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"Can You Hear Me Now?" Technology as a Problem-Solving Tool

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Verizon was definitely on to something with their famous commercials. Their 'Test Man,' in horn-rimmed glasses roaming the country checking the reliability of the cellular network, made popular the question, "Can you hear me now?" This is quite an important question, as being able to hear is essential when communicating by phone. While technology has infinitely improved our ability to communicate, we are all too familiar with the dropped call scenario. Using technology to connect Reading Recovery teachers is no different; the idea of teachers communicating remotely to problem solve issues of teaching and learning presents both challenges and possibilities.

These web-based visits did not replace the required face-to-face school visits, but instead were used to provide additional support to a teacher who was having difficulty problem solving the instruction of hard-to-teach children.

This article highlights the findings of a case study that virtually connected a teacher leader and trained Reading Recovery teacher for coaching sessions using a web-based collaborative tool (e.g., Skype, FaceTime, and Adobe Connect) for school visits. These web-based visits did not replace the required face-to-face school visits, but instead were used to provide additional support to a teacher who was having difficulty problem solving the instruction of hard-to-teach children. The inquiry examined the use of a web-based collaborative tool for video conferencing and how this tool influenced the assistance given to teachers. Following is a discussion of (a) the nature of web-based coaching positioned within the context of this study; (b) details of the lessons learned from the perspectives of both the teacher leader and the teacher; (c) a brief examination of how this experience reflects findings presented in existing literature; and (d) identification of questions that remain to be explored related to the use of web-based coaching.

Background

The district in which this study took place had been experiencing implementation issues for several years. In addition to the teacher leader, there were three trained Reading Recovery teachers. The teacher leader expressed a concern that the small number of Reading Recovery professionals in the district presented challenges when planning for professional development. She also voiced concern about being able to support teachers' thinking, given the small group. One teacher in particular needed additional support, and the teacher leader felt the Clemson University Training Center (UTC) may be able to provide assistance. Clemson is somewhat unique in that it has a position referred to as teacher leader in-residence (TLR). This teacher leader serves the state at large, working with her fellow teacher leaders around issues related to the teaching of teachers and children. Clemson is located in the northwest corner of the state of South Carolina and collaborating with districts on the coast has historically been a challenge. The request from this district seemed like a perfect opportunity to explore the pressing issue of supporting districts located some distance from the Clemson UTC. Fortunately, the district was only 90 miles from the UTC so in the event the technology failed, traveling to them was still an option.

Technology Requirements

During the early stages of the project, the technology requirements for participation were discussed in detail. Initially, Skype had been selected for the coaching sessions, but, after meeting with the school district technology director and discussing the district's firewall and network security, it appeared the platform could present challenges. While

the technology director was willing to provide access by disabling the firewall, there was concern that connecting via Skype would present reoccurring problems. Ultimately, Adobe Connect, a web-based conferencing application, was selected for the coaching sessions. During the study, the teacher was supplied with an IBM laptop and Logitech webcam. The TLR used an iMac desktop with an integrated webcam.

The Coaching Sessions

In addition to its accessibility, Adobe Connect was selected because of its ability to record and archive the coaching sessions. The application provided a virtual meeting space; through the use of video pods, the TLR and teacher held 18 sessions that provided synchronous audio and video communication. Each session lasted approximately 1 hour and began with a preobservation discussion that outlined the competencies of the child and focal areas for improvement in both reading and writing. Next, the teacher and child engaged in the 30-minute individualized lesson. During the lesson, the TLR observed, prompted, and supported the teacher, and took notes on the teacher-child interactions. Following the lesson, the TLR and the teacher participated in a debriefing that addressed student and teacher learning. This cycle of preobservation discussion, lesson observation, and debriefing accounted for one coaching session. During the course of the study the TLR and Reading Recovery teacher connected for 18 sessions and a total of three different children were observed. Connecting remotely saved an estimated $750 in travel expenses and 45 hours of time.

The relationship between teacher and coach is important in a traditional coaching session and appears to be doubly important in a virtual setting.

Data Collection and Analysis

The recorded coaching sessions yielded a total of 282 transcribed pages. Additionally, formal and informal interviews were conducted with the participants (Spradley, 1979). The interviews, conducted in person and via email, included questions about the similarities and differences between face-to-face and virtual coaching. All interviews were transcribed and notes taken during the interviews were integrated into the transcriptions. All data were analyzed using the constant-comparative method (Glaser & Strauss, 1967). The categories that emerged reflected the regularities and patterns that appeared in the data and could be supported with direct quotes or observations (Strauss & Corbin, 1990). While these categories were then collapsed into three major themes, most relevant to this article are the lessons learned from the technical difficulties that occurred and the limitations of connecting in a virtual space.

