Friend or Foe? A Case Study of iPad Usage During Small Group Reading Instruction

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Abstract

The purpose of this case study is to examine how two early childhood teachers in one university laboratory school utilize the iPad in their reading practices. Data collection involved: (a) observations, (b) audio recordings, and (c) researcher journal. Findings indicate that the teachers had a continuum of purposeful uses for the iPad and the associated applications during their small group reading instruction. In addition, the teachers had mixed overall perceptions toward using the iPad as an effective literacy tool. Implications for practice are presented.

Keywords

Technology, iPad, Literacy, Small Group Reading Instruction, Case Study

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Introduction

In 2009, the International Reading Association (IRA) issued a position statement asserting "literacy educators have a responsibility to integrate information and communication technologies (ICTs) into the curriculum, to prepare students for the futures they deserve" (n.p.). In partial response to this statement, more and more schools have begun investing in and incorporating iPad and similar technologies in the classroom as a means of better equipping students with new literacy skills necessary for reading, writing, and communicating in digital environments (Hutchison & Reinking, 2011). While the iPad (with its unique applications and multi-touch features) is presumed to provide access to learning opportunities that are not as easily afforded by more traditional instructional experiences involving desktop or laptop computers, relatively little has been documented about teachers experiences while integrating this mobile technology into their pedagogical practices. Moreover, even less is known about how early childhood teachers in particular utilize this technology with regard to their literacy practices. As more and more teachers begin examining the possibilities of using mobile devices in their classrooms, it is important to examine closely the ways in which this mobile device contributes to and or subtracts from student learning.

The purpose of this exploratory case study is to examine how two early childhood teachers in one university laboratory school utilize the iPad in their reading practices. The overarching research question that drives this study is: How do two teachers in a university laboratory school use the iPad (its corresponding applications) in their small group reading instruction? Other secondary questions include:

1. What are these teachers' overall perceptions of the iPad (as an instructional tool used to teach reading)?
2. How do these teachers use the iPad in their respective classrooms during instances of small group reading instruction?
3. In what ways are these uses consistent across these two classrooms?
4. In what ways are these uses divergent across these two classrooms?

Theoretical Framework

This study draws from and is informed by two theoretical perspectives: (a) multimodal literacies and the (b) Technological Pedagogical Content Knowledge (TPACK) framework. In short, the theory of multimodal literacies purports that meaning is constructed, interpreted, represented, and communicated in and through multiple "modes" or semiotic sign systems as individuals interact with texts. In the most basic sense, these modes include but are not limited to: visual, spatial, linguistic, auditory, gestural, and (Kress, Jewitt, Ogborn, & Tsatsarelis, 2001; Kress & van Leeuwen, 2001). Moreover, these modes are largely situated in and connected to the social contexts in which they are developed (Kress, 2003). At the same time, these modes are constantly shifting and changing over time. From a multimodal perspective, the iPad and its associated applications provide resources for teachers and students to construct, interpret, represent, and communicate meaning in and through the use of multiple semiotic modes that may not be as easily accessed through more traditional and non-technological forms of textual interaction.

We also draw from Mishra and Koehler (2006) TPACK framework to guide our understanding of how the teachers in this study utilize various knowledge bases (technological, pedagogical, and content knowledge) to inform their small group reading instructional decisions involving the iPad. In short, this framework asserts that teachers must thoughtfully and intentionally draw from their technological, pedagogical, and content knowledge bases while implementing digital technology to best meet the needs of their students. In keeping with this framework, *Technological Pedagogical Knowledge* (TPK) is defined as knowledge of various technologies and their capabilities, as well as how teaching might change as a result of using various technologies. In a practical sense, this involves knowledge of the various features that iPad offers as well as knowledge of the various apps that are appropriate for teaching specific reading skills and processes. On the other hand, *Pedagogical Content Knowledge* (PCK) is described as "knowing what teaching approaches fit the content, and likewise, knowing how elements of the content can be arranged for better teaching" (p. 1027). Essentially, (PCK) knowledge refers to an understanding of what makes concepts easy to learn, how concepts can be best represented, and of what learners bring to the learning situation. With regard to this study, we examine how two teachers in a university laboratory school draw from these knowledge bases while utilizing the iPad during instances of small group reading instruction.

