

Running Head: IMPLEMENTING A CRITICAL FRIENDS GROUP

IMPLEMENTING A CRITICAL FRIENDS GROUP FOCUSED ON AN IPAD-BASED  
APPROACH TO DIFFERENTIATING LITERACY INSTRUCTION:

KINDERGARTEN TEACHERS' PERSPECTIVES

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IMPLEMENTING A CRITICAL FRIENDS GROUP

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# IMPLEMENTING A CRITICAL FRIENDS GROUP

## Abstract

Engaging in a critical friends group (CFG), a type of learning community, is a collaborative and beneficial way for educators to enhance their effectiveness in their teaching practices. The purpose of this qualitative case study was to understand kindergarten teachers' perspectives of a CFG focused on an iPad-based approach to differentiating literacy instruction. The following research question guided my research study: What happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction? My sub questions were: (a) How do teachers view a CFG as a form of professional development? (b) What types of interactions and structures characterize the CFG? (c) What supports and impedes the work of the CFG? (d) In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction? These research questions, grounded in Vygotsky's (1978) social constructivist theory, were addressed by interviewing, observing, and collecting documents from four participants (myself included), over 15 CFG sessions. Using Glaser and Strauss' (1967) constant-comparative method, data was analyzed until four themes evolved. The findings showed that when the CFG interacted, there was consensus, balance, quality, and critical friendships. Seven claims were made when discussing the findings, one of which was that participants who had critical friendships showed a deprivatization of practice. For educators looking to implement CFGs, several implications for practice should be considered such as using protocols to facilitate sessions. One of the implications for research included studying the long-term impact of a CFG over time.

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## CHAPTER ONE: INTRODUCTION

Over the past several decades, there have been many attempts to reform K – 12 public education without evidence of much success. Researchers have discussed two key reform movements known as the Excellence Movement, and the Restructuring Movement, that did little to improve education (DuFour & Eaker, 1998; DuFour & Fullan, 2013; Fullan, 2007). The Excellence Movement of the 1980s was a top-down initiative based on “intensifying existing practices” (DuFour & Eaker, 1998). Schools simply needed to do more (DuFour & Eaker, 1998). Students needed to earn more credits for graduation, complete additional homework, and take tests more frequently (DuFour & Eaker, 1998). Later, the Restructuring Movement of the 1990s was based on the premise that schools would succeed with site-based autonomy if there were national and local goals to follow. While the movement to establish curriculum-based goals (or standards) helped to advance K – 12 public education, a parallel movement tried to give individual schools more freedom to develop the best methods to achieve those goals (DuFour & Eaker, 1998). According to studies of the movements’ impact, researchers consistently found that school practitioners “typically elected to focus on marginal changes rather than on core issues of teaching and learning” (Dufour & Eaker, 1998, p. 8). In the end, both movements were unable to make a real difference in bettering teacher practice and student learning in America’s public schools.

One of the reasons these past two movements failed was due to a lack of understanding of the change process (DuFour & Eaker, 1998; DuFour & Fullan, 2013; Fullan, 2007). Policy makers lacked an ability to guide educators in making changes to educational practice. Such changes were either “too-tight” or “too-loose,” as was evident in these past movements (DuFour & Fullan, 2013; Fullan, 2007). DuFour and his colleagues argued that in the Excellence

Movement, educational leaders were “too-tight” because they were assertive and issued top-down directives on “intensifying existing practices” (DuFour & Eaker, 1998; DuFour & Fullan, 2013; Fullan, 2007). Yet, they go on to say that educational leaders in the Restructuring Movement were “too-loose,” allowing individual schools too much autonomy to create their own methods to reach curriculum goals (DuFour & Eaker, 1998; DuFour & Fullan, 2013; Fullan, 2007). These two movements were unsuccessful because educational leaders lacked the ability to find a practical balance between tight and loose leadership.

Nonetheless, large-scale reforms continue to influence what goes on in public education, and once educational leaders find a balance between being “too-tight” and “too-loose,” reforms have the potential to initiate positive change. One such reform is focused on producing “highly effective teachers” so that all students have opportunities to increase their learning (Bill & Melinda Gates Foundation, 2013). This contemporary reform took form when the Measures of Effective Teaching (MET) project was implemented in 2009. The project’s goal was to build and test measures of effective teaching to find how evaluation methods could best be used to help teachers develop their skills most associated with effective practice (Bill & Melinda Gates Foundation, 2013). Additionally, it would help districts identify and develop great teaching (Bill & Melinda Gates Foundation, 2013). Three thousand teachers in six school districts in Colorado, Texas, Tennessee, North Carolina, Philadelphia, and New York participated in the project using different tools to measure teacher effectiveness. The major findings were that teachers improved their effectiveness when they (1) surveyed students about their perceptions of their classroom environment, (2) were observed using a high-quality observation system, and (3) when they were held responsible for growth in student achievement (Bill & Melinda Gates Foundation, 2013). Based on such findings, teachers, especially in New Jersey, are now being held accountable for

effective teaching based on an evaluation system. This system includes teachers surveying students, being observed themselves, and being held accountable for student achievement.

While this accountability may be “tight” in that it is top-down and directive, there is still balance because teachers have flexibility changing and enhancing their practice (“loose”). This reform on teacher effectiveness has the potential to initiate positive change in advancing education.

In keeping with the emphasis on educational improvement through evaluation of teacher effectiveness, the New Jersey Department of Education (NJDOE) revised their regulations for professional development on June 5, 2013 (N.J.A.C. 6A:9-15.2-3). The Department created a new “Definition of Professional Development and Standards for Professional Learning” that focuses on “identifying professional learning practices that increase educator effectiveness and results for students” (“Definition of Professional Development,” 2013). The NJDOE’s definition of professional development includes six sections that address best learning practices: (1) student learning and educator development needs, (2) the Common Core Curriculum Standards, (3) collaborative teams, (4) evidence-based strategies, (5) external expert assistance, and (6) Professional Standards for Teachers and School Leaders. In particular, the section on “collaborative teams” highlights the importance of learning communities, and explains that professional development shall include the work of staff members who “commit to working together to accomplish common goals and who are engaged in a continuous cycle of professional improvement” (“Definition of Professional Development,” 2013, p. 7). A broad example of learning communities was provided by the NJDOE stating that, “Teachers in a high school math department might work together in a professional learning community to align their existing math curriculum to the CCCS” (“Definition of Professional Development,” 2013, p. 8). In this example, high school math teachers worked together with the shared goal of aligning their

curriculum to the Common Core Curriculum Standards to ensure that students receive quality instruction. This approach to professional development is different from traditional one-shot, individualistic workshops because learning communities are on-going and collaborative (Putnam & Borko, 2000). With this new definition that focuses on collaboration, teachers need to change the individualistic ways they participate in and view professional development in order to enhance their effectiveness.

As public education undergoes this current reform on teacher effectiveness, education leaders should try to support educators in this process by finding a balanced approach to reform. For this to happen, there needs to be a balance between professional development that is “too-tight” and “too-loose.” Fortunately, New Jersey’s current definition of professional development encourages education leaders to provide teachers with the time and structure to collaborate to make their own instructional decisions, so that they can enhance their effectiveness. Specifically, the state’s definition of professional development emphasizes transforming it from one-shot workshop approaches to various types of learning communities: professional learning communities (PLCs), professional communities, critical friends groups (CFGs), school wide professional cultures, and collegial schools. This ensures that educators have opportunities to engage in learning that is collaborative yet structured. Although there are many terms used to identify these various learning communities, all communities take a balanced approach (collaboration within a structure) to improve instructional practice and/or student performance.

While I will be using the overarching term “learning communities” to refer to the many “collaborative teams” and types of learning communities in existence, creating a balanced approach to reform through the use of learning communities is not so straightforward because there are a variety of meanings, interpretations, and approaches attached to the several types of

learning communities. For instance, according to Louis and Kruse (1995), “professional communities” are characterized by reflective dialogue, deprivatization of practice, collaboration, a focus on issues of teaching and learning, and shared norms and values. DuFour, DuFour, Eaker, and Many (2006) use the term “professional learning communities” stating that they are:

Educators committed to working collaboratively in ongoing processes of collective inquiry and action research to achieve better results for the students they serve.

Professional learning communities operate under the assumption that the key to improved learning for students is continuous, job-embedded learning for educators. (p. 3)

This means that educators who engage in PLCs often focus on “results” from data to improve student achievement. In addition, the National School Reform Faculty (NSRF) (2014) identifies a learning community as a “critical friends group” which is a community consisting of “5 – 12 members who commit to improving their practice through collaborative learning and structured interactions (protocols), and meet at least once a month for about two hours” (“National School Reform Faculty,” 2014). This learning community, as described by the NSRF, provides teachers with the tools and structure to come together in a focused and efficient way to address concerns of mutual interest (Curlette & Granville, 2014). While these definitions of learning communities are similar in the sense that they all point to the importance of collaboration as a key element in improving practice to help students, they are also different. PLCs, for example, emphasize student achievement, whereas CFGs emphasize improving teacher practice and student learning (Dufour, Dufour, & Eaker, 2008). Put differently, educators engaging in PLCs frequently use standardized assessment data to drive their work while CFGs look at alternative forms of data, including student and teacher work. Overall, it is promising that the NJDOE changed its definition of professional development to reflect collaboration. However, with the range of



terms and meanings attached to the concept of learning communities, it not only becomes a challenge to create a balanced approach to reform, but also to build “highly effective teachers.”

Not only are there are a variety of definitions for learning communities, but also to complicate matters, the terms used to describe learning communities such as PLCs and CFGs are being loosely by educators. This is due to a lack of understanding, training, and leadership in how to organize and initiate them. Educators use various terms for learning communities to describe every imaginable combination of individuals with an interest in working together (Dufour, 2004; Dufour et al., 2008; Dufour & Fullan, 2013). This lack of understanding of learning communities results in educators not knowing how to implement them. Consequently, this puts learning communities at risk because without a shared set of understandings, practices, and assumptions that can only come from training and leadership, teacher practice is unlikely to improve, and student achievement can suffer. Suddenly, this reform of teacher effectiveness can become “too-loose.”

### **Critical Friends Groups**

While there is nothing wrong with different types and ways of implementing learning communities, there should at least be a clearly defined structure. Establishing a term and definition for a learning community limits the risk of educators using the term loosely and implementing it ineffectively. In this dissertation, I refer to a learning community as a critical friends group (CFG). The concept of critical friends groups was developed in 1995 by the National School Reform Faculty (NSRF), a professional development program stemming from the Annenberg Institute for School Reform. This learning community is known for its use of protocols, or following specific steps as a way to structure discussions to be meaningful, constructive, and helpful to teachers in their growth and development. According to the NSRF,

it developed criteria for determining the strength of a CFG. All of the following characteristics need to be present in order for a CFG to be effective: (1) openness to improvement, (2) trust and respect, (3) a foundation in the knowledge and skills of teaching, (4) supportive leadership, and (5) socialization and school structures that extend the school's mission ("National School Reform Faculty," 2014). Furthermore, two concepts define the CFG model: (1) facilitative leadership and (2) critical friendship ("National School Reform Faculty," 2014). These concepts mean that a member of the group facilitates (guides, as opposed to leads) the session to ensure that all voices are being heard, and that members are honest and open in their feedback to one another. In all, establishing a tight, defined structure ensures that members participate with clear expectations rather than focus on enhancing interpersonal dynamics and powerplays that sometimes occur in poorly articulated teacher groups meant to be collaborative.

Focusing on how teachers engage in a CFG is appropriate for the context of this study because while I will work with only two other kindergarten teachers (as opposed to the NSRF's suggested 5 – 12 members), the group will use various protocols (through facilitative leadership) to reflect and provide feedback (critical friendship) on student work and teaching practices. In particular, during the study, the group will focus on different ways to use iPad applications (apps) to differentiate literacy instruction. Generally speaking, by identifying the learning community as a CFG, and defining it using the NSRF's criteria, there is potential that this CFG will reflect a balanced (neither too-tight, nor too-loose) approach. With a balanced approach to reform, the nation's public school teachers can enhance their effectiveness.

### **Problem of Practice**

In my suburban district of South Brunswick, New Jersey, teachers are provided with many professional development opportunities. However, more often than not, they are engaging in one-shot workshops rather than sharing learning on an ongoing basis. The professional development context is very similar to what Putnam and Borko (2000) describe when they stated, “School learning environments typically do not emphasize such sharing of learning and cognitive performance, focusing instead on the importance of individual competencies” (p. 5). Most of the workshops or trainings in my district occur a few times a year, during which teachers in the same grade level are presented with new curriculum. Over the summer, teachers may voluntarily sign up for workshops (one to five days) on various content areas. In the end, these workshops are “one and done,” lacking a sense of continuity that teachers need to develop their practice.

During the 2013 – 2014 school year, the principal of Cambridge Elementary School, where I am a kindergarten teacher, gave teachers in each grade-level 35 minutes of daily common planning time with the intention that each team would meet at least once a week to collaborate on teaching practices and student work. While this was an opportunity for teams to meet “loosely,” this principal did not provide a “tight” enough structure for the meetings. Therefore, teachers either met with their teammates once a week to “check-in” on the progress of lessons, share stories about students, or individually prepare their classrooms. Of course there were times when sharing student stories were helpful and necessary. But, there was also a lack of depth in terms of sharing knowledge, collecting anecdotal data, and collaboratively focusing on a main goal with the purpose of improving one’s teaching practice. In other words, this time did not serve to provide effective collaborative, teacher led professional development. I believe

if these grade-level teams had first been trained and then supported in the process of becoming CFGs, they would have gained the knowledge and structure needed to collaborate on teaching practices and student work, and grow and developed professionally.

In addition, not only does the principal provide teachers with common planning time, but each year she gives a school-wide goal that teachers need to work on during common planning time. In 2013 – 2014, the focus was literacy instruction, and in the 2014 – 2015 school year, it was on differentiating instruction. The principal's goal was to enhance classroom instruction so that students had multiple opportunities to improve literacy. This school-wide goal and common planning time to work on reaching it, afforded teachers the time, space, and opportunity to collaborate to become "highly effective," and is in keeping with the NJDOE and nationwide reform on teacher effectiveness. However, there was little guidance on how to implement a process to utilize this planning time effectively.

As a teacher-researcher, I spoke with my team of two other kindergarten teachers about utilizing our common planning to engage in a CFG as a structured way to focus on the 2013 goal of literacy and the 2014 goal of differentiated instruction, as opposed to simply checking in with each other once a week to talk about lesson plans. We decided that checking in with each other was not beneficial because our lesson plans were already on the same track in relation to the district's curriculum and pacing chart. Thus, we chose to focus on the two goals (literacy and differentiated instruction) because we believed in the importance of building on what had already been established. Ultimately, we wanted to build on our literacy foundation to scaffold further learning. Integrating iPads to differentiate literacy instruction emerged at the forefront of our conversation because kindergarten teachers throughout the district had received little training in how to integrate iPads into instruction. In September 2012, the district placed three iPads in each

kindergarten classroom without providing instructional guidance in how the hardware was to be used. Teachers received one day of professional development, which focused on setting up the iPads for iCloud, and downloading some recommended apps. Despite receiving virtually no training, kindergarten teachers continued to forge ahead to learn by themselves how to integrate the iPads into instruction.

This lack of professional development regarding technology integration is an issue in many schools. Pierson (2001) stated, “Unable to ignore such a deeply permeating innovation, school districts often bow to societal pressure to fund technology without having a thoughtful plan for implementation” (p. 413). Furthermore, Hall and Hord (2010) explained that there is a difference between the development and implementation of an innovation. While development and implementation are two sides of the same coin, “development includes all of the steps and actions involved in creating, testing and packaging an innovation, whereas implementation includes all of the steps and actions involved in learning how to use it” (Hall & Hord, 2010, p. 6). So, although the district engaged in the development process by providing the hardware and initiating an iPad initiative, kindergarten teachers have been left to individually create their own professional learning, otherwise known as the implementation plan.

From informal discussions with the kindergarten teachers in my school, I found that they were using iPads in various ways, but not to differentiate literacy instruction. Reeves (2009) made a case for the need for consistency in teaching practices as it relates to literacy instruction. When it comes to reading instruction, he said that “the same teachers and leaders whose definitions of effective reading instruction varied widely, were nearly unanimous in concluding that consistency in reading instruction was ‘extremely important’” (Reeves, 2009, p. 119). When teachers employ consistent best practices, it not only makes them highly effective, but also

enhances student achievement (Reeves, 2009). While the kindergarten teachers in my school agreed it was important to be consistent using iPads to differentiate literacy instruction, they struggled to do so. Therefore, given that consistency in reading instruction is vital to student success, it is just as important that teachers are consistent in how they use iPads for this purpose.

In summary, four main ideas can be highlighted from this section: (1) state legislation emphasizes the implementation of learning communities, (2) all teachers in Cambridge Elementary School engage in weekly grade-level common planning time, (3) school-wide goals are literacy and differentiated instruction, and (4) each kindergarten teacher in the district received three iPads. Because of these contextual conditions, I believe that engaging in a CFG with my kindergarten team will provide the structure needed during our common planning time to support professional learning and keep us focused on the goal of using an iPad-based approach to differentiate literacy instruction.

### **Purpose of Study**

After implementing a pilot study during the 2013 – 2014 school year with two other kindergarten teachers on utilizing common planning time to search for and create a database of literacy iPad apps, I became interested in conducting a dissertation study to learn how CFGs could be used during common planning time to enhance teacher effectiveness. The purpose of this case study is to understand kindergarten teachers' perspectives on participating in a CFG, in this case focused on an iPad-based approach to differentiating literacy instruction. The following overarching research question and sub questions guide my research study:

What happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction?

- a. How do teachers view a CFG as a form of professional development?
- b. What types of interactions and structures characterize the CFG?
- c. What supports and impedes the work of the CFG?
- d. In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?

These questions will help me know the ways in which CFGs can initiate positive change in teacher effectiveness. Although this study is focused on the kindergarten team, I anticipate that what happens during the CFG will have a broader impact on other grade-level teams becoming motivated to implement their own CFGs. This study contributes to the research base on CFGs because while many studies emphasize the structure and characteristics of CFGs, my study also evaluates the content. In other words, my study looks for the types of interactions and structures that characterize the CFG in addition to discovering what happens to literacy instruction when teachers use iPads to differentiate their instruction.

### **Theoretical and Conceptual Framework**

This qualitative case study of a CFG is grounded in Vygotsky's (1978) social constructivist theory. It is further situated in two concepts called "communities of practice" (Wenger, 1998) and "knowledge of practice" (Cochran-Smith & Lytle, 1999). The primary assumption of this theory and two concepts is that learning is "constructed" and "expanded" through social interactions (Cochran-Smith & Lytle, 1999; Vygotsky, 1978; Wenger, 1998). That is to say, learning is not only built and created through the interactions people have with one another, but learning is deepened from such interactions. However, this view of learning is not widely assumed in general.

As Wenger (1998) explained, people assume learning is:

Largely based on the assumption that learning is an individual process, that it has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching. Hence we arrange classrooms where students are free from the distractions of their participation in the outside world. p. 19

In this quote, Wenger (1998) explained that even though people participate in social interactions and activities outside the boundaries of an education system, when it comes to learning in classrooms, activities become an individual process. For this reason, Wenger (1998) posed the question: What if learning is “a fundamentally social phenomenon, reflecting our own deeply social nature and human beings capable of knowing?” (Wenger, 1998, p. 19). In other words, Wenger (1998) is asking what would learning look like if people collaborated with one another, as human beings already do in so many other aspects of their lives? This approach to learning stresses the importance of participation and working together to create meaning and generate knowledge.

Overall, the idea of learning from the social interactions we engage in is framed within a social constructivist theory. This theory was developed by psychologist Lev Vygotsky. Vygotsky (1978) argued that all cognitive functions originate in social interactions and that learning is the process by which learners are integrated into a knowledge community. He stated, “Our hypothesis establishes the unity but not the identity of learning processes and internal developmental processes. It presupposes that the one is converted into the other” (Vygotsky, 1978, p. 91). Thus, learning occurs when there is a sense of unity or collaboration among the members in a learning community. Vygotsky (1978) added, “Human learning presupposes a



specific social nature and a process by which children [and adults] grow into the intellectual life of those around them” (p. 88). In particular, this “social nature and process” Vygotsky (1978) speaks of involves language and culture. This is because language and culture are the frameworks through which humans experience, communicate, and understand reality (Vygotsky, 1978). Language refers to the discourse that takes place when humans interact, and culture involves the dynamic of a group and what perspectives members bring to the group. In sum, what can be learned from social constructivist theory is that knowledge is not constructed, but co-constructed. I use this theory in order to guide my study on CFGs because it supports the idea that collectively, educators can learn more about differentiating literacy instruction with iPads than we can individually.

Furthermore, Wenger’s (1998) “communities of practice” and Cochran-Smith and Lytle’s (1999) “knowledge of practice” are two conceptions of learning that support social constructivist theory because they emphasize learning through social interactions. These two conceptions are connected to each other and to Vygotsky’s (1978) social constructivist theory because the researchers believe that when knowledge is created through (1) co-construction, (2) negotiation, and (3) boundaries, (4) a change in identity occurs (Cochran-Smith & Lytle, 1999; Vygotsky, 1978; Wenger, 1998). When there is a change in identity, one’s practice can be enhanced. To begin, both Cochran-Smith and Lytle (1999) and Wenger (1998) emphasized the importance of knowledge being co-constructed with other people. Cochran-Smith and Lytle (1999) explained that group members “construct knowledge by conjoining their understandings in face-to-face interactions with one another over time” (p. 280). Similarly, Wenger (1998) explained that co-construction of learning occurs through “participation and nonparticipation” (p. 173). This means that within a learning community, learning is constructed not only through discourse

(participation), but also in the ways we show nonparticipation, or listening. This idea of co-construction of knowledge is significant and contributes to Vygotsky's (1978) social constructivist theory and my study on CFGs because what an individual is capable of learning independently is nowhere near the amount and quality of learning that can take place when various perspectives are being shared and built upon.

As well, when people co-construct knowledge, they negotiate with each other. Wenger (1998) explained that negotiating does not have to mean "everybody believes the same thing or agrees with everything" at the conclusion of a discussion (p. 91). Rather, the point is that ideas are "communally negotiated" (Wenger, 1998, p. 91). When there is communal negotiation, participants have opportunities to build on and critique each other's ideas, forming new perspectives to enhance practice. Specifically, Wenger (1998) described these types of discussion as "the result of a collective process of negotiation that reflects the full complexity of mutual engagement. It is not just a stated goal, but creates among participants relations of mutual accountability that become an integral part of the practice" (p. 90). Through negotiating, participants hear a full range of complex ideas which not only creates a sense of mutual engagement, but new learning and perspectives can be derived. Cochran-Smith and Lytle (1999) added that negotiation can be possible when participants share varied perspectives and experiences. These researchers claimed, "These communities often involve joint participation by teachers and researchers who are differently positioned from one another and who bring different kinds of knowledge and experience to bear on the collective enterprise" (Cochran-Smith & Lytle, 1999, p. 278). Therefore, when participants have opportunities to negotiate with one another, they can build on each other's ideas to generate new knowledge. The power of communal negotiation relates to social constructivist theory and my study on CFGs because the participants

negotiate with one another as a way to make decisions and provide critical feedback on each other's practices. Through negotiating and feedback, new ideas and learning can be co-constructed, something that individuals cannot achieve on their own.

This idea of collectively constructing knowledge and negotiating as way to learn occurs within the boundaries of a community, but not just any community. "Calling every imaginable social configuration a community of practice would render the concept meaningless" (Wenger, 1998, p. 131). Instead, Cochran-Smith and Lytle (1999) remind educators that a teacher community is bounded in one's "previous experiences, prior knowledge, cultural and linguistic resources, and the textual resources and materials of the classroom" (p. 280). This means that members of a learning community bring different experiences and knowledge that create a bounded culture. That is not to say that the boundaries of a community do not extend into society. "At the same time boundaries form, communities of practice develop ways of maintaining connections with the rest of the world" (Wenger, 1998, p. 115). Cochran-Smith and Lytle (1999) supported this idea saying, "What is important is whether or not and to what extent opportunities for individual learning and development are understood by the participants in learning communities to be connected to and carried out in the service of larger agendas for school and social change" (p. 281). So, learning not only takes place within the bounded community, but also once connections are made to "larger intellectual, social, and political issues," greater knowledge can be learned and shared (Cochran-Smith & Lytle, 1999, p. 273). In terms of my study, not only is our CFG bounded within our kindergarten team, but also is an eventual goal to extend and share our learning with the rest of the school community.

Ultimately, when knowledge is co-constructed, negotiated, and boundaries are formed, individuals enhance their teacher identity and practice. Cochran-Smith and Lytle (1999) stated

that when there is “knowledge of practice,” “teachers have an expanded view of what ‘practice’ means” (p. 276). This expanded view of practice can only happen when participants interact with each other to deepen and gain new perspectives and knowledge. Thus, a change in identity is influenced by social interactions or Vygotsky’s (1978) social constructivist theory. “Identity is defined socially not merely because it is reified in a social discourse of the self and of social categories, but also because it is produced as a lived experience of participation in specific communities” (Wenger, 1998, p. 157). Furthermore, Wenger (1998) put it differently when he said, as relationships between participants develop within the community, “these layers build upon each other to produce our identity as a very complex interweaving of participative experience and reificative projections” (p. 157). As a result, by bringing these ideas together, “we construct who we are” (Wenger, 1998, p. 157). Within my CFG, through our social interactions, we aimed to construct our own teacher identities and changed our practices to better differentiate our literacy instruction with iPads.

While the theoretical and conceptual framework in my study support the claim that people learn from their social interactions with each other, Cochran-Smith and Lytle (1999) took this position a step further by explaining that learning is most optimal when (1) there is balanced or shared participation and (2) no distinction is made between new and experienced teachers. That is to say, while social interaction between participants is vital, there needs to be equity in who speaks so that everyone’s ideas can be heard. Specifically, Cochran-Smith and Lytle (1999) called this having “more equitable relations” (p. 274). This description aligns with the NSRF’s description of a CFG and the structure of my CFG because CFGs utilize protocols (steps to structure discussions) in efforts to get all members of the group collaborating and participating. Additionally, not only should there be equitable relations, but also this concept “does not make

the same distinctions between expert teachers, on the one hand, and novice or less competent teachers, on the other” (Cochran-Smith & Lytle, 1999, p. 273). Instead, whether experienced or not, every participant plays an equal role and has something to contribute to the group. In sum, learning takes place when there is equity in participation and when no distinction is made between one’s level of experience.

Finally, using a social constructivist theory, “communities of practice” and “knowledge of practice” are appropriate frameworks for this study for many reasons. It affirms that a number of researchers have explored the implementation of learning communities, especially CFGs, using a social constructivist approach and Wenger’s (1998) “communities of practice” (Curlette & Granville, 2014; Curry, 2008; Pella, 2011; Riveros, Newton, & Burgess, 2012). By adding Cochran-Smith and Lytle’s (1999) “knowledge of practice” to my framework, I have the potential to contribute an added layer to the existing research. Also, using this framework guided me in structuring my CFG sessions, aligned with my research questions, and aided in analyzing my data. This framework gave me the knowledge to structure my CFG so that collaboration and balanced participation were evident (knowledge of practice). Second, my research questions were designed to help learn more about not only what happens when teachers participate in learning together (social constructivist theory), but also what happens when they participate in learning within a CFG (communities of practice). Third, this framework guided me in analyzing my data as I began coding and looking for patterns in order to identify themes. For example, using the concept “knowledge of practice,” I was able to code for “equity in participation.” Finally, applying this framework throughout my study provided a clear lens to explore kindergarten teachers’ perspectives of a CFG focused on an iPad-based approach to differentiating literacy instruction.

### **Chapter Review and Overview of Chapters**

This introductory chapter provides an overview of some of the past reforms in public education. As Fullan (2007) said, such reforms or changes to educational practice failed because they were either “too-tight” or “too-loose.” Now that current reform efforts are focused on producing “highly effective teachers,” education leaders will potentially be more successful when they support educators in this change process. To this end, the NJDOE revised their regulations for professional development to focus on identifying professional teaching practices that increase educator effectiveness and student outcomes. While they suggested educators engage in “collaborative teams” or learning communities, the wide range of meanings attached to the several types of learning communities make it challenging for educators to find the balance between being “too-tight” and “too-loose.” There is nothing wrong with different ways of implementing learning communities, or various types of learning communities educators choose to engage in. But, there should at least be a defined structure to limit the chances of educators using the term ubiquitously and implementing the learning community ineffectively.

At Cambridge Elementary School in South Brunswick, New Jersey, three kindergarten teachers, including myself, engaged in a CFG as a way to enhance our effectiveness in practice and student learning. Using our allotted common planning time and the principal’s school-wide goal of literacy and differentiated instruction, the purpose of this qualitative case study is to understand kindergarten teachers’ perspectives of a CFG which focused on an iPad-based approach to differentiating literacy instruction. One research question with four sub questions guide the study. This study is grounded in Vygotsky’s (1978) social constructivist theory and is further situated in two concepts called “communities of practice” (Wenger, 1998) and “knowledge of practice” (Cochran-Smith & Lytle, 1999). This theoretical framework was

chosen because it frames learning as not only occurring through social participation, but also as situated within a community of practice where there is equity in participation.

This dissertation is made up of five chapters: (1) introduction, (2) literature review, (3) research design, (4) findings, and (5) discussion and implications. Chapter One introduces and lays out my problem of practice, the purpose of my study, and my theoretical framework. In Chapter Two, I provide a review of the literature in which I synthesized 35 studies on learning communities and teaching with technologies to better understand (1) how my study fits into the existing research base on the topic and (2) how I can effectively implement my own CFG on differentiating literacy instruction with iPads. Chapter Three describes the steps that were taken in my research to collect and analyze the data. Data for this qualitative case study were collected through interviews, observations, and documents. Data were analyzed using Glaser and Strauss' (1967) constant-comparative method. In Chapter Four, the findings are presented in the form of a "cross-case analysis" (Yin, 2014) in which I highlight the collective and individual experiences of the participants engaging in the CFG. In Chapter Five, I discuss the findings of my case study in light of my research questions, theoretical framework, and literature review. I also provide implications for research and practice.

## CHAPTER TWO: REVIEW OF THE LITERATURE

My research aimed to understand kindergarten teachers' perspectives on a critical friends group (CFG) which focused on an iPad-based approach to differentiating literacy instruction. I conducted a review of the literature to guide and strengthen my research so that I would have an empirical and theoretical basis for collecting and analyzing my data. In particular, I used an electronic search feature on the Rutgers University database called "Articles+" which located empirical studies across all education databases such as ERIC, Education Full Text, and the Professional Development Collection. I searched for relevant literature in two overarching areas: learning communities and mobile learning. Some of the keywords that I used were professional learning communities; critical friends groups; faculty learning communities; communities of practice; educational technologies; mobile learning; tablets; and iPads.

Once I found and read a total of eight full text, peer reviewed, empirical studies for each overarching area, I used the reference lists of these studies to find other related articles. I continued this process of collecting and reading studies from the reference lists until I had read most of the studies that appeared multiple times, thus reaching saturation (Merriam, 2009). Throughout the process of collecting studies, I eliminated ten articles because either the learning community only focused on the content of the group instead of the group's process, or the mobile learning articles focused on student outcomes as opposed to how teachers used and implemented technology. In all, this left me with a total of 35 studies to include in the review. Twenty-one empirical studies were chosen for learning communities because they focused on the groups' process, and 14 studies were chosen for mobile learning because they focused on technology integration. Additional articles from related journals that were not empirical studies were used as supplemental research.



