



TECHNOLOGY: A tool supporting teacher change in the context of the Targeted Reading Intervention

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Abstract

The Targeted Reading Intervention (TRI) is a technologically-mediated professional development program and early reading intervention for teachers in rural areas (Ginsberg, Amendum, Mayer, Fedora, & Vernon-Feagans, 2006). Technology is central to the design of the program as it facilitates distance delivery of literacy coaching from a university-based reading specialist to the classroom of a participating teacher as she instructs one struggling reader at a time. The design of the program assumes technology to be supportive of change as it facilitates coach-teacher interactions. Indeed the successful use of technology in providing effective webcam-based literacy coaching to TRI teachers has been well documented (Amendum, Vernon-Feagans & Ginsberg, 2011; Ginsberg, Vernon-Feagans & Amendum, 2010; Vernon-Feagans & Ginsberg, 2010; Vernon-Feagans et al., 2011; Vernon-Feagans et al., 2012; Vernon-Feagans, Kainz, Hedrick, Ginsberg & Amendum (in press). The present study demonstrates how technology offered unexpected types of support for a participating teacher. This study describes the unanticipated ways technology supported important teacher-belief changes while also facilitating intervention implementation.

A collective case study design (Merriam, 1998) was employed. The participants were an exemplary first grade teacher and five of her students during their participation in the TRI. Data for this study were collected for one school year and archived for a larger investigation. The data include video-recorded iChat interactions, emails, instant messages, phone interviews and a survey.

Results of this study indicated the participating teacher made important changes in her beliefs, which positively impacted her experiences at work and her effective teaching of reading to her first grade students. These changes included teacher beliefs concerning acceptance in the workplace, self-efficacy, and identity. Technology was an important support to the teacher in these changes.

This study demonstrated that in the context of a content-driven, student-focused intervention, technology may support a teacher's professional growth in ways leading to improvements in students' reading abilities. Implications for program designers conclude this work.

1. Background and Rationale

The professional development program at the heart of this study is the Targeted Reading Intervention (TRI), which was part of the National Research Center on Rural Education Support. The Targeted Reading Intervention is a technologically-mediated professional development (TMPD) program and early reading intervention designed for rural teachers and their struggling kindergarten and first grade readers within low-wealth communities. Recognizing that teachers in rural schools have more difficulty obtaining professional development opportunities than those in more urban locations (Lee & Burkham, 2002), the TRI chose to facilitate the program via distance technology. The TRI introduces teachers to new practices in reading instruction and supports teachers' implementation of these practices with the guidance of a literacy coach (Ginsberg et al., 2006). The literacy coach is university-based and available via webcam technology, instant messaging and email. It is important to note that the use of certain technology *in itself is a new practice* for some TRI teachers.

The TRI is known to positively impact teachers' practices, resulting in improved reading outcomes for students (e.g., Amendum, Vernon-Feagans & Ginsberg, 2011; Ginsberg, 2007; Ginsberg, Amendum, Vernon-Feagans & Athey, n.d; Vernon-Feagans, Gallagher, Ginsberg et al., 2010; Vernon-Feagans, Kainz, Hedrick, Ginsberg & Amendum, 2010; Vernon-Feagans et al., 2012). Research is beginning to uncover *the process of teacher change of beliefs* that occur in the context of the TRI that has led to the more effective teaching of reading (eg., Gunther, 2012). While the TRI makes use of many affordances to support teachers' growing understandings of reading instruction (eg., TRI Weekly Meetings, Literacy Coaching, Technology, One-on-One Format and TRI Reading Strategies), this study examines the power of just one of these affordances: **technology**. Understanding how particular



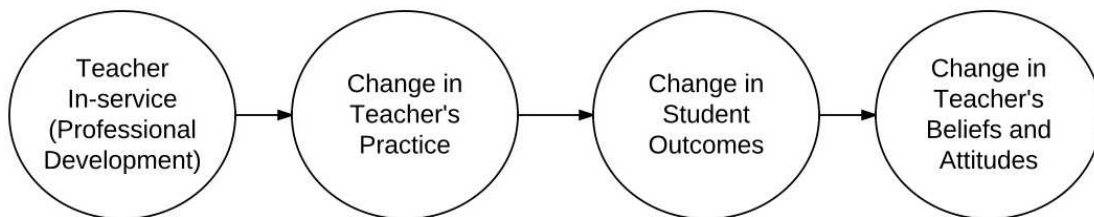
aspects of the TRI serve to promote positive teacher changes in beliefs and practices is necessary for the continued success and refinement of the program as well as the advancement of the field's understanding of professional development, early intervention, and technology innovations.

2. Theoretical Framework

Historically, professional development sought to change teachers' beliefs with an in-service program in the hope that teachers would translate their new thinking into different, more effective practices in the classroom. Professional development expert, Thomas Guskey (1986), concluded that a more successful model of professional development begins with a change of practice (see Figure 1). Rather than expecting to observe a change in teachers' beliefs and attitudes at the beginning of a new professional development experience, Guskey claimed teachers are more likely to change their beliefs, attitudes and future practices based on positive results from their students when a new practice is employed. Guskey's model gives theoretical support for the *expectation* of teacher change in the context of professional development programs that support teachers' implementation of new practices. Because the use of webcam and instant messaging were new practices for the participating teacher featured in this study, the researcher operated under the assumption change could be documented. Guskey's model provided a source of rationale when designing the study and a lens by which to view the possible *path* of changes happening over time when analyzing data.