Literature Review

This study is situated in and draws from two streams of scholarship related to the implementation of digital technologies K-12 contexts: (a) the effects of iPads on student learning and (b) teachers' experiences while implementing digital technologies in their classrooms. A significant number of studies on this topic center on identifying and evaluating the student benefits associated with using these technologies in the classroom for students (Kalloo & Mohan, 2012; Livengood & McGlamery, 2012; Melhuish & Falloon, 2010; Oliver & Corn, 2008). In short, some of these benefits include: extended engagement outside of school, self-directed learning, individualized instructional support, and distance learning opportunities. For example, Li and Pow (2011) studied students' use of tablet computers outside of the classroom. The activities performed by the students on the tablet were tracked electronically and categorized by type of activity. The researchers found that students who were given tablet computers and permitted to take these tablets home spent a significant amount of time outside of the classroom exploring teacher-initiated subjects in a self-directed fashion. The researchers also noted an increase in learning due to student self-exploration and use of

the tablets at home without the constraints of teacher directed instruction. What is largely missing from this scholarship is an examination of teachers' experiences while implementing tablets in the classroom. The present study attends to this gap within the scholarship.

The present study also draws from scholarship related to teachers' experiences while implementing digital tools in their respective classrooms. Recent studies (i.e., Beach, 2012; Hutchison, Beschorner, & Schmidt-Crawford, 2012; Hutchison & Reinking, 2010, 2011) into this topic suggest that teachers by and large willing embrace the idea of incorporating digital tools and technologies into their current repository of pedagogical practices. At the same time, many teachers often struggle with fully capitalizing on all of the features that many of these digital technologies provide due primarily to a lack of appropriate and extensive professional development in this area (Hutchison & Reinking, 2011). The present study seeks to advance the current scholarship in this area as it examines two teachers' experiences while implementing the iPad during instances of small-group reading instruction.

As former elementary reading teachers and current literacy methods professors, the topic of iPad usage in literacy classrooms frequently emerged in many of our professional and personal conversations. The second author and I often wondered how classroom teachers where using the iPads specifically to enhance reading instruction. In addition, we were also concerned that iPad were being recommended by many school administrators and leaders (as a tool for supporting and increasing reading proficiency) with little or no concrete evidence to support this recommendation. Ultimately, we were concerned over whether or not iPads could be considered a viable tool to support reading development. Furthermore, this interest and concerned served as the impetus behind this inquiry. Rather than blindly recommending that iPads be incorporated into elementary classrooms, out intent behind this study was to identify data that would help up make a clearer position either for or against the use of this form of technology as a reading instructional tool

Research Design

This study utilizes an exploratory case study design (Yin, 2003). Yin (2003) defines exploratory case study is an investigation that examines contemporary phenomenon in a real-life context. We elected to use a case study design to examine and capture how these two teachers used the iPad with their students in authentic reading instructional contexts.

Setting and Gaining Access

We conducted this inquiry at a university laboratory school located in a small urban city in the US. The school includes approximately 400 k-8 students. This study involved two primary classrooms, a first and a second grade. Interest in the primary grades revolved around the need to explore the possibilities and potential for using iPad technology to support emergent readers.

After deciding on investigating this topic in a formal manner, the second author and I met multiple times to develop a formal proposal and time line for this study. We brainstormed a list of "potential" teachers in our professional network of teachers we work with on a regular basis in our Professional Development School and university-school methods partnerships. Next, developed a formal research proposal and completed and submitted the application to conduct research as required by the Institutional Review Board (IRB) here at our university. After minor revisions were made to the application, the study was approved by IRB. Once we received official approval to conduct the study, we invited two teachers (in-writing) to participate in the study. We presented both of these teachers with a prospectus of the study, along with any potential risks that might be involved. Lastly, we met with both of the teachers

in person to address any additional questions or concerns they had related to this study. During this meeting, we also established a regular timeline for data collection. We negotiated a schedule that would be minimally disruptive to the natural teaching and learning processes that occurred in these two classrooms.

Participants

The two teachers were selected using the following purposeful sampling (Patton, 2002) criteria:

1. The teacher involves struggling/striving readers in holistic reading activities (i.e., literature discussions, guided reading groups, etc.).
2. The teacher has identified these students as being struggling/striving readers based on multiple data sources.
3. The teacher uses or is willing to use iPads to instruct striving readers during group activities.