The studies on learning communities and mobile learning were significant to my study for several reasons. The selected studies on learning communities were significant because I sought to make a change within my school that moved teachers towards consistently structuring their common planning time more effectively to enhance practice and focus on student work. After learning what the research said about the types and characteristics of learning communities, especially CFGs, I gained additional perspectives when designing and analyzing the data of a CFG with my kindergarten team. Next, the topic of mobile learning was essential to the purpose of my study because due to a lack of professional development within my district, teachers showed inconsistencies in how they used the iPad to differentiate literacy instruction. Synthesizing research on how teachers and students used mobile technologies in the classroom provided the kindergarten teachers in my school opportunities for growth and consistency in their abilities to differentiate their own instruction using iPads. The literature on learning communities and mobile learning provided me with a lens to design and conduct my study.

### **Learning Communities**

Often, when it came to collaboration between educators, research showed there was very little (Lujan & Day, 2010; Snow-Gerono, 2005; Stevenson, Duran, Barrett, & Colarulli, 2005; Vo & Nguyen, 2010). According to these researchers, one reason was that teachers and other educators were isolated in their classrooms for several hours teaching children. As well, when time was provided for professional learning, professional development was viewed as often lacking collaboration, again leaving educators isolated. Professional development often looked like one-shot workshops that lacked follow-through. With adults, “School learning environments typically do not emphasize such sharing of learning and cognitive performance, focusing instead on the importance of individual competencies” (Putnam & Borko, 2000, p. 5).

Several of the empirical studies reviewed made this same argument about isolation (Lujan & Day, 2010; Snow-Gerono, 2005; Stevenson et al., 2005; Vo & Nguyen, 2010). Vo and Nguyen (2010), for instance, put it nicely when they said that teachers who worked in isolation often resorted to familiar methods rather than approach concerns from a problem-solving perspective in attempting to meet the diverse instructional needs of today's students. In a faculty learning community (FLC) at the University of Hartford, one participant commented, "Teaching can be a lonely profession. We don't think of it that way, but most of us went into teaching because we like people...and we like the feeling of community" (Stevenson et al., 2005, p. 33). Such isolation prevented teachers from collaborating to enhance their practice and student learning.

Collaboration is necessary when educators are engaging in professional learning because people learn best when working together as a community. This was evident in Wenger's (1998) "community of practice" concept when he said learning occurs as a result of social participation. Participation refers "not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities" (Wenger, 1998, p. 4). Fortunately, while there is still isolation in education, professional learning within this contemporary reform is beginning to change from a "local event of engagement" to more of an "encompassing process" that is on-going, collaborative, and reflective. Wilson and Berne (1999) asserted that professional learning needs to provide teachers with opportunities to talk about (and "do") subject matter, talk about students and learning, and talk about teaching (Wilson & Berne, 1999). Furthermore, Shulman and Shulman (2004) developed a model to reflect this new movement of professional learning called *Fostering a Community of Learners*. These authors argued that teacher learning occurs as a result of vision, motivation, understanding, practice,

reflection, and community (Shulman & Shulman, 2004). As more and more educators are engaging in this new type of professional learning, communities of learners are being formed to improve practice and student learning.

Several researchers have conducted studies with the purpose of analyzing collaboration among learning communities and understanding what goes on in these learning communities. In particular, of the 21 learning community studies reviewed, many of the researchers' questions looked at participants' perspectives, perceptions, or feelings of engaging in a learning community (e.g. Clary, Styslinger, & Oglan, 2012; Franzak, 2002; Lujan & Day, 2010; Pella, 2011). Analyzing the perspectives of educators in learning communities allowed the researchers to gain a clear and descriptive account of what went on in the learning community. This explains why all but one of the studies was qualitative in nature. Qualitative research lends itself to providing a detailed account of participant perspectives, perceptions, and feelings. Most of the researchers utilized interviews, observations, and documents to collect their data. Some researchers grounded their study, as I did, in learning theories that were social in nature (such as social constructivist, situated learning, and social learning), to emphasize that learning occurs through social interactions (Curlette & Granville, 2014; Curry, 2008; Pella, 2011; Riveros, Newton, & Burgess, 2012). In short, these 21 studies used research design similar to mine because they shared similar purposes, data collection procedures, and analysis procedures that allowed for deeper understanding of the participants' experiences.

Using my research questions and synthesis of studies on learning communities, the following section was organized into three guiding questions. (1) What are the main types of learning communities? (2) What elements are characteristic of learning communities? (3) What is the outcome of engaging in a learning community? Synthesizing the studies in this way

provided a focus for defining learning communities and obtaining a clear sense of what went on in them.

**Types of learning communities.** Learning communities for educators can look different from each other in their name, form, structure, and content. This makes it challenging to pinpoint a definition of learning communities. However, the overarching purpose of the community remains the same regardless of variation in these domains: to collaborate to enhance one's practice and/or student achievement (Dufour, Dufour, & Eaker, 2008; Dufour & Fullan, 2013). Keeping this in mind, six of the studies in this chapter focused on communities as professional learning communities (PLCs). Seven other learning communities in this review were identified as critical friends groups (CFGs). Furthermore, three learning communities were identified as faculty learning communities (FLCs) and another two were online learning communities (OLCs). The remaining three studies identified communities as either a community of practice (COP), teacher-researcher partnership, or a collaborative community. Whether educators engaged in partnerships, groups, or communities, people came together with the intent to collaborate professionally to enhance their practice and students' abilities.

To understand how people come together to collaborate, it was necessary to look at what these learning communities looked like when collaboration was occurring. Understanding who was in them, where and when they took place, how sessions were structured, and what happened during the sessions, helped to provide a clear picture of learning communities.

**Participants.** It was necessary to understand who participated in learning communities because a group's makeup affected the nature of collaboration, and thus the success of the group. The word "who" can mean many things. It can mean the particular position the educator holds such as teacher, administrator, professor, researcher, or even college student. "Who" can mean

one's professional experience, prior experience engaging in learning communities, and/or academic qualifications. "Who" can even mean one's race or gender. Considering all of these factors related to the make-up of a group, learning communities can be quite diverse. This raises the question of whether educators collaborated better when there was diversity among the members, or when around like peers. For example, did teachers of the same grade level collaborate better than teachers of varying grade levels? Did communities of teachers collaborate better than communities of both teachers and administrators? Unfortunately, these questions were difficult to answer because in the researchers' study designs, they did not specifically report if such factors affected collaboration. However, I noticed the learning communities highlighted in this review were primarily successful in their collaboration when made up of either: (1) K – 12 educators, (2) K – 12 educators partnered with university researchers, (3) university professors, or (4) professors and their students.

*K – 12 educators.* First, when looking at K – 12 learning communities, some communities were made up solely of teachers while others were made up of both teachers and administrators. This difference in membership was important because it affected the dynamic and collaboration within the group, as was evidenced with Dooner et al. (2007). When learning communities were made up of teachers, participants who had similar factors collaborated better than participants engaging in learning communities with greater diversity. While the researchers did not specifically say if challenges that groups faced were due to these differences, it is something worth considering in further research. Take for example, Vo and Nguyen (2010), who looked at teachers working together within their school context to explore the experiences of four Vietnamese teachers in the United States engaging in a CFG for ten weeks. There were three females and one male, all of whom were beginning teachers. Not only did the participants

have the same amount of teaching experience, but they were of the same ethnicity and taught the same grade and subject of elementary English. In this study, having similar identities worked for the group because they were able to give one another “feedback without pressure” (Vo & Nguyen, 2010).

On the other hand, Lujan and Day (2010) found that participants in learning communities that had more diversity were not as successful collaborating. Lujan and Day (2010) examined the perceptions of 38 elementary school teachers in the southeastern United States engaging in DuFour and DuFour’s (2006) PLC model. These teachers engaged in PLCs made up of four people based on their grade level. Like Vo and Nguyen (2010), there were more female participants, totaling 35 out of 38. However, the race and experience level of the participants varied. Six African Americans participated in the study and 16 participants held a master’s degree. Participants’ years of teaching experience ranged from less than five to more than 20. Unlike Vo and Nguyen’s (2010) CFG, this community did not function in an ideal way because the participants collaborated in superficial ways, focusing on housekeeping items (Lujan & Day, 2010). Thus, I am left wondering if the reason for inconsistencies in collaboration among teacher learning communities was due to the groups’ makeup. In these studies, teacher learning communities functioned better when teachers shared similar factors, such as same grade level and years of teaching experience.

The literature showed that factors such as race, gender, teaching experience, and degree status had the potential to differ even further when K – 12 teachers participated in online learning communities. Interestingly, this increase in diversity did not affect the positive collaboration within the learning communities. This difference in collaboration could be because the way people collaborate online is different from face to face interactions. When Holmes (2013) and

Hur and Brush (2009) studied K – 12 online teacher learning communities, while looking at the impact of diversity was not an intended focus of the research design, the diversity of participants was substantial. Teachers joined from various geographical locations with varying levels of teaching experience and grade levels. The online learning community Holmes (2013) explored was called e-Twinning, where 184,000 teachers (no administrators) worked together informally across Europe with the purpose of exploring different Web 2.0 tools and creating projects using the Internet. Collaboration was ongoing as evidenced by a participant from Greece who observed that, “I saw that other partners work more, know more things than me, gave me more ideas how to collaborate, and how to make my classroom interesting” (Holmes, 2013, p. 102). Furthermore, Hur and Brush (2009) studied a sample of 23 teachers participating in either the online communities Teacher Focus, WeTheTeachers, or T-LJ. The teachers who engaged in Teacher Focus were more experienced, WeTheTeachers had new and experienced teachers, and T-LJ had a learning community of new teachers. Of the 23 teachers sampled, most were female (17). Grade levels of the participants varied from seven high school teachers, six middle school, and ten elementary school. Despite such diversity in levels of teaching experience and grade level, teachers found collaboration to be beneficial because they could safely share issues (Hur & Brush, 2009). While these communities were online as opposed to face to face, these two studies, unlike Lujan and Day (2010), showed that communities collaborated effectively when made up of diverse teachers.

In addition to teachers participating, sometimes administrators added to the diversity of learning communities. Having administrators present in the communities sometimes hindered the collaboration among the group. When teachers initiated the learning community, there was collaboration, but when administrators initiated the learning community, collaboration

weakened. Curry (2008) and Dooner et al. (2007) looked at learning communities that were made up of teachers, but had small administrator presence with the intent of letting the teachers take control of their learning. In Curry's (2008) study, there were six high school-based critical friends groups, each having eight to ten members of various grade levels and disciplines. Each CFG group was facilitated by a trained coach or administrator. While the administrators facilitated the CFGs, the idea of engaging in CFGs was initiated by teachers and then embraced by the administration as the school's primary means of teacher professional development. Therefore, the teachers continued to feel comfortable collaborating with one another. Curry (2008) found that while collaboration was successful among the group, the diversity within the group created challenges. Because the group had an interdisciplinary membership, teacher learning became oriented to general pedagogy rather than toward content or pedagogical content knowledge (Curry, 2008). However, the benefit was that schoolwide communication was strengthened (Curry, 2008). Thus, when the teachers initiated organizing a learning community with their administration, while collaboration occurred, I wonder if it could have been greater if teachers were of the same discipline.

Dooner et al. (2007) studied the PLC of seven teachers from different disciplines ranging from grades six through eight that was not as successful. Similar to the other studies discussed thus far, five participants were female, one was male, and the years of teaching experience ranged from less than one year to over 20. While this group was predominantly made up of teachers, the principal presence made participants uncomfortable. One participant explained, "While I hear that we are not being officially evaluated, I can't help but feel otherwise" (Dooner et al., 2007, p. 568). The researchers also noted that collaboration failed because the



group was sometimes off-task. At any rate, this study showed that while administrator presence contributed to the diversity of the group, collaboration was hindered.

In all, these studies on K – 12 learning communities showed that teachers collaborated effectively when there were similar factors. Sometimes, when the learning communities included administration, as long as the community was initiated by teachers (a grass-roots approach), collaboration was successful.

*K – 12 educators and university professors.* Other research reported on learning communities designed as a way to build partnerships with universities so that professors could not only conduct research, but support school districts in attaining their school goals. Seven studies on K – 12 learning communities involved a partnership with universities (Burke et al., 2011; Clary et al., 2012; Englert & Tarrant, 1995; Fahey, 2011; Gettinger, Stoiber, Lange, 1999; Pella, 2011; Perry, Walton, & Calder, 1999). Like many of the studies previously mentioned, participants in these communities were similar because they consisted of a few researchers and several teachers and/or administrators. As was the case in my study, participants within each learning community often shared the same discipline, grade-level, experience, gender, and/or race which made collaboration effective.

For example, Pella (2011) studied a PLC made up of four middle school teachers and researchers from Northern California working on the National Writing Project. Participants were of similar grade level, taught literacy, and were experienced in conducting practitioner inquiry. Their collaboration was deemed effective because the participants said they experienced transformations in their perspectives and pedagogy (Pella, 2011). Similarly, Fahey (2011) studied how aspiring school leaders continued to learn about effective leadership in a collaborative learning group. Leaders were of similar experience, all having recently

transitioned into formal leadership positions, and were either assistant principals or principals. Fahey (2011) found that the group's use of protocols during their session provided opportunities for the participants to collaborate. While Pella (2011) and Fahey (2011) did not mention the participants' similarities contributing to the group's collaboration, I found a trend that participants with similar factors collaborated well. In summary, when learning communities were made up of a combination of professors and K – 12 educators, the majority of the teachers were the same grade level and/or discipline area. The participants' similarities may have contributed to the groups' successful collaboration.

*University professors.* At the higher education level, there were university faculty members who wanted to better their practice by utilizing learning communities (Andreu, Canos, Juana, Manresa, Rienda, and Tari, 2003; Moore & Carter-Hicks, 2014; Smith, McGowan, Allen, Johnson, Dickson, Najee, & Peters, 2008). From the studies under review, all of the learning communities were made up of participants with like characteristics and exhibited successful collaborations. Moore and Carter-Hicks (2014) at Kennesaw State University and Andreu et al. (2003) at a Spanish university observed CFGs in which the participants wanted to create a forum for collegial conversations to improve teaching. Both studies had about seven faculty members, all of whom were from the same department (teacher education and business management). The participants in Andreu et al.'s (2003) study also had similar years in teaching experience (new to teaching). With similar group dynamics, both learning communities were successful because as one participant reflected, "We have created a working environment in which we have prime motivation and mutual trust" (Andreu et al., 2003, p. 240). Moore and Carter-Hicks (2014) found that participants collaborated effectively because there were shared roles of facilitation and a platform of trust was created. Furthermore, while the participants in Smith et al.'s (2008)

learning community included both professors and five doctoral students, all were from various science, technology, engineering, and math (STEM) disciplines. Their goal was to enhance student learning and achievement at Howard University. This learning community, like the two mentioned above, exhibited collaboration because the researchers found collegiality was rated highly among the participants. In the end, the findings from these studies showed that when professors engaged in learning communities, not only did they have similar characteristics (same discipline and department), but also effective collaboration was evident.

*Professors and their students.* University professors, particularly in departments of teacher education, took learning communities to another level by facilitating learning communities with their students as a course requirement (Costantino, 2010; Franzak, 2002; Hoaglund, Birkenfeld, and Box, 2014; Stevenson et al., 2005). So, not only did faculty members make up learning communities, but also students did as well. While this dynamic increased the diversity within the group in terms of age/experience levels, all of the participants were from the same course. Like most previous studies in this review have shown, when the participants shared similar factors, collaboration was effective.

Collaboration was effective when Costantino (2010) facilitated a CFG with 15 graduate students in her art education course. These students, who were of similar age and discipline, collaborated well together because there was informal peer dialogue that developed from their CFG discussions (Costantino, 2010). Similarly, Stevenson et al. (2005) studied how 61 faculty members at the University of Hartford implemented an initiative with first year students called First-Year Interest Groups (FIGS) to promote student collaboration. Within these FIGS, the students were of similar age and were co-registered in the same two or three courses to form a cohort. Collaboration developed within these FIGS because the students and faculty established

a level of trust, making it easy to teach one another (Stevenson et al., 2005). Furthermore, Hoaglund et al. (2014) not only evaluated 25 junior level teacher education candidates engaging in a PLC as part of their course requirements, but also evaluated teacher education candidates engaging in a second PLC at their partner school with members of grade-level teams. In this study, junior level students at Samford University were grouped according to similar self-identified areas of weaknesses and assigned a faculty mentor to guide their sessions. With the participants grouped by similar weaknesses, the students were more likely to collaborate by supporting each other's decisions, admitting mistakes, and sharing issues (Hoaglund et al., 2014).

Overall, what was learned from these learning communities made up of both professors and students was that aside from the professor differing in age and experience from the students, the students exhibited factors that were similar. Whether it was similar age, the same discipline/course or a similar area of weakness, the dynamic of the group was comparable. This was important to consider when designing my own learning community because the research showed learning communities made up of participants with similar factors collaborated successfully.

*Conclusion.* When looking at “who” was involved in learning communities, it was clear that they were often made up of teachers, administrators, professors, and college students. While most communities in this review were made up of people who had similar factors such as race, gender, teaching experience, or content area/grade level, other learning communities had more diversity. More often than not, the studies which participants had similar factors collaborated better than those learning communities made up of a diverse group of people. However, the researchers in these studies did not specifically study how participants' factors affected

collaboration. Therefore, it would be helpful if more research was done to determine if such factors do indeed affect the quality of collaboration.

***Contexts.*** In addition to “who” engaged in learning communities, knowing where and when people in learning communities met was beneficial to better understand the context of effective learning communities. This was important to consider because where and when people hold their sessions could have an impact on the level of collaboration within the group. Were participants more collaborative when they met in the same spot or had varying locations? Did the group function better meeting once a month or once a week? Answers to such questions helped me and will help general practitioners to establish an appropriate context for a learning community.

***Where.*** Unfortunately, most of the researchers from these studies were not specific in mentioning where these learning communities met, although it is assumed that most learning communities met within their school or university campus. None of the researchers took it a step further to indicate what type of room the meeting was held in (classroom, conference room, etc.) and if that room changed from meeting to meeting. Knowing such things would have been helpful in establishing a clear context within the learning community because if groups alternated rooms (for example), this could provide some insight into how the facilitation was shared amongst the group. Pella (2011) was one of the researchers that indicated that the learning community she studied met outside of the school context. Northern California middle school teachers had to meet at various sites such as conference rooms, restaurants, or homes because the participants came from different schools about an hour from each other. While Pella (2011) found the group collaborated to develop engaging lessons for teaching persuasive writing, it would have been interesting if researchers considered if meeting in various locations

contributed to collaboration. In all, participants found it convenient to meet at the same location, typically within a school, throughout the duration of their learning community.

*When.* Researchers were specific in indicating when the learning communities occurred. Knowing things such as (1) the frequency of meetings, (2) the length of each meeting, (3) the time of day, and (4) the duration of the entire learning community, made it easier to determine the best time to engage in a learning community. For instance, did participants collaborate and participate better when meeting once a month as opposed to weekly? Was meeting for one hour better than three hours? Typically, participants in the learning communities met once a month (e.g. Burke et al., 2011; Clary et al., 2012; Gettinger et al., 1999; Stevenson et al., 2005). These monthly meetings lasted a couple of hours on average. For example, Moore and Hicks (2014) noted that the participants in the CFG they observed met for two hours while the participants in Fahey's (2011) CFG met for 2.5 hours. Other learning communities that met monthly, met for three hours (Curry, 2008; Perry et al., 1999). Thus, the research showed that when a learning community met once a month, in order for it to be productive, participants needed to meet for at least a couple of hours.

There were other communities that met more frequently than once a month, but for a shorter amount of meeting time. These learning communities convened once a week (Andreu et al. 2003; Englert & Tarrant, 1995; Lujan & Day, 2010). Andreu et al. (2003) noted that their weekly meetings lasted an hour, similar to Lujan and Day (2010) where their meetings ranged from 20 minutes to an hour. Furthermore, Smith et al. (2008) studied biweekly meetings and Costantino (2010) observed a condensed CFG that met three times a week for two hours each as part of a one month undergraduate summer course. As a result, in order to maintain the quality

of the community, participants needed to either meet less frequently in longer sessions, or more frequently in shorter sessions.

When it came to online learning communities, however, the frequency of when participants engaged in online interactions was not the same for each participant because they could choose to participate as frequently as they would like. In efforts to maintain the quality of the community, while participants engaged in online discussions at any time, sometimes there were restricted timeframes that allowed participants to engage in structured discussions (Holmes, 2013; Hur & Brush, 2009). Holmes (2013) noted that in the e-Twinning learning community, teachers participated in “learning events” which were non-formal learning opportunities for teachers to work together on a particular theme supported by a domain expert. One learning event, for instance, took place over 11 days while the second one took place over 34 days (Holmes, 2013). From this study, it can be learned that even though online learning communities had flexibility in the frequency of participation, creating “learning events” had participants collaborating within the same time frame.

Aside from the frequency and length of meetings, few researchers indicated the time of day learning communities met. While the time of day was often dictated by the participants’ work schedule, knowing when participants met could guide educators in determining when to schedule learning community meetings. Did groups function better in the afternoon as opposed to the evening? Fahey (2011) noted that the CFG he studied met in the late afternoons. Participants from another PLC met in the evenings or when the administration provided “educational leave days” (Dooner et al., 2007). A possible benefit to meeting in the afternoon or on educational leave days was that the meetings took place during the work day when participants already had the mindset to discuss education. However, it can be difficult to

schedule learning communities in the afternoon when participants may still be working. In the end, if researchers had addressed the impact of time of day in their findings, it may have provided some insight as to what time of day members in leaning communities were the most productive.

Lastly, the duration of the entire learning community varied. This was important to consider when establishing a learning community because if the learning community was too long or too short, the quality and collaboration of the group could be jeopardized. The duration of learning communities in these studies were dictated by convenience, availability, and/or leadership. The K – 12 learning communities in these studies varied from as short as three months to as long as four years. Learning communities lasting approximately a year or less were often K – 12 educators engaging in their own learning community, more of a grass-roots approach. The duration of these learning communities were predicated on the participants' availability and when it was convenient for them to meet. With learning communities extending past one year, the duration of the learning community was often dictated by leadership. This was because the administration was implementing learning communities (top-down approach) as a district or school-wide initiative over a handful of years. An implication for engaging in learning communities with a longer duration was that the number of people in the communities continually changed, which made it challenging to schedule meetings and get new participants acclimated to the group (Burke et al., 2011; Curry, 2008; Fahey, 2011; Holmes, 2013; Moore & Carter-Hicks, 2014). As well, the learning communities that involved professors or college students were often measured by semesters, ranging from one to three semesters long. Obviously, these learning communities met out of convenience because of the semester scheduling. So, depending if the learning community was conducted from a grass-roots



approach, as a district/school wide initiative, or at a university level, the duration of learning communities were often dictated, but not limited to, the convenience, availability, or leadership of the group.

***Content focus.*** Learning communities should have a primary focus so the community can be purposeful (DuFour, 2004; Dufour, Dufour, & Eaker, 2008). Put differently, participants should establish a goal or vision related to student work and/or teacher practice so that the work of the group is focused. While having a primary focus does not automatically lead to a group being purposeful, it helps when the group uses data and/or resources to make decisions.

***Student work and teacher practice.*** A couple of the studies reviewed showed that educators formed a primary focus on both student work and their practice. As an example, during a teacher-researcher partnership at the University of Wisconsin, teachers and researchers collected data in the form of teacher-generated critical incidents that represented positive or facilitative aspects of inclusion and problem-oriented or challenging aspects of inclusion (Gettinger et al., 1999). As teachers documented and shared their critical incidents, they simultaneously discussed how they could help the particular student in addition to altering their practice to accommodate the student's needs. Similarly, Pella (2011) studied a PLC where participants were interested in developing effective and engaging lessons for teaching response to literature and persuasive writing to their culturally, linguistically, and economically diverse middle school students. As the teachers observed each other deliver lessons, they debriefed and analyzed not only their own practice, but they also observed the student work that came out of the lesson. Through such observations and feedback, the group had the data needed to make decisions regarding student and teacher practice. As can be seen from these studies, not only did

the learning communities have a primary focus looking at student work and teacher practice, but they also used data to make the sessions purposeful.

*Student work.* Most of the studies in this review, however, were divided among communities directly focusing on enhancing student learning by looking at student work, or indirectly enhancing student learning by focusing on teaching/leadership practices. In both cases, data and/or resources were used to keep the group focused and meaningful. In Costantino's (2010) CFG, made up of university faculty and doctoral students, they analyzed undergraduate students' work to support student development in an art education course. Participants looked at students' final essays, final presentations, and other course handouts to make decisions on how to better support the students. So, rather than the participants purely discussing how to better support their students, they used the resources of essays and presentations to make meaningful decisions. Englert and Tarrant (1995) focused on student work by creating a resource. Participants devised a curriculum for literacy instruction that would be meaningful and beneficial for students with mild disabilities in the primary grades. In all, when learning communities focused purely on student work, data and resources in the form of observations, documents, and curriculum gave the group focus and purpose. The table below further outlines the objectives of all of the studies in this review that focused on looking at student work.

Table 1  
Learning Communities Focused on Student Work

Objective	Author
Enhance student learning and achievement in science, technology, engineering, and mathematics	Smith et al. (2008)
Focus on solving problems related to student learning	Hoaglund et al. (2014)
Support student development	Costantino (2010)
Critically examine current assessment	Perry et al. (1999)

practices	
Creation of sharing integrative learning experiences for students	Stevenson (2005)
Devise a curricular approach for literacy instruction that would be meaningful and beneficial for students with mild disabilities in the primary grades	Englert & Tarrant (1995)
Discuss math assessments and plan strategies for improvement	Lujan & Day (2010)

*Teacher practice.* Participants in other learning communities focused on looking at their own practice. Similar to the previous studies mentioned, participants in these communities also utilized data and resources to make meaningful decisions. For instance, the participants in Andreu et al.'s (2003), and Vo and Nguyen's (2010) CFG utilized peer observation as a way to evaluate their teaching. Curry (2008) also utilized peer observation, in addition to participants engaging in action research. With peer observation, not only were participants able to focus on their individual practice, but they gained a larger perspective of their context. For example, a participant in Curry's (2008) CFG commented that using peer observation not only helped him personally, but made it possible to understand his school context.

We are still working on individual stuff that we are doing in class – of course, teacher practice, but teacher practice in relation to what's happening at the school at large is really important. I think that's always been the big problem in teaching – everyone's just been focusing on their own classroom and not focusing on what they're doing in relation to everybody else. (Curry, 2008, p. 745)

Thus, by using peer observation as a way to collect data and improve individual teaching practices, participants in the learning community had opportunities to broaden their perspectives. In Wenger's (1998) "communities of practice" and Cochran-Smith and Lytle's (1999) "knowledge of practice," they made a similar claim to Curry (2008) stating that learning takes

place when individuals can take their learning opportunities (such as their learnings from peer observations) and connect them to “larger agendas for school and social change” (p. 281). Table 2 below further outlines these learning communities’ objectives showing that using data for teacher practice was imperative to keeping group work purposeful.

Table 2  
Learning Communities Focused on Teacher Practice

Objective	Author
Share concerns, ideas, and experiences	Hur & Brush (2009)
Develop teacher identity	Franzak (2002)
Peer observation and feedback meetings	Vo & Nguyen (2010)
Peer observe as a way to evaluate teaching	Andreu (2003)
Learn about effective leadership practice	Fahey (2011)
Build foundational knowledge in the teaching of reading and writing	Clary (2012)
Provide feedback on implementing critical friends group throughout the district	Burke et al. (2011)
Bring issues of instructional practice focused on collaboration, inclusion, and technology	Curry (2008)
Develop implementation strategies and to assess the effectiveness of those strategies in teaching the Middle Years curriculum	Dooner et al. (2007)
The integration of technology in instruction with a focus on peer coaching	Snow-Gerono (2005)
Teachers work together informally across Europe in joint pedagogical projects using the Internet	Holmes (2013)

*Conclusion.* While learning communities often focused on enhancing student work and/or teacher practice to better student learning, a common pattern among all of these studies was that they utilized some form of data or resource to keep discussions and sessions meaningful. This informed my study as I considered using data to keep the group focused.

*Structures.* Not only did focusing on student work and/or teacher practice help keep a learning community focused, but establishing particular structures kept the group organized. When there was structure and organization within a group, doors for collaboration opened.

While some structures of learning communities were broad, others were specific. For instance, one common way learning communities were broadly structured was through the organization of a school-university partnership. Other smaller structures were in place to organize each individual session through peer observations, utilizing agendas, and engaging in protocols. It was necessary to establish both large and small organizational structures so that the group could function at its best.

*School-university partnerships.* Several learning communities in this review formed partnerships as a way to structure their learning community. Either the school or district formed a partnership with a university, or many districts came together to partner with a university, all with the purpose of learning from each other. When a single school or district partnered with a university, the school/district was able to receive more individualized attention as opposed to many districts partnering with one university. Burke et al. (2011) and Fahey (2011) studied universities helping individual districts with a particular problem of practice. In one Midwestern K – 12 school district, professors helped evaluate the successes and challenges of their CFG model. The professors from a Research I public university worked with the assistant superintendent, among other leaders, to scaffold this district reform by helping to establish a trust and a vision. Fahey (2011) also studied a CFG, but the group was made up of 22 early career school leaders from three Massachusetts school districts who worked with professors from Salem State College in efforts to learn how to be effective aspiring leaders. Through their partnership they learned to refocus their thoughts to “look beyond” and learned new strategies and tools for implementation (Fahey, 2011). These two studies showed that through the structure of a school-university partnership, school districts worked to better their practice.

Furthermore, some school-university partnerships involved one university partnering with many districts as opposed to one. In these structures, rather than the districts getting individualized attention to solve a problem of practice, the districts came together to collaborate on a more generalized project or initiative to inform a greater audience. A limitation to this structure was that more meetings had to be established to get participants comfortable working with each other. The talk among the community was structured around a project/initiative rather than getting feedback on the district's particular problem of practice. Clary et al. (2012) explored seven secondary teachers' perceptions of engaging in a PLC with the University of South Carolina where they worked on a reading assistance initiative called Project RAISSE. This group of teachers came from different districts and ranged in their content area taught, had 2 – 15 years teaching experience, and most had master's degrees. Englert and Tarrant (1995) looked at a collaborative community from Michigan State University comprised of professors and three special education teachers from a local public school district involved with a project titled The Early Literacy Project, in which they devised a curricular approach for literacy instruction in the primary grades. Similarly, Pella (2011) evaluated a PLC made up of four middle school teachers from different California school districts about an hour from each other that had experience in practitioner inquiry. They worked with professors from a Northern California research university on the National Writing Project. So while these learning communities were made up of both teachers and professors, the organizational structure differed depending on whether the professors worked with individual schools or many. When a university partnered with several schools, the purpose of the group was often to benefit a greater audience than just the districts present.

*Individual sessions.* While forming school-university partnerships was one way to broadly structure learning communities, individual sessions were structured as well. Some learning communities used structured peer observations as a way to give feedback (Andreu et al. 2003; Curry, 2008; Pella, 2011; Vo & Nguyen, 2010). Three CFGs and one PLC utilized peer observation. For example, Vo and Nguyen (2010), Andreu et al. (2003), and Pella (2011) each studied a CFG where all of the meetings were centered around peer observation. Vo and Nguyen (2010) observed elementary teachers working in pairs engaging in three 3-week cycles so that there were three observations and three feedback meetings. These teachers also used their own observation form to record what they were observing. Andreu et al. (2003) studied six professors who spent one semester observing each other in pairs. Like Vo and Nguyen (2010), these professors also created an assessment criteria so they knew what to look for when observing each other. Interestingly, in both of these studies, the participants were fairly new to teaching. Additionally, in a PLC with middle school teachers, once the teachers developed four lessons collectively, they observed each other deliver the lessons and debriefed and analyzed student work immediately following. Curry (2008), on the other hand, analyzed participants in a CFG who utilized peer observing, but it was only one aspect of the learning community's structure. In other words, not every meeting in the learning community was devoted to peer observations. This CFG of high school teachers periodically included peer observation updates during a monthly meeting in addition to having conversations about teaching and learning (Curry, 2008). Whether peer observation was used to structure the learning community in its entirety or used during a couple of sessions, peer observations were one way to provide structure within individual sessions.