Lessons Learned

Technical difficulties

Issues with shared bandwidth caused occasional audio and video delays. While the TLR was accustomed to this, as she had experienced difficulties and delays with other distance learning applications, the teacher was not. During the sessions, the audio delay would often cause the TLR and teacher to speak at the same time. The newness of the technology, and the teacher's hesitancy to interrupt, initially caused her to give brief 'yes' or 'no' responses to the TLR's questions. Further, the delay seemed to inhibit the interactive nature of the teacher-coach exchange that is typically characteristic of the conferring or preobservation discussion and the debriefing. Again, the teacher was hesitant and initially replied with short answers so as not to interrupt. After several sessions, however, the teacher and TLR adjusted to the delay and developed a sense of timing that accounted for the delay. When questioned if this technical difficulty detracted from the coaching conversation the teacher replied, "Not really, once I got used to the slight delay it was fine."

These delays could have had detrimental effects. However, the teacher and TLR did not give up, due in part to their existing relationship. The TLR and teacher had known each other for 7 years. The TLR had provided professional development for teachers in this particular school district and had also coached the teacher in a traditional face-to-face setting.

The relationship between teacher and coach is important in a traditional coaching session (Lyons & Pinnell,

1999; Puig & Froelich, 2011; Rodgers & Rodgers, 2007; Toll, 2006) and appears to be doubly important in a virtual setting. In this case, not only did the relationship enable conversation, but it also helped with the occasional awkwardness caused by the audio and video delay. The TLR stated, "I think the fact that we know each other and were already comfortable working together helped with this (the delay)." The importance of the established relationship was echoed by the teacher, "I really believe that our prior relationship is a big part of this technology."

Just as the delay in the coaching sessions influenced verbal communication, it also influenced nonverbal communication. According to Schön (1987), the communication between teacher and coach can achieve a state of what he called "communicative grace" (p. 100). When this occurs, the teacher and coach are able to "use shorthand in word and gesture to convey ideas that to an outsider seem complex or obscure" (p. 100). Similar to the adjustments made in their verbal communication, the teacher and TLR also had to compensate for the interruptions in nonverbal communication. When the screen would freeze but the audio would continue, the teacher and TLR could hear one another, but actions and gestures that characterize nonverbal communication were lost. Early computer system designers theorized that the loss or partial loss of nonverbal communication from computer-mediated connections would negatively impact the interaction of the users, but these ideas have changed and it has been recognized for some time that users adapt and adjust for deficiencies in nonverbal communication (Burgoon et al., 2002). These adaptations and adjustments were made in this inquiry and teacher and TLR eventually reached a state of communicative grace in their joint problem solving. Again, the relationship between them was paramount in dealing with the challenges of the virtual environment.

Technical limitations

In addition to verbal and nonverbal communication being compromised, other interactions were limited by the virtual context. In a traditional face-to-face school visit or coaching session, a teacher leader often shares recommendations by prompting the teacher during the lesson or by demonstrating with the student. The TLR commented on this limitation early in the project, "You can't make suggestions to the teacher during the actual teaching of the student. The biggest difference between face-to-face and virtual coaching is the ability to provide a demonstration with the student." Initially the TLR felt the technological tools limited her ability to provide explicit feedback to the teacher during the lesson. Specifically, she was concerned about distracting the child and teacher. This weighed on the TLR as she was aware the teacher had a "heightened potential for efficacy" (Schön, 1987, p. 103) if suggestions or demonstrations were made during the actual teaching.

In the absence of demonstration, the coach had an increased awareness of how she could lead the teacher to new understandings by attending more closely to ways in which she used Clay's texts.

This perceived limitation challenged the TLR to rethink her virtual approach, since providing support during the lesson had always been an integral part of the face-to-face sessions she conducted and caused the TLR to realize that she relied primarily on demonstration to shift teachers' thinking about how to help struggling readers and writers. While Lyons and Pinnell (1999) underscore the importance of demonstration, they also caution that coaching "is not a display of techniques" (p. 209).

In the absence of demonstration, the TLR had an increased awareness of how she could lead the teacher to new understandings by attending more closely to ways in which she used Clay's texts. *Literacy Lessons Designed for Individuals Part One* and *Part Two* (2005) scaffold the teaching of Reading Recovery professionals with the underpinnings of Clay's literacy processing theory. These texts encourage Reading Recovery teachers to think deeply about struggling readers and writers by helping them "develop a theoretical base that is grounded in action" (Lyons & Pinnell, 1999, p. 202).

In traditional face-to-face sessions the TLR commented that she used the texts, but demonstration of the procedure was what she relied upon most. In the virtual setting, the books became more instrumental.

Following the 30-minute lesson, the teacher and TLR would refer to the books to solidify understanding of the theory behind the recommended practice. Referring to the books helped connect the theoretical underpinnings of literacy processing to the individual needs of students and helped the teacher design targeted instruction based on unique strengths and needs.

