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Literacy, Technology, and First Year Teachers: A Case Study

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Abstract: This paper examines how first year teachers describe their preparation and use of technology to teach literacy. Findings indicate teachers feel confident but unsupported in their efforts.

Keywords: first year teachers, literacy, technology, teacher preparation programs, self-efficacy

Background

As technological advances increase at an exponential rate, the field of literacy is changing and with it the definitions of what it means to read and write (Leu, Kinzer, Coiro, Casteck, & Henry, 2013). Literacy is no longer a simple mastery of decoding skills, but a construct with broader meanings and wide-ranging technological, cultural and social implications (Mills, 2010). In the past, traditional literacy has been conceptualized as a standard set of context-free skills that could be taught without regard for background, culture, or experience. New understandings of literacy, termed “multiliteracies” now incorporate any sign-making practices that use various technologies and also account for cultural and societal influences. Yet while students are using multiliteracies outside of the classroom, training for new and preservice teachers often remains print-bound in its explicit literacy pedagogy (Ajayi, 2011).

The United States spent an estimated \$9.94 billion on educational technology in schools in 2014 (Murphy, 2014), yet many teachers, even those who grew up exposed to technology in their own educations, are not adopting it into their own practices (Mundy, Kupczynski, & Kee, 2012). Significant attention has been paid to how universities implement digital technology instruction into teacher education curricula and how in service teachers adopt these strategies in the classroom (& Lee, 2014). While all U.S. teacher preparation programs are required to provide instruction on technology integration (Kleiner, Thomas, Lewis & Greene, 2007), there are different requirements, formats, and approaches at every university. Thus, teachers enter the workforce with unequal and often inadequate technological skills or abilities. However, even adequate preparation and the availability of equipment cannot guarantee that teachers will use new technology in their instruction (Hutchison & Reinking, 2011). Internal factors, like self-efficacy and confidence, are greater predictors of technology use in teaching than external factors like training, accessibility, and hardware (Ertmer, 1999).

This study sought to examine how one group of first year teachers described their teacher preparation and use of digital technology to teach literacy in the classroom and how they describe the perceived obstacles and benefits of doing so. Specifically, the research question was “How do first year elementary school teachers describe their teacher preparation and use of digital technology to teach literacy in the classroom?”

Methodology

Research Approach

In order to investigate this topic, a qualitative, instrumental case study approach was used. The case was bound by its brief duration over two months during the 2014-2015 school year as well as by the singular school district in which all participants were employed. This was a

large suburban school district with 8 elementary schools and 68 new hires in 2014-2015 at the elementary level. Purposeful, homogeneous sampling (Creswell, 2008) was conducted in order to gain access to first-year elementary school teachers. Seven first-year elementary classroom teachers agreed to be interviewed. After the interviews, four teachers agreed to participate in the focus group. All participants in the study were female, ranging in age from 23-45. All were first year teachers in Kindergarten through fifth grade classrooms from the same school district. The participants received their teaching certification from undergraduate, masters, or post-baccalaureate programs at public and private universities. Research was conducted in a three-step process, beginning with one-time, semi-structured one-on-one interviews. At the end of the interview a short asset matrix was distributed to participants. Following the interviews, a focus group was held with four of the seven participants.

Data Analysis

The qualitative data was analyzed using the constant comparative method (Glaser & Strauss, 1967; Lincoln & Guba, 1985). Boeije's (2002) steps for conducting constant comparative analysis with qualitative interviews were employed to inform the process. The researcher used In Vivo coding, open thematic coding, and axial coding. After analyzing the interviews, the focus group was conducted and the same coding and analysis processes were applied. To qualitatively analyze the technology asset matrix the participants' verbal answers were compared to the technological items they checked off on the matrix. Once each matrix was individually analyzed, the set of matrices were analyzed as a group to examine the frequency of responses for each technological tool and to look for similarities and differences between the participants' responses.

Findings

Based on the data collection and analysis, this case study generated the following major findings.