Many learning communities structured their sessions by creating an agenda. This ensured that the sessions followed a repetitive structure throughout the beginning, middle, and end (Curry, 2008; Fahey, 2011; Franzak, 2002; Gettinger et al., 1999; Moore & Carter-Hicks, 2014; Perry et al., 1999). With some agendas, participants in learning communities began their sessions with a “check-in” where participants “set time aside to reflect upon a thought, a story, an insight, a question, or a feeling that they are carrying with them into the session, and then connect it to the work they are about to do” (Fahey, 2011). In the CFG Curry (2008) and Moore and Carter-Hicks (2014) observed, check-in was similar, but was called “connections.” In addition, not only did learning communities begin with check-ins, but also ended with a check-out. In the CFG observed by Fahey (2011), a check-out was used to reflect upon the entire session. By creating a repetitive structure with check-ins and check-outs, participants not only established a routine of reflecting, but they stayed on task from the meeting’s start to finish.

Aside from the use of agendas, check-ins, and check-outs to structure learning communities, participants often structured the dialogue and/or activities to be completed during the meeting. Some learning communities, especially CFGs, structured their meetings by following protocols (Curry, 2008; Fahey, 2011; Franzak, 2002; Moore & Carter-Hicks, 2014). Depending on the topic at hand, there were many kinds of protocols to choose from, but they typically followed a similar structure to guide conversation and to ensure each participant received a turn to speak and give feedback. In these learning communities, participants engaged in one or two protocols each meeting that related to giving feedback on practice, looking at student work, or talking about a piece of text. Fahey (2011) and Moore and Carter-Hicks (2014) even kept a meeting summary to identify the topic of the meeting and the structure (name of



protocol). Overall, protocols were a useful way to structure conversations during the learning community meetings.

Some learning communities came up with different meeting structures, while having similar characteristics in protocols. As long as these meeting structures were specific and repetitive, they usually achieved the same effects of a protocol. Perry et al. (1999) studied a community of practice that agreed upon a question to focus on for each meeting. Participants would enact the question first in their classrooms and then evaluate how it went at the following meeting. In a sense, this focus question became the protocol for discussion. Gettinger et al. (1999) structured their meetings in three 2-week waves which teachers had to observe student behavior and then write a brief narrative for participants to read and give feedback on. This repetition in observing, writing, and getting feedback became the learning community's protocol. Englert and Tarrant (1995) structured their meetings so that there was a short sharing time, viewing of a video, followed by a discussion. From these examples, it can be learned that even when a protocol was not used, other repetitive structures were still used to organize meetings.

However, even when a group had a consistent structure for its meetings, sometimes groups got off-task. In Dooner et al.'s (2007) PLC, while participants structured each session with a discussion of shared readings and exploration of ideas for implementation, group members became uncomfortable with each other and were often off-task. I wonder if this would have been the case if participants were engaging in official protocols, rather than establishing their own. In all, while participants in learning communities went about structuring their sessions differently, there seemed to be a sense of organization and repetition from meeting to meeting to ensure the group stayed focused on an overall purpose. Having this focus provided outlets for the group to collaborate effectively.

**Elements.** Not only were learning communities distinguished by who was in them, what the group did, where and when the group met, and how they were structured, but also by “essential elements” (Dana & Yendol-Hoppey, 2008) that are healthy for the success of a learning community. Dana and Yendol-Hoppey (2008) researched how to establish and maintain a healthy inquiry-oriented PLC and created a list of ten essential elements, seen below.

Healthy PLCs:

1. Establish and maintain a vision for their work.
2. Build trust among group members.
3. Pay attention to the ways power can influence group dynamics.
4. Understand and embrace collaboration
5. Encourage, recognize, and appreciate diversity within the group.
6. Promote the development of critical friends.
7. Hold the group accountable for and document their learning.
8. Understand change and acknowledge the discomfort it may bring to some PLC members.
9. Have a comprehensive view of what constitutes data, and are willing to consider all forms and types of data throughout their PLC work.
10. Work with their building administrators.

When reading the studies in this review, I synthesized them further using these elements. I found that while all of the elements were evident across the studies, some of the elements came up more frequently than others. Those elements were: (1) establishing and maintaining a vision, (2) understanding and embracing collaboration, (3) promoting the development of critical friends, and (4) trusting/understanding change and acknowledging the discomfort it may bring (Dana & Yendol-Hoppey, 2008). These four elements are highlighted below.

All of the studies in this review exhibited evidence of the participants’ efforts at establishing and maintaining a vision for their group. As previously discussed in Table 2, participants had a purpose for the group. For example, Perry et al.’s (1999) learning community had a vision to critically examine their current assessment practices. Englert and Tarrant (1995) had a vision of devising a curricular approach for literacy instruction that would be meaningful

and beneficial for students with mild disabilities in the primary grades. While visions were established for some learning communities, it was harder to maintain them. Dooner et al. (2007) found that in the second year of the PLC on implementing Egan's Theory of Imagination and Learning to their teaching practices, members became too social and got off-task from the vision. Similarly, in another PLC, Lujan and Day (2010) found that the group did not maintain its vision because they focused on housekeeping items, rather than getting deeper into the topic at hand. Therefore, while learning communities established a vision for the group, it was important that it was maintained to keep groups on task.

As well as having a vision, a healthy learning community needed to collaborate. Many of the researchers in the studies under review emphasized how prevalent teacher isolation was (Lujan & Day, 2010; Snow-Gerono, 2005; Stevenson et al., 2005; Vo & Nguyen, 2010). Dana and Yendol-Hoppey (2008) explained that teacher isolation can be eliminated when there is "deprivatization of practice" (p. 34). This means that teachers who collaborate, "share, observe, and discuss each other's teaching methods and philosophies" (Dana & Yendol-Hoppey, 2008, p.34). This was seen across all of the studies, especially in the sense that participants shared and discussed ideas together.

In Hur and Brush (2009) and Pella's (2011) findings on learning communities, they both emphasized that sharing emotions and experiences with one another helped the work of the group. Participants in Hur and Brush's (2009) study noted that they wanted to collaborate in an online community so that they could share emotions related to teaching, safely share issues that they could not share with local school teachers, and explore new ideas. On the same note, Pella (2011) observed that the dialogue in her PLC reflected a pattern of shifting back and forth from the shared experiences of the group to interaction with their own and each other's prior

experiences, choices, and practices. In particular, this was evident when the participants were synthesizing their understandings of their own and each other's experiences teaching writing and integrating resources from both standardized and discovery-based approaches to writing instruction. In addition to sharing and discussing ideas, collaboration also included peer observation (Andreu et al. 2003; Curry, 2008; Pella, 2011; Vo & Nguyen, 2010). As previously discussed, observations provided opportunities for participants to share ideas for improvement. Through sharing ideas, discussing topics, and peer observing, collaboration was instilled within the group.

When there was collaboration, the development of special kind of friendships, known as "critical friends" evolved among group members. The word "critical" in critical friends means "engaging in important, key, and necessary talk that carefully confronts and inquires into the issues being explored" (Dana & Yendol-Hoppey, 2008, p.38). Collaboration becomes more than sharing and discussing ideas. This form of talk becomes collegial because conversations with one another are "learningful" and "meaningful" (Dana & Yendol-Hoppey, 2008, p. 38). Giving feedback and reflecting on the work of the group were two examples of how participants were critical friends. During one of Vo and Nguyen's (2010) interviews, a participant who had engaged in a CFG commented, "As a new teacher, I badly want feedback. Our CFG process gave me plenty of feedback from colleagues, which was very useful" (p. 209). Utilizing a protocol within a CFG to structure a discussion gave the participants permission to, "ask challenging questions, critique the practice of their peers, and offer explicit instructional advice" (Curry, 2008, p. 764). Furthermore, critical friends reflected on their practice and the work of the group. Perry et al. (1999) found that participants engaging in a community of practice appreciated having time to meet and discuss, plan and reflect. Many participants commented

that they would not engage in such critical self-reflection if it were not for their involvement in the group (Perry et al., 1999). In Holmes' (2013) study on professional development in an online learning community, participants made it a point to reflect on their experiences in the online "staff room." In all, forming critical friends as a means to collaborate was a useful way to drive the work of a learning community.

Finally, in order for a vision to be maintained, collaboration to exist, and critical friendships to develop, participants must have a sense of trust and acknowledge that there may be discomfort as they engage in change and group interactions. Several researchers found that participants initially experienced some anxiety at the start of the learning community (Perry et al., 1999; Snow-Gerono, 2005; Stevenson et al., 2005). For example, Snow-Gerono (2005) found that participants in her PLC shifted from having an uncertainty to an appreciation for dialogue in collaboration. One of the participants said her collaboration was impacted by the need to feel safe in questioning (Snow-Gerono, 2005). In a faculty learning community, Stevenson et al. (2005) found that once trust was established, participants could "humiliate" each other (in a respectful sense) while still teaching each other. Put differently, when trust was established, participants were willing to take risks and "admit mistakes" (Hoaglund et al., 2014). Therefore, participants in learning communities initially felt discomfort as they took risks among the group because trust was still being established.

**Outcomes.** In addition to the types and elements of learning communities, learning communities sometimes produced clearly-defined outcomes. Since learning communities had a vision for the group, by its conclusion, an outcome would hopefully be achieved. In the 21 studies reviewed, two kinds of outcomes were identified. For one, participants noticed a change

in their practice. Second, in some learning communities, a final product was created which was often shared with the greater community.

First and foremost, engaging in a learning community often changed one's practice (Burke et al., 2011; Dooner et al., 2007; Gettinger et al., 1999; Holmes, 2013; Pella, 2011). Through interactions with other participants, there was a transformation in thinking that caused a change in one's practice. Gettinger et al. (1999) found that participants engaging in a teacher-researcher partnership centered on early childhood changed their practice in three ways. They (1) used strategies for individual children, (2) shifted toward reflective practice, and (3) changed traditional practices (Gettinger et al., 1999). Similarly, Dooner et al. (2007) found that participants engaging in a PLC also changed their traditional practices. One of the participants explained that she became much more concerned with quality over quantity and implemented inquiry-based projects as opposed to daily worksheets (Dooner et al., 2007). Pella (2011) noted that participants had higher expectations of students and increased notions of self-efficacy. Furthermore, Holmes (2013) found that participants' content knowledge changed as a result of participating in an online community because participants developed technical skills using Web 2.0. These examples connect with Cochran-Smith and Lytle's (1999) conception of knowledge mentioned in Chapter One called "knowledge of practice" because the authors emphasized by engaging in learning communities, teachers transform and expand their view of what "practice" means. In these examples, participants expanded their view of what practice meant because they changed their thoughts and/or teaching strategies. Change in practice further relates to Wenger's (1998) "community of practice" when he mentioned that learning communities have the ability to negotiate new meanings and transform identity, as was seen in these studies. Overall, these

examples supported the theory that when educators engaged in learning communities, their teaching practice often changed or was enhanced.

Other times, participants in learning communities created a specific product as a result of their participation in the group. Participants in Holmes' (2013) study collaborated in an online community to create joint pedagogical projects using the Internet. Other participants created a collaborative project and presented it at a conference (Clary, 2012; Englert & Tarrant; 1995). Researchers found that creating a product brought closure to the group and was a tool that practitioners could use outside of and after the learning community concluded its work. Interestingly, participants in Dooner et al.'s (2007) PLC did not create a final product, but the researchers wondered, "Would the creation of one final product have helped to level the disparities among individual teachers and to challenge their willingness to stay focused, thereby reducing the group's tension?" (Dooner et al., 2007, p. 574). As a result, participants in some learning communities created a final product as a way to represent the work of their group.

**Critical Friends Groups.** Of the 21 studies reviewed, eight of them focused on CFGs. According to the National School Reform Faculty (NSRF), CFGs are "communities that consist of 5-12 members who commit to improving their practice through collaborative learning and structured interactions (protocols), and meet at least once a month for about two hours" ("National School Reform Faculty," 2014). In general, while the CFGs in this review reflected the types, elements, and outcomes of learning communities, there were three key differences between them and other types of learning communities. First, CFGs relied on protocols, they were facilitated, and participants engaged in critical feedback/reflection. These differences made participants not only feel safe to take risks, but they developed collegial relationships (Curry, 2008; Fahey, 2011; Franzak, 2002; Moore & Carter-Hicks, 2014). When participants took risks

and were collegial, the work of the group was productive and meaningful (Dana & Yendol-Hoppey, 2008).

Protocols, or structured discussions, were used to look at adult work, dilemmas, student work, and texts (Curry, 2008; Fahey, 2011; Moore & Carter-Hicks, 2014). The structure of a protocol usually consisted of an introduction, presentation of data/a dilemma/or challenge, question clarification, examination of a work sample, participant reflection, feedback, reflection by the presenter, and debriefing (Fahey, 2011; Moore & Carter-Hicks, 2014). Using protocols had several purposes that set CFGs apart from other learning communities. For one, protocols encourage the presenter to hear feedback from their peers without being defensive (Moore & Carter-Hicks, 2014). This gave members of the group a chance to be a critical friend because they could give feedback in a safe way (Dana & Yendol-Hoppey, 2008). Second, protocols allowed for equity of participation, ensuring that the sessions were not dominated by a single voice (Moore & Carter-Hicks, 2014). Equity in participation is reflected in the conception of knowledge known as “knowledge of practice” because Cochran-Smith and Lytle (1999) expressed the need for learning communities to have “more equitable relations” (p. 274). The idea of equity of voice was different from other learning communities in which participants talked whenever they wanted, often causing an imbalance between speaking and listening, like Dooner et al. (2007) described. Lastly, protocols kept the conversation focused and on track (Moore & Carter-Hicks, 2014) which ultimately helped the group maintain its vision, as Dana and Yendol-Hoppey (2008) stressed.

To ensure the purposes of protocols were preserved, there was effective facilitation. In other words, protocols were facilitated by various participants whose role was to ensure that the protocol was followed and all voices were heard. When the group got off-task or did not follow



the protocol as outlined, the facilitator reminded the group of the steps (Fahey, 2011).

Facilitation was sometimes described as a challenge because facilitators struggled with “agenda control” and moving the group beyond the initial introduction of each protocol (Burke et al., 2011). Facilitators need to find the balance in not controlling the agenda, and ensuring the group gets deep into the protocol. Sharing the facilitation among group members helps to prevent one member of the group from taking control (Fahey, 2011; Moore & Carter-Hicks, 2014). In Fahey’s (2011) study, he began as the facilitator to initiate the work of the group, but the more the group became comfortable with each other, the more his role as facilitator decreased. Eventually, after a couple of years, he was able to pass the facilitation on to another member. He said, “Other group members took notes, sent out the agendas, and facilitated the protocols. By the third year, I was just a member of the group” (Fahey, 2011, p. 11). Despite the challenges, facilitation was imperative within CFGs because it allowed for all participants to share ideas and kept the group on-task.

Another characteristic of CFGs that set this kind of learning community apart from others was that participants took the time to critically reflect on each other, themselves, and the work of the group. Protocols used in CFGs generally build in reflection and critique of the work of participants as way to provide feedback. Participants in Fahey’s (2011) CFG used the consultancy protocol to critically reflect on the importance of good culture when the academics were good and the students were learning well. By the end of the protocol, participants not only provided feedback to the presenter, but reflected on their own school’s culture and then reflected on the productivity of the session itself. The facilitator asked, “Well, let me just do a little facilitation here. Any thoughts about the process? How did we do?” (Fahey, 2011, p. 22). By taking the time to reflect on the process, changes were made to make sure the participants within

the group felt safe and comfortable to share and learn from each other. Reflection created opportunities to make changes to one's practice or to the work of the CFG.

In conclusion, while learning communities may have used protocols, facilitation, or critical reflection, all three factors needed to be present so that the group can function at its best. Even if a learning community utilized protocols, if those protocols were not facilitated, equity in participation could be lost. If protocols are used without reflection, participants may not be able to enhance their effectiveness or the work of the group. When the use of protocols, facilitation, and reflection were connected, participants built a collaborative, reflective, learning-focused community that deprivatized practice and strengthened shared norms and values. A participant in Moore and Carter-Hick's (2014) CFG put it best when she said CFGs are about "establishing a community, respecting norms and each other" (p. 15). Critical friends groups go beyond sharing ideas to improve practice and almost have a "spiritual quality" (Fahey, 2011, p. 24) because they place significance on building relationships through the use of protocols, facilitation, and reflection.

### **Discussion and Connections to Present Study**

In summary, the types of learning communities varied from who was in them, what their vision was, where and when they met, and how the group was structured. Furthermore, specific elements especially (1) establishing and maintaining a vision, (2) understanding and embracing collaboration, (3) promoting the development of critical friends, and (4) having trust were frequent indicators of a healthy learning community (Dana & Yendol-Hoppey, 2008). Often, learning communities produced outcomes whether they were changing one's teaching practice, enhancing student learning, or creating something to share with the greater community. In general, CFGs stood apart from learning communities because they consistently relied on the use of protocols, facilitation, and critical feedback/reflection.

While learning communities promoted elements such as collaboration and trust, they had their challenges. As previously mentioned in this section, some groups had trouble establishing collaborative relationships and were often not on-task (Dooner et al., 2007; Lujan & Day, 2010). Also, it was challenging to adjust to the turnover of membership, especially when introducing a novice to the group (Moore & Carter-Hicks, 2014). Scheduling became a factor when participants did not have the same availability (Moore & Carter-Hicks, 2014). This is why having a one-size-fits all definition of a learning community is nearly impossible; no one learning community is the same as another.

These studies informed my own research because I sought to find out what happened when a CFG was implemented to help teachers use iPad apps to differentiate literacy instruction. Knowing what the research said about the types and interactions that characterized a learning community, and recognizing their supports and impediments, I had a lens for facilitating and analyzing my CFG. Using these studies provided me with the knowledge needed to find similarities and differences within my learning community as they related to my research questions and theoretical framework.

### **Teaching with Mobile Technologies**

In efforts to find out what happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction, one of my sub-questions aimed to understand how teachers teach with technology. The sub-question asked, “In what ways does participation in the critical friends group shape teachers’ ability to use iPad applications to differentiate literacy instruction?” Therefore, in this section, 14 studies were synthesized that not only looked at how teachers used iPads and other mobile learning devices in their classrooms, but also their perceptions about using them. Understanding how teachers integrated iPads and

other mobile learning devices, in addition to learning how they felt about them, guided my study design as I sought to understand how the participants used iPads in their classrooms.

For teaching with technology, the International Reading Association (2009) generated a position statement on “New Literacies and 21<sup>st</sup> Century Technology” reminding educators that traditional definitions of reading, writing, communication, and best practices of instruction – derived from a long tradition of book and other print media – are insufficient in the 21<sup>st</sup> century. The term multimodality becomes important because it “attends to meaning as it is made through the situated configurations across image, gesture, gaze, body posture, sound, writing, music, speech, and so on” (Jewitt, 2008, p. 32). In other words, when students encounter multimodal texts, meaning is achieved using multiple modes or multiliteracies - not just from a single mode of printed text. When students make meaning with multiple modes, they demonstrate their knowledge of understanding.

Multimodalities are evident when using mobile technologies. Mobile technologies are small devices that act as tools for people to access content and communicate with others. They include portable and personal handheld devices, such as laptops, personal digital assistants, smart phones, and mobile phones (Ismail, Azizan, & Azman, 2013). Mobile technologies have led to a new way of learning called mobile learning. Mobile learning is “a learning method that provides learners with capabilities to get instant learning content just by the tips of their fingers” (Ismail et al., 2013, p. 37). This learning method supports the need to provide students experiences with new literacies and 21<sup>st</sup> century technologies.

Researchers have begun to conduct studies to understand how teachers integrated mobile technologies in their classrooms and what their perceptions were of using them (e.g. Delacruz, 2004; McClanahan, Williams, Kennedy, & Tate, 2012; Mouza & Barrett-Greenly, 2015). Four

of the 14 studies looked at teachers' perceptions of integrating technology in a general sense. More specifically, ten studies focused on teachers integrating iPads or mobile phones. While I kept my online search open for studies on tablets in general, studies with iPads were most prevalent and relevant to my study. These studies were mostly conducted in the United States, with some conducted in other countries such as Canada, Australia, Malaysia, and New Zealand. Looking at the research designs, nine studies were qualitative (many were action research conducted by teachers in their own classrooms), three were quantitative, and two were mixed-methods. Using my research questions and synthesis of studies on teaching with technology, the following section was organized into two guiding questions: (1) How are mobile technologies integrated into classrooms?, and (2) What kinds of professional learning do educators receive in relation to mobile learning? Synthesizing the studies in this way provided (1) a focus for understanding teachers' ability to use iPad applications to differentiate literacy instruction and (2) a focus for understanding the professional learning teachers engaged in as it related to my study's CFG.

**Technology integration.** Mobile technologies are prevalent in today's schools, but iPads in particular are increasingly being used. According to a Nielson survey of adults with children under 12 in households that own tablets, seven out of ten children used the tablet ("American Families See Tablet," 2012). Within this same survey, fifty-seven percent of parents surveyed mentioned that their children used tablets to access educational apps ("American Families See Tablet," 2012). This growing tablet use carries into the classroom, as tablets are being integrated and perceived as useful by teachers in many ways. Hutchison and Reinking (2011) argued that integrating technology, especially into literacy instruction, as my study attempts to support, follows a progression of five steps or realities: (1) acquiring digital technology, (2) employing it

to teach conventional instructional goals, (3) allowing it to transform instruction, (4) adopting new instructional goals, and (5) empowering students. Interestingly, many of the studies under review met some or all of these realities of technology integration. The following section was organized by these realities in an effort to determine how and if these studies were able to effectively integrate technology.

**Who.** Before devices can even be acquired by teachers to use with their students, it was important to take note of teachers' educational experiences because the quality of integration was affected. In the studies under review, teachers of varying years of teaching experience, technology experience, and grade levels integrated mobile devices into their classrooms. All of the teachers in this review taught either elementary or middle school and for the most part, mobile technologies were implemented by the primary teacher. Specifically looking at iPad integration, two of the studies analyzed pre-service teachers implementing the iPads (Delacruz, 2004; McClanahan et al., 2012). Other teachers had never used iPads before (Mouza & Barrett-Greenly, 2015). The teachers in these studies did not have much teaching experience, let alone experience with technology. One teacher had experience with iPad use (as he was also the school's technology coordinator), but had less teaching experience because he was only in his second year. None of the findings in these studies noted that age and/or experience impacted the quality of implementation. This would have been helpful in determining if who integrated technologies made a difference in their effectiveness.

On the other hand, two studies that looked at teachers using mobile phones in the classroom found that teachers' age mattered (Ismail et al., 2013; O'Bannon & Thomas, 2014). After surveying 1,095 teachers from two states in the southeastern United States, O'Bannon and Thomas (2014) found that while teachers under 49 years of age perceived implementation

positively, teachers over the age of 50 held different perspectives regarding the usefulness of mobile features for school related work and instructional barriers. So when it comes to technology integration, before devices are even acquired, it may be important to take note of who will be using them to determine how much experience they had.

**Acquiring.** The first reality of technology integration was the “acquiring of digital technology” (Hutchison & Reinking, 2011). All of the students in these studies were given the iPad on a 1:1 ratio. In most of the studies, the district provided the students with the devices. While the teacher in Mouza and Barrett-Greenly’s (2005) study shared a class set of iPads with other teachers through the use of a mobile cart, each student was still able to use one individually. It was only Milman’s (2014) study in which students’ families paid an iPad lease and use fee in addition to their school tuition. Nonetheless, each student in these studies used the iPad on a 1:1 basis. Acquisition of iPads was important to consider because if there were a limited number of devices, teachers would run into barriers for employing the technology with all students. Fortunately, because the students in Milman’s (2014) study had a 1:1 ratio with the iPads, instruction went on as planned instead of teachers trying to facilitate learning on shared devices. Table 3 below summarizes not only this 1:1 ratio, but who used the iPads, where they were used, and what content area they were integrated into.

Table 3  
Summary of iPad acquisition

Study	Where	Who	Device	Content
Attard and Curry (2006)	Year 3 primary classroom in Sydney	-Teacher -class of 30 students	30 iPads	Math
Crichton, Pegler, and White (2012)	3 schools in a large urban Canadian school district	5 teachers and research team	61 iPads	Multiple content areas
Delacruz	Elementary school	-Student teacher	9 mini iPads	Guided reading

(2004)	in Southeastern United States	-Nine 4 <sup>th</sup> graders		
McClanahan, Williams, Kennedy, and Tate (2012)	Small regional university in southeastern Oklahoma & local elementary school	-Professor -Pre-service teacher -5 <sup>th</sup> grade boy with ADHD	1 iPad	Reading comprehension and decoding
Milman, Carlson-Bancroft, and Boogart (2014)	19 classrooms in an elementary school in the United States	19 teachers	1:1 per student	Multiple content areas
Mouza and Barrett-Greenly (2005)	3 urban K – 8 schools in the United States	Fourteen 5 <sup>th</sup> grade teachers	30 iPads on a mobile cart	Multiple content areas

***Employing.*** Once digital technologies were acquired, Hutchison and Reinking (2011) explained that the next step to technology integration was “employing the device to teach conventional instructional goals.” In the studies reviewed, some teachers used the iPad to focus on a single content area, while other teachers used the iPad for multiple content areas. Furthermore, some teachers relied on one app to meet an instructional goal while others used a repertoire of apps. Looking at the various ways teachers employed their devices was important to determine which methods worked best with the students. The student teacher in Delacruz’s (2004) study integrated nine mini iPads into her guided reading instruction. Using an app called Nearpod, students created interactive presentations about the books they read (Delacruz, 2004). In another study, students also focused on one content area (science) to experience an introduction into zoo life (Crichton, Pegler, & White, 2012). The elementary school teacher in Attard and Curry’s (2006) study integrated 30 iPad apps into his math instruction using multiple game-based math apps. These studies showed that when using iPads for one content area, one app or multiple apps can be employed.



Other studies described teachers who used the iPads in a broader way because they used a variety of apps across multiple content areas including reading, math, science, and social studies (Crichton et al., 2012; Milman, Carlson-Bancroft, & Boogart, 2014; Mouza & Barrett-Greenly, 2005). For example, Milman et al. (2014) found that 17.7% of teachers integrated the iPad into math, 8.8% in writing, 8.8% in social studies, and 39.7% integrated the iPad into multiple content areas. Teachers varied in their decision-making, employing iPads within one content area or across many in efforts to meet instructional goals. While the researchers found that employing the iPads within one content area and several to be successful with the students, I am curious if one approach is better than another.

***Transforming and adopting.*** Another reality in effectively integrating technology was using technology to transform instruction so that new instructional goals were formed (Hutchison & Reinking, 2011). In other words, teachers needed to view technology use in conjunction with curriculum design and implementation. This was imperative because without connecting technology with curriculum seamlessly, students may miss out on learning. “Technology is less likely to be integrated authentically and effectively when teachers conceptualize the integration of technology as separate from the curriculum (Hutchison & Reinking, 2011). Among these 14 studies, teachers tried to transform their thinking because they used mobile devices for drill and practice, game-based practice, and presentation/production purposes. In addition, teachers not only transformed the types of apps they used, but also the ways in which they differentiated their instruction.

Teachers transformed their instruction based on the types of apps they selected. Most of the apps for the students were either drill-and-practice or were game based (Attard & Curry, 2012; Milman, 2014; Mouza & Barrett-Greenly, 2015). Few teachers used the iPad for

presentation and production purposes. For instance, Milman (2014) found that when teachers used iPads to differentiate instruction across multiple content areas, many of the apps used were drill and practice. While it was positive that these teachers transformed their instruction by using iPads for drill and practice, was that the most effective way to reach students? If these studies had continued longer, would the use of drill and practice apps still be prominent? In another study, a teacher who explored the use of iPads to engage young students with mathematics initially thought he would use the iPads as an additional source of information that his students could access when a teacher was not available (direct instruction on demand) (Attard & Curry, 2012). He found benefits with students using game-based apps. These findings are supported by Douglas, Wojcik, and Thompson (2012) and Murray and Olcese (2011) who analyzed thousands of educational apps offered on Apple devices. Specifically, when Murray and Olcese (2011) categorized apps, the majority of them were game-based, but 112 out of 315 fell under the “tutor” category, meaning that the app provided practice and reinforcement on a skill. In all, teachers transformed their instruction based on the types of apps they implemented.

Also, some teachers had students use production apps to create learning artifacts (Crichton et al., 2012; Mouza & Barrett-Greenly, 2015). When students used iPads to learn about zoo life, they used various apps to create projects ranging from art activities to multimodal presentations (Crichton et al., 2012). Overall, while some of the apps students engaged in were presentation and production apps, most of the apps were drill and practice or game-based. I am left wondering if teachers were given more time to research apps and plan lessons for iPad use, would they have moved from drill and practice, to game-based and production apps to further student creativity and critical thinking?

*Differentiated instruction.* Teachers found that when integrating the iPad into their classrooms, they were able to transform their instruction by using drill and practice apps, game-based apps, and production apps to differentiate instruction (Attard & Curry, 2012; Delacruz, 2014; McClanahan, et al., 2012). Using technology, especially iPads, to differentiate instruction was important for many reasons. It offered opportunities for teachers to engage students in different modalities, while also varying the rate of instruction, complexity levels, and teaching strategies to engage and challenge students (Stanford, Crowe, & Flice, 2010). For the purpose of this study, differentiated instruction will be defined as “providing different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn effectively” (Tomlinson, 2001, p. 1). Differentiating instruction was a necessary strategy for transforming instruction because it required teachers to become more aware of the needs and strengths of individual students. Specifically, using technology to differentiate instruction was beneficial because it allowed teachers to work smarter rather than harder (Stanford et al., 2010). Put differently, using technology as a vehicle to differentiate often reduced the amount of time required by teachers to create differentiated content.

In the studies under review, some teachers differentiated their instruction by selecting an individual or group of students to work with as opposed to the entire class. They selected apps to meet the needs of students with learning challenges such as ADHD and ELL (Delacruz, 2014; Kennedy & Tate, 2012; Milman, 2014). When implementing math apps with his fourth graders, one teacher realized that not all students could engage with the specific app he selected because some students guessing (Attard & Curry, 2012). Thus, the teacher had to differentiate the content by finding additional, related apps in order to support those students who did not understand the app’s content. Milman et al. (2014) specifically examined differentiation and

utilization of iPads across content areas in a US elementary school to find that iPads were used to differentiate the content, product, and process. Regarding differentiating content, the 19 classrooms that were observed showed that teachers chose apps to reinforce or take concepts further. Teachers did this by setting apps at different difficulty levels based on students' abilities, such as finding eBooks at the students' reading levels. To differentiate process, teachers used the iPads to create graphic organizers and provided the students choice in selecting apps. Finally, with product, from a survey that was given to the teachers, 90.3% responded that iPads improved their students' ability to demonstrate what they learned. Apps such as iMovie and BookCreator were used to create final products. Therefore, many teachers utilized the iPad to differentiate their instruction by working with a small group of students with a particular need and chose apps based on the students' ability.