In one example, a child was having trouble with phrased and fluent reading. Before the lesson, the TLR prompted the teacher to address the problem by visually grouping words together for the child. This did not produce the anticipated change the TLR hoped for and the debriefing conversation subsequently centered on how to continue to teach for a shift in the child's reading behavior. Integral to the discussion was *Literacy Lessons Designed for Individuals Part Two* (Clay, 2005).

TLR: And I think one of the things here to think about with fluency is, does she put groups of words together?

Teacher: She's beginning to, but she's not consistent.

TLR: So the thing to kinda think about these next couple of days is, where does she put the groups of words together and where doesn't she? Because I think that's a clue to you as to what's gonna be easiest for her to take on. Clay talks about that on page… umm… page 153.

After discussing Clay's recommendations and using the text to help them explore more deeply what had transpired during the lesson, the TLR and teacher jointly decided the child's writing could be a way to help build fluency in reading.

The procedure the TLR suggested prior to the lesson (Occasionally mask the text with a card or your thumb, exposing two or three words at a time, and ask the child to 'Read it all') had not been productive. As a result, the teacher and TLR returned to and read the section in *Literacy Lessons* that highlights suggestions for improving fluency and discussed how it might be easier for the child to begin reading phrases as meaningful units if they were born of her own oral language. After discussing Clay's recommendations and using the text to help them explore more deeply what had transpired during the lesson, they jointly decided the child's writing could be a way to help build fluency in the child's reading.

The teacher and TLR then reviewed the child's writing from the day's lesson, "Next week, I am going to the fair with my grandmother." During the conversation prior to writing, the child articulated the sentence she wanted to write fluently and the TLR guided the teacher, with the help of *Literacy Lessons Part Two*, to connect the idea that reading should sound like talking. Just as the child naturally parsed the sentence before writing, the coach helped the teacher understand that the child must group words in meaningful units while reading as well. Next, the coach asked the teacher to write the child's sentence on a sentence strip and cut it according to the child's oral phasing, "Next week/ I am going to the fair/ with my grandmother." This act helped the teacher understand how these visual units, born of the child's natural language, should be read in the same manner they were spoken. The TLR was able to lead the teacher to this understanding by grounding their discussion in the shared

professional text. The conversation after the live lesson supported the teacher in getting a change in this child's fluent reading behavior in later lessons. Additionally, there was a marked shift in the teacher's understanding of how to use children's oral language and writing in service of reading.

As the sessions progressed, and the TLR became more comfortable with the technology, her in-the-moment reflections became part of the observed lesson much the same way they had in a face-to-face session. In one example, the TLR identified through observation that the teacher needed to provide additional support with vocabulary and structure for an English language learner (ELL). Ways to scaffold the child's understandings had been discussed in a previous debriefing, but the TLR had not specifically prompted the teacher for this during the lesson because of her hesitancy about distracting the teacher and child from the lesson. Even though the TLR noted this was a major limitation of the technology, the perfect opportunity to reinforce what they had discussed presented itself in the observation immediately following the interview in which the TLR shared her concerns. This opportunity served as a catalyst to help the TLR see that providing support during the virtual session was not only possible, but necessary.

Teacher: Yeah, let's do another book. Let's see what I got here. Want to try this one.

Child: That's kind of hard.

Teacher: It is kind of hard. I'll help you with this if you want me to.

Child: OK.

TLR: (Calls teacher by name.)

Teacher: Yes?

TLR: Just have him talk about the story before he reads it.

Teacher: What?

TLR: Let him talk about the story before he reads it and *then* let him read it.

Teacher: OK. (Pause.) All right, OK. Baby Bear goes visiting; do you remember who he went to visit?

Child: Goldilocks.

Teacher: Goldilocks. Look at the pictures and tell me about this story.

Child: Ah?

Teacher: You can look through it as you tell me.

Child: Ah, they made some, something, they made, uh, uh…

Teacher: Pancakes.

Child: Pancakes?

Teacher: Yes, pancakes.

Child: And they hot. They went for a walk and Baby Bear came in to eat all of them and tried to, um, tried the, the soaps and the bed and then Mom and Dad, Goldilocks came in the house.

Teacher: What did they say?

Child: They, uh, uh…

Teacher: When they looked at their plates?

Child: They were all gone.

Teacher: It was all gone. Oh my goodness! So what did they say?

Child and Teacher (together): 'Someone has eaten my pancake.'

Teacher: Yes.

