phones and digital cameras, to move them into working more confidently with laptops, extending their current practices to engage children in more active learning. By “organically, using the inquiry questions of learning, beginning on the first day” (Vasquez, 2017, p. 6), we were able to tailor PD that honored the spaces and places from which teachers’ beliefs and practices arise, and respected what this school had to offer, not what it did not have. In so doing, we grew as a community of learners in which teachers wanted us to stay longer (as we did as well), wanted to “give [their knowledge]” to their teacher friends so they could engage their children in their classes, and wanted to show us how they had taught their children about technology, created experiences with technology, and learned about themselves and their worlds through technology. This is what we believe “new literacies” is all about.

Fourth, this study offers insight into how societal transformation may come about, how teachers, as individuals and as a collective, became, as we saw it, transformed. We suggest that societal transformation arises when personal transformation is realized in relation to others in this space. Our social justice positioned us to pay close attention to teachers’ ideas and actions, listen to their questions, and plan with these questions in mind in order for teachers to move into personal transformation, which as Cecelia noted, “you’re never too old to learn.” She craved learning that was “different. Not to think straight.” Across the study, we noted significant epiphanies that teachers had which contributed to their personal transformations. When Nondimiso constructed her first pop-up book, she had a moment of clarity; she had control over the software and the laptop to create a story of her family and her love of cooking. She took this knowledge to teach her son how to use the laptop to better his learning. Rayleen’s epiphany happened when her children began to respond to her questions when she projected videos that featured them on screen. Together, teachers were a critical mass, a collective that together could transform the space around them, their immediate worlds through district PD, and the betterment of their profession through their involvement in RASA, an international literacy conference.

For us, societal transformation is a moral endeavor, one in which how the lives of people are affected is central. We ask, How has their engagement in this research experience made their lives better? Has their engagement shifted what they believe, do and act? What can we observe to help us see societal transformation? We believe that this experience was transformational for this group of teachers and the school in which they work, and for us as researchers, teacher educators, and humans. That teachers learned about, with, and through technology to develop a new literacies approach to their teaching was icing on the proverbial cake.

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