***Empowering.*** When students engaged in educational apps, the teachers found students were empowered because there was an increase in interactivity, instant feedback, student independence, and collaboration. When fourth grade students used the Nearpod app during guided reading, all of the nine students interviewed mentioned interactivity (Delacruz, 2014). One of the students reflected, "Using Nearpod on the iPad was way better than reading from a book. Books can be boring. This e-book was fun because you could click on different things. You could take a quiz and draw a picture all on the iPad"" (Delacruz, 2014, p. 68). Math teacher Mr. Milroy observed interactivity as he changed his practice to include iPad group work and rotation of tasks within each lesson (Attard & Curry, 2012). Instant feedback was another benefit to iPad integration because students and teachers received fast results from the app. While traditional quizzes entailed distribution, collection, and grading, when students used the Nearpod app, the teacher could also select to share the results of a student's grade with the

student (Delacruz, 2014). Furthermore, everyone's poll results could be shared and discussed (Delacruz, 2014). The teachers in Attard and Curry's (2012) study found similar results as they related to math, finding that rather than waiting for the teacher to correct answers as would normally occur when worksheets were used, the game-based apps provided an immediate response. Therefore, when teachers employed, transformed, and adopted iPads into their classrooms effectively, students felt empowered to learn because the apps were interactive, and provided immediate feedback.

Lastly, teachers perceived that through iPad integration, student independence and collaboration increased. Math teacher Mr. Milroy aimed to increase his students' independence through having access to the iPads (Attard & Curry, 2012). He said, "I am hoping that technology will get that idea across to them that hey, you can teach yourselves and guess what, you can use that to teach each other" (Attard & Curry, 2012, p.79). Delacruz (2014) found that when students used the Nearpod app during guided reading, they transferred knowledge into their independent work. At the same time iPad use instilled independence in students, it also increased collaboration. One fourth grader commented that when he had trouble, he worked with the people beside him because they helped (Delacruz, 2014). Although the student teacher was there as well, the students facilitated help amongst themselves (Delacruz, 2014). Also, students collaborated in group work on the iPad to complete math related tasks (Attard & Curry, 2012). So, with iPad integration, student independence and collaboration was heightened.

In conclusion, Hutchison and Reinking's (2011) steps to technology integration allowed me to synthesize these studies in a way that helped understand how teachers implemented mobile technologies such as the iPads. Table 4 summarizes these steps and how they connected to the literature under review.

Table 4

Synthesis of Technology Integration as it Related to the Literature

<b>Steps to Technology Integration (Hutchison &amp; Reinking, 2011)</b>	<b>Connections to Literature Review</b>
(1) Acquiring digital technology	-Students received iPads on a 1:1 ratio
(2) Employing technology to teach conventional instructional goals	-Apps were selected to meet one content area or many such as reading, math, and science
(3) Allowing technology to transform instruction and (4) Adopting new instructional goals	-Apps were drill and practice and game based -Teachers differentiated their instruction
(5) Empowering students	-Interactivity -Instant feedback -Independence -Collaboration

**Professional Learning.** In order for teachers to be effective at teaching with technology, professional learning was needed to gain knowledge and experience. Mishra and Koehler (2006) refer to this knowledge of practice as having content knowledge, pedagogical knowledge, and technological knowledge (TPACK). These three essential components make up the TPACK framework and mean that teachers need to balance their content knowledge, pedagogical knowledge, and technological knowledge to be successful at technology integration (Mishra & Koehler, 2006). For this reason, before or during mobile devices' integration into instruction, teachers should engage in some kind of professional learning to enhance their content knowledge, pedagogical knowledge, and technological knowledge.

Unfortunately, according to the literature reviewed, professional learning with technology integration has not been very pervasive. Cuban (2001; 2013) noted that, as with previous technologies, many schools purchase mobile devices and educational apps without accompanied support for teachers and a clear vision of how they can be utilized to design learning environments consistent with how people learn. Furthermore, Pierson (2001) and Borthwick and Pierson (2008) pointed out that there is a lack of professional development in many schools.

“Unable to ignore such a deeply permeating innovation, school districts often bow to societal pressure to fund technology without having a thoughtful plan for implementation” (Pierson, 2001, p. 413). In other words, there is a difference between the development and implementation of an innovation (Hall & Hord, 2010). While development and implementation are two sides of the same coin, “development includes all of the steps and actions involved in creating, testing and packaging an innovation, whereas implementation includes all of the steps and actions involved in learning how to use it” (Hall & Hord, 2010, p. 6). Thus, while schools engaged in the development process by providing the hardware and initiating technology initiatives (tight), teachers were left to individually create their own implementation plan (loose).

In general, among the studies under review, all of the teachers were trained by some kind of expert who was familiar with technology integration. Some schools also hired technology specialists to support and maintain the implementation. None of the teachers engaged in a learning community. The studies were not always clear, however, in explaining if the professional learning included how to use the iPad and/or how to integrate it. A good example of this professional learning was the Canadian school district in Crichton et al.’s (2012) study that assembled an ICT integration team with the primary purpose of supporting the meaningful adoption and integration of educational technologies. The team worked with not only the teachers integrating iPads into their instruction, but also with parents and students, making sure to integrate practice with theory and classroom realities (Crichton et al., 2012). Similarly, Milman et al. (2014) observed students and teachers receiving school-based training about how to use the iPads. The school had one dedicated technology integration specialist for the elementary school, and since this was the first year of implementation, the school’s technology chairperson was also housed in the school for easy and quick support (Milman et al. 2014).

Finally, Mouza and Barrett-Greenly (2015) studied 14 teachers engaging in a yearlong professional development program that included three components: (1) summer institute, (2) lesson design, and (3) follow-up classroom support. During the summer institute, teachers attended a week-long workshop where they observed demonstration of apps, engaged in hands-on activities, and discussed the implications of specific apps. When designing lessons in July and August, teachers applied their new learning into practice as the institute instructors provided feedback. During follow-up classroom support, instructors observed the teachers to provide further feedback. In all three examples, teachers learned about iPad use and/or implementation from an expert and then had continued support from specialists working within the building.

The benefit of this professional learning was that there was always an expert on hand to help so a teacher did not feel alone. A limitation to this approach was that while an expert typically has a lot of knowledge to share, that was only one perspective teachers received. In a learning community, for instance, teachers engage in the social process of learning from each other, building on each other's perspectives (Cochran-Smith & Lytle, 1999; Vygotsky, 1978; Wenger, 1998). This idea of building on each other's perspectives rather than hearing it from an expert was not evident among the studies.

Two of the studies reviewed took a different approach to professional learning. Rather than focusing on pedagogical knowledge, the researchers focused on content and technological knowledge. Prior to iPad implementation, educators worked on evaluating iPad apps to ensure they would be worthy of classroom integration. The purpose of Douglas et al.'s (2012) study was to describe the current status of apps for Apple devices that could be incorporated into a system of individualized supports for students with Intellectual Developmental Disabilities. The researchers created a list of 54 keywords as search terms, which generated 577 different apps.



Apps were then eliminated if they did not fit the 5 – 16 age range. A master spreadsheet was created to include the name of the app, a brief description, and the iOS device on which it could be downloaded. From this spreadsheet, the apps were sorted among seven subscale areas such as “home life activities,” “community and neighborhood activities,” and “social activities.”

Similarly, Murray and Olcese (2011) analyzed the categories Apple and its developers used to categorize their apps. In June 2013, almost 30,000 apps were categorized by developers of iPhones, iPods, and iPads under the heading “education” (Murray & Olcese, 2011). The researchers took these apps, in addition to new ones that were being added throughout the study, and categorized them similar to Douglas et al. (2012). However, Murray and Olcese (2011) used Means’ (1994) categories of tutor, explore, tool, and communicate, in addition to adding their own “21<sup>st</sup> century learning.” Like Douglas et al.’s (2012) study, the apps were stored in a database called Bento and rechecked before sharing and implementing them. From these two examples, rather than being trained by an expert, this type of professional learning required educators to research the quality of apps to ensure that when integrated into instruction, they would be worthwhile apps. This was significant to my study because even if an educator can integrate technology successfully, without quality apps, integration does not matter.

Overall, none of the studies reviewed mentioned using learning communities for professional learning, which suggested that more studies should be conducted to see what happens when teachers engage in learning communities on technology integration.

Unfortunately, while the researchers identified the professional learning that took place, they did not discuss the kind of impact it had on teachers’ TPACK knowledge and implementation.

Knowing this would have been helpful in designing professional learning on technology integration so that teachers can effectively and confidently integrate technology.

**Discussion and Connections to Present Study**

With technology integration, challenges and limitations are to be expected. The challenges presented in these studies were minor, often having to do with management and organizational barriers, as opposed to challenges in teaching with the technology. For example, Milman et al. (2014) noted that due to scheduling challenges and the number of times teachers primarily used iPads, it appeared that some teachers may have used iPads more than others. Sometimes, there were challenges in using the mobile devices because the apps dropped or did not have particular features. For instance, teachers implemented an app that did not have a “text to speech” option or dictionary (Delacruz, 2014). Another teacher noted that it was “cumbersome” to maintain the iPad with new apps and software updates (Delacruz, 2014). Despite these barriers, teachers continued to implement their iPads.

In summary, this section emphasized the need for teaching with technology. Teachers needed to work at integrating technology into their classrooms to build their practice such as following Hutchison and Reinking’s (2011) realities. When teachers were effective at integrating technology, students not only engaged in new literacies and 21<sup>st</sup> Century learning, but they were given opportunities to expand the way they make meaning and learn content. Research on teaching with technology informed my study because I found how participation in the CFG shaped teachers’ abilities to use iPad apps to differentiate literacy instruction. From the studies in this review, I have a better sense of how teachers used iPads with their students, some of which even addressed differentiating instruction.

### **Conclusion and Chapter Review**

Research in the areas of learning communities and teaching with technology informed my study in several ways. These areas showed that there was a shift in how students and teachers learned. When it came to professional development, education leaders emphasized the need for learning communities, especially CFGs, for educators. This informed my research design because my kindergarten team engaged in a CFG on using iPad applications to differentiate literacy instruction. Knowing the types of interactions and structures that characterized a learning community, I had a basis for implementing my CFG. Since the goal of my CFG was focused on differentiating literacy instruction with iPads, it was necessary to review research on how mobile technologies were currently being used in schools.

My study added to the research base on learning communities and technology integration because while there were many studies that presented findings on professional development in conjunction with technology integration, based on the literature reviewed, I have not found a study that addressed using a learning community (specifically a CFG) as a vehicle for enhancing technology integration. This was significant because engaging in the social process of a learning community, as opposed to engaging in other forms of professional development, can alter teacher experiences when integrating technology. Overall, this literature review helped to inform the design of my study and added to the research base on learning communities and teaching with technology.

### CHAPTER THREE: RESEARCH DESIGN

The design of this study was qualitative because researchers who use a qualitative design aim to understand how people make sense of the world and their experiences (Merriam, 2009). For the purpose of this study, I sought to understand what happened when a critical friends group (CFG) was implemented to help teachers use iPad applications (apps) to differentiate literacy instruction. Specifically, this qualitative study was a case study. According to Yin (2014), a case study is an “empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (p. 16). A case study was an appropriate design for my study because I investigated a CFG (the bounded case) within the real-world context of my elementary school.

#### **Description of CFG Sessions**

For just over four months, from January 8, 2015 to May 13, 2015, three kindergarten teachers (myself included) met for 25 to 45 minutes in my classroom once a week for a total of 15 sessions to engage in a CFG on differentiating literacy instruction using iPads. Originally, we had planned to meet during our 35minute common planning time, but after some discussion, we felt we would not be able to engage in meaningful discussion in only 35 minutes. Therefore, we decided to meet during our lunch hour from 12:35p.m. – 1:35 p.m. instead of the common planning time. As the primary facilitator, I suggested rotating classrooms for each session as a way to share the facilitation, but we came to the agreement that it was convenient to just use my room. Typically, we met once a week on a Thursday. However, due to snow days and other meetings, there were some weeks where we met twice or not at all.

As the teacher-researcher, I facilitated 13 of the 15 sessions. Once the other two kindergarten teachers felt comfortable, they each facilitated a session. To guide facilitation,

during our first session, I suggested following a particular structure to keep us focused. I explained the next three sessions would be part of a cycle that repeated a total of four times. In other words, the second session would involve some kind of planning/implementing, the following session would be evaluating, and the last session in the cycle would involve decision-making. Table 5 below outlines this structure in more detail.

Table 5

*Critical Friends Group Structure*

Planning and Implementing	Look for 3 apps to share with the group. Collaboratively choose 1 and decide how to implement it. Each teacher may choose to implement it differently. Teachers have a week to implement the lesson.
Evaluating	Evaluate how app implementation went using a protocol. Bring back some kind of data. Repeat the protocol a total of 3 times so each teacher can evaluate her lesson. (May only do 2 protocols and save the last teacher for the third meeting)
Decision-making	Finish evaluating. Then move into decision-making on what to do next. Bring in 3 more apps? Try someone else's lesson? Try own lesson again after feedback/revisions? Implement the same lesson as a team? Change focus to work on high/low students?

While the other two participants liked this idea and agreed to the structure, after the second session, we quickly realized that it was too focused, and did not allow for flexibility in switching directions if needed. It made more sense to only plan for one session at a time to allow for flexibility (loose) in deciding where to go next. To help with this, we created an agenda (tight) for each session (one week prior) to determine the topic and structure of the meeting. I would then type up the agenda and share it with the group the following week during our “check-in.” A sample agenda from one of the sessions can be found in Appendix A.

The session agendas were usually divided into three parts: (1) check-in, (2) protocol(s) and/or open discussion, and (3) check-out. The facilitator started off with a “check-in” in which members of the group set time aside to reflect “upon a thought, a story, an insight, a question, or a feeling that they were carrying with them into the session, and then connected it to the work

they were about to do” (The School Reform Initiative, 2010, p. 50). Since the CFG model is characterized by two essential elements (use of protocols and skilled facilitation), various protocols were used by the facilitator in efforts to focus and structure discussions (Annenberg Institute for School Reform, 1997). Each of us in the group had the opportunity to facilitate protocols so that facilitation was shared. When Fahey (2011) observed a CFG of a group of 12 early career school leaders in Massachusetts, the group engaged in two kinds of protocols. Some protocols revolved around a problem of practice while others focused on engaging in a text-based discussion on a related topic. The protocols our CFG chose to use reflected these two kinds of protocols. I selected each protocol based on (1) my prior experience learning how to facilitate in a doctoral course and (2) the topic/purpose of each session. Once I got a feel for which protocols the group felt most comfortable using, I repeated those more frequently. The bar graph in Figure 1 outlines which protocols were used (7 kinds) and their frequency. In all, protocols were implemented 14 times among the 15 sessions. Most sessions used one protocol while others used two or none at all. Typically a protocol lasted 20 – 30 minutes.

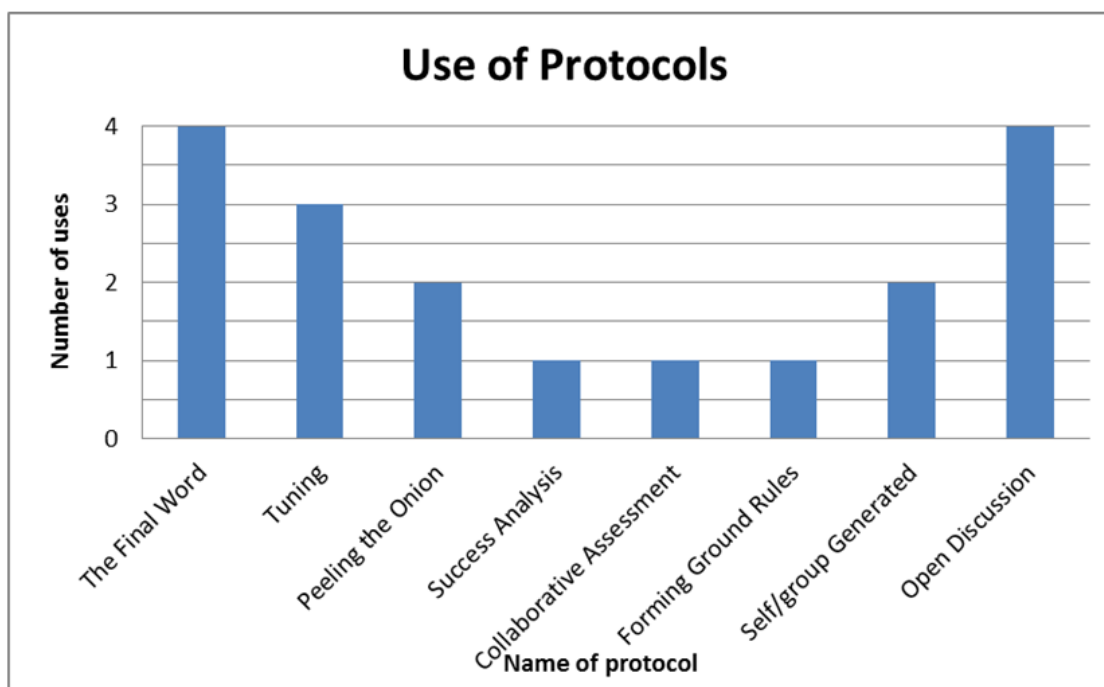


Figure 1. Names and frequency of protocols.

Finally, each session ended with a “check-out” so that teachers had the opportunity to reflect on the session and/or decide what the following session would look like. To gain a better sense of this overall structure, I created a “meeting summary” similar to the one Fahey (2011) developed in his CFG. It was designed in the form of a table that outlined the number of sessions, dates, topics, and structures of each session. (See Appendix B).

In addition to each session having a clear structure, the topics of the sessions were broken into four phases: (1) introduction, (2) implementing “word work” (phonemic awareness) apps, (3) implementing eBooks, and (4) planning for a family technology night. These four phases aligned with the “stages of development” that commonly appear to generally characterize the growth of CFGs over time (Dunne & Honts, 1998). These stages were: (1) building a trusting setting, (2) talking about what teachers do in the classroom and how to improve lessons, and (3) forming educational purpose and how school activities are embedded in larger contexts (Dunne

& Honts, 1998). Table 6 portrays how the four phases of the CFG linked to Dunne and Honts' (1998) stages of characterizing the growth of CFGs over time.

Table 6  
*Phases of the Critical Friends Group*

<b>Our CFG's Phases</b>	<b>Dunne and Honts' (1998) Stages of Development</b>	<b>Session Numbers</b>
1. Introduction	(1) building a trusting setting	1
2. Sharing, discussing, and implementing "word work" apps that track student progress	(2) talking about what teachers do in the classroom and how to improve lessons	2 – 7
3. Sharing, discussing, and implementing eBooks	(2) talking about what teachers do in the classroom and how to improve lessons	8 – 12
4. Planning for Kindergarten Family Tech Night	(3) forming educational purpose and how school activities are embedded in larger contexts	13 – 15

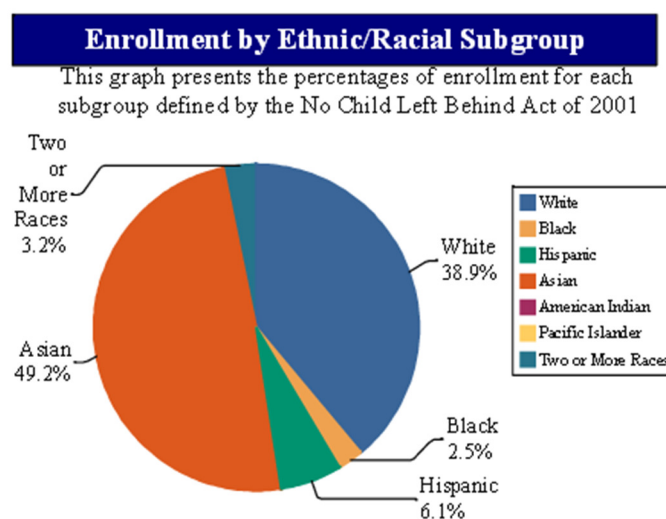
The first phase in our CFG began by defining what a CFG was, establishing norms, and developing a shared vision so that trust could be established (Dunne and Honts' first stage of development on trust). This phase was the shortest in duration because we had been teaching kindergarten together for two years prior to starting this study, thus had already established a working relationship. During phase two, the kindergarten teachers and I spent time developing criteria for choosing literacy apps. In particular, we searched and evaluated apps that tracked student progress related to "word work" (phonemic awareness). This connected to Dunne and Honts' (1998) second stage of development on taking the time to talk about teaching to improve practice because during these sessions, we talked about how to implement the apps with our students. This stage was also reflected in the third phase of our sessions because we moved from talking about and implementing literacy apps to specific eBooks. Through discussions, we developed criteria for selecting eBooks. Lastly, the fourth phase of the sessions linked to Dunne



and Honts' (1998) emphasis on embedding activities into larger contexts (stage three) because the teachers and I spent a few sessions planning for a Kindergarten Family Technology Night with the purpose of educating parents on how to select and use appropriate literacy apps for their child. Furthermore, we shared the resources created throughout the CFG with the district's technology educators and literacy supervisor, and encouraged them to spread our findings to other educators throughout the district. In all, the phases of our CFG were strong because they aligned with Dunne and Honts' (1998) stages of development.

### Research Site

The South Brunswick Public School District is a high performing district that serves approximately 9,000 students in seven grades K – 5 elementary schools, two grades 6 – 8 middle schools, and one grades 9 – 12 high school. South Brunswick is considered an “I” district in New Jersey's district factor group system, meaning that it exists within a fairly high socioeconomic setting. Cambridge Elementary School has an approximate enrollment of 555 students, 80 of whom are kindergartners. The student demographics are made up primarily of Asian (50%) and White (39%), as can be seen in Figure 2.



*Figure 2.* Enrollment of students at Cambridge Elementary School (2014 – 2015).

As for the makeup of general education classroom teachers, there is an average of four teachers per grade level, totaling 24 classroom teachers within the school. The average class size ranges from 20 – 25 students. Most of the classroom teachers are white females, and three teachers are white males.

### **Participants**

Three white, female kindergarten teachers (myself as the researcher included), participated in the six-month study after agreeing to the Institutional Review Board's (IRB) requirements. Convenience sampling was used because the sample was based on the location (my school) and availability of the participants (my kindergarten team) (Merriam, 2009). I was a teacher-researcher because I was not only interested in making a change within the context of my school, but also in collecting and analyzing the data. Furthermore, I was also a participant in this study.

At the time this study was conducted, I had eight years teaching experience in the district (five years in kindergarten and three years in third grade). Participant, Heather Ruina, had been teaching for 11 years. Before teaching in the district of South Brunswick, she taught grades kindergarten through second grade in a Hoboken private school followed by public school. Although Heather had been teaching in South Brunswick District for six years, this was her fourth year at Cambridge teaching kindergarten. The third participant, Edie Palomba, had been teaching for 27 years. She started her career teaching in Bayonne and Perth Amboy, but has spent most of her career teaching grades kindergarten through fourth grade in South Brunswick. As can be seen, all of our teaching experience was situated in New Jersey, and mostly in the public school system.

Specifically, regarding the years of collective kindergarten teaching experience the group, we had 25 years, with Edie having the most experience of the three of us. In terms of experience teaching with technology, I had the most, as a member of the district's technology committee, a leader of SMARTboard workshops for fellow teachers, and an initiator of new technologies such as the iPad. Heather and Edie had only two years experience using the iPad in their classrooms. Finally, while our school uses the term PLC, none of us have engaged in a true PLC, or CFG for that matter.

Table 7  
*Participant Information*

Name of Participant	Grades Taught	Districts Taught	Total Years of Experience
Jennifer Kamm	K, 3	South Brunswick	8
Heather Ruina	K, 1, 2	Hoboken, South Brunswick	11
Edie Palomba	K, 1, 2, 3, 4	Perth Amboy, Bayonne, South Brunswick	27

### **Data Collection Procedures**

Over the course of six months, qualitative data were collected through three sources: interviews, observations, and documents. Specifically, interviews were collected from December 8, 2014 to June 8, 2015. Observations and documents were collected from January 8, 2015 to May 13, 2015.

**Interviews.** A total of nine semi-structured, audio-recorded, individual interviews were conducted over the course of the 15 sessions. Each of the three participants was interviewed before the start of the CFG (December 2015), during the CFG (March 2015), and at the conclusion of the CFG (June 2015). For the first interview, participants were given the questions a day in advance to allow time to prepare and gather their ideas to answer thoughtfully. Upon

reflecting on the purpose of the study, for the remaining two interviews, I did not give the questions beforehand to ensure responses were authentic and not rehearsed. While this was not a problem in the first interview, I did find myself relying on the notes I took (prior to the interview) too much. Each interview lasted approximately 5 to 15 minutes.

Merriam (2009) explained that interviewing is necessary to capture non-observables such as feelings, perceptions, or interpretations of the world around them. Thus, the purpose of these interviews was to engage participants in a conversation about their experiences in the CFG. Since each participant was interviewed three times, I created three semi-structured interview protocols with some probing questions designed to elicit responses about participants' professional learning. The first protocol a month before the CFG began consisted of four questions with several sub-questions that aimed to understand what kinds of professional development the participants had previously engaged in, their definitions of a CFG, and what they thought would happen if they engaged in a CFG with their grade-level team. The second protocol, which consisted of seven questions, was given about three months into the CFG. These aimed to understand what happened during the CFG. The final interview protocol was more in-depth and was administered a few weeks following the last session. These 15 questions aimed to understand the participants' views of how the CFG changed over time and to gain feedback on how CFGs could be fostered within other grade-levels in the school. Table 8 shows a sampling of the questions used in the interviews. See Appendix C – E for the protocols in their entirety.

Table 8  
*Sample Interview Questions*

<b>Initial (December 2014)</b>	<b>Midpoint (March 2015)</b>	<b>Final (June 2015)</b>
What kinds of professional development or learning opportunities have you had? a. What role did you play?	Describe what the CFG you have been engaging in looks like. a. What did it look like in	Tell me about your experience facilitating a session. a. What did you discuss

b. What was the content/activities/structure like? c. Describe an experience that was positive. Why was it positive? d. Describe an experience that was not positive. Why wasn't it? e. Describe an experience that was challenging?	the beginning? b. What does it look like now? c. What do you think accounts for this change?	in your sessions? b. What tools and/or resources did you use or create? c. How did these help the work of the group?
When you hear the term CFG, what do you think of? a. In what context have you heard the term being used? b. Can you give an example?	Describe the interactions you have had with the other teachers in the CFG. a. Share an example. b. How have these interactions changed and/or developed?	How effective do you feel the group was in being critical (giving honest feedback) with each other? a. Share your effectiveness on a scale of one to ten. Explain your rating. b. Share an example.

Since I was a participant in this study, I chose not to conduct any of the interviews, in efforts to not intimidate or influence the other participants (Merriam, 2009). Rather, the K – 2 instructional support teacher (Megan), whose role in our school is to support the K – 2 teachers who have students that are performing below expectations, conducted all interviews. After training the instructional support teacher for one hour on how to conduct semi-structured interviews and how to audio-record them using the application on my phone SuperNote, the interviews were conducted at a convenient time and location for the participants (Megan's room during lunch). For the first two rounds of interviews, Megan was able to interview all three of us on the same day. For the third round of interviews, because the questions were more in-depth, Megan interviewed Edie and me one day, and then Heather a couple of days later. At the conclusion of all nine interviews, I gave Megan a gift card to thank her for supporting this study.

**Observations.** A total of 15 observations (ranging from 25 – 45 minutes) were audio-recorded and video-recorded in my classroom during our lunch hour with the purpose of understanding what took place during the CFG. Observations of the sessions were an effective way to collect data because I was in the natural setting where the phenomenon occurred (Merriam, 2009). I audio-recorded the sessions using the SuperNote app. The iPhone was placed in the middle of the table in my classroom where our sessions were held. The Flip video camera was used as a backup, which I placed on my desk to capture all the participants' interactions. While the audio and video-recording captured the observations, I also periodically took field notes using paper and pencil to record the types of interactions I observed. However, since I was a participant in the study, field notes were minimal, so I could fully engage in the sessions.

**Documents.** The documents used in the study provided supplemental data to the interviews and observations. Documents included researcher-generated documents and participant-generated documents. With researcher-generated documents, field notes, in the form of an electronic researcher's journal, was used to keep track of my thinking. While I wrote in this journal at various times, I scheduled 15 minutes at the end of each observation session to write. Field notes included my views of the CFG observations, reflections on the interview transcriptions, and any additional informal conversations I had with the participants outside of the CFG setting that related to our CFG. As I wrote my field notes, I tried to connect my thoughts to my research questions and theoretical framework in efforts to better make sense of the data.

Participant-generated documents were prepared collectively by participants. Such documents included agendas, lists of criteria for selecting apps, and general handwritten notes.

For example, I kept a Google document and a printed copy of each agenda that was created for the CFG sessions in order to keep track of what took place during the CFG. Also, the participants and I created a document to establish criteria for selecting kindergarten literacy apps and another document to establish criteria for selecting eBooks. See Appendix F and G for these criteria. Towards the end of the CFG, we even created a table of recommended literacy apps to share with parents during our Kindergarten Family Technology Night. (See Appendix H). Lastly, any notes the participants took during the session (such as notes on their shared reading articles or criteria list) were photocopied, dated, and stored in a binder to be used for further analysis on what took place during the CFG.

### **Data Analysis**

In order to analyze the data, I used my research questions to inform my thinking. These questions (presented in chapter one) are restated below:

What happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction?

- a. How do teachers view a CFG as a form of professional development?
- b. What types of interactions and structures characterize the CFG?
- c. What supports and impedes the work of the CFG?
- d. In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?

The method of analysis that was used to analyze my data was the constant-comparative method. Constant-comparative analysis was developed by Glaser and Strauss (1967) to compare multiple perspectives of participants. Using this method as an analytical tool allowed me to do just what

its name implied—constantly compare the perspectives of each teacher over the course of the CFG because “these comparisons [lead] to tentative categories that are then compared to each other and to other instances” (Merriam, 2009, p. 200). Similarly, while Boeije (2002) also mentioned the use of making comparisons to form categories, she took her description a step further by identifying specific “intellectual tasks” that should be taken. These intellectual tasks included, “forming categories, establishing the boundaries of the categories, assigning the segments to categories, summarizing the content of each category, finding negative evidence, etc.” (Boeije, 2002, p. 393). In this section, I will explain how I used these intellectual tasks during the analytical process.

Interviews, observations, and documents were analyzed concurrently with data collection from December 2014 to June 2015 to evaluate teacher’s perspectives of the CFG and how the CFG shaped their abilities to use iPads to differentiate literacy instruction. After the data collection process ended in June 2015, analysis continued for another two months until August 2015. While I considered many strategies when analyzing the case study data, I chose to start with a deductive approach, using my research questions, guiding theory, and related research to guide me in identifying initial patterns. Then, I moved into an inductive approach as suggested by Yin (2014). This meant working with my data from the ground up by “playing with the data” and noticing patterns to “start an analytic path” (Yin, p. 137, 2014). This analytic path led me farther into my data for deeper analysis.

Keeping the constant-comparative method and deductive and inductive reasoning in mind, Creswell (2009) reminded researchers that there are six steps to analyzing data: (1) organize and prepare the data, (2) read through all the data, (3) code, (4) develop categories/themes for



analysis, (5) determine how themes will be represented, and (6) interpretation (p. 189). These steps are explained in further detail below.