The child continued to recall the story with the teacher supporting his use of language. The child then went on to successfully read the story. Following the lesson the TLR said, "I really, really like the way when you asked him to tell you about the story, you told him, 'You can look through the book and tell me about it as you look at the pictures,' because that helped him. You saw, you got a lot of language from him. And then you did such a nice job of gently injecting some of the language he was going to encounter in the text, which he can't predict because it is not in his English language vocabulary, or because of the unfamiliar structure. I mean you did a great job of that and it really helped him with his reading." Despite the TLR's initial uncertainty of interjecting during the lesson, she recognized the importance of providing in-the-moment support. The TLR knew she had to move beyond her concerns to assist the teacher. Her verbal prompting proved helpful for the student and translated into new understanding for the teacher about how to support ELL students.

As the sessions continued, the TLR became more comfortable verbalizing her reflections and began prompting the teacher to take action when appropriate. The TLR commented on this evolution, "At first I didn't interrupt because I wasn't sure how the child would react, but as time went on, I felt they (teacher and child) would be OK with my coming in. So I made suggestions based on my reflections and hoped the teacher would see the effect and in doing so

I would get a shift in the child and the teacher." Initially, the TLR's in-the-moment reflection and support were quelled by the use of technology. However, as the teacher and TLR became more comfortable with the virtual context and navigated its limitations (e.g., the inability to provide demonstration), they were able to make the necessary adaptations to productively use the technology.

Discussion

Linking Reading Recovery professionals in a virtual space creates possibilities that are certainly not perfect, but could provide further opportunities to think deeply about teaching and learning. Puig and Froelich (2011) state that the foundation of literacy coaching is built on the trusting relationships between colleagues. In a traditional face-to-face setting, teacher and teacher leader are physically present as this relationship is negotiated. Included in this negotiation is "understanding and using a spoken language system and a repertoire of accompanying paralinguistic and nonverbal behaviors; knowledge of social context, roles, and activities within which conversations occur; and the capacity to produce as well as interpret appropriate conversational behaviors" (Florio-Ruane & Morrell, 2004, p. 48).

When these conversations are mediated by technology, there must be a renegotiation of the traditional teacher/teacher leader dialogue and ultimately of their relationship. In this exploration, the spoken language system and paralinguistic features such as body language, gestures, facial expressions, tone, and pitch were sometimes compromised in the virtual setting by the audio and video delay. The underlying relationship, however, allowed the teacher and TLR to adapt and adjust to these limitations. The TLR elaborated on this, "I think the fact that we know each other and were already comfortable working together helped this. We have a collaborative relationship." The teacher echoed this sentiment, "Having known the TLR for the past few years, I was very comfortable working with her. I missed the person-to-person contact, but having a prior relationship with her made it work."

Collaborative relationships are a cornerstone of Reading Recovery (Lyons & Pinnell, 1999). In her book, *Teaching Struggling Readers: How to Use Brain-based Research to Maximize Learning*, Lyons (2003) discusses the critical role that emotion plays in cognition and highlights the synergistic connection between emotional, cognitive, and social functions and how they influence learning. The environment Reading Recovery teachers create for struggling readers reflects their understanding of these key factors. Similarly, the language they use with children shows their awareness of the interplay of these functions (Johnston, 2004). For teachers leaders, the created environment and language used is equally important as they aid teachers in their work. Whether during initial training or in subsequent years of professional development it is imperative to create a "safe and trusting context for learners so that they are willing to take risks, knowing that they will be supported" (Lyons & Pinnell, 1999, p. 207). This context, whether created for teachers or children, face-to-face, or virtually, is established through quality interactions.

An awareness of these interactions and how the teacher/teacher leader relationship is influenced by technical difficulties and limitations could support teaching and learning within a virtual setting. While this article certainly does not advocate that all visits be conducted remotely, technology could assist in strengthening teacher expertise and student outcomes between face-to-face visits. A statement in a Reading Recovery teacher leader resource paper (Scharer & Fried, 2009) revealed that teacher leaders feel they are not able to "provide all the school visits the teachers want" (p. 7). Supplementing face-to-face visits with virtual visits may help provide more-consistent follow up to teachers in need of or

As technological innovations become available, considering how they may or may not enhance Reading Recovery is of great importance. … Supplementing face-to-face visits with virtual visits may help provide more-consistent follow up to teachers in need of or requesting support.

requesting support. For teachers in rural areas or in large urban districts where distance and traffic can impede travel, the virtual environment could provide additional opportunities for collaboration and problem solving.

Questions for Reflection

As technological innovations become available, considering how they may or may not enhance Reading Recovery is of great importance. Questions like, "Are we able to maintain an 'unusual lens' in a virtual environment?" and "How does technology contribute to the development and maintenance of relationships?" should guide our thinking. These questions and others will continue to surface as technology transforms the educational landscape. Reading Recovery is a proven innovation with standards and guidelines (2011) that allow us to replicate the intervention in a variety of settings with guaranteed success, and therefore exploring these questions is necessary.

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