First Year Teachers Feel Unprepared by Their Teacher Preparation Programs to Teach Literacy Using Technology

All seven participants expressed that they felt unprepared to teach literacy using technology during their literacy coursework and student teaching.

Literacy courses. Participants shared that technology was rarely taught in the context of literacy during their teacher preparation programs. Six out of seven participants did not have a technology component in their literacy courses. Only one participant had a technology and literacy course, but believed it was not helpful. All participants expressed a desire for more comprehensive technological training in their literacy coursework.

Student teaching. While most did not believe their literacy courses contained technology components, five out of seven participants did identify at least one technology requirement within their student teaching. Many participants did note that the requirements were minimal and shared that they went beyond what was required of them in terms of using technology during student teaching. Even with minimal to no requirements, four out of seven participants reported using technology in their student teaching on a daily basis.

While the majority of participants believed that there were more opportunities to learn and practice technology in their student teaching than in their literacy coursework, all of the first year teachers agreed that they felt unprepared by their teacher preparation programs to teach literacy using technology. They expressed a desire for more training at the university level and

increased opportunities for practice in their coursework.

The findings from this study regarding teacher preparation programs are supported by earlier research (Agyei & Voogt, 20011; Drent & Meelissen, 2008; Liu, 2012) that found that teacher education courses often fail to help with technology integration in the classroom.

First Year Teachers Use Some Technology to Teach Literacy, but also Identify Barriers to Further Use

The first year teachers all shared that they were using some aspects of technology in their literacy instruction, but were also able to distinguish obstacles that were keeping them from using technology to teach literacy as often as they wished.

Actual use. All seven participants identified features of technology that they used on a regular basis in their current classrooms during literacy instruction. The participants' responses combined with the results of the asset matrices demonstrated that first year teachers are indeed employing technology in their literacy instruction. While the majority of this use appears to be teacher-led demonstrations or practice, first year teachers are also using technology in student-centered literacy activities.

To teach literacy with technology, all participants reported using at least one component of district-provided equipment, software, applications, or websites, and some used personal devices brought from home. Just as some first year teachers were bringing their own technological equipment to school, three of the seven of the participants expressed that it was also their responsibility to determine how or if to integrate technology into their literacy instruction. They stated that there were no technological requirements or expectations from the administration regarding the integration of technology into the literacy curriculum and any lessons used were self-developed.

Frequency of use. Six out of seven participants reported using technology in their literacy instruction approximately once a week. Only one participant stated that she used technology daily in her literacy teaching. The first year teachers reported that during the school day they used technology more frequently in other subjects than in literacy.

Barriers to use. All seven first-year teachers identified obstacles that kept them from using technology as much as they would like. Access to equipment, equipment failure, and lack of experience or training were the most frequently identified issues. The barriers acknowledged by the participants in this study are consistent with the perceived extrinsic barriers identified by prior research (An & Reigeluth, 2011; Ertmer, 1999; Kopcha, 2012). Access to technology, or lack thereof, was found to be the most common barrier in this research, and is also one of the most prevalent barriers in previous studies (Clark, 2006; Lim & Khine, 2006).

Participants Felt Confident to Teach Literacy with Technology

Most first year teachers expressed confidence in their abilities to teach literacy with technology regardless of their self-described level of training or current technology use in the classroom. Five of the seven participants expressed high levels of self-efficacy in using technology to teach literacy regardless of how often they were actually doing so. One participant expressed the most extreme level of confidence of all of the participants but self-reported the least frequent use in the classroom. Conversely, the participant who self-reported the most frequent technology use in the classroom was one of two participants to share that she had a low level of self-efficacy when it came to teaching literacy with technology.

The first year dynamic. Six of the seven participants described the first year of

teaching as difficult and overwhelming, and believed the unique circumstances of the first year of teaching influenced their use of technology to teach literacy. Participants expressed the struggle to balance the demands of learning new content and new methods of instruction while aiming to please their principals. Some participants believed they needed to learn more about their craft and subject matter before they could tackle technology, while others believed technology integration was extraneous and not a priority.