**Organizing and reading the data.** Interviews, observations, and documents were organized carefully. Immediately upon completion of each interview (totaling nine), the interview was transcribed verbatim using a transcription company Rev, then dated and organized chronologically in a binder, Microsoft Word, and the qualitative program Dedoose. Dedoose not only allowed me to store and analyze all the data, but also to create memos in the margins of my transcribed text to indicate my feelings, reactions, hunches, initial interpretations, and speculations (Merriam, 2009). While I started creating memos in Dedoose, I decided to simultaneously create handwritten memos instead because it was easier and clearer for me to organize my thoughts. Any further thoughts were recorded as field notes in my electronic research journal.

For the organization of 15 observations, on the same day the observation occurred, I used my electronic research journal to expand upon the handwritten field notes I took during the observation to add a more detailed account of what took place during the session. Also that day, I sent the audio-recording of the observation to be transcribed using the transcription company Rev. This transcription was uploaded into Dedoose chronologically and memos were added. I also saved the transcription in Microsoft Word in a folder within “My Documents” and printed out a copy to keep in a binder. Both the audio and video recordings for the interviews and observations were saved in three places to ensure safe keeping: (1) SuperNote app, (2) Dropbox, and (3) my laptop computer.

With my documents, I kept an audit trail of my data analysis in the form of an electronic journal including how codes and categories were derived, and how decisions were made

throughout the inquiry (Merriam, 2009). I read them multiple times to gain a clear understanding of my thought process throughout the study. The agendas and other documents generated by participants were organized in a binder chronologically.

Aside from organizing the data, I read transcripts multiple times to first gain familiarity. The day after each session or interview was conducted, I read the transcript one time through. As well, I listened to the sessions and interviews in the car. Once I gained familiarity with the transcripts, I simultaneously reread and listened to the 15 sessions and 9 interviews to add notes to the transcripts to identify where crosstalk and laughter occurred, and when the group was silent (thinking or writing). Furthermore, I added handwritten memos about possible codes and reflective notes. In February 2015, two months into data collection, I worked with my dissertation group to collaboratively create memos using the latest interview transcript (session three). By this point, I was immersed in the data and developed a routine for memoing.

**Coding, themes, and interpretation.** In March 2015, I created a preliminary codebook based on a related research study (Glazer, E.M., Hannafin, M.J., Polly, D. & Rich, P., 2009), my theory, and my research questions. As Creswell (2009) recommended, my codebook consisted of a column of code names, definitions, origin, and excerpts (line numbers) in which the code was found in the transcripts. Some of the big codes were “interactions,” “structures,” “iPads,” “communities of practice,” and “knowledge of practice.” According to Creswell (2009) coding is the process of organizing the material into chunks or segments of text before bringing meaning to information. I applied those codes to the first two transcripts (sessions one and two) in Dedoose. With my dissertation group, we read the transcript from session one and applied the codes from my codebook as a way to calibrate my thinking. I revised my codebook based on peer feedback. This process of bringing a revised codebook and a sample session (for the

purpose of peer review) continued until I was on my 6th codebook revision (May 2015). During this time, I also reread the transcripts from the 15 sessions for a third time and added a summary of each in a separate Word document to make it easy to refer back on each session. (See Appendix I).

Following the completion of data collection, in June 2015, I organized my data by breaking it up chronologically into three sections. This was designed to make analysis more manageable. Section 1 included observation sessions 1 – 5 and initial interviews 1 – 3. Section 2 included data from observation sessions 6 – 10 and midpoint interviews 4 – 6. Section 3 included observation sessions 11 – 15 and final interviews 7 – 9. I read Section 1 transcripts (for at least the fourth time) with the purpose of writing some noticings in a separate Word document from my research journal. I defined the term “noticings” to mean extended descriptions that aimed to identify patterns. In other words, I looked for recurring concepts within each session or interview, among all the sessions or interviews, and across both the sessions and interviews. I shared my noticings and coded excerpts from Section 1 with my dissertation group in efforts to refine my codebook even further (7th revision). I recoded the transcripts from sessions 1 and 2 and coded the rest of Section 1. Further, I met with my dissertation group in June 2015 to discuss each code and related definition in my codebook in order to create an eighth version. We felt these codes were clear enough to be reapplied to Section 1 and applied to Section 2. I continued to write noticings about recurring patterns within, among, and across the interviews and observations.

As suggested by my dissertation chair, I took a mental break from my preliminary analysis from June 25, 2015 to July 5, 2015. Upon coming back to my analysis with a fresh outlook, I read excerpts from Section 1 and Section 2 (printed and organized by code), typed my

noticings, and e-mailed my dissertation group for feedback. Using this feedback, I was able to further identify patterns and refine the codebook to a ninth version, reaching saturation. This ninth version was reapplied to Section 1 and Section 2 and applied to Section 3 (July 2015). See Appendix J for my final codebook.

Then, I moved into the advanced analysis stages where I triangulated my data and further identified patterns by comparing my codebook and written noticings to my documents. Using my codebook, noticings, and documents, I further identified patterns by using two lenses: (1) the theory and (2) the research questions. In August 2015, I worked with my dissertation group to build themes from my patterns. Identifying themes involved brainstorming ways in which the codes “chunked together” (Hays & Singh, 2012, p. 300). A total of four themes were established in preparation for reporting my findings.

**Reporting.** By August 2015, I started to bring together my analyses for my audience for two reasons. First, the process of preparing my findings to share with others helped me to clarify my own thinking about my work (Dana & Yendol-Silva, 2003). Second, through the actual sharing of my work, I gave other professionals access to my thinking so that they could “question, discuss, debate, and relate” (Dana & Yendol-Silva, 2003, p. 140). My audience was made up of my dissertation committee, school principal, kindergarten teammates, and general education practitioners. The findings were written in the form of a “cross-case analysis” (Yin, 2014). I highlighted the collective experience of the CFG while interweaving (or “crossing”) each participant’s experiences.

In all four cases, rich, thick descriptions thoroughly portrayed the shared experiences of the group and the individual experiences of each participant. Vignettes and quotations were used

to show rich, thick description. Vignettes drew the reader into the case, providing a vicarious experience to get a feel for the time and place of the study (Creswell, 2009). The vignette was compiled using experiences across the 15 sessions, in efforts to portray an ideal CFG session. Also, three types of quotations were used to bring in the voice of the participants: (1) short eye-catching quotes, (2) embedded quotes, and (3) longer quotes (Creswell, 1998, p. 171). Finally, in Chapter Five, I discussed the findings in light of my research questions, theoretical framework, and literature review. I also identified implications for research and practice. Table 9 summarizes my timeline for data-collection and analysis.

Table 9  
*Data Sources and Analytic Process with Links to Research Questions*

<b>Data Source</b>	<b>Timeline</b>	<b>Data Analysis</b>	<b>Research Sub-Questions</b>
Audio-recorded, individual, semi-structured interviews of teachers <ul style="list-style-type: none"> <li>• 3 protocols</li> </ul>	December 2014 (pre)  March 2015 (during)  June 2015 (post)	<ul style="list-style-type: none"> <li>• Transcribe using Rev</li> <li>• Upload into Dedoose</li> <li>• Memo</li> <li>• Code</li> </ul>	<ul style="list-style-type: none"> <li>• In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?</li> <li>• How do teachers view a CFG as a form of professional development?</li> <li>• What types of interactions and structures characterize the CFG?</li> <li>• What supports and impedes the work of the CFG?</li> </ul>
Audio and video recorded observations of the CFG <ul style="list-style-type: none"> <li>• 1 protocol</li> </ul>	January 8, 2015 – May 15, 2015  Weekly for each of the 15 sessions	<ul style="list-style-type: none"> <li>• Transcribe using Rev</li> <li>• Upload into Dedoose</li> <li>• Memo</li> <li>• Code</li> </ul>	<ul style="list-style-type: none"> <li>• In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?</li> <li>• What types of interactions and structures characterize the CFG?</li> <li>• What supports and impedes</li> </ul>

			the work of the CFG?
Documents <ul style="list-style-type: none"> <li>• Electronic research journal</li> <li>• Researcher-generated documents</li> </ul>	On-going	<ul style="list-style-type: none"> <li>• Store in a binder</li> <li>• Memo by hand</li> <li>• Code by hand</li> </ul>	<ul style="list-style-type: none"> <li>• In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?</li> </ul>

### Validity and Reliability of the Study

All research is concerned with producing valid and reliable knowledge in an ethical manner (Merriam, 2009). Throughout the study, it was important to avoid factors that could potentially compromise the credibility of the findings. Creswell (2009) and Merriam (2009) advised that researchers need to check for trustworthiness of the findings by employing certain procedures: (1) triangulation, (2) use of rich, thick description, (3) member-checking, and (4) peer review/examination. Therefore, the process of triangulation, and/or the use of multiple data sources, was imperative. By examining data from interviews, observations, and documents, I built a “coherent justification for themes” (Creswell, 2009, p.191). For example, the total of nine interviews, 15 observations, researcher field notes, and documents helped confirm findings across the data sets during analysis. Furthermore, rich, thick description was used to allow for in-depth portrayals of what happened during the CFG. The use of detailed description allowed me to effectively portray the shared experiences of the kindergarten teachers. In addition, these descriptions were guided by the research questions.

Member-checking was also used to ensure validity. I used member-checking by taking back parts of the polished product, such as core themes, for participants to determine if they resonated well (Creswell, 2009; Merriam, 2009). The purpose of member-checking reduced the

possibility of me, as the researcher, misinterpreting the data. Through e-mail and face to face interaction, I asked each participant to review transcripts of their interviews and observations. As a group, I shared some initial findings with participants to ensure they were accurate. I also engaged in discussions with my principal and peers within my dissertation group regarding the process of the study, the congruency of emerging findings with the raw data, and tentative interpretations (Merriam, 2009). Ultimately, using triangulation, rich, thick description, member-checking, and peer review/examination helped to substantiate the findings of this study.

Not only should researchers consider the validity of their research, but they also need to consider the extent to which research findings can be replicated, otherwise known as reliability (Merriam, 2009). In the case of my study, I believe that it would be beneficial if other grade levels within my school were to implement CFGs. To do so, however, they would need to be able to collaborate effectively, and be open to hearing perspectives and trying new ideas. To ensure this reliability in my study, I took my role as the teacher-researcher into consideration and kept an audit trail. First, since I was a participant and a researcher in this study, it was necessary to critically reflect on my role in the study in efforts to explain my biases, dispositions, and assumptions regarding the research to be undertaken (Merriam, 2009). Merriam referred to this “researcher’s position” as “reflexivity” (p. 219). Keeping an electronic research journal and memoing gave me the structure needed to write reflections on my biases, dispositions and assumptions. Second, my research journal, memos, and “noticings” allowed me to keep an audit trail. The purpose of an audit trail “describes in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry” (Merriam, 2009, p. 223). In other words, I kept a detailed account of the methods, procedures, and decision points in carrying

out the study. Overall, by taking my role as the teacher-researcher into consideration and keeping an audit trail, I enhanced the study's reliability.

### **Limitations**

There were several limitations that must be considered with regard to this study's design, data collection, and data analysis. With a case study design, the issue of generalizability was a limitation because the case study focused on a single instance (Merriam, 2009; Yin, 2014). However, one should not underestimate how much can be learned from a particular case. Yin (2014) explained that case studies are generalizable to theoretical propositions and not to populations or universes. This means that one of the purposes of case studies is to expand and generalize theories. Throughout my case study, I made it a point to expand what was known about Vygotsky's (1978) social constructivist theory, Wenger's (1999) "communities of practice," and Cochran-Smith and Lytle's (1999) "knowledge of practice" by connecting my framework to my research questions, literature review, research design, and findings on CFGs.

Next, the combined teacher-researcher and participant roles had the potential of becoming a limitation because I needed to find the balance between engaging in the CFG while simultaneously collecting the data. For instance, when it came to collecting interview data, a limitation was that I could not facilitate the interviews because I needed to be interviewed as well. While I selected and trained another teacher within my school to conduct the interviews, I would have liked to be the one facilitating the interviews to ensure depth and quality of content. Also, when conducting observations, although I had a first-hand experience with the participants, an observer cannot help but affect and be affected by the setting (Creswell, 2009; Merriam, 2009). Being a participant and an observer could have led to some distortion of the observation.



Furthermore, since I audiotaped and videotaped the observations, participants' anxiety could have been initially heightened, causing them to not express themselves as openly as they normally would.

With regards to data analysis, there was potentially a limitation in the amount of rich, thick description that was used when presenting the findings in Chapter Four. Even though case studies are characteristic of rich, thick description, this was also a limitation because the final product was lengthy (about 60 pages). This posed as a limitation because busy educators may not read and use it all (Merriam, 2009). In closing, these limitations were important to consider because it helped me, as well as the readers of this study, gain a clearer perspective of the study's procedures and research process.

### **Chapter Review**

This chapter on the research design explained the procedures I followed to conduct a six-month qualitative case study (Yin, 2014). For four months, three kindergarten teachers (myself included as a teacher-researcher) at Cambridge Elementary School in South Brunswick School District, New Jersey met weekly in my classroom to engage in a CFG on differentiating literacy instruction using iPads. The structure of each of the 15 sessions involved a check-in, protocol/open discussion, and check-out. In terms of the content of the sessions, the topics were divided among four phases (introduction, sharing word work apps, sharing eBooks, and planning) which aligned to Dunne and Honts' (1998) stages of CFG development.

Over six months, data were collected through interviews, observations, and documents, and organized within the qualitative software program Dedoose. Using constant-comparative method (Glaser & Strauss, 1967), I took a deductive and then inductive approach to analysis.

After reading the data multiple times, coding, and identifying patterns and themes, interpretations were made. Findings were written using a “cross-case analysis” (Yin, 2014). As suggested by Yin (2014), this cross-case analysis highlighted the collective experience of the CFG. I chose to present the findings in this way to capture how the group interacted as a unit, while interweaving how each participant engaged in the CFG. By describing how the group interacted as a unit and as individuals, I was able deepen my layer of analysis.

The study had validity because there was triangulation, use of rich, thick description, member-checking, and peer review/examination. To ensure reliability, I considered my role as the teacher-researcher/participant and kept an audit trail. Finally, there were limitations in the study’s design, data collection, and data analysis. With this design, the study was not generalizable. In terms of data collection, there were limitations having an outsider conduct the interviews. Also, the audio/video recording may have heightened participant anxiety. In conclusion, many systematic steps and careful considerations were taken into account to design this qualitative case study.

## CHAPTER FOUR: FINDINGS

**Vignette of a Typical Critical Friends Group Session**

At 12:45pm, kindergarten teachers Heather, Edie, and I sat around the red kidney-shaped table in my classroom during our one-hour lunch period with our lunchboxes, iPads, an article, extra paper and pencils, and today's agenda. As I pressed record on my Flip video camera and SuperNote application (app) on the iPhone, Heather excitedly began our check-in, sharing a story about the implementation of the app Essential Word Sorts. She explained that one of her kindergarteners made reference to the app being multimodal, which was one of the qualities we identified as important when selecting literacy-based apps. "Arden was saying exactly what we had said about it in our first meeting; it was so funny. She said, 'I like that when you touch the word, I can hear the word. They say the word to me so then I know where to put it and then I learn the word'" (Heather, Session 4). Her comment triggered a connection I made to the same app because I used it recently in a mini lesson, as Edie had recommended. Next, Edie expressed some dissatisfaction about the app in terms of the children's being savvy enough to trick the app. "The only thing I don't like about it is that they can hover over the wrong answer and when it doesn't click in, they know the other answer is the answer" (Edie, Session 5).

As the facilitator, I moved the group into explaining the purpose of today's session, which was to repeat the protocol The Final Word and to create a tool to guide us in effectively evaluating our latest app, Reading Raven. As a reminder, I passed out a copy of the protocol's steps and we read it silently for a couple of minutes. With no clarifying questions, we took out a hard copy of our previously read article (Evaluation of Digital Media for Emergent Literacy by Margy Hillman and James Marshall), which we all had highlighted. After I asked who would like to start, Heather volunteered, reading a sentence from the article that was significant to her.

“Some level of interactivity between the child and the program and perhaps other important individuals, like parents, teachers, is required to develop the critical thinking skills in a child” (Heather, Session 6). Edie then commented by elaborating and reinforcing her idea.

When you think about it, when we are with the children when they are doing the work with the iPads, they do better when we're sitting there, because now they're talking about it. They're not only doing it on the iPad, they're talking about what they've just done, and that really makes a difference in their success and whether they're enjoying it or not.

(Edie, Session 6)

Before Heather ended with the final word, I took her original sentence and Edie's comment a step further by providing an example. “When we started using the Essential Word Sorts [app] I was forced to sit down with them [the students] and show them how to use it. As I was asking them questions like, ‘What's this word?,’ just the questioning started making them think in different ways” (Jenn, Session 6). This structure of the protocol continued with my sharing a significant idea from the article, Heather and Edie commenting on it, and my giving the final word. When it was Heather's turn to comment on my idea, she sometimes needed clarification or apologized when not following the protocol's steps. She asked, “Do we add a comment now?” (Heather, Session 1). Then Edie shared her idea, Heather and I commented, and Edie gave the final word.

At the conclusion of the protocol fifteen minutes later, I moved the group into an open conversation and asked the group if there was anything else from the article they wanted to point out. Heather came up with the idea to implement literacy apps during our guided reading time, but needed consensus from the group before feeling confident in her idea. “I'm almost

wondering if we took a day of our guided reading time to use literacy apps. We could actually sit with them [students] and take groups so it's on their content and their level. But I don't know" (Heather, Session 6). After the three of us discussed what this could look like, we came to the consensus that using the iPad during guided reading once a week was worth trying out.

Edie: Yeah, and I just think about what we learned from doing the word sorts when I was sitting with the kids doing it. I could see how they were thinking about it and that gave me a chance to answer their questions and maybe one day a week it could be word sorts on the iPad as opposed to cut and paste word sorts which we're already doing.

Jenn: Yeah, that's true.

Edie: We can make that part of their group. Three iPads, six kids. They can share an iPad in a group so that might be fun. Be a fun thing to do.

Heather: I know.

Jenn: Definitely. So we can try that out one day a week.

Edie: I like that.

Jenn: I like that too.

(Session 6)

At this point, around 1:10pm, I asked the group to debrief on how they felt the protocol went and/or reflect on our group's progress as a whole. The group had positive things to say with Heather commenting how she loved being able to read research, find apps, and then talk about it. "I really love that; being able to go and research and find something and then talk about it and get your opinions on it too. Like, sit here together and look at them" (Heather, Session 3). Edie mentioned that the best thing about our group was that we have been coming up with great programs [apps] that we can use. Also, Edie repeatedly brought up how engaging in a CFG saved time because "we got to the meat of the issue quicker" (Edie, Interview 2). I

made a connection to the pilot study I did last year when I collected too many apps, realizing children just need a couple of apps.

Five minutes later, the group moved into another open discussion (unrelated to the protocol's structure) that was guided by a planned question I posed on how we could evaluate the quality of an app in addition to assessing student performance. Heather suggested taking the factors we read about in the article and applying them to the apps we find. "Should we almost take the factors in here that they talk about? The evaluation factors, and just kind of apply it to the app? Or no?" (Heather, Session 6). Edie and I agreed and spontaneously came up with our own protocol of silently reading the chart of factors in the article and circling those we felt applied to us. Then we went through each factor, and if we all had it circled, we included it in our criteria for evaluating a literacy app. If only one or two of us had a factor circled, we discussed why and made the decision to either leave the factor out or combine it with another factor.

Jenn: All right, so let's see. Did anyone circle the first one?

Heather: Yep.

Edie: Yeah. I think that's important.

Jenn: Yeah. I was like all three of them are...

Edie: And I think we can maybe change that to "is there a level of interactivity or interaction?"

Jenn: Okay, so we'll add the word interactivity.

Edie: Because we want them to have critical thinking.

Heather: Yeah, exactly.

Jenn: Do you maybe want to combine these first three questions into one?

Heather: Yeah.

Edie: Yeah.

(Session 6)

As the note taker, I wrote down our criteria, which I then typed and printed for each one of us by the following day.

Around 1:30pm, at the closure of our session, Heather's comment on parent involvement triggered Edie to express an interest in sharing our findings with parents.

If we could collect something and do something, like have a parent night and have a technology night with them. Just kindergarten tech night and maybe put out laptops and the apps they've been working on and just let the kids go from place to place and explore.  
(Edie, Session 6)

Highly motivated, this led us to brainstorming ideas for what this technology night could look like. Heather clapped with excitement and told Edie, "You are on the ball today, look at her go!" (Heather, Session 6). Last, we decided we would meet again the following Thursday using the list we just created for selecting literacy apps to evaluate the Reading Raven app because we did not get a chance to implement the app yet due to snow days.

### **Cross-case Analysis**

The vignette above portrayed the purpose of my qualitative case study which was to identify what happened when a critical friends group (CFG) was implemented to help teachers use iPad applications (apps) to differentiate literacy instruction. As seen in the vignette, each meeting started off with a check-in where I stated the purpose of the session and gave participants the chance to share anything related to iPad implementation. Then, we moved into

implementing a new or familiar protocol. Following the protocol, the group engaged in an open discussion where we contributed any additional thoughts, followed by debriefing how the overall session went. The sessions concluded with some decision-making where we decided when to meet next and what our upcoming meeting should focus on.

Overall, as a result of engaging in this CFG, the group accomplished many things professionally and instructionally. We enhanced our professional learning by changing the way we participated in professional development. Rather than attending individual workshops that in the past have lacked depth, relevance, and follow-through, we found value in meeting weekly on an ongoing basis. During these sessions, we facilitated protocols to focus our sessions and promote collaboration. Some of the protocols we used were The Final Word and Tuning protocol. A few times the group even created their own protocols to guide the work of the group. As a way to form basis and credibility for our reasoning during discussions, we used research articles and created our own resources/criteria to support the way we used iPads to differentiate literacy instruction. In terms of how the CFG developed our classroom instruction, we analyzed apps using criteria to integrate them into our reading instruction. One app called Essential Word Sorts allowed us to differentiate our instruction by choosing among various levels. With multiple levels to select, we were able to move away from using the “cut and paper” word sorts. Also, we found several eBooks that fit our criteria of a quality eBook to support our high, medium, and low learners. Finally, the group found it helpful to implement apps as a mini lesson and with small groups of students. Fortunately, participating in this CFG strengthened how we enhanced our professional learning and classroom instruction.

Aside from the general structure of sessions portrayed in the vignette and the overall accomplishments the group achieved, four major themes were portrayed to identify what



happened when a CFG was implemented to help teachers use iPad apps to differentiate literacy instruction. These four themes, as was evident in my interviews, observations, and documents, showed that when the group interacted, there was (1) consensus, (2) balance, (3) quality, and (4) critical friendships. These themes are explained below in the form of a “cross-case analysis” (Yin, 2014). As suggested by Yin (2014), this cross-case analysis highlighted the collective experience of the CFG. I chose to present the findings in this way so I could capture how the group interacted as a unit, while interweaving (or “crossing”) how each participant engaged in the CFG.

### **Consensus**

A theme running across the data was that as Heather, Edie, and I engaged in the sessions, we felt the need to establish consensus. In other words, consensus happened through negotiation and when all or majority of the group was in agreement. To illustrate, consensus looked like participants interacting to (1) reinforce an idea (simply by saying “I agree” or “okay”) (2) make a connection or (3) negotiate to enhance or modify the idea. During session three, the group formed consensus on how to implement the app Essential Word Sorts. After I suggested an idea, Edie negotiated before we formed consensus.

- Jenn: Even if you put a couple kids right now [on the iPad] just to start it so when we meet next week we can bring back some data, if that’s reasonable. Should we maybe do two students? Pick two students and print out what they’ve done so far?
- Edie: Maybe a high, medium and a low so we get all three levels so that we can do the high, medium and low and just really focus on, because we have three iPads, focus on those three kids for the next week.
- Jenn: Okay and see how it goes with that.
- Heather: Okay.

## (Session 3)

While forming consensus sounds like it could be challenging when participants like Edie feel the need to negotiate, agreeing came automatically for the group because we were flexible and open to ideas. Within “communities of practice,” Wenger (1998) called this “mutual engagement” meaning that “people are engaged in whose meanings they negotiate with one another” (p. 86). Clearly, Edie was engaged in what I was saying to negotiate an alternative idea. Ultimately, this consensus or “mutual agreement” when negotiating allowed the group to move forward in our discussions and our work.

Throughout the CFG, consensus occurred when talking about our professional learning and when talking about iPad implementation/instruction. When talking about our professional learning, consensus occurred when agreeing on how to structure and implement the CFG. For instance, consensus was evident when establishing our group norms, planning agendas, and when reflecting on the effectiveness of the implementation of the protocol/session. Furthermore, when talking about iPad implementation and our instruction, consensus formed when the group agreed on a set of criteria for selecting literacy apps and eBooks, as well as how to implement them.

**Consensus in professional learning.** Forming consensus in our professional learning, or how our CFG was conducted, started early on during our first session when as the facilitator, I had the group engage in a protocol to establish ground rules. Individually, we wrote down what we felt we personally needed in order to work productively in a group. The structure of the protocol led the group to a collaborative agreement because each member went around the table sharing a rule for the group to follow. In the end, we came to the consensus that we needed seven ground rules: (1) build trust, (2) try new ideas, (3) be open to different perspectives, (4)

come prepared, (5) understand and be willing to help each other, (6) keep conversations confidential, and (7) be respectful of time. Agreeing to these ground rules not only demonstrated consensus in our professional learning, but held us accountable (individually and as a group) for making sure we worked productively. Put differently, there was “joint enterprise” because the ground rules were not “just a stated goal, but created among participants relations of mutual accountability that become an integral part of the practice” (Wenger, 1998, p. 90). Thus, creating ground rules was not just naming them, but agreeing to make them a part of the CFG.

Aside from using a protocol to come to a consensus on ground rules, we frequently formed consensus without the use of a protocol when establishing the next week’s agenda and discussing how the sessions should be structured. As the facilitator for 13 out of 15 sessions, at the conclusion of each session, I asked the group what they would like to accomplish in the next one. During the seventh session, for example, I provided some suggestions, one of which was to ask the children probing questions about the app they were using to assess their learning (something I had learned from a shared article we read). While Heather and Edie disagreed with this suggestion, a consensus was still formed because we were flexible and open to ideas. After Heather and Edie commented about how asking probing questions of the children might not get us the quality data we needed, we decided to select and evaluate eBooks instead. Wenger (1998) noted that educators within a community of practice do not have to believe the same thing. As long as ideas are “communally negotiated,” as evidenced in my CFG, a group can still have consensus (Wenger, 1998, p. 91). In the excerpt below, one can see how the group came to a consensus by making connections and modifying ideas.

Jenn:                So maybe we could create some probing questions and use them on the two apps Word Essentials and Reading Raven.

- Heather: I was thinking another app, is my initial thought. The only reason why I'm hesitant, and we would just have to try it, the probing questions is because I feel like especially with the kids we're working with, we're just going to get a lot of yes, no.
- Edie: If we ask them any more questions, they're like done with all this testing stuff. Maybe we can look at different books that are on the iPad, and find out what the really good book apps are for the kids to read.
- Jenn: That's a good idea, I thought about that during the week. Okay.
- Edie: Then we'd have like three different types of apps.
- Heather: Yes! Like we have the phonemic awareness...
- Edie: letter sorts, and now we're looking at book apps. And what does it look like and maybe just coming up with one book and seeing what they offer.

(Session 7)

In this example, based on Heather's critiquing my idea of using probing questions, the group came to the consensus that we would find one eBook to share with the group for the following week. Not only was there flexibility in negotiating what the next session would look like, but also Heather and I used reinforcement and made connections to Edie's idea which led the group to a consensus. Thus, reinforcing Edie's idea by saying, "That's a good idea," and Heather saying, "Yes!" an agreement had been reached. Furthermore, making connections led to consensus when I said, "I thought about that during the week" and Heather said, "Like we have the phonemic awareness" apps. Just as how forming ground rules held the group accountable for our professional learning, forming consensus on what the next session was going to look like also held us accountable for being prepared. In this example, forming consensus held us accountable for finding an eBook and being prepared to share why we chose it. In the end, through reinforcing ideas and negotiating, the group constantly formed consensus at the end of each session in order to decide which direction to go next.

There was an instance during session three, however, when as the facilitator, I made the mistake of making a decision before allowing the group to come to consensus. After all three of us shared a reading app, I made the assumption based on our reactions that we would implement Edie's app for the following week. I said, "Do we agree that we want to do Edie's because you can print out reports on some of your kids?" (Jenn, Session 3). While this decision ended up being acceptable to the group (since I was the facilitator and "expert"), I learned that I should not have taken complete control and assumed there was consensus. Therefore, in following sessions, I made it a point to check with each participant by asking, "How do you feel about that?" before coming to an agreement.

Not only did our group establish consensus through forming ground rules and establishing agendas, but also we showed consensus when we reflected on the effectiveness of our professional learning. Being reflective is something Cochran-Smith and Lytle (1999) recognized as important in the concept of "knowledge of practice" because it allows participants to "revisit and reexamine their joint analyses" (p. 280). To illustrate, in Session Two below, I had the group engage in a collective reflection on how they thought the session went.

- Jenn: Before we close, let's reflect on how you think the session went, how you liked the protocol.
- Edie: I think that because we're so focused it really does expedite our time, which is encouraging that we could be doing this as time goes on to help our students have more benefits in our learning. And that's the goal of it, and just to get right into the meat real fast. Whatever helps us get there quickly.
- Heather: I completely agree. Having a structured meeting and having a focused question like that gets us to where we need to go, but also I felt like this session we were able to throw ideas out there a little bit more too and that's a great idea.

## (Session 2)

As can be seen, consensus formed between Edie and Heather because Heather “completely agreed.” She further reinforced Edie’s view explaining that this protocol kept our group focused. As another example, during our last session, we had the opportunity to reflect on all of our CFG sessions. Prior to meeting, we read summaries of each session that I had typed up. Then, using the protocol The Final Word, we reinforced and built on each other’s ideas to form consensus. Ironically, the consensus in the example below, Session 15, had to do with how building on each other’s ideas (reinforcing) leads to a solution (consensus).

- Edie: One of the things I noticed, and it kind of is like a thread that goes through our sessions is that as we were speaking together as colleagues, we would come up with new ideas and then one person would jump off with the idea to where we got it to where we wanted it. We came up with more ideas so the more that we worked together, the more we fed off each other for ideas and solutions to problems that we might have.
- Jenn: That’s a really good point and I think it shows that sometimes in a meeting, even going back on other years, we’ve had one person dominate and now we try to facilitate and hear everybody’s ideas. Last week when we were trying to figure out how to organize the apps for the parents, just by talking about it, all of a sudden we came up with ‘read to me, read by myself and word work’ and it just like that, it clicked. I remember we all were talking about it to come to one consensus.
- Heather: I completely agree and I think, just to go on that how in the beginning we laid down what expectations we had for the critical friends group and what qualities we should all possess. It’s just so interesting to see how we all work together really well. We really respect the boundaries of the critical friends group.

## (Session 15)

In this conversation, Heather and I made connections and reinforced Edie’s idea coming to the consensus that building on each other’s ideas brings us to worthwhile solutions. So, even when

reflecting on our CFG experience, we were in agreement. As a result of negotiating, reinforcing ideas, and making connections, we formed consensus. Finally, just as ground rules and establishing agendas led to accountability, so did reflecting on our professional learning. Reflecting on our learning held us accountable for continuing what was working well and changing what was not.

**Consensus in instruction.** There was consensus among the group in how to implement the iPads during literacy instruction. For instance, we came to an agreement when creating iPad resources (or criteria) to use with our instruction. Again, through negotiating, reinforcing ideas, and making connections, we developed criteria for selecting literacy apps and for selecting eBooks. As mentioned in the introductory vignette, we modified a pre-existing chart/list from an article we read to create our own criteria on how to select quality literacy apps.