Teacher 1 (Becky)

Becky (all names are pseudonyms) is a white, female, second-grade teacher. She has been teaching for 18 years at the same school in first, second, and third grade. Becky has earned a Master's degree in Reading. She is well regarding within the school and local community as an excellent early childhood educator.

Teacher 2 (Susan)

Susan (pseudonym) is a white, female, first-grade teacher. She has been teaching for a total of 27 years. She has been teaching 19 years at the present school. Susan has earned a Master's degree in Curriculum and Instruction. She is considered an expert in the field of early childhood education.

Data Collection

We used three methods to collect data for this study: (a) observations, (b) audio recordings, and (c) researcher journal. Data collection lasted approximately two months beginning in October of 2013 and ending in November of 2013.

Observations

Each elementary teacher was observed several times in the classroom while engaging in reader instruction with a small group of students. Each of the observations lasted approximately 30 to 60 minutes in length depending on the structure of the activity. A total of 10 small group reading instructional sessions were observed and recorded. We chose three to 10 sessions to gain an opportunity to examine how the teacher facilitates these activities over an extended period of time.

Researcher Journal

The observations were documented in a researcher's journal using an iPad note-taking app. The purpose of the researcher journal was to collect "other" data beyond the articulated

thoughts of participating teachers. Facial expressions, body language, descriptions of teacher gestures were all described in the researcher journal to shed light on the actual teaching/learning experience using the iPad. Such data served to enhance the credibility of the findings and support the understanding and trust of the reader.

Interviews

Each interview was audio recorded and transcribed. A semi-structured interview protocol was used to interview the teachers. The teachers were interviewed following each observation to document the rationale/thinking behind the decisions she made during the small group reading instruction sessions. The initial series of questions on the interview protocol related to the participants' teaching experiences in general and their experiences teaching at that school in particular. We also posed questions related to their philosophies of teaching in general and reading in particular. Our rationale behind posing these types of questions was to between understand and contextualize the instructional practices we observed related to iPad use and reading instruction. Some examples of these initial questions are:

- How many years have you been teaching overall and at the present school?
- Please tell me about your teaching philosophy?
- What does it mean for a student to be a struggling/striving reader?
- How are reader response activities used in your classroom?
- How are iPads used in our classroom to support reading instruction?

During the midway portion of the study, we posed interview questions that were more closely related to the reading instructional practices we observed. We noticed that iPads were being incorporated in both classrooms during the teacher-led guided reading groups and the independent student-led literature circle groups. Consequently, the questions be posed during these interviews were more specific in nature. Some examples of these questions are as follows:

- How do you use the iPad with your literature circle groups?
- What are your perceptions of using the iPad with your literature circle groups?
- How do you use the iPad with your striving readers?
- What are your perceptions of using the iPad with your striving readers?

During the final series of interviews, we posed questions interview questions that aloud us to follow-up and clarify data we acquired from the previous two rounds of interviewing. Accordingly, some of the questions we posed during these interviews include:

- Can you please describe an example of how iPads were used during reading instruction in a manner that led to positive reading outcomes among your students?
- Can you please describe any frustrations and or challenges you have experienced while using iPads to support reading instruction in your classroom?
- How might iPads be used in the future to better meet the needs of striving/struggling readers in your classroom?

Data Analysis

Our data analysis process involved six steps. First, we transcribed the audio recordings of each of the seven teacher interviews. The transcripts were compiled into a word document using Microsoft Word. Second, we read through the data multiple times to gain a deeper familiarity and understanding of the participants' responses. Third, we coded the data using an open-ended coding process (Charmaz, 2006). During this step, we generated as many codes as possible. Fourth, we coded the data using a closed-ended process. We combined previously coded data based on commonalities. Fourth, we develop analytic categories from the data based on common themes and relationships. We sorted the coded data into these categories for subsequent analysis. Finally, we identified themes and patterns within the categorized data. We established multiple claims from the data that were supported by at least two warrants from the data corpus.

Triangulation and Credibility

Data was triangulated to contribute to the credibility of this study (Lincoln & Guba, 1985) by comparing interview data with the notes collected in the researcher journal during the three-four planned teacher observations. As well, the researchers participated in an inter-coder reliability process to increase the level of agreement between coded data. Additionally, member checks were performed (Creswell & Miller, 2000) to contribute to the trustworthiness of the findings and conclusions. Each participating teacher was given a written copy of her case for review to determine the accountability of the representation of data and findings. Feedback offered by participants allowed us to include additional information that served to clarify participant perceptions and accounts of iPad use to support striving reader growth.