Research in the field has shown that both self-efficacy for technology integration (SETI) and attitudes toward technology integration are two of the most significant factors in teachers' actual use in the classroom (Anderson, Groulx, & Maninger, 2011; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012). These studies have demonstrated that teachers with high SETI and positive attitudes toward technology integration are more likely to use technology in their own instruction. However, the results of this current study contradict these findings, as the majority of participants expressed high SETI and positive attitudes toward technology integration but were only using technology in their literacy instruction approximately once a week and wished to use it more frequently.

Implications

The majority of participants in this study believed that the courses in their teacher preparation programs did not address teaching literacy with technology and thus did not prepare them to do so. Generalizations cannot be made given the size of the subject sample, but it can be surmised that this might be true for many pre-service teachers as this research contributes to a growing body of research that attest to both perceived and actual lack of preparation (Ajayi, 2011; Tondeur, van Braak, Sang, Voogt, Fisser, Ottenbreit-Leftwich, 2012).

Embedding technology components within literacy methods courses and student teaching, with an emphasis on practical, relevant assignments that are applicable to the classroom, is one way to address the dissatisfaction and feelings of unpreparedness that first year teacher experience. The challenge in this is that universities are tasked with training teachers who will then accept positions in vastly different communities with unequal technological resources and diverse values regarding the importance of technology in the curriculum. Thus, in the design of coursework, it is impossible to include every possible iteration of equipment or application available in public schools across the country. Perhaps the goal is not to teach the technology but to teach the teacher by building a foundation of pedagogical practices and technical skills.

It is also important to note that the participants' use of technology to teach literacy appears to remain in the traditional literacy paradigm, in which reading and writing are taught and learned as printed words on a page. Most of the technology integration attempted by participants was used for teacher demonstration and for modeling. Though the participants were using technology to teach traditional literacy, they were not using technology to support multiliteracies, in which teachers and students are creating shared content and generating new meaning from interactions with each other as well as communicational resources. Proponents of multiliteracies (Kitson, Fletcher & Kearney, 2007) believe traditional print-based reading and writing practices cannot only be brought to a screen to be considered digital literacy, but rather these practices must be revamped to accommodate multimodal tools that require multiliterate skills. This means that ideally, teachers would shift their methods to adopt practices that allow for the collaborative construction of knowledge and the opportunity for students to extend their thinking using a variety of interactive media. To extend first year teachers' instructional

repertoires beyond traditional literacy methods might require explicit encouragement from administrators and literacy coaches to incorporate more student-led, collaborative meaning-making activities. This would provide support for first year teachers as they begin to tailor their instruction to content that supports multiliteracies while incorporating opportunities for multimodality.

The findings of this study also indicate that first year teachers may feel bogged down, and in some cases intimidated, by the responsibilities and unique experiences of the first year of teaching. New teachers adopt a survival mode in the first year (Thomas & Beauchamp, 2011) that, when combined with other barriers to technology like access and lack of support, can foster the attitude that technology integration is an “extra” rather than a necessary component of the curriculum. Schools might provide new teachers with access and resources to technology early on in the induction process with the help of full time, in-house technology specialists whose roles are to seek out new teachers to support and to train teachers on new and existing equipment and software. Perhaps if teachers felt more supported and believed there was another individual with whom to share the responsibility of technology integration, they might be more willing to take on that challenge.

Conclusion

This case study provides insight into the perceptions and experiences of a group of first year teachers as they attempted to use technology in their literacy practices and contributes to the growing body of similar research that confirms that current teacher education is inadequate in this regard. While these first year teachers understood the benefits of teaching with technology and felt confident to do so, they were hesitant to integrate it into their own practices. This exposes an issue of great importance in the nation’s educational system as school districts invest in high-tech equipment and a workforce of new teachers who aren’t using it.

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