Jenn: We'll definitely do the first one on the list.

Edie: And I think we can maybe change that to, "Is there a level of activity or interaction, interactivity?"

Jenn: Okay so we'll add the word interactivity.

Edie: Because we want them to have critical thinking.

Heather: Yeah exactly.

Jenn : Do you maybe want to combine these first three questions into one?

Heather: Yeah.

Edie: Yeah.

(Session 6)

This back and forth negotiating about criteria to include continued until we felt our list was complete. This similar process occurred in Session 8 when it came time to form a consensus on what quality eBooks looked like. We shared ideas inspired from a different article, and built on them to form a consensus.

- Jenn: So far we have developmental appropriate, strong writing, interesting language, exciting digital features (that's again, I guess, with the interactivity) and finding the balance.
- Edie: How about the learning goal for the students? Keeping the standards in mind.
- Jenn: Yeah.
- Edie: That it would connect somehow to what their learning goal is.
- Heather: Right. Right.
- Jenn: With that, also difference between boy and girl books, thinking about gender in selecting the books, too. That can go with learning goals.
- Heather: Interesting subject matter.

(Session 8)

Agreeing on the resources we created ultimately held us accountable for evaluating literacy apps and eBooks through the same lens.

Furthermore, the group showed consensus in how we implemented the iPad into our literacy instruction. While we agreed on how many students would initially try the app, there was consensus that we would manage them in our own ways because while Heather and I used The Daily 5 Approach (Boushey & Moser, 2006) during our literacy block, Edie had her students rotate through various jobs. There were even other parts during the day, such as morning routines, when I had my students work with a fifth grade student on the app. Nonetheless, we



still had small groups of students using the iPads during our literacy block, and tried the app with a few students before implementing it with the entire class. For instance, during Session 3, we agreed we would implement the Essential Word Sorts app with a small group of students.

Jenn: Even if you put a couple kids right now just to start it so when we meet next week we can bring back some data, if that's reasonable. Should we maybe do two students? Pick two students and print out what they've done so far?

Eddie: Maybe a high, medium and a low so we get all three levels so that we can do the high, medium and low and just really focus on that, because we have three iPads. Focus on those three kids for the next week.

(Session 3)

In another example, during Session 4 (and also portrayed in the chapter's opening vignette), Eddie shared that she took one of the eBooks we found and created a mini lesson by projecting it onto a screen.

I projected it on the wall and I actually had kids come up and point to the one that they wanted to move and where they wanted to move it to and then I actually moved it on an iPad. So kind of giving the idea of a Smart Board so that they would have that idea. So when they sat down they knew exactly what to do on the iPad. (Eddie, Session 4)

Eddie's idea of using the iPads during a mini lesson inspired Heather and me to do the same.

Overall, forming consensus on how we implemented the iPad into our instruction held us accountable for thinking about our teaching practices.

Interestingly, there were times when the group's consensus changed over time. That is, an idea the group initially agreed upon changed after several sessions because more knowledge was gained and more discussions took place. This change in agreement can be attributed to Vygotsky's (1978) social constructivist theory because it was through our ongoing social

interactions that we formed our knowledge and ideas. Furthermore, as Cochran-Smith and Lytle (1999) explained, “knowledge is socially constructed by teachers who work together and also by teachers and students as they mingle their previous experiences and their prior knowledge” (p. 280). In the excerpt below, we used our previous discussions and prior knowledge on guided reading to change and construct a new idea. During Session 2, we talked about what would happen if we used the iPads during our guided reading time.

Heather: Because we're doing reading groups and stuff and I don't want to take away from that.

Eddie: Then you're almost having to have an iPad group so that you can assess

Heather: Exactly.

Jenn: Exactly, and the whole point of the iPad is to have them be independent.

Heather: Yeah, I think it has to be a self-regulation [student independence].

(Session 2)

Clearly, through negotiating and reinforcing ideas, there was consensus that using the iPad during guided reading time would take away from guided reading instruction. Thus, students needed to be independent and self-regulate. This point of view was even evident in Heather's second interview when she said, “In my classroom specifically, I have a chart and the kids rotate through and they're self-managed. They know what to do. Because I'm pulling reading groups during that time, I can't be in charge of the iPads” (Heather, Interview 2). However, this frame of thinking changed as the group acquired knowledge and engaged in further discourse. As reflected in the introductory vignette, during Session 6, Heather changed her point of view, suggesting we implement the iPads into our guided reading instruction.

Heather: I'm almost wondering if we took a day of our guided reading time, but sat with them and took groups of them. So it's their content, it's their level. Just sat with them on certain apps and worked through it with them, but taking a day to take groups to do that. Not trying to push reading actual books aside, but this is such a big part of their world now, you know?

Edie: Yeah, and I just think about what we learned from doing the word sort app. When I was sitting with the kids doing it, I could see how they were thinking about it and that gave me a chance to answer their questions and maybe one day a week it could be word sorts on the iPad as opposed to cut and paste word sorts which we're already doing. Nobody said we had to cut and paste them.

Jenn : Yeah, that's true.

(Session 6)

The group consensus in Session 2, to not use iPads during guided reading (in order to keep students learning independently), changed to implementing the iPads once a week during guided reading so students could get adult interaction. This development in consensus can be attributed to the depth of discussion and knowledge among the CFG.

In my second interview I said:

A lot of times we think “oh, we can put them [students] on the app and then they can be independent.” But we read an article that talked about how if you're sitting with the child and you're asking them questions, or they're collaborating as they're doing the app, that can enhance their success on the app as well. (Jenn, Interview 2)

Had it not been for reading this article, our consensus on student iPad use may not have fully developed.

Edie noted:

What we found was that even though it's an iPad, they still need adult interaction. So, we've been taking them as a reading group. I've got a reading group with the iPad working on it in front of us. So we can actually see what they're doing and gauge what their understanding is. (Edie, Interview 2)

In all, the group went from forming a consensus that children should be independent to feeling that children also need adult interaction.

In conclusion, our CFG was able to thrive because of the group's ability to form consensus. Whether it was coming to a consensus on our professional learning or instructional decisions, the group engaged in negotiating and reinforcing ideas to reach consensus. At times, the particular protocol lent itself to building on ideas to reach consensus, while other times consensus was reached through open discussions. Ultimately, forming consensus kept us accountable for our work within the CFG.

## **Balance**

Forming consensus among the group kept our CFG balanced. Maintaining balance was another theme that emerged from the data. Balance can be defined as creating equity among the members, and like the theme on consensus, was seen within our professional learning and within our instruction. In our professional learning, balance was achieved through the facilitation of sessions because the facilitator made it a point to ensure varied participation. With instruction, we found that when students were using the iPads, we needed to balance student independence with adult interaction. Also, we found it important to balance differentiating our instruction between high, medium, and low learners. Maintaining balance in these ways made our group interactions and student learning not "too tight" and not "too loose," (Fullan, 2007) allowing us

to be productive. There was a balance between being tight and loose because the group created equity in facilitating and working with students.

**Balance in professional learning.** First, the power of facilitation within the sessions helped to create balance. According to the National School Reform Faculty (NSRF), a facilitator is one who maintains the integrity of the process and takes responsibility for initiating, maintaining, monitoring, and concluding structured group activities (“National School Reform Faculty,” 2014). When following such activities or protocols, each member of the group has a chance to speak and listen. This avoids members being either too dominant or shy. Balance in participation relates to what Cochran-Smith and Lytle (1999) said about the need to transform “traditional relations of power, voice, and participation” (p. 281). The introductory vignette is a good example of balanced participation. As the group engaged in The Final Word protocol, after one person shared their significant idea, the participants were not allowed to elaborate on their ideas until everyone in the group had a chance to comment. As the facilitator, I reminded the group of this equity in participation when I asked, “Is there anyone who would like to share her idea first? And remember, you'll just share it but don't elaborate on it yet” (Session 6). Similarly, when Heather facilitated the eighth session, she also ensured equity in participation by asking the group, “Okay, does anyone want to go first? Would you like to go?” (Heather, Session 8). Later in the protocol, she asked Edie, “Do you want to answer?” (Heather, Session 8). Other times, Heather took it upon herself to comment by asking, “Do you want me to comment first?” (Heather, Session 8). Ultimately, this shared participation occurred because the protocols set up the necessary structures for balance. Not only did the protocols ensure that each person had a chance to speak, but also indicated a given amount of speaking time so that one person did not dominate a discussion.

In another example, during our third session, we engaged in The Tuning protocol. Each of us brought a literacy app to share that could track student progress. Participation was balanced because group members not only took turns to present the app (each within a 2 – 3 minute timeframe), but also did not speak until a person was finished sharing their app. It was only at that point that the group moved into asking clarifying questions to better understand the app.

Jenn:           There's no limit on how many students you can put in?

Edie:           No. It has up to 60.

Jenn:           That's great. Like the other apps, I can only put in so many kids.

Heather:       Yeah and even when you purchase that, right, that's a purchased app, right?

Edie:           It didn't have a free version.

(Session 3)

Waiting to ask clarifying questions allowed Edie to say everything she wanted to say about her app without being interrupted. The last piece of facilitating this protocol included silent writing time as we wrote down our thoughts about the app and shared them with one another before moving to the next presenter. In this example, not only were talking and listening balanced, but writing was as well.

Other times, balanced participation occurred without the use of protocols. In my final interview I commented how participation was balanced even during open discussions.

I think our balance of participation was consistent throughout because when we used the protocols, we each had a turn to talk and listen to each other. Then there were times where we had an open discussion without using the protocol. I felt that because we were

used to using the protocols, when it came time for an open discussion, we just naturally let each person talk. (Jenn, Interview 3)

Establishing ground rules in the beginning of the CFG, such as being respectful and open to different perspectives, may have contributed to the way we took turns. During Session 6, outlined in the vignette, I posed, “We’re looking at the app itself and then we’re looking at how the students are doing on it. How can we assess both of them and come back next week with some data?” Heather suggested using the chart provided in the article to come up with our own list of criteria.

Jenn:           What do you want to do? You want to go through each one or do you just want to circle on your own and then discuss it?

Edie:           Let's circle and see how.

Heather:       Yeah let's do that.

Jenn:           All right. [No discussion 13:53 to 15:15]

(Session 6)

As a group, we wrote our thoughts silently, and then went through each factor on the list. Participation was balanced because we did not move onto the next factor until we each had a turn to talk. If we all had the factor circled as important, we included it in our criteria for evaluating a literacy app. If only one or two of us had a factor circled, we discussed why and made the decision to either leave the factor out or combine it with another factor. This example demonstrated that the group still relied on balanced participation to share ideas without following an explicit protocol.

However, while everyone's voice was included during times of open conversation, other times, some were more dominant than others. While this was not usually the norm, during an open discussion to decide what the Family Kindergarten Technology Night should look like, Edie took on the primary decision-making role. This left participation unbalanced because Heather and I took on the role of asking questions to further understand, and eventually agree, with Edie's ideas.

Edie: Have a message to greet them on the overhead. 'Welcome to our tech night, kindergarten tech night. Find a seat, write and the answer to the three questions, place it on the chart around the room.'

Jenn: Okay. Are we going to have rows, sitting around tables?

Edie: Not around the tables, just tables. I don't want to put the technology out until later because otherwise we'll lose their attention.

Heather: Okay. Now we want to think about the slides? What they want to say or no? We are going to do a slideshow?

Jenn: That's what I was going to say how you want to ...

Edie: Let's put it up there so that they can see our talking points.

(Session 14)

In this excerpt, participation was not balanced because Edie made the decisions using the words "I" while Heather and I asked subtle questions. With more facilitation or even following a protocol, balanced participation could have been established which may have changed the final design of the technology night.

Furthermore, when there was balance in participation, there was also balance in listening. This was because members could actively listen between their turns speaking, and not have the



pressure of worrying about when to vocalize their point. Balance between speaking and listening reminds me of Wenger's (1998) framework of "communities of practice" when he said our identity is defined by our participation and nonparticipation in groups. "We not only produce our identities through the practices we engage in, but we also define ourselves through practices we do not engage in" (Wenger, 1998, p. 170). In other words, even when we are not participating (or not speaking), our nonparticipation by active listening helps to balance the group's interactions. Edie explained, "I think one of the interesting things is that it really took us time to learn to listen to each other. It was really powerful first to hear and actually be a listener, and then to make your comments" (Edie, Interview 3). This structure allowed Edie to think about her listening skills, as she is usually the one who talks a lot in groups. In my final interview I said, "We stepped back and listened" (Jenn, Interview 3). Heather felt the same saying that, "It brought us even closer together as the year went on because we really got a chance to listen to one another" (Heather, Interview 3). So, the better we became at balancing our participation, the more we balanced our listening.

Lastly, while I was hoping there would be balance between our roles as facilitator and participant, there was an unbalance. I facilitated 13 of the 15 sessions, and Heather and Edie each facilitated only one. This is what Heather and Edie felt comfortable doing. At least, by encouraging them to facilitate one session, I was not the only facilitator throughout the 15 sessions. On a similar note, when Edie facilitated her session, she made an interesting point about the challenge in balancing her role as the facilitator, yet still needing to participate with Heather and me.

It's really hard to make sure that you're keeping the protocol and keeping on track. I found as the leader I felt like I was inept to doing that because I had to really think about

that and I couldn't think about the other things that we're going on and trying to keep people on track. (Edie, Interview 3)

While Heather and I found this challenge between facilitating and participating to be true, with careful preparation and active listening, we were able to balance our role as a facilitator and participant. So, while the group was not able to balance who facilitated the meetings, when participants did facilitate, they found they also had to balance their roles as facilitator and participant. Active listening helped to ensure this balance between facilitating and participating because it allowed the participant time to think and process the next steps of the protocol/discussion. Overall, while there was an imbalance in who facilitated the sessions, at least Heather and I were able to find balance as facilitator and participant.

**Balance in instruction.** Similar to the way that our group balanced professional learning within the CFG, we tried to balance our instruction with the students. We did this by balancing students' independence on the iPad in the classroom with adult interaction. Also, we researched apps that provided a balance of activities/levels to meet the needs of our high, medium, and low learners.

First of all, after our group read and discussed an article on evaluating literacy apps, we came to the consensus that there needed to be a balance between student independence and adult interaction when children used the iPads during literacy. Specifically, our CFG defined independence as students being able to log-in and navigate/manage the app themselves. Edie said, "My goal for them is to be able to just take the iPad, go sit on the floor with it, and be independent and be able to type their name in, type their password in and get started with the app. Not me doing the work" (Edie, Session 4). Heather explained that her students showed

independence, knowing when it was their turn to use the iPad. “They have a chart where they know whose turn is up next. The kids that are on it know to alert the next person, kind of like when we switch moving into another literacy activity, kind of like rotations” (Heather, Interview 2).

With this student independence, however, there needs to be adult interaction. This means adults need to observe and talk with students about the app’s content to support student learning. We found that when students were too independent, they were not consistently using the app correctly, thus not learning.

Now that we're actually evaluating the app and looking over their shoulder, I'm seeing that sometimes this app is not really doing anything for them. Or they're getting the answer by learning they can hover over the wrong answer and then they know they can just drop it in the right answer. So they can essentially get the answer right without even knowing. (Jenn, Interview 2)

Not only does adult interaction limit chances of children’s cheating the app, but it also gives adults an opportunity to ask questions and collaborate with students to enhance their learning.

Another time, when implementing an eBook with my lowest guided reading group, after asking the students what the story was about, the students were not able to give me a clear explanation. Had I left them to be independent on the eBook, I never would have known that this book was not appropriate for them. Thus, I would be unable to make appropriate eBook modifications. Discovering the need to balance student independence with adult interaction was what triggered me, Heather, and Edie to host a Family Kindergarten Technology Night. We

wanted to teach parents how to interact with their children when using technology as a way to support student learning.

When researching and using apps, our CFG also found that we needed each app to have a balance of activities or levels to meet the needs of our high, medium, and low learners. That is, within the app, there needed to be signs of differentiation. During the first half of the CFG, we implemented and evaluated three literacy apps that included a balance or variety of instructional levels. This allowed us to balance instruction for all of our learners because we could put the high, medium, and low learners at levels that were instructionally appropriate instead of finding separate apps to teach the same skill. For example, when agreeing to try out the Essential Word Sorts app, we made sure to implement it with a high, medium, and low student to find that our low students benefited from working on initial sound word sorts while the higher students could work on blends and digraphs. Edie suggested, “So I’m thinking if you’re doing The Daily 5” which I’m not doing, but I do similar things, I can say to Spencer, ‘You are using the purple box today. So push the purple box when you sit down.’ And ‘you’re going to work with beginning digraphs’” (Edie, Session 4). Then, when it was time to implement the second app, Reading Raven, while this app also had varying levels of instruction, we came to the conclusion that not every student had to use the same app. Rather, the varying levels worked for the lower students.

I was going to say Reading Raven might be better with our low kids and take our low kids right now and put those on that app and then keep the other ones going on Essential Word Sorts. I don’t want to lose the word sorts with the upper kids and they don’t need to match the others. (Edie, Session 6)

We took the same approach of working with the lower students when implementing the Dora Rhyme app. We realized that while there were different levels the students could work on, the concept of rhyming was needed only with our lower students. Therefore, by researching and implementing various apps, we learned that choosing apps that had a balance of levels allowed us to effectively differentiate literacy instruction for high, medium, and low learners.

Similarly, during the last half of our sessions, we implemented and evaluated eBooks. We tried to find eBooks that would not only read to the child and highlight each word (for the lower students), but also allow the higher students to read the book themselves and even record their own voice. When Heather implemented “Goodnight, Goodnight Construction Site,” she noted that “the high kids all read it on their own. The lower ones had it read to them” (Heather, Session 10). I noted that when my students read the eBook “Miles and Miles of Reptiles,” the low group touched the pictures to see and hear the labeled word, while the higher group immediately touched the bold words to hear and read the definition (Jenn, Session 10). Because we selected eBooks that included multiple features (highlighting, voice recording, interactive images, etc.), Heather, Edie, and I were able to differentiate our instruction within the single app. Overall, implementing literacy apps and eBooks that had a balance of multiple levels or features helped teachers to differentiate their literacy instruction so that children could learn at their appropriate level.

In closing, ensuring balance was key to the success of our CFG. We valued balancing our professional learning and instruction. Through facilitation and participation, members of the group were able to find balance in speaking and listening. By balancing student independence with adult interaction using the iPad, students had the opportunity to further their learning. In addition, implementing apps and eBooks that had a balance of levels and features created

opportunities for high, medium, and low students to learn literacy concepts. In all, the group's consensus in maintaining balance created a sense of fairness among our professional learning and instruction.

### **Quality**

Having consensus and balance among the group paved the way to quality work. In both professional learning and our instruction, the data showed that quality was valued over quantity. By focusing the CFG around one topic (differentiating literacy instruction with iPads), instead of focusing on many topics, the group was able to engage in deep discourse. Consequently, this focus and depth made our time together relevant and productive. Similarly, when implementing iPads into our instruction, we preferred using fewer apps with our students because it gave us time to focus on each app in depth. Therefore, with both professional learning and instruction, quality meant having one clear, specific focus so that we could work in depth.

**Quality in professional learning.** During our first interviews and CFG session, participants discussed the kinds of professional development or learning opportunities we had previously engaged in. As we described some positive and negative experiences related to professional development, it became clear that a lot of our professional learning was unfocused or irrelevant, causing us to feel that our time had been wasted. For example, I explained that sometimes our faculty meetings were not useful because they did not apply to everyone (Jenn, Interview 1). This irrelevancy has the potential to cause teachers to lose focus during the meeting. Heather mentioned that after coming home from workshops in general, "You're inundated with all of these things. It's like, okay, I can't make every single thing work. I need some guidance and support like, let's zero in on one thing and get results" (Heather, Session 1).

In this example, Heather needed a single focus to go into depth on so she could comfortably apply her learning.

Furthermore, Edie explained:

I always think about how many times we were called into a meeting where we were working with a student and we want help, and we spent so much time going around the circle that the last two seconds of the meeting is referred to the action part. ‘Oh, and then try this.’ You have so many questions, but you haven’t had a chance to really go into them. (Edie, Session 1)

Again, due to a lack of focus, the meeting ran out of time and Edie was left wondering how to apply her learning to better help her students. From these examples, it was clear that our professional learning lacked a relevant focus and depth, causing us to feel as if our time had been wasted and we became unsure how to proceed with instruction. Thus, we were not able to fully apply our learning to better our practice and instruction for students.

Fortunately, engaging in a CFG greatly reduced such negative feelings because the group had one overall focus: to differentiate our literacy instruction using the iPads. Maintaining this single focus allowed the group to engage in conversation on the same topic for 15 sessions. Even more, each session itself had a specific focus that tied to the overall focus and was stated during the “check-in” portion of the session. Effective facilitation contributed to this focus because in Heather’s final interview, she said, “I know I’m constantly, and I’m sure you’re the same, you have nine million things running through your head of what you have to do, where you’re going next. This [facilitation of a CFG] allowed us to ignore all of that and just focus on one thing” (Heather, Interview 3). Having an overall focus and focus within each session

allowed us to engage in meaningful, deep conversation. “We would sit and listen and have to respond to each other. That interaction became much deeper. On a deeper level than just the surface level because we had to listen to what someone said and then respond to it” (Edie, Interview 3). Finally, in my second interview I stated, “Now that we’ve been reading so many articles and we’ve talked so much, we have a lot more information. We’ve been able to dig a bit deeper in talking about how to differentiate for literacy” (Jenn, Interview 2). Overall, by being focused on differentiating literacy instruction with iPads, meaningful conversation occurred. When meaningful, deep conversation took place, the group not only gained knowledge, but could apply their learning to their practice.

As mentioned when discussing finding balance, the use of protocols played a significant role in keeping the group focused on having conversations about how to differentiate literacy instruction with iPads. By engaging in protocols, we had a structure to follow which kept conversations on topic, allowing for deep discourse. In our first session, I shared a sentence with the group from an article we read on CFGs:

Protocol is our short-hand term for structured processes and guidelines that promote meaningful and efficient communication, problem solving and learning. Contrast this idea with meetings and conversations when the content may wander, a few voices may dominate while some are never heard, and lots of talk but very little action happens.

(Jenn, Session 1)

The purpose of sharing this quote was to explain to them that “these protocols will let us dig deep into one topic without wandering and talking about different topics” (Jenn, Session 1).



During our last session, when we reflected on our CFG as a whole, Heather mentioned our success in having focus and depth.

Honestly, in the first session, just what I highlighted was what a critical friends group is and how we know that this group will allow us to slow down and focus on one topic and just now, reflecting back, that's exactly what we did. That we stuck to what we needed to do and now I feel like I have an even better understanding of how to implement apps in the classroom and, like we said, what we're looking for to make a quality app an eBook.  
(Heather, Session 15)

With the use of protocols, the group was able to keep its focus and depth to get at the heart of the matter.

Edie brought up the reality that “a lot of times, we want to go to that free-flowing conversation, but the protocol keeps us focused” (Edie, Session 1). In Session 11, when we did not follow a protocol, we were less focused and thus ran out of time. During this session, our goals were to share any remaining eBooks we found and to start creating a cumulative list of the apps we evaluated. While we stayed on task during the session, if we had used a protocol to share our eBooks and/or create a cumulative list, our conversation may have been more focused, thus allowing enough time to create our cumulative list. In the end, although every conversation did not need to be structured with a protocol, it definitely helped because it kept our discussions grounded and saved time.

When there was focus and depth in conversations, time was well spent. As the group had experienced in prior professional learning, nothing was worse than time wasted because the topic did not apply or you did not know how to apply what you had learned. During Session 2, Edie

said, “I think that because we're so focused it really does expedite our time, which is encouraging that we could be doing this as time goes on to help our students have more benefits in our learning, and that's the goal of it, and just to get right into the meat real fast, whatever helps us get there quickly” (Edie, Session 2). With focus and depth, time was not wasted discussing other irrelevant topics.

There were moments throughout the sessions, however, when the quality (or depth) of the group's discussions were slightly jeopardized despite having a single focus on differentiated instruction and utilizing protocols. For example, when Heather and I were the participants, we often had questions about following the steps of the protocol. This was seen in the chapter's opening vignette when Heather asked me when she should add her comment. In another instance, after I shared a comment during the Final Word protocol, even though I had experienced this protocol several times, I found myself asking the facilitator, “Heather, do I comment? Or no, wait...” (Jenn, Session 8). In such cases, because Heather and I were so focused on following the rules of the protocol, we may have disrupted the flow and prevented depth in conversation. We learned that the quality of the group's conversations can be affected not only by following rules of protocol too closely, but also by implementing them too loosely, or incorrectly. This was evident when Edie was the facilitator during the ninth session because while she explained the protocol's steps clearly in her overview, she then mistakenly said, “Our first step in our protocol is to think about any questions that you might have about your app” (Edie, Session 9). Knowing this was not the next step in the protocol, I contemplated whether I should speak up or let her facilitate because Heather seemed not to notice. I felt it was more important to follow the protocol accurately, and knowing we were all critical friends, decided to speak up. I stepped in and said, “What we'll do, we'll each present the app and then we can ask

the questions" (Jenn, Session 9). Later in the protocol, I interrupted again to remind her it was time to ask clarifying questions. In response to my pointing out her lapses, she said, "I'm not very good at this. I'm completely out of it today. Do we have any questions that we would like to clarify about the app? I think it was pretty self-explanatory" (Edie, Session 9). This comment made it difficult for Heather and me to ask any clarifying questions about the app because Edie implied no clarifying questions were needed. By Edie's answering the question she asked, and my interrupting the protocol with many corrections, there was a lack of balance in our participation, and the group lost focus for a short while. What can be learned from these examples are that sometimes the quality of the group, or depth of conversations, can be at risk when participants ask too many clarifying questions and when facilitators are unclear of the protocols' steps.

In all, engaging in a CFG gave the group an overall sense of focus as well as a focus within each session. This focus gave us the chance to engage in deep, meaningful conversations centered on using iPads to differentiate literacy instruction so that we could increase our knowledge. Time was well spent because whether using a protocol or not, the group stayed on task. At times, the focus or quality of the group was jeopardized when participants asked too many questions about how to follow a protocol, or when the facilitator implemented the protocol incorrectly.

**Quality in instruction.** Similar to how the CFG needed structure and focus to produce quality work, when group members implemented the iPads into instruction and led the Kindergarten Family Technology Night, we felt the need for structure and focus. One of the ways we focused our instruction was by creating our own criteria for selecting literacy apps and

eBooks. Using articles that we read and discussed, we modified the ideas from the articles to create our own criteria.

During the sixth session, I told the group:

I found this really good article, Evaluation of Digital Media for Emergent Literacy. This is perfect, this is exactly what we're doing. In the first couple of sessions we talked about what quality apps look like and I thought this could kind of help us when we are implementing Ravenous Readers next week. Maybe we could somehow really think about how we're going to look at the app. (Jenn, Session 6)

Following a protocol using this article, the group created a criterion for selecting literacy-based apps. One of our criteria involved evaluating the app's results. In other words, "Is feedback incorporated regularly to guide the child's performance rather than as a display of a success/failure or win/lose decision at the end?" Wenger (1998) called this idea of establishing criteria "shared repertoire" because in this case, the CFG collectively created a repertoire of criteria for how to select literacy apps. By having these criteria in the form a checklist, the group was able to stay focused in selecting quality apps and eBooks.

During Session 9, prior to having created a criterion for selecting eBooks, the three of us shared an eBook we had found. After discussing and evaluating each one, Edie realized that her eBook was not of great quality. This free eBook "didn't offer the quality and the literature. This is certainly, it looks like it should be a really young reader but the vocabulary is really hard. When I was looking at the strong writing, the writing isn't there" (Edie, Session 9). If we had had the criteria to follow, it might have prevented Edie from choosing an eBook with weak

writing. By establishing criteria for selecting literacy apps and eBooks, we were able to focus on selecting apps that provided children with the most opportunities to learn.

This focus on selecting quality apps enhanced the depth of the group because we were able to target fewer apps. In the beginning sessions, “We were kind of under the initial thing of like more is better, like more choice, but I think more choice was overwhelming for the little guys, so we learned very quickly they only need a few” (Heather, Interview 2). For instance, in Session 9, we used a protocol that had each participant present her app and answer questions from the group. When Heather shared the eBook “Goodnight, Goodnight, Construction Site,” I asked her if this book was the same publisher from the eBook I presented. Upon finding out that it was the same publisher, we came to the conclusion that we liked eBooks from Oceanhouse Media because we found their books to be of quality. This made us go into depth to find other eBooks by Oceanhouse Media. Thus, by focusing on presenting one app at a time, “it definitely kept us focused and it made us dig deeper in the apps. Then by creating these checklists, we actually knocked off a lot of apps and we just focused on a few” (Jenn, Interview 3). This approach to which Heather and I (Jenn) referred, was the opposite of last year’s pilot study where Heather, another teacher, and I worked to create the largest database of apps possible. Instead, during this study’s CFG sessions, the group chose one of the three apps we each shared and used the checklist to keep us focused in ensuring it was a quality app.

Not only did we go into depth to implement one app each week, but we also chose to implement it with a small group of students rather than the entire class. We were thus able to fully interact with the students to determine how they were engaging with the app. Heather shared a story during Session 4 about her students engaging with the app Essential Word Sorts.

And I asked the other two if they enjoyed the app. I said, “Tell me one thing you like about it or something. Maybe you think it's tricky or difficult.” And they've just been telling me positive things. And what's so funny was Arden was telling me.... Arden was saying exactly what we had said about it in our first meeting; it was so funny. She said, “I like that when you touch the word, I can hear the word. They say the word to me so then I know where to put it and then I learn the word.” I was like, Woah! Oh yeah! (Heather, Session 4)

As can be seen from this excerpt, by selecting and implementing fewer apps to use with groups of students, we were able to dig deep and assess how an app benefited our students. After making any necessary modifications with the app and/or implementation, we then implemented the app with the entire class.

On another note, even when we planned the Kindergarten Family Technology Night, we made sure to plan a few activities instead of an overwhelming number. We structured our agenda in the following order: introduction, presentation, exploration, closing activity. Originally, we thought we could display several kinds of technology devices (such as iPads, Chromebooks, etc.) throughout the library for the parents and children to explore. We then realized that less was more, and it was better to go into depth by exploring the apps on the iPads. Edie came up with the term “family-style” to describe the in-depth exploration the families could experience using the iPads. “We could spread it [the iPad] way out around the library because we have all those tables in the back too, round, square tables. One iPad at each table” (Edie, Session 14). In the end, by focusing the technology night on iPad use alone, families had greater opportunities to explore literacy apps in efforts to learn how to balance student independence with adult interaction.

In review, when it came to professional learning and instruction, the group valued quality as opposed to quantity. In our professional learning, we focused on one topic over the 15 sessions, which allowed us to engage in deep, meaningful conversations. Using protocols strengthened our focus and depth, and helped manage our time. Quality work was also reflected in our instruction because we focused on fewer apps with the students. We even tried the apps out with a few students before implementing them with the class. By doing less, we got much more out of our professional learning and instruction.

### **Critical Friendships**

Forming consensus, creating balance, and producing quality work would not have been as successful if it were not for the critical friendships that developed over the course of the CFG. Critical friendships are relationships in which participants can identify and critique their own and each other's "experiences, assumptions, and beliefs" (Cochran-Smith and Lytle, 1999, p. 279). While the three of us had already taught together for two years prior to engaging in this CFG, it did not necessarily make building critical friendships any easier because there was a lack of collaboration with a former kindergarten teacher on our team. As the team leader, this teacher had a dominant personality that often clashed with others, especially with Edie. Thus, some of the time, the kindergarten teachers made decisions independently and did not become critical friends.