Findings

Three important themes emerged as a result of our initial data analysis processes. These themes pertain to: (a) continuum of purposeful uses (introduce, support, reinforce, explore), (b) criterion-based application selection, and (c) conflicting perceptions of iPad as instructional tool. In the following sections, we describe each of these themes in greater depth.

Continuum of Purposeful Uses

Pertaining to the first theme, the teachers in this study used the iPad during instances of small group reading instruction in four primary ways to support students' reading development (figure 1). At times, the iPad was used to assist the teachers in introducing new reading concepts, vocabulary, and skills to the students in the small groups. At other times, the teachers in this study use the Pad and purposefully select application to support students in developing a deeper understanding of recently introduced reading concepts, vocabulary, and skills. The teachers also used the iPad as a tool to provide opportunities for additional independent practice. Further, the teachers in this study used the iPad as tool to support inquiry, exploration, and research. Each of the aforementioned ways of using the iPad necessitated the teachers to assume different roles and varying levels of instructional responsibility. When asked about how she decides to use the iPad during small group reading instruction Becky states:

> These kids were born the year that the first iPhone came out. They don't know anything besides touch screens and instant information. Therefore, I try to

capitalize on my second graders' out of school experiences with technology. My aim is to meet their learning needs by attending to their technological intelligence. To do so, I planned on exploring the use of the iPad and associated applications to address the reading interests, strengths, and needs of my students. (Interview Transcripts)

We see here in this excerpt how Becky uses the iPad in an intentional manner to connect to her students' technological experiences and expertise outside of school. In this way, Becky uses iPad as way of being responsive to the individual and collective needs, strengths and interests of the students in her classroom. In this sense, the iPad serves as a bridge between out of school learning and experiences and formal reading related learning and experiences.

Becky admitted her own learning needs regarding the iPad and apps, "I am still learning how to use the iPad for instruction." This admission was key to her establishing the rationale for taking on the daunting task of exploring purposeful ways to use the iPad to meet individual learning needs. It took time and effort to explore the possibilities. Becky's willingness to challenge herself to learn for the sake of her students was nothing short of incredible. Becky focused on the learning goals of each striving reader in order to narrow the possibilities and to make the best use of her time. Actually, the shared needs of her group of striving readers, the components of fluency they needed to acquire, and her interest in engaging them in meaningful practice were three primary purposes driving her searches and the choosing of apps to support instruction and enhance. Unlike Becky, Susan reveals that she uses the iPad during small group reading instruction primarily as a means of reinforcing foundational reading skills. Susan states:

...but I use the iPads to mostly reinforce things the kids already know...to give them opportunities to practice and reinforce skills that they are already working on or that they already know...um...I will use them for remediation purposes...I mean I have this one great app that really helps kids who have letter reversals...you know so if we are working on short vowel sounds...there's great apps to reinforce that so...mostly I think the ipads are beneficial to practice and reinforce skills...of course very engaging for kids. (Interview Transcripts)
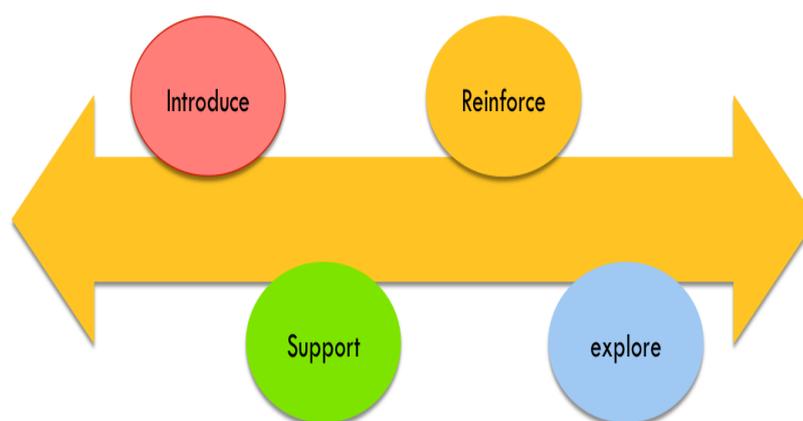