Figure 1

Guskey's model of teacher change in the context of a professional development program



As mentioned above, webcam technology was used in the TRI to connect teachers in rural areas with university-based literacy coaches. Technology acted as a facilitator. However, technology may serve as much more than a means to facilitate other aspects of the intervention. The current study was designed to investigate the transformative power technology may hold when considering teacher change of beliefs and practices. The research question guiding this investigation was, "How does the affordance of technology support teacher-change of beliefs in a TRI-participating teacher?"

3. Methods

3.1 Context

The teacher participant discussed in this study is Laura Pendergast. Laura was a first grade teacher at Smithfield Elementary School in the Midwest United States (note: all names are pseudonyms). She had a long history of achievements in the field of education, with a Ph. D. in Education and over 30 years in the field, Laura stood in stark contrast to her coworkers because she had more education and work experience. She felt like an interloper at work and perceived herself to be unaccepted by her colleagues.

Just as Laura stood in contrast to other teachers within her school, Smithfield Elementary stood in stark contrast to the other elementary schools in its district. With 72% of students enrolled at Smithfield during the 2008-2009 school year qualifying for free or reduced lunch, this school had more students living in poverty than any of the other schools in the district. Laura felt many of the students at Smithfield were marginalized because of stereotypes surrounding children of poverty. Laura was determined to hold her students to high expectations, though she perceived academic unreadiness, attributed to factors associated with poverty, impeded her effectiveness as a teacher of reading.



Laura was familiar with using email prior to her participation in the TRI. However, she had never used webcam communication or instant messaging. She expressed her desire to learn the applications because learning to be a strong reading teacher was of utmost importance to her.

3.2 Data Collection

Data for this study were collected and archived for the larger investigation in which this study was situated. The data included video-recorded web interactions, written electronic communication, interviews and a brief survey. Data were collected for a full calendar year Spanning from August 2008-August 2009.

3.3 Data Analysis

The researcher employed a qualitative, collective case study design (Merriam, 1998), exploratory in nature, to discover *how* the affordance of technology used in the context of the TRI supported teacher change. This study focused on Laura and her work with five of her students during her participation in the TRI. Laura identified the five students as needing more support in reading. Her instruction with each student represented a single case study. An in-depth collective case study design allowed for the capture of change of this one teacher at given time points in the year as she rotated from working with one child at a time to the next.

4. Results

Laura demonstrated a change of beliefs about:

1. Acceptance in the Workplace
2. Self-efficacy
3. Identity

A description of each of these changes and the way in which the affordance of technology supported each change is provided in Table 1.

Table 1.

Teacher Change Supported by Technology in the TRI

| Nature of the Change | How Technology Supported the Change |
|--|---|
| <p>Acceptance in the Workplace: Laura changed from feeling like an outsider to becoming a leader among the teachers participating in the TRI at Smithfield Elementary.</p> | <p>The topic of technology difficulties provided a basis for Laura's need to defend the Smithfield teachers in their attempts to learn the necessary technology during initial stages of the intervention. Laura's defense of the teachers happened during meetings involving all of the TRI Smithfield teachers, such that all were witness to her supportive actions. Laura's defense of her coworkers was an event leading to what she perceived to be their acceptance of her as a colleague.</p> |
| <p>Self-efficacy: Laura's view of her ability to teach all of her students regardless of personal characteristics positively changed. Prior to her work in the TRI she considered students' academic unreadiness to pose a moderate problem in her effectiveness as a teacher of reading. After her work with the TRI she no longer held this view.</p> | <p>Laura creatively used technology as both emotional and instructional supports to a TRI student. Laura used instant messaging instructionally as reading material for the student. When webcam connection was lost, Laura and the university coach had to communicate via instant messaging. Laura guided the student to read these messages and respond. She used technology as an emotional support by allowing the student to connect to the university-based coach via webcam; a task usually reserved for teachers. This was done to provide motivation for the reading session and also to build trust into the student/teacher relationship. By allowing the student to use technology to start a webcam connection she made him feel special.</p> <p>The improved relationship also made Laura question her previously held beliefs about this particular student. She previously felt the student's home life and poverty were a "moderate" problem in her ability to effectively teach reading. After building a stronger relationship with the student and watching him progress in reading,</p> |



| | |
|--|--|
| | <p><i>she no longer considered these personal characteristics of the student as being a problem at all in her ability to effectively teach him to read.</i></p> |
| <p>Identity: <i>Laura changed from being frustrated with the new technology to feeling proficient in its use. She came to identify herself as a user of technology.</i></p> | <p><i>Technology was used by Laura to solve barriers in initially implementing the program fully. Laura's success with technology to overcome these barriers positively impacted her view of herself as a user of technology. She used technology operations with which she was already familiar (email, performing web searches) to find information about how to use the new technology. These operations lead Laura to use technology beyond what was provided and expected by the TRI for implementation of the program.</i></p> |

By providing new practices involving technology, Laura was able to make positive changes in her beliefs as a teacher. Although the first and third changes were important ones, the second change was particularly noteworthy because of its direct impact on students' reading progress. Teacher's self-efficacy is known to predict certain student academic outcomes (Anderson, Greene &Loewen, 1992).

6. Conclusion

Teacher change can be facilitated through carefully considered professional development. The affordance of technology provided by the TRI supported important teacher changes in beliefs and practices. Programs wishing to ignite positive changes are advised to provide new practices early on in the program so that teachers have an opportunity to experience success tied to those new practices.

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