Fortunately, this CFG gave us the opportunity to strengthen our friendship and enhance collaboration. Edie mentioned that we became so familiar with each other that, "We're getting to where we're starting to finish each other's sentences" (Edie, Interview 2). From these critical friendships, a sense of comfort was established which gave us the ability to take risks and engage

in meaningful conversation. In our group, four factors defined our critical friendships: (1) trust, (2) supportive language (3) collaboration outside of the group, and (4) interest in personal lives. Again, because of these critical friendships, defined by these four factors, the group was able to establish a comfort level which made forming consensus, creating balance, and doing quality work much easier.

**Trust.** Having trust contributed a great deal to the success of the group. Without trust, people's ideas may never have been fully heard and respected. Heather said, "We felt very safe with one another. We knew whatever we said was just helping us, all three of us to get to where we needed to go" (Heather, Interview 2). In the beginning of the CFG, when establishing ground rules, trust was already important to the group. Immediately, Heather said, "I think you need to trust that whatever ideas you try in your classroom or, of course anything you share about students or anything like that, that we know it's a safe zone" (Heather, Session 1). In other words, as Edie said, "Make it a confidential group" (Edie, Session 1). By making it clear from Session 1 that this group would be a place of trust and confidentiality, we were not afraid to start sharing our thoughts and opinions.

Sharing our thoughts and opinions was evident among the CFG early on. For example, it was a risk for Heather to admit that she was not comfortable integrating iPads into her guided reading instruction (Heather, Session 2). She trusted that the group would listen and respect her feelings. In another instance, when we shared apps to evaluate, Edie trusted the group to not judge her when she admitted she did not know something about the app. "I haven't figured out what to do, how to get out of it without doing the whole thing" (Edie, Session 3). Furthermore, as the facilitator during our second session, after we silently brainstormed what characteristics we thought made a quality app, I took a risk and admitted, "All right, so that was actually kind of



hard. Wow” (Jenn, Session 2). By the group’s admitting to things that were hard or unclear, we took a risk, exposing our vulnerability because we trusted each other. Edie put it best when she said, “I think we just really have a good trust with each other and that’s really changed how we do it. We can come to the table and say, ‘Nope, that did not work at all. We tried it, it didn’t work. Epic fail.’ And not feel bad about it with each other” (Edie, Interview 2).

This sense of trust grew stronger as time went on. In Edie’s final interview she said, “I think in the beginning we were kind of stuffy. We were just very into the protocol and following everything perfectly. As time went on, we kind of loosened up with each other as the trust level began to grow with each other” (Edie, Interview 3). Heather noticed the same thing, explaining that in the beginning of our sessions, it was me as the facilitator doing more of the talking. Then, as the group shared ideas, the trust and comfort level increased.

In the beginning it was more Edie and I kind of listening to Jenn and just trying to figure out what our role was in the whole critical friends group. Then as it’s progressed, it’s definitely became ... We each have a voice a little bit more than we did in the beginning, just purely because we weren’t used to it. Now just feeling more comfortable, and of course we know each other and work with one another, so really it has given us a chance to get to know each other even in a different type of level. (Heather, Interview 2)

Overall, being able to trust each other allowed us to feel safe and comfortable to try new ideas and express opinions. As Edie said, even though we already knew each other prior to engaging in this CFG, “it was the first real time that we worked like that together” (Edie, Interview 3). As time went on, the trust levels only got stronger, which allowed the group to form critical friendships.

**Supportive language.** In addition, supportive language contributed in forming critical friendships. During our conversations, even saying something as simple as “good idea” or “I didn’t think of that” strengthened relations. Within our group, there was a lot of supportive language used that enhanced the comfort level and trust of the group. Commenting on each other’s ideas by saying, “right,” “exactly,” and “good point,” not only sent the message to whoever was speaking that her thoughts were heard, but also respected. Often, this use of supportive language led us to elaborate on our thoughts or let someone else add to the idea. For example, during Session 2, Edie suggested we look for an app with the ability to track or show information about the students using it. Heather used supportive language saying, “Yeah, exactly” which led Edie to solidify her thought adding that “maybe that should be a focus to kind of look for that.” Then, I jumped in with supportive language saying, “Yeah, that’s a great place to start.” In this example, supportive language led us to form consensus, in addition to building critical friendships.

The use of supportive language developed over time and towards the end of the sessions, this language grew stronger. As we engaged in implementing eBooks, the group showed much excitement in their supportive language. For example, when talking about needing to find eBooks that were not too hard, yet not too easy for the children, Edie made a connection to Vygotsky’s zone of proximal learning. In excitement, I said, “Alright Edie!” and we all laughed as Heather said, “That was impressive.” Furthermore, there was evidence of supportive language when we showed each other eBooks that met the criteria we developed. When Edie showed the group the eBook “Mrs. Wishy Washy,” the group was very supportive because we were open to new ideas.

Heather: That is awesome.

Edie: At the very end it asks who the, oh here is Spencer.

Jenn: There he is, there you are!

Edie: You can enter your name in, as the cow. There's Spencer doing it.

Jenn: That's so cute. (everyone laughs)

Edie: You can see him. Look at the faces he's making while he's doing it.

Heather: Oh my gosh, that's so cute.

Jenn: Oh my gosh.

(Session 11)

While the use of supportive language may seem insignificant, it played a big role in our group because it enhanced the comfort levels and gave us a sense of trust, which ultimately strengthened our critical friendships.

**Collaboration.** Critical friendships enhanced our collaboration outside of the CFG. During my last two interviews, I explained how our kindergarten classes did more activities together as a grade-level.

I think that because we're so collaborative in this group, it's bubbled over into other things. For example, this year Edie dressed up as Mrs. Wishy-Washy during reading and she invited my kids and Heather's to her class. So we've been doing a lot more whole-class kindergarten things stemming from our collaboration. (Jenn, Interview 2)

Another time, when Edie had a family emergency, Heather and I divided her students into our classrooms and did some kindergarten activities so that Edie could leave. Also, every Friday we extended our "choice center" time allowing our students to travel to each other's classrooms to

participate in different activities and interact with other kindergartners. By being more collaborative with each other outside of the CFG sessions, students benefited because, “All the kindergartners, they know each other because we do so much collaborating” (Jenn, Interview 3).

Furthermore, Edie noted:

I think as a kindergarten group we've really started working together better as a unit. So not only has it helped us with our iPad use but it's helped us in other areas in taking just different ideas that we have and trying to put them into practice with all of our kids and it's really made it a really nice group to work with. (Edie, Interview 2)

This is a great example of Vygotsky's (1978) social constructivist theory, because through the group's social interactions, Edie gained knowledge in iPad use and in other content areas. Just as Edie mentioned how the group worked as a “unit” to enhance its teaching practices, Vygotsky (1978) said the same thing when he explained, “Our hypothesis establishes the unity but not the identity of learning processes and internal developmental processes” (p. 91). This means learning occurs when there is a sense of unity or collaboration among members in a learning community. By creating critical friendships, collaboration not only happened within the sessions, but also outside of them. This collaboration gave the participants opportunities to enhance their knowledge and teaching practices.

**Personal lives.** Similar to how critical friendships enhanced collaboration in other aspects of teaching, the same happened when it came to our personal lives. In the beginning of the sessions, we were very friendly towards each other, but it was not until the middle and end of the sessions that I noticed we would take an interest in each other's personal lives. While this could have had the potential to cause the group to lose focus and waste time, the way

conversations unfolded enhanced our group dynamic because we would only share something personal at the end of the meeting if time permitted. For example, at the end of our final 15<sup>th</sup> session, knowing my wedding was coming up Edie asked, “For the wedding, are you getting ready at your mom’s?” Then, Heather asked, “Your bridal party, are they there too or no?” In other sessions, Edie and I asked Heather about her search for a new house. Engaging in these personal conversations may not have happened if we had not been critical friends. Knowing that we felt comfortable sharing educational ideas was a sign that we were also open to sharing our personal lives too.

Interestingly, there was one time when the group could have gotten off task with a personal issue, but did not. Heather wanted to bring up something unrelated in the middle of a session, but was afraid to for fear of jeopardizing the work and focus of the group. She asked, “Can I say something before I forget, or I’ll wait until we’re done?” (Heather, Session 6). As the facilitator, I could sense this was something Heather was eager to express so I gave her the okay to share. After Heather took a minute to tell us about a personal day she needed to take, we immediately returned to our discussion. While this request broke the procedures of the protocol, the group handled it in a way that respected Heather’s needs and still kept the group focused. Being able to share a personal issue and return to the protocol not only showed quality of our professional learning, but also the value of our critical friendships. Thus, discussing our personal lives at appropriate times strengthened the dynamic and comfort of the group.

## **Conclusion**

Four themes emerged from my interviews, observations, and documents, as they related to our professional learning within the CFG and our classroom instruction. First, when the group

interacted with each other, there was a lot of consensus building. Next, the group valued having a sense of balance, or equity in participation. We also believed in quality, that doing less rather than more was most beneficial. Finally, critical friendships were established through trust, supportive language, collaboration, and professional learning. All of these themes are interdependent because they contribute to creating an effective CFG. For instance, without the ability to come to a consensus or balanced participation, the critical friendships may not have been as strong. With a lack of critical friendships, the level of trust and quality of the group could suffer. For this reason, all factors relied on each other to keep the CFG working at its optimum level.

In addition, it is worth noting that there was a common thread among all four themes: the power of protocols. When it came to the group forming consensus, there were some protocols that structured conversation so that participants built on each other's ideas to come to consensus. Protocols made it easy for all members of the group to engage in participation because the protocols fostered balance by providing turn taking and time limits for each participant to speak and listen. As Heather said, "The protocols give us a chance to comment, each a chance to kind of summarize ideas. It really keeps coming back to basically like taking turns and really listening to one another, which I love" (Heather, Interview 2). The quality of the group was enhanced because the protocols forced the group to dig deeper into one topic, as opposed to touching the surface of several topics. Finally, protocols contributed to the development of critical friendships because the structure provided a safe way for the group to share ideas and give feedback. The use of protocols connects to the concept "knowledge of practice" because Cochran-Smith and Lytle (1999) emphasized the importance of "equitable social relations" when interacting in a learning community. As Heather commented in the excerpt above, everyone in

the group took turns speaking and listening to one another. One member was not more dominant than another because everyone had a chance to contribute to the social interactions. Ultimately, because of the power of protocols, even when it came to engaging in open discussions, we still found ourselves relying on the structure of protocols to ensure consensus, balance, quality, and critical friendships among the group.

Lastly, the group's ability to form consensus, balance participation, produce quality work, and establish critical friendships strengthened over time. The more we engaged in social interactions with each other, the more we developed our perspectives of a CFG. At the beginning of the CFG sessions, while I had background knowledge from my doctoral work in what a CFG was supposed to look like, I was not quite sure how it would pan within our group. In the beginning, I defined a CFG as, "There is this group of educators that come together to kind of focus on an issue that they want to get better at, together. So the whole part of this critical friends is that we are going to be critical with each other, giving feedback to enhance our practice even further" (Jenn, Interview 1). After several sessions into the CFG, I developed my definition even further based on my experience with the group.

A critical friends group is a small group of people, the same people that meet on a regular basis, probably once a week. The key difference with a critical friends group is you're meeting with a like interest throughout the entire sessions. The focus is to be very collaborative and to make decisions with one another. Within the sessions, at some point there are protocols in which we have structured discussions so that everybody's voices can be heard and we can help one another. (Jenn, Interview 2)

So my definition went from being about focusing on an idea and giving feedback, to meeting on a regular basis in a collaborative way and making decisions while using protocols.

Heather's understanding of a CFG also evolved over time. In the beginning, she said a CFG made her think of "critical thinking" and a "meeting of the minds" (Heather, Interview 1). She added, "We're going to get together and figure out ways to make things work" (Heather, Interview 1). By the second interview, which took place midway through the sessions, her definition developed because she described a CFG as "a more in depth look at anything" and "really breaking it down and having a lot of collaboration about it." In her third interview, she further spoke about the depth of CFGs, stating that a CFG is a group of colleagues who come together to focus on one area of need. "By focusing on one area, we were able to take an in depth look at the topic at hand, which slowed our learning down" (Heather, Interview 3). She felt that this form of professional learning helped our students the most. As a result, over the four months our CFG met, she went from perceiving a CFG as critical thinking to also valuing the importance of being "focused," or doing quality work.

When it came to Edie's perspectives of what a CFG was, she did not know what a CFG was, mentioning it had to do with relationships. "About relationships, building relationships and how important they are" (Edie, Interview 1). By the second interview, Edie explained that a CFG was a "group of colleagues that worked together to service the students" where protocols were used and no judgements were made on each other. In her final interview, she added that a CFG was "a group of teachers working to solve a problem or look for solutions that you may not be able to come up with on your own and to work collaboratively." Edie's definition is similar to "knowledge of practice" because Cochran-Smith and Lytle (1999) state, "fundamental to this conception of teacher learning is the idea that teachers learn collaboratively, primarily in inquiry



communities and/or networks where inquiry is regarded as part of larger efforts to transform teaching, learning, and schooling (p. 278). Similar to how Cochran-Smith and Lytle (1999) expressed that collaboration is the best way to transform teaching and learning, Edie said that teacher problems can be solved effectively when a group of teachers is working together to find balance and consensus.

### **Chapter Review**

This chapter shared the findings from my case study which identified what happened when a critical friends group was implemented to help teachers use iPad apps to differentiate literacy instruction. In particular, the group changed the way we engaged in professional learning by using protocols on a weekly basis to enhance collaboration. We improved the way we differentiated our literacy instruction by creating criteria for selecting literacy apps and eBooks. Lastly, we integrated apps into our mini lessons and small group instruction.

The chapter was presented in a “cross-case analysis” (Yin, 2014). In the cross-case analysis, four major themes emerged from my interviews, observations, and documents. I found that when the group interacted together, there was (1) consensus, (2) balance, (3) quality, and (4) critical friendships. There was consensus in that the group was able to move forward only when all or a majority of the group was in agreement. We were able to form consensus easily when it came to professional learning and our instructional practices because we were like-minded and open to new ideas. Forming consensus among the group kept the CFG balanced because the group felt it was important to create equity by sharing participation. Balance was achieved through the facilitation of sessions because the facilitator made it a point to vary participation so that all voices were heard. Having consensus and balance among the group paved the way to doing quality work within our professional learning and instruction. In our professional learning,

we produced quality work by focusing the CFG on one topic. With our instruction, we preferred using fewer apps with our students because it gave us time to focus on each app in depth. Finally, critical friendships formed because the group established trust, used supportive language, collaborated outside of the group, and took an interest in each other's personal lives. All of these themes were interdependent, utilized the power of protocols, and developed over time as group members' perspectives changed.

Findings from this chapter also highlighted the perspectives of individual participants. Group members had various experiences in their roles as the participant and facilitator during the CFG. In general, Heather and I preferred facilitating sessions, while Edie felt comfortable participating. As the participant, I found myself asking a lot of questions to the facilitator in efforts to ensure I was following the protocol correctly. When I was the facilitator, I found it was easy to maintain balance between facilitating and participating because in a sense, I was in control. One way that I added value to the group was by placing an emphasis on using data and resources to make decisions and share ideas. Then, when Heather was the participant, like me, she asked a lot of questions about following the steps precisely. She contributed to the group by sharing stories related to her experiences integrating the iPad into her literacy instruction. During her role as facilitator, she said she felt confident in following the steps. The confidence Heather and I had in facilitating sessions differed from Edie's experiences because Edie preferred to be the participant. It was important to Edie that time was well spent during our sessions because she had previously engaged in other professional learning that was a waste of time.

In the end, engaging in this CFG was a positive experience for everyone. Not only did we enhance the way we implemented iPads into our literacy instruction, but we also engaged in

professional learning that allowed us to learn from the social interactions we had with one another. These findings reflect social constructivist theory (Vygotsky, 1978), “communities of practice” (Wenger, 1998), and “knowledge of practice” (Cochran-Smith & Lytle, 1999) in that through our collaborative social interactions, we were able to form consensus, balance participation, produce quality work, and establish critical friendships.

## CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

In this final chapter, I discuss the findings from my case study in light of my research questions, theoretical framework, and literature review. I conclude by identifying missed opportunities and implications of this study as they pertain to future practice and research in the area of professional development.

### **Discussion of Findings**

Evidenced by my interviews, observations, and documents, four major themes emerged in relation to my overarching research question: What happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction? The participants in my study felt the need to (1) establish consensus, (2) maintain balance, (3) believe in quality as opposed to quantity, and (4) develop critical friendships. These findings are notable for critical reasons because they not only show how CFGs can be effective for enhancing teaching practice, but also, reflecting on balance between “too-tight” and “too-loose.”

The following sections are organized by my research sub questions to show how my findings aligned with my theoretical framework and contributed to the literature on learning communities and technology integration. Again, my sub questions are: (a) How do teachers view a CFG as a form of professional development? (b) What types of interactions and structures characterize the CFG? (c) What supports and impedes the work of the CFG? (d) In what ways does participation in the CFG shape teachers’ ability to use iPad applications to differentiate literacy instruction?

**Critical friends group as a form of professional development.** The participants viewed the CFG differently from their previous professional development experiences. This

type of professional development was seen as a relevant, social, and collective process, whereas other professional development experiences, such as presentations and workshops, can be individual, impersonal, or irrelevant. This is why Wenger (1998) suggested that people should take on a social constructivist approach to learning. He said people should adopt a different perspective of learning instead of the largely based assumption that learning is an individual process.

So, what if we adopted a different perspective, one that placed learning in the context of our lived experience of participation in the world? What if we assumed that learning is as much part of our human nature as eating or sleeping, that it is both life-sustaining and inevitable, and that – given a chance – we are quite good at it? And what if, in addition, we assumed that learning is, in its essence, a fundamentally social phenomenon, reflecting our own deeply social nature and human beings capable of knowing? (Wenger, 1998, p. 19)

What Wenger (1998) is saying is that people learn best when there is social participation and when people live through experiences that are social in nature. All of the CFG sessions in this study reflected social participation because the group implemented various protocols to have structured discussions and engaged in open discussions to collectively construct meaning. The participants in my CFG viewed this form of professional development as a chance to move away from learning as an individual process, and focus on learning as participation.

Furthermore, Cochran-Smith and Lytle (1999) added that social interactions between group members are effective when learning communities are formed as a “grass-roots approach” (p. 277). In other words, learning communities that are initiated from the “bottom-up” instead of

the “top-down” are often successful. The reason a “grass-roots” approach lends itself to enhancing social interactions is because conversations are not mandated from higher administration. Since participants in a “grass-roots” learning community initiate the learning community, social interactions are organic. The participants in my study viewed this CFG as a form of professional development that was not only social in nature, but also a “grass-roots” approach.

One claim that can be made about professional development being social in nature is that collaboration between groups of open-minded educators needs to be evident. While the NSRF suggested a CFG should be made up of 5 – 12 members, our CFG was made up of three and was still effective. For this reason, I define a small group to be as few as three members. Being open-minded means that members are willing to not only listen to ideas, but also take risks implementing them even when not fully in agreement. I take this position because when there is collaboration within a group of open-minded educators, forming consensus and maintaining balance in participation is often evident. When consensus and balanced participation are evident, learning and changes in practice take place.

In my findings, Heather, Edie, and I collaborated because we were open to trying new practices to differentiate literacy instruction with our iPads. As cited in Chapter Four, we were open to creating and implementing criteria to guide us in selecting eBooks. During Session 8, we not only shared ideas (in a balanced way), but built on each other’s ideas to form consensus. Being able to reach consensus, while providing everyone a chance to speak, allowed the group to engage in collaboration and make decisions. Plus, having three members, as opposed to 8 – 12, contributed in our ability to reach consensus easier and quicker. This form of collaboration can be harder to achieve than sitting in a one-time workshop or presentation because whereas

teachers are in control of their social interactions within a grass-roots CFG, a leader usually controls a workshop or presentation. Thus, when CFGs are viewed as a collaborative, social process, participants are usually open-minded in efforts to meet the needs of each other and their students.

In the case of Fahey's (2011) CFG, which was made up of 22 early career school leaders looking to learn more about effective leadership practices, they collaborated well. While my CFG was made up of all experienced kindergarten teachers, there was diversity in Fahey's (2011) group because there was mixed gender, and they worked in districts ranging from urban to suburban. Nonetheless, those participants were open-minded. As one participant remarked, "The CFG reminds you that there is more than one way to look at a problem. You really need to stay open and respect other people's perspectives" (Fahey, 2011, p. 27). When this can be accomplished, not only are participants' voices heard, but also consensus is formed because participants are open to trying new ideas. Our CFG was open to hearing new perspectives and trying ideas out because when Edie suggested introducing an eBook as a mini lesson, Heather and I not only formed consensus agreeing it was a good idea, but implemented mini lessons in our classrooms. We learned from each other and changed our practice. In both my study and Fahey's (2011), a deep sense of learning took place among the group because members went from having one way of looking at a problem, to many. In other words, "knowledge emerges from the conjoined understandings of teachers and others" (Cochran-Smith & Lytle, 1999, p. 275). Overall, this example supported my argument that collaboration between small groups of open-minded educators needs to be evident in professional development practices in order for learning and change in practice to take place.

My findings differed from Fahey's (2011) in that his CFG consisted of 22 leaders, while mine had three in the same discipline. While the participants in Fahey's (2011) CFG were open to trying new ideas, with such a large number of members, it not only takes more time to share everyone's ideas, but it can potentially become too many perspectives to hear. Thus, finding consensus and maintaining balance in participation can become a challenge. For this reason, I argue that the size of the group is key to an effective learning community. When small, open-minded groups collaborate in a CFG, consensus and balanced participation form, making it easier for participants to learn and enhance their practice.

Also, Moore and Carter-Hicks (2014) found that even learning communities that have members with interdisciplinary perspectives can have a good sense of collaboration as long as there is open-mindedness. Participants in their CFG were made up of seven teacher education faculty, but from various disciplines. The researchers noted that there was success in interdisciplinary perspectives because "it allows us to advance our individual capacity to engage in multiple viewpoints from a range of disciplines that contribute to an understanding of the dilemma under consideration" (Moore & Carter-Hicks, 2014, p. 12). Although participants' interdisciplinary viewpoints contribute to learning, there is also something to be said for participants who have the same discipline. When participants share the same discipline, like the kindergarten teachers in my study, it allows for members of the group to share a common ground so that conversation can be built upon this foundation. Nonetheless, Moore and Carter-Hicks' (2014) point about interdisciplinary perspectives connects to social constructivist learning theory because Vygotsky (1978) believed people "grow into the intellectual life of those around them" (p. 88). That is to say, people's intellectual abilities are strengthened when they interact with others who have multiple viewpoints from a range of disciplines. So, while the members of this



group were made up of various disciplines, they were open-minded in that they wanted to hear and try other perspectives to improve their university teaching. Ultimately, whether a learning community is made up of participants from the same or varying disciplines, being open to perspectives and trying new ideas help to facilitate consensus and change in practice.

Contrary to Fahey (2011) and Moore and Carter-Hicks' (2014) CFG, Dooner et al. (2007) found that even when a group was open-minded, it did not always mean there was collaboration, consensus, and balance among the group. As seven middle school teachers within a Western Canadian city engaged in a PLC to develop and assess new teaching strategies for their curriculum, many of them did not collaborate well together. There was a lack of respect for taking turns participating, and while some group members wanted to stay focused, others were too social and got off task. "As a consequence, several members began to rely on some of the more outspoken members to keep the group on-task" (Dooner et al., 2007, p. 570). In my CFG, there was a moment in Session 6 when Heather's unrelated question about needing to take a personal day could have gotten us off task, but because the group respected our ground rules, we were able to quickly get back to discussing the topic at hand. As can be seen in Dooner et al.'s (2007) PLC, members of this group could not stay on task because they lacked a sense of following ground rules. As well, while the participants may have been open-minded, equity in participation and consensus could not be easily achieved due to outspoken members. Ultimately, this affected the work and quality of the group because at the end of the PLC, researchers noted that while teachers still shared examples of how they changed their practice, it was not of quality because participants walked away with mainly their individual views as opposed to having a collective understanding. Therefore, while some participants noted that discussing shared readings helped gain new perspectives on their teaching practice, most of these views came only

from the dominant, vocal participants. Thus, while groups can be open-minded but not collaborative, consensus and balanced participation may be lost. Without consensus and balanced participation, learning is not at its prime.

In summary, the claim that collaboration between groups of open-minded educators needs to be evident among professional development in order to learn and change practice supports my theoretical framework, which suggests that learning, especially when it is a “grass-roots” approach, occurs from our social interactions. The participants in my study viewed CFGs as a social process because we gave and received feedback to form consensus and improve practice. Each session was about collaborating socially to learn how to differentiate literacy instruction with iPads. While a presentation or workshop model may engage participants in some form of social interaction, the amount and depth of social interaction that participants engage in during a CFG is much greater. When there is depth in social interactions, quality learning can take place to enhance teacher effectiveness.

**Interactions and structures.** Aside from CFGs being an effective way to get teachers to collaborate to improve practice and student learning, specific interactions and structures reflect the social nature of learning communities. Such interactions were seen throughout my codebook. Some of the major ones were brainstorming, making connections, reinforcing ideas, summarizing, explaining, reflecting, questioning, and facilitating. Similar to these codes, Wenger (1998) identified indicators of a “community of practice.” A few indicators were “shared discourse,” “shared stories,” “inside jokes,” and “sustained mutual relationships” (Wenger, 1998, p. 133). What can be learned from this is that when interactions within a learning community are interdependent (reliant on each other), group members can engage in deep discourse. With deep discourse, there is an increase in understanding and learning.

Within my CFG, there were a variety of interactions that were interdependent because the more we brainstormed, made connections, and explained our ideas, the more in-depth our conversations became. For example, as mentioned in Chapter Four, notice the interactions between Heather, Edie, and me as we discussed an article on the value of learning communities during our first session.

Heather: I'm excited to see that [a CFG in action] because I know that a lot of times when we're in professional development, it is one-sided a lot of times. Or there's someone in the room that's, you know (she laughs), kind of giving all their opinions and we're all just trying to take it all in and never have our voices heard.

Edie: I always think about how many times we were called into a meeting where we were working with a student and we want help, and we spent so much time going around the circle that the last two seconds of the meeting is referred to the action part. "Oh, and then try this." You have so many questions but you haven't had a chance to really go into them. With protocols we're able to get to the meat of the problem right away.

Jennifer: Oh my gosh, that makes complete sense. And that's, Heather, what you were talking about when we were walking in the hallway before. You said we talk about doing these PLCs, but we always have an idea but we never actually implement them or follow them through.

(Session 1)

In this case, not only were several interactions interdependent, but also they reflected Wenger's (1998) "shared discourse" and "shared stories." So, in addition to explaining and sharing our ideas, I vocalized a connection I made to something Heather had said earlier in the day. At the same time, participants' ideas were being reinforced because Heather's explanation of wanting her opinions to be heard was reinforced by Edie and then me. In sum, the interdependence of these interactions allowed us to engage in deep, shared discourse so we could learn more about CFGs.

Very few researchers within my literature review took the time to study the interactions of the group. Instead, they looked more at the structures and outcomes of the group. However, Curry (2008) highlighted some of the interactions in her CFG. Over the course of three years, six high school based CFGs were selected as cases of “mature professional communities” (Curry, 2008). Curry (2008) looked at the possibilities and limitations that resided in these CFGs to see what interactions may influence these groups serving as engines for instructional improvement and school-wide reform. In one of her findings, she shared that many interactions were evident when there was a reliance on the use of protocols. She found that protocols gave CFG members permission to “ask challenging questions, critique the practice of their peers, and offer explicit instructional advice” (Curry, 2008, p. 764). Such interactions helped the group “really analyze or really critique teacher work or student work without being personal” (Curry, 2008, p.765). This was similar to my own findings that with the interdependence of interactions, group members were able to engage in deep discourse.

In closing, the findings on learning communities among the literature reviewed were limited in describing what kinds of interactions are occurring within learning communities. This limited research on interactions is significant because the interactions of a group can impact the success of the group, especially in terms of its ability to engage in deep discourse. As Edie summarized in her final interview, “We would sit and listen and have to respond to each other. That interaction became much deeper. On a deeper level than just the surface level because we had to listen to what someone said and then respond to it” (Edie, Interview 3). As these interactions relate to “knowledge of practice,” when there is deep discourse, “knowledge emerges from the conjoined understandings of teachers” (Cochran-Smith & Lytle, 1999, p. 275).

In this case, when interactions are interdependent, not only is there deep discourse, but knowledge emerges from the group.

**Structures.** While interactions characterize CFGs, structures do as well. To structure our CFG, we utilized an agenda that I created (with input from Heather and Edie) for each session. Every session began with a “check-in” where the facilitator provided an overview of the agenda. Then, the group moved into a protocol, followed by engaging in open discussion. Usually, the group ended with a “check-out” where we discussed what to do in the following session and reflected on the current session. A claim that can be made about the structure of this CFG is that meetings should have a repetitive structure or routine. When there is repetition in the meetings’ structure and frequency of meetings, group members stay focused, produce quality work, and improve facilitation skills.

For example, during Heather’s final interview, she commented that routinely participating in the sessions helped the work of the group. In the beginning, however, she said she did not know the protocols and routine of the sessions. She said:

I was feeling like a little unsure of exactly what we were doing. Very quickly we picked up on it. I ran one of the sessions, Edie ran one of the sessions. It became just natural. We knew what was expected, we felt prepared for it. By the end, we came up with a whole idea of doing something for the parents [Kindergarten Family Technology Night] because of it. It lead us down that path. (Heather, Interview 3)

Having a routine structure did in fact “lead us down a path” of success, as Heather said above, because once the group became comfortable with the structure of check-in, protocol, open discussion, and check-out, we were able to focus on learning content. When more time was

spent on learning rather than on introducing new routines, the group produced quality work. In our case, by the end of our CFG, we planned and implemented a technology night for families, which was an effective way to share our quality work.

The structure of our CFG aligned the closest with Moore and Carter-Hicks' (2014) CFG. These researchers studied a CFG at a university for three years. Faculty members within this group created a forum for collegial conversations regarding pedagogical dilemmas to improve teacher practice and student achievement. While our CFG met weekly and Moore and Carter-Hicks' (2014) group met monthly, we kept the same timeframe for how often our meetings convened. As well, our sessions followed a structured routine. Moore and Carter-Hicks (2014) began their meetings with "connections" in which the group would use a protocol to help transition from where they had been, to the work they were about to do (p. 7). In our CFG, we called this a "check-in," as did Fahey (2011). Then, Moore and Carter-Hicks' (2014) CFG moved into an agenda review which was something we also did next in our sessions.

First we'll do a check-in where we can talk about what it looked like when you implemented it (how many students, when did you use it) and then we'll move into a protocol where we can use our chart to talk from, and then we'll end with some decision making and talk about what we want to do next week. (Jenn, Session 7)

Next, the facilitator in Moore and Carter-Hicks' (2014) study went on to review the norms the group had previously created. Since my CFG was small and we already had a working relationship, we did not have to review our norms often. Then, my CFG and Moore and Carter-Hicks' (2014) CFG moved into a protocol looking at teacher or student work. Not only was engaging in a protocol a routine part of the meeting, but the types of protocols used were often

routinely repeated. For instance, the participants in Moore and Carter-Hicks' (2014) CFG mainly utilized The Consultancy protocol, whereas my group repeated The Final Word protocol. By repeating certain protocols, the group was able to "get right into the meat real fast" because we were already familiar with the protocol's steps (Edie, Session 2). Finally, my meetings and Moore and Carter-Hicks' (2014) ended with a discussion on deciding when to meet next and reflecting on how well the meeting gone.