Figure 1: Range of Different Purposes

Criterion-Based Application Selection

Concerning the second theme, the teachers in this study both developed and applied a highly sophisticated, student-centered, and contextually specific set of criteria to assist them in deciding on what applications to use and what applications not to use during instances of small group reading instruction. This set of criteria was unwritten and informal in nature and changed over time as the needs, interests, and strengths of the students in each group changed over time (Figure 2). For example, when asked about how she decides on which apps to use during small group reading instruction Susan states:

> Well...I'm always adding in fact I'm sitting home at night exploring apps...and really when you find one app you like it leads you to more...that are kind of just like that...my criterion are first...what do I want this to achieve...what's the outcome that I want...do I want them to be able to practice reading and comprehending...do I want them to be able to record themselves and look at fluency...do I want them to practice isolated skills like short vowel sounds or blending or segmenting...so I look at...that's my first thing...what do I want this app to do...it's got to be meaningful...and it's got to achieve my outcome...I don't want it to be just a game...because kids are so predisposed to all that and I...I...do have a philosophical question about how much to use them...I think kids have a lot...screen time outside of school….and I don't want school to be all screen time...I think there are some great places for it but I'm very careful and mindful about when I use it and how I use it and how often I use it. (Interview Transcripts)

In a similar way, when discussion how she selected a particular fluency app for use during small group reading instruction Becky states:

> Most of the time when they listen to themselves read they are like that's not good reading. I find it to be very valuable for them. And I like the idea with this we can do it over and over again. I don't know how much it saves it that's why I thought next time we are together we would finish the text then I would have them read parts of it out loud but I would just use my mic on it, you know, my quick recorder app for that. I want to make sure that we can go back and listen to the first one and that app probably erases the first one when they put on a second one they can't go back and listen to it. (Interview Transcripts)
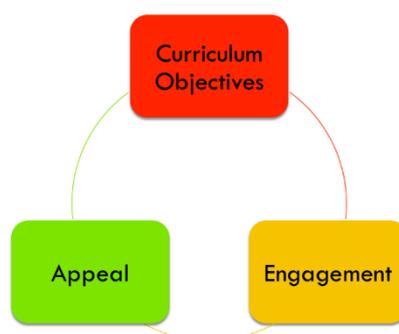

Figure 2: Criteria Used When Selecting Apps

Conflicting Perception of Educational Value

Pertaining to the third theme, both of the teachers in this study expressed largely mixed overall perceptions of the iPad as viable reading instructional tool. Both of the teachers in the study perceived the iPad to be a powerful instructional tool that has the potential to contribute to children's reading development in very meaningful, efficient, and effective ways. Yet and still, both teachers admittedly expressed various concerns over using the iPad solely in place of traditional reading instructional methods. When asked about here overall perceptions of the iPad as valuable tool for small group reading instruction Becky states:

> ...I'm really careful about when I'm choosing to use technology with my kids...I'm very thoughtful about those decisions...um because I just think kids are in front of screens...albeit iPads, computers, or televisions or video games...so I don't want to put them in front of more screens...unless it's really got an educational...a sound educational purpose...and that's my opinion...I will tell you...you know...you can find these great apps and it would be easy for me to say okay everybody read a couple books...but then I wouldn't be doing my job...the iPad is doing my job...so I have to be really careful about that...and I'm protective of my students...and you know I want them to see you know...first grade has changed a lot...where not necessarily teaching first graders to read anymore...we're more focused on teaching them to be readers...and so I pads can help with that engagement absolutely...but I have to feel good about it...what I am doing...especially in a guided setting like this…. (Interview Transcripts)

In like manner, Susan states:

> ...I think for one that it's just much more motivating than when I give them a book. They are excited about reading a book on the iPad and they are excited about working on words, spelling words using some of the iPad apps. Of course it doesn't always do what you want it to do. And this group that you're working with in general um they are you know kind of the lower students overall. So they tend to have a lot less self-help skills. (Interview Transcripts)

When asked about how she deals with these types of challenges, Susan further explains:

> I guess a lot of brainstorming on your feet okay so how can we work around this um I think using what I've been doing having the backup that I can have a written copy of it. I think is important. I think you need to have some sort of backup plan. Even if the wireless would be out you know what we're doing on the ipad the wireless is out for the most part here you're not going to be able to use it so…. (Interview Transcripts)

Discussion

This study yields three important findings that warrant further discussion. First, as consistent with previous research (e.g., D'Agostino et al., 2016) related to this topic, both of the teachers in this study used to iPad to support readers who were identified as having reading challenges. In this sense, the iPad was used as a mechanism for reading support, intervention, and remediation. Nonetheless, unlike much of the previous studies on this topic, the teachers in the present study used the iPad with students who were meeting and exceeding grade level

expectations as well. Ultimately, what this suggests is that the iPad can be a useful literacy tool for students with varying reading abilities.

A second important finding from this study that necessitates further discussion relates to the process of identifying high quality applications that are useful during reading instruction. Both of the teachers in this study reported experiencing difficulties while making decisions regarding which applications to use in their guided reading lessons. Essentially, both of the teachers reported experiencing concerns over the quality of the applications that were readily available for use as well as the perceived instructional value. In keeping with this finding, Israelson (2015) suggests that teachers develop and implement systematic tools and or rubrics to evaluate the usefulness, relevance, and effectiveness of various literacy applications. Furthermore, the data gain from these tools will teachers make more informed, effective, efficient decisions regarding children's reading instruction.

A third finding from this study that calls for further discussion relates to the notions of student engagement and instructional outcomes. As consistent with previous research (e.g., Mango, 2015) related to iPad usage in the classroom, data from this study point out that students were visibly engaged while utilizing the iPad during guided reading groups. Nonetheless, both of the teachers in this study questioned the degree to which this student engagement actually led to or influence positive learning outcomes. Essentially, both teachers were highly uncertain about whether or not the iPad should be considered to be a tool that positively influences student engagement or a tool that positively influences reading outcomes.

Implications

There are several implications that can be drawn from the data revealed in this study. First, there is a need for on-going and robust professional development related to how to integrate iPad in small group reading instruction. Both of the teachers in this study commented on the need for more development around how to use the iPad. They both admitted that they had limited knowledge and professional experience in this area. This suggests the need for creative and relevant professional development related to iPad usage in the reading classroom.

The second implication that can be drawn from this study involves the criteria used to select apps. Both teachers in this study reported experiencing difficulty identifying, evaluating, and ultimately selecting appropriate apps. The number of apps that are available for teacher to use in their classrooms is enormous and rapidly increasing each day. Future research that examines the purpose, quality and appropriateness of reading apps might aid teachers in identifying which apps are most appropriate for specific reading instructional purposes in their respective classrooms. Hence, additional research in this area is warranted.

A third implication from this study deals with the notion of student engagement. Both teachers in this study commented on how the iPad has a tremendous amount of value as an engagement tool. They both reported how their students were visually more engaged during the small group reading instances that involved the iPad than the small group reading instances that did not involve the iPad. This suggests that the iPad has the potential to increase student engagement during reading instruction. Nonetheless, future research is needed to examine the specific degree to which the levels of student engagement in enhanced or increased by virtue of incorporating the iPad in instructional practices.

Limitations and Future Research

Like all studies, the present study has limitations. We have identified three important limitations that warrant a discussion and provide implications for future research. The first limitation deals with our sample size. We recognize that including only two teachers in this

study might be considered by some to be a relatively small sample size. Nonetheless, we believe that these two teachers, based on the purposeful sampling criterion, provide a great deal of insight related to this topic. We believe that limiting the study to two participants allowed us an opportunity to investigate the topic in a deep and substantive manner. To complement the findings from this study, subsequent research might involve a larger sample size.

A second limitation of this study deals with schooling context where the study occurred. As mentioned earlier in this article, both of the teachers in this study work at the same university laboratory school. Our rationale behind including teachers from the same schools was to minimize some of the additional contextual factors (e.g., reading programs, funding, school-wide professional development) that might influence how the teachers used the iPad in their reading instruction. To complement the findings from study, subsequent research might investigate how contextual factors influence iPad usage among teachers at two distinctly different schools.

A third limitation of this study deals with amount of time we engaged in the study. As mentioned earlier, data collection for the study took place over the course of two months. While we certainly believe that this time frame provided us with a opportunity to collect enough data to answer the research questions thoroughly, we also believe that prolonged engagement and interaction in each classroom will yield additional and complementary data as well. Hence, a subsequent study on this topic might be designed to take place over the course of an entire school year or more.

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