From both my CFG and Moore and Carter-Hicks' (2014), it can be learned that groups are often most successful when they follow the same routine or structure from meeting to meeting because it allows groups more time to produce quality work. One of the members from Moore and Carter-Hicks' (2014) CFG commented that, "Following a format is effective and keeps the group more focused" (p. 9). This claim is further supported in Wenger's (1998) "communities of practice" because he defined "practice" as a way of "talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action" (p. 20). This means that communities of practice have particular frameworks or structures that help sustain the work of the group. In our CFG, following scripted protocols kept the group in a routine, allowing us to focus on differentiating literacy instruction with iPads.

Furthermore, establishing a repetitive structure within a CFG enhanced the quality of facilitation because the more participants understood the structure and routine of meetings, the more they internalized the structure and then repeated it as facilitator. This happened in our CFG because when I facilitated sessions, Heather and Edie observed my facilitation. When they facilitated a protocol, after observing me facilitating many times, they modeled their facilitation style after mine. For instance, when starting a protocol, I would summarize the steps first, even if it was a familiar protocol. When Heather and Edie facilitated their protocols, they modeled the

same. My modeling of facilitation allowed Heather and Edie to maintain a similar structure in our meetings so that we could continue to focus on discussing content. Thus, learning communities are successful when learning is situated within a structured routine because more time can be spent focusing on the topic of the meeting as opposed to learning new routines.

**Supports and impediments.** In all learning communities, no matter how effective groups are at being open-minded, communicating through various interactions, and following a routine structure, there will be supports and impediments that affect the work of the group. First, I will discuss what supported the work of the CFG, and then I will discuss the impediments. The biggest support in our CFG was the development of critical friendships. Without the support of critical friendships from all members, the work of the group could have become jeopardized. As mentioned in my findings, critical friendships are relationships formed with group members in which there is (1) trust, (2) supportive language (3) collaboration outside of the group, and (4) interest in personal lives. These four factors supported the work of the group and are the reasons why it was possible for the participants in my CFG to form consensus, establish balance, and maintain focus.

What can be learned from the power of critical friendships is that participants who have these friendships show a deprivatization of practice. They are not afraid to let their guard down and critique their and others' practice. Being able to critique practice and give feedback to one another is supported by Cochran-Smith and Lytle (1999) who said, "Teachers across the professional life span—from very new to very experienced—make problematic their own knowledge and practice as well as the knowledge and practice of others and thus stand in a different relationship to knowledge" (p. 273). To make your own and others' knowledge and practice "problematic" is something that does not automatically happen in groups, let alone other



forms of professional learning. There needs to be strong collegial relationships among the members in order to feel safe enough to deprivatize practice.

Fortunately, deprivatization of practice did not take long to establish because our group was small and we already had a working relationship prior to starting the CFG. Members who are new to working with each other may take longer to form critical friendships. One example of how our CFG worked towards deprivatization of practice was by creating and maintaining ground rules. “So we have six. Six ground rules. Building trust, trying new ideas, being open to different perspectives, being prepared, understanding and willingness to help each other, keeping what goes on in here confidential, and being respectful of time” (Jenn, Session 1). By creating ground rules early on, participants got the message that they could begin to let their guard down and know that whatever they said would be respected and be kept confidential. Deprivatization of practice seemed to take a little bit longer for Heather because while she trusted the group, there were times when after she shared an idea, she looked for affirmation from the group. The more she realized her ideas were affirmed and respected by Edie and me, the more she was able to deprivatize her practice. Another example of deprivatization of practice occurred when Heather and Edie took the risk of facilitating a protocol. Without establishing critical friendships early on, Heather and Edie may not have felt as comfortable taking on the role of facilitator. Nonetheless, they put their fears aside and focused on bettering the group.

New school leaders in Fahey’s (2011) CFG also found success in the group’s deprivatization of practice. Fahey (2011) explained that deprivatization of practice is when teachers within learning communities practice their craft openly. “By sharing practice in public, teachers learn new ways to talk about what they do, and the discussions kindle new relationships between the participants” (Fahey, 2011, p. 4). In this study, deprivatization of practice occurred

when a participant presented his dilemma and was then asked to remain silent and listen to his peers. This not only required the participant to sit back and gain critical feedback, but required the other members of the group to openly share their ideas for practice. The participants in my study experienced similar deprivatization of practice when engaging in the Tuning protocol. After sharing a literacy app that could track student progress, the other members provided feedback on the quality of the app and how it could be used with students. Without critical friendships, as seen in my CFG and Fahey's (2011) CFG, members may be unwilling to deprivatize their practice. One member in Dooner et al.'s PLC (2007) noted, "I feel funny. Even though we're friends, there could always be backlash" (p. 572). Unfortunately, critical friendships were not strong in this group because members did not feel they could trust one another to keep what went on in the group confidential. As a result, it can be learned that critical friendships can only be formed when there is deprivatization of practice.

In summary, when participants are not afraid to let their guard down and critique their own practice and that of others, there is a "realignment of experience and competence, the ability to negotiate new meanings, and the transformation of identity" (Wenger, 1998, p. 226). This can only happen where there is a deprivatization of practice. This idea of openly sharing one's practice with one another further relates to Cochran-Smith and Lytle's (1999) "knowledge of practice" because this concept emphasizes that teachers have a transformed and expanded view of what "practice" means. To have an expanded view of what practice means, participants need to be willing to deprivatize their practice. Hence, critical friendships support the work of the CFG because members feel comfortable to deprivatize their practice, making it possible to transform and expand their views of what practice means.

***Impediments.*** Aside from the many supports CFGs have, learning communities often have to overcome barriers which can impede the work of the group. Two barriers my CFG ran into was sharing facilitation and continually needing to redefine the definition of a CFG. Sharing facilitation is significant within learning communities because Cochran-Smith & Lytle (1999) said “knowledge of practice...does not make the same distinctions between expert teachers and novice or less competent teachers” (p. 273). By facilitating 13 of the 15 sessions, it could appear as if I was the expert. While I encouraged Heather and Edie to facilitate a couple of protocols, they only felt comfortable doing so towards the end of our 15 sessions together. According to my findings, while I made attempts to let Heather and Edie facilitate more, I also found it hard to let go of my role as facilitator because even when I was the participant, I felt the urge to keep correcting Edie as she was facilitating the group. Thus, the lack of sharing in facilitation impeded the group because there were times that distinctions were made between expert and novice.

An argument that can be made about shared facilitation is that it takes time for members to feel comfortable facilitating. Rushing or imposing shared facilitation can affect the way the group collaborates and balances participation. Fortunately, within my CFG, the lack of shared facilitation did not often cause a distinction between expert and novice because Heather and Edie felt equally comfortable to express ideas. Even though I was the facilitator, we were still collaborating and taking turns speaking to ensure there was balance in participation. Thus, a distinction was not made between expert and novice. It is possible that if we continue this CFG in years to come, the group may feel more open to alternating facilitators to further reduce the expert/novice distinction. However, even though it takes time to become comfortable sharing facilitation, there may be members who want to actively participate and not facilitate. For

example, as active a participant as Edie was during our sessions (and even in other professional learning settings), she was more comfortable and contributed more as the participant than facilitator. Therefore, shared facilitation is something that takes time and may not be for everyone.

In reference to Fahey's (2011) CFG, his role in the group as facilitator changed over time. Shared facilitation did not happen in one year, as I had tried to do in my CFG. Rather, for Fahey (2011), it happened over the course of three years. During the first year, Fahey (2011) facilitated all of the meetings. By the second year, other group members began to take the notes, send out agendas, and facilitate the protocols. By the third year, he was just a member of the group. In another case, participants in Dooner et al.'s (2008) study toyed back and forth between how to share the role of facilitating. They implemented something called the "rotating chair" where each time the group met, someone else facilitated the meeting. Opinions of the effectiveness of this "rotating chair" varied among the group because participants were forced to facilitate without having time to engage in the learning community. Nonetheless, Dooner et al. (2008) explained that this strategy was essential because it allowed all members to take ownership of the meetings (i.e. a balance between expert and novice). While this may be true, my overall findings and literature review support my position that shared facilitation is a process that takes time.

Another barrier the CFG faced was the ongoing need to redefine a CFG. During the interviews, which took place before, during, and after the 15 sessions, the participants were asked to describe/define their understanding of a CFG. In all three instances, each of us provided a slightly different description of a CFG compared to our previous response. Of course, there were similarities in our three definitions and to each other's responses. However, I assumed that,

as the teacher-researcher, my definition would be more or less consistent throughout the process. Knowing that Heather and Edie were unfamiliar with CFGs, I expected their thoughts about CFGs to evolve over time. It is worth noting that, even as the teacher-researcher, I found myself having to revisit my initial definition, and develop my own definition of a CFG that was directly informed by interactions and experiences in the group. This revisioning of a CFG definition could pose as a limitation to the group because as the primary facilitator, it was my role to guide participants in effectively implementing a CFG. As I mentioned in Chapter One, revisioning a CFG could put a learning community at risk because without having a shared set of understandings, practices, and assumptions that can only come from training and leadership, teacher practice is unlikely to improve and student achievement can suffer.

Something that can be learned about the need to keep redefining a CFG is that only through one's actual experiences and a common understanding can a working definition be created within a group. The claim that people's understandings come from experiences is supported in my theoretical framework because Cochran-Smith and Lytle (1999), Vygotsky (1978), and Wenger (1998) explained that learning is a social process. Group members "conjoin their understandings in face to face interactions with one another over time" (Cochran-Smith & Lytle, 1999, p. 280). That is to say, by interacting with Heather and Edie over 15 sessions, even as the facilitator of the group, I was able to develop a deeper understanding of CFGs. While I conducted a literature review on learning communities and designed this case study on a CFG, it was not until I started engaging in the sessions that I was better able to describe a CFG effectively. Plus, even after the CFG sessions ended, each group member's definitions were slightly different.

So, while none of the studies in my literature review addressed the impact of how participants' definitions of a CFG changed with experience, DuFour (2004), Dufour et al. (2008), and Dufour and Fullan's (2013) expressed a strong concern that there is a variety (of definitions) for learning communities, and the term is being loosely used by educators. Based on the findings of my study, I would argue that the reason for this imbalance may be a result of (1) educators defining a CFG without having experienced one, or (2) each individual having slightly different definitions based on their experiences after having participated in a CFG. In the end, while there are common characteristics that can describe a CFG, no single and fixed definition can be given because it is only through the social experience of engaging in one (Cochran-Smith & Lytle, 1999; Vygotsky, 1978; Wenger, 1998) that a working definition can be created. While not having one clear definition can pose as a barrier to a group trying to implement a CFG, it also provides group members opportunities (or balance) to interact with each other to form their own understandings, as did the participants in my CFG.

**Differentiating literacy instruction.** Being open-minded to perspectives, engaging in various interactions, following a structure, deprivatizing practice, and overcoming barriers gave our CFG the foundation needed to talk about and implement lessons to differentiate literacy instruction. Throughout the CFG, we worked together to develop criteria to help us differentiate literacy instruction with iPads. One of our expectations was that we would try to find apps that were already self-differentiated with varying levels. Secondly, we looked for apps that allowed us to create individual accounts for the students so that we could track their learning. In addition, the group created criteria for selecting literacy apps and eBooks. By forming criteria to differentiate literacy instruction, we were able to meet the needs of our students. Thus, using research and resources, quality and purposeful differentiated instruction occurred. Cochran-

Smith and Lytle (1999) stressed the importance of using research within learning communities to generate knowledge.

A central idea in this work is that knowledge of practice across the professional life span is generated by making classrooms and schools sites for research, working collaboratively in inquiry communities to understand the co-construction of curriculum, developing local knowledge, and taking critical perspectives on the theory and research of others. (Cochran-Smith & Lytle, 1999, p. 275)

What Cochran-Smith and Lytle (1999) are saying is that knowledge can be created when members in learning communities use research. When research is used to form meaning and make decisions, groups can produce quality work and enhance their effectiveness.

One way the kindergarten teachers and I integrated research into the group was by developing criteria for selecting literacy apps for our students (Appendix F). When creating the criteria, we read an article in *The Reading Teacher* called “Evaluation of Digital Media for Emergent Literacy” (Hillman & Marshall, 2009). Using this article as a starting point for discussion, we then began customizing the ideas in the article to fit our own needs. The article referred to six domains: (1) interactivity, (2) digital literacy (3) appropriateness, (4) results, (5) global citizenry, and (6) participation. By the end of the session, we felt three of the six domains applied to our kindergarteners: (1) interactivity (2) appropriateness and (3) results. Within each of these domains, we identified specific target questions that we wanted to pay attention to when choosing the apps. For instance, within the appropriateness domain, one of the questions we felt was necessary to consider was, “Is the digital experience challenging but not frustrating?” Following such criteria and trying it with the students gave us a sense of purpose and quality to

our instruction. Rather than downloading a random literacy app and trying it with any student, we had a list of expectations to follow and implemented the apps only with students we felt needed that particular instruction. Using a research article helped us to create a worthwhile resource.

Halfway through our sessions, we began selecting and analyzing eBooks. Since we found eBooks to be different from other literacy-based apps, we created new criteria for selecting eBooks (Appendix G). We used an article called “Building an E-Book Library: Resources for Finding the Best Apps” to launch a discussion on using eBooks in our classrooms (Zipke, 2013). From the research, we developed our own criteria in which five characteristics needed to be evident. These areas were: (1) developmental appropriateness, (2) balanced interactivity, (3) strong writing, (4) ease of use, and (5) learning goals. We further defined each of these characteristics. For example, for “learning goals,” we made sure “the eBook meets our standards and curriculum, and considers gender.” By creating criteria from the research and adapting it to fit our needs, we ensured that we were selecting the most relevant and best quality apps for students.

Unfortunately, among the literature reviewed, the findings on differentiated instruction and technology focused very little on teachers using research or creating resources to support their differentiation. Rather, the teachers in these studies implemented lessons without spending time to research or generate relevant resources. This leaves me to speculate on the quality of their differentiated instruction. Cochran-Smith and Lytle (1999) emphasized “knowledge of practice always involves some kind of systematic collection, analysis, and interpretation of data sources” (p. 279) like the criteria members in my CFG created. Of the studies reviewed, none of the researchers mentioned teachers collectively (or even individually, for that matter) using



research or creating resources to help differentiate instruction. Furthermore, rather than teachers relying on each other to build their knowledge for using iPads to differentiate literacy instruction, teachers utilized a technology expert in their district (Crichton et al., 2012; Milman, 2014; Mouza & Barrett-Greenly, 2015). While there is nothing wrong with utilizing a technology expert, it limits the opportunities for teachers to collaborate and build on each other's perspectives to form new meaning. In all, my findings and guiding theoretical framework differed from the findings in my literature review because participants in my CFG valued the importance of integrating research and resources into our group to collectively make decisions and enhance practice.

Interestingly, on another note, something that stood out in my findings regarding using iPads with students was that when educators collaborated in learning communities, they tended to engage their students in collaborative activities. "Teachers' development of deeper understandings of their own learning as socially constructed is often parallel to their efforts to construct inquiry-based curriculum and instruction with their students" (Cochran-Smith & Lytle, 1999, p. 281). While the apps themselves are designed to be interactive, the more Heather, Edie, and I collaborated to enhance our learning, the more we realized our students needed to be collaborating on the iPad to further enhance their learning. This point supports Vygotsky's (1978) social constructivist learning theory because learning occurs through social participation. The more the students are interacting with one another and with teachers about the app's content, the richer their learning will become. As evident in my findings, the more the CFG gained a deeper understanding and appreciation of our collaboration and social participation with each other, the more we found value in collaborating with our students as they participated on the iPads.

To illustrate, in both of our criteria for selecting literacy apps and eBooks, we mentioned the importance of “interactivity” in that children should be engaged in the app by talking with adults and other classmates.

Edie put it best when she said:

When you think about it when we are with the children when they are doing the work with the iPads, they do better when we're sitting there; because now they're talking about it. They're not only doing it on the iPad, they're talking about what they've just done, and that really makes a difference in their success. (Edie, Session 6)

Also, Delacruz (2014) found that even when teachers do not collaborate professionally, technology integration lends itself to student interactivity and collaboration. When Delacruz (2014) observed what happened when a student teacher used the Nearpod app within fourth grade guided reading groups, she found that students increased their interactivity levels and collaborated with each other when using the app. Therefore, when teachers collaborate with each other, they model this collaboration with their students as well. In this case, the collaboration within our CFG caused us to use the iPads in ways that increased student interactivity and collaboration.

## **Conclusion**

Based on my findings, several claims were made in relation to my research sub questions. First, participants in the CFG viewed professional development as a “grass-roots” approach and a chance to learn from social interactions. I claimed that within a “grass-roots” approach and through social interactions, collaboration between groups of open-minded educators needs to be evident in order for optimal learning to occur. Second, when it came to the types of interactions

that categorized the group, I learned that interactions within a learning community should be interdependent so that participants can engage in deep discourse. Additionally, when it came to the structures that categorized the group, I argued that CFG meetings should have a repetitive structure or routine. Next, when looking at what supported and impeded the work of the group, I learned that participants who have critical friendships show a deprivatization of practice. An impediment within the group was that it took time for members to feel comfortable sharing the role of facilitation. I also learned that only through experience can a working definition of a CFG be made. Lastly, when determining in what ways participation in the CFG shaped teachers' ability to use iPad apps to differentiate literacy instruction, I found that using research and resources produced quality and purposeful differentiated instruction.

These seven claims should be considered by educational leaders as public education undergoes the current reform wave on teacher effectiveness. This is because such arguments support teachers and other educators in finding a more balanced approach to reform teacher effectiveness. With a balanced approach to reform, positive changes in education throughout the country can be made. Specifically, when educators in learning communities are open-minded, engage in various interactions, maintain a repetitive structure, show deprivatization of practice, share facilitation, define a CFG over time and experience, and utilize research and resources, professional development does not become "too-tight" or "too-loose." The learning community is tight in that there is a repetitive structure focused on using research and resources, yet loose because teachers control their social interactions with one another and share facilitation. Learning communities that reflect these claims provide educators opportunities to learn from each other to enhance their effectiveness and their students' performance.

### **Missed Opportunities**

The CFG accomplished many things professionally and instructionally. As the findings showed, the group formed consensus, maintained balance, produced quality work, and established critical friendships. In particular, we changed the way we engaged in professional learning by using protocols on a weekly basis to enhance collaboration. Also, we improved the way we differentiated our literacy instruction by creating criteria for selecting literacy apps and eBooks. Furthermore, we integrated apps into our mini lessons and small group instruction. While these are significant accomplishments worthy of being noted, it is necessary to consider how effective these accomplishments really were, especially in this current reform wave on teacher effectiveness. Generally speaking, I found that even though the group had many accomplishments, there were some limitations and barriers that prevented the group from gaining the full benefit of participating in a CFG.

As previously mentioned in Chapter One, according to the National School Reform Faculty (NSRF), the creators of CFGs, a highly effective CFG is one that has, “members who commit to improving their practice through collaborative learning and structured interactions (protocols), and meet at least once a month for about two hours” (“National School Reform Faculty,” 2014). All of the following characteristics need to be present in order for a CFG to be effective: (1) openness to improvement, (2) trust and respect, (3) a foundation in the knowledge and skills of teaching, (4) supportive and facilitative leadership, (5) socialization and school structures that extend the school’s mission and (6) critical friendship (“National School Reform Faculty,” 2014). The main limitation our group faced was deepening our “critical friendships” (NSRF, 2014). This means that group members are able to give deep, constructive, and meaningful feedback to each other about practice. Even though my findings indicate we

enhanced our relationships by building trust, using supportive language, collaboration outside of the group, and taking an interest in each other's personal lives, there was a lack of depth in thinking and giving constructive feedback about each other's practice.

The reason there was a lack of depth in thinking and giving constructive feedback was because we chose to focus the CFG on a bounded task, or concrete assignment. The CFG focused more on finding and analyzing apps (the bounded task/assignment) using group generated criteria, rather than focusing on each other's practice and/or student work. In other words, the group could have enhanced its critical friendships by critiquing each other's experiences (both positive and challenging) based on what happened when we implemented the apps with our students. Looking back on the CFG sessions, the group could have used a protocol to provide feedback on how to use probing questions with students as they interacted with the apps (this was something I brought up to the group, but was never acted on). Furthermore, a protocol could have been used to give Edie feedback on the ways in which she used the iPad during her mini lessons. While Edie shared the idea of using the iPad during mini lessons, there was a missed opportunity to go into depth discussing what this looked like and how we could provide feedback to Edie to enhance her ability to deliver the mini lesson. Modifying the focus of the group to be less task-based (less about finding and analyzing apps) may have provided the right venue for members to provide critical feedback on what happened when we used the iPads to differentiate literacy instruction.

Aside from our critical friendships lacking depth due to the group being task-based, there were other factors that contributed to the group's not being critical or engaging in deep learning. Such contributing factors were: (1) time (2) size, (3) school climate, (4) researcher's role, and (5) consensus-building. First of all, in four months, it is rare for a newly established CFG to be

100% critical with one another because a foundation of trust and comfort needs to be built (Dana & Yendol-Hoppey, 2008). Second, having only three members in the group made it challenging to be critical because there were only so many ideas and/or views each person could share. If the group had the NSRF's recommended number of 5 – 12 people, more voices and perspectives could have been shared, which may have provided opportunities for the group to further its thinking. Another factor that prevented the group from being critical was the school's climate. While teachers in my school expect constructive feedback from administration, when teachers work together, the climate can be overly supportive and positive, restricting feedback. Since a climate has not been established for teachers to be critical of one another, this needs to be instilled. Also, my role as the researcher limited the group from being critical because I made the decision not to push the group out of its comfort zone. If I had taken a different approach and did more modeling of how to be critical, the group may have been more effective at deepening their learning. For example, rather than being task-based, looking at iPad apps and establishing criteria for selecting them, I could have guided the group to use protocols to critique each other's practice on how we integrated the iPads into our instruction. A final factor that prevented the group from deepening critical friendships was the group's need to always come to consensus. Due to members easily agreeing when making decisions, which increased collaboration, there was a lack of shared differences in perspectives. Having different perspectives within the group would have been another outlet for members to challenge each other and be more critical. In all, these factors need to be taken into consideration because they limited the group from gaining the full benefit of participating in a CFG.

In conclusion, our group took the structure, tools, and characteristics of a CFG and used it to accomplish a bounded task of selecting and implementing iPad apps to differentiate literacy

instruction. While we accomplished exactly what we set out to do, it prevented us from deepening our critical friendships, which is the overall purpose of a CFG. As our group moves forward, we can further enhance our teacher effectiveness and student learning by critiquing our practice.

### **Implications for Practice**

The findings of this study should be considered by teachers and administrators interested in implementing CFGs as a means to establish a balanced approach in this reform on teacher effectiveness. Although this study focused on a kindergarten team, I expected that our work, as a CFG, would produce valuable data about CFGs that could have a broader impact at Cambridge Elementary School. I hoped the findings would provide a starting point and inspire the administrators at Cambridge to keep this initiative moving forward. Now that Megan, the study's interviewer (and formerly our K – 2 instructional support teacher), is moving back into the classroom as a fourth grade teacher, initiating a CFG may be something she will facilitate with her team. And, since our school has a new principal this 2015 – 2016 school year, sharing the results of my study with her may inspire her to make a school-wide change so that all grade levels are encouraged to engage in CFGs. In future, the implications for practice discussed below can support the successful initiation and implementation of CFGs across the school and in other schools.

Using the findings from this study as a basis for pedagogical design, educators should determine if a CFG or other type of learning community would best fit their school's culture. While a CFG was appropriate for the purpose of this study, factors such as community makeup, number of people involved, group purpose, and school/district values, will dictate the type of

learning community selected. Therefore, the learning community could be a professional learning community (PLC), professional culture, collegial school, faculty learning community (FLC), inquiry group, etc. Furthermore, using learning communities as a school or district's only means of professional development may not be appropriate. Learning communities are beneficial when a group of educators have a specific area to focus on. It is still necessary for staff to engage in a variety of professional learning, such as workshops, lectures, presentations, and so on.

At any rate, no matter what type of learning community is chosen, I recommend that it is initiated in phases, one grade level at a time. The reason for doing this as opposed to implementing learning communities all at once within a school is to help with organization, reduce barriers, and instill buy-in. In other words, if one grade level engages in a CFG, it is not only easy to manage as an administrator, but if problems arise, they can be corrected for the next grade level. Further, by having one grade level implement a CFG, other grade level teachers may become excited and their curiosity may increase.

Before grade level CFGs are initiated, there needs to be support and awareness on the part of the administration that CFGs need professional development before beginning. Next, a plan should be put into place that would allow all teachers an opportunity to learn more about what CFGs are and their potential benefits. Allowing for a solid understanding of CFGs early in the initiation will help enable CFGs to become part of the culture of any community of educators.

In addition, administrators need to identify and train a facilitator/teacher leader for each CFG. This could be done by volunteers or if a school already has "grade level leaders," they can



be the facilitators. I recommend training teacher leaders by having them participate in a CFG with an administrator as the facilitator. In this way, the administration and teacher leaders not only obtain experience in a CFG, but will also be able to define and facilitate their own.

Once the administration is trained, the teachers are made aware of what CFGs are, and facilitators/teacher leaders have experience engaging in their own CFG, the grade level CFGs groups can begin one at a time. For instance, each grade level can start its group one or two months later.

Furthermore, the findings of this study, my theoretical framework, and the literature reviewed suggest that the following elements are important to the implementation process of the CFG:

- A distinction is not made between novice and expert teachers.
- A specific time for the CFG to meet is scheduled (e.g. once a week for an hour).
- The members create and abide by norms/ground rules that drive the work and trust of the group. These norms are revisited as needed.
- The members establish an overarching goal or focus they would like to become better at. The work of the group should go beyond being task-based to ensure deep learning.
- A framework or agenda is created to keep the group focused. Generally speaking, there should be a “check in,” some kind of protocol that looks at student work or teacher practice, time for open discussion, and a “check out” when the group reflects on its session and decides what to do the following week.

- Protocols are used that either focus on reading/discussing a shared reading, working on teacher practice, or looking at student work. The facilitator revisits specific protocols that resonate with the group.
- The use of research, resources, and data are integrated into the group to keep conversations grounded and meaningful.
- The facilitator maintains strong facilitation so that participation is balanced and the group stays on task.
- The facilitator shares facilitation once members feel comfortable.
- The members' ability to be critical with one another needs to be stressed, yet nurtured.

In closing, like the research design of this study, a step by step plan for implementing CFGs should be created to ensure CFGs are successful and to ensure a balanced approach to reform.

### **Implications for Research**

There are several implications for future research that should be considered to enhance the research on CFGs and learning communities in general. First, one implication for future research involves the make-up of participants. More studies need to be conducted that stray away from the NSRF's recommended size of 5 – 12 participations. In other words, what are the effectiveness of CFGs when there are three or four members? The reason I bring this up is because my CFG, which was made up of three members, was able to come to consensus and balance participation with ease. At the same time, another suggestion for research would be to enlarge the scope of the study by incorporating a broader range of participants. As opposed to three participants who were all white females, taught kindergarten, and had at least seven years teaching experience, it would also be beneficial to study CFGs that have participants who vary in

their teaching experiences. Put differently, it would be interesting to study how novice teachers and seasoned teachers collaborate, and if that makes a difference as opposed to when all novice teachers or all seasoned teachers collaborate in a CFG. Further, it would be beneficial to study CFGs with men and women of various ethnicities to gain different perspectives. While this study was made up of participants from like disciplines/grade-level (kindergarten teachers), future studies should look at what happens when learning communities are made up of educators from various disciplines/grade levels. Even though there are many studies in the literature that support interdisciplinary learning communities (e.g. Curry, 2008; Holmes, 2013; Smith et al., 2008), fewer studies focus on participants having various disciplines within CFGs. All of these considerations, as they relate to participant selection, would add significant value to future research and make the findings of this study more robust.

Another implication for future research involves the long term impact of CFGs on the group. While the CFG in this study lasted six months, it is imperative that researchers study the long-term impact of CFGs to see if collaboration stays the same or changes. In my study, the participants expressed positive feelings toward engaging in a CFG, but who is to say that this would remain the same in years to come? What accounts for a group's sustainability? Would the lack of shared facilitation in my study improve as time went on? While a few studies among the literature looked at the impact of learning communities over time (e.g. Curry, 2008; Moore & Carter-Hicks, 2014; Perry et al., 1999), none were specifically a CFG. Studying the long term impact of a CFG will guide educators in determining not only how to implement CFGs, but also how to sustain them.

The final suggestion for future research involves conducting a longitudinal study of CFGs achieving institutionalism. So, rather than studying the impact of one CFG over time, what

would happen if a study is done that looked at multiple CFGs within a school for multiple years? What are the supports and impediments? While few studies among the literature on learning communities looked at schools/districts institutionalizing learning communities (Burke et al., 2011; Curry, 2008; Dooner et al., 2007), most of the learning communities were not specifically CFGs. Conducting a longitudinal study on CFGs achieving institutionalization is necessary for educators to learn how to transform and redefine professional learning.

In summary, the findings show three main implications for future research. First, the number and type of participants that make up the learning community should be considered because a group's dynamic can influence the way participants collaborate and generate knowledge. Next, researchers may benefit from studying the long-term impact of one CFG group over time in efforts to understand how CFGs can be sustained. Lastly, a longitudinal study of CFGs achieving institutionalism should be researched, especially if learning communities are becoming a common form of professional learning. In the current reform on teacher effectiveness, considering these implications will help educational leaders and educators find a balance between being tight and loose when engaging in CFGs.

### **Chapter Review**

This chapter discussed the findings of my case study in light of my research questions, guiding theory, and literature review. Seven claims were made: (1) collaboration between groups of open-minded educators needs to be evident in order for optimal learning to occur, (2) interactions within a learning community should be interdependent so participants can engage in deep discourse, (3) CFG meetings should have a repetitive structure or routine, (4) participants who have critical friendships show a deprivatization of practice, (5) it takes time for members to

feel comfortable sharing the role of facilitation, (6) only through actual experiences and a common understanding can a working definition of a CFG be created, and (7) using research and resources produces quality and purposeful differentiated instruction.

A major opportunity that was missed in my study was the ability for the group to be critical of one another. There were several factors that contributed to the group's not being critical or able to deepen their learning. Such contributing factors were: being task-based; time; size; school climate; researcher's role; and the need for consensus-building. If such factors had been taken into account, the group could have gained the full benefit of participating in a CFG.

There are several implications to practice and research on CFGs that should be considered by educators wanting to increase their effectiveness. In terms of implications for practice, administrators first need to be supportive of CFGs and trained how to implement them in order to gain a realistic sense of what CFGs are and to support teachers. Once teachers are made aware of what CFGs are, and facilitators have been chosen and feel comfortable with the CFG process, the implementation of CFGs can begin one at a time. With implications for research, the number and type of participants that make up a learning community should be considered. Also, researchers should study the long-term impact of one CFG over time. Last but not least, a longitudinal study of CFGs receiving institutionalism should be researched.

### **Final Thoughts**

I believe that because of the design of the study, which included the implementation of a CFG, the learning community was an overall success. During our observation sessions and interviews, on several occasions my teammates mentioned the desire to continue our CFG next year with a new focus on either math or guided reading. For example, in our second session, we

discussed how to use the iTunes gifts cards the PTO had given us to download literacy apps. Edie implied the continuation of our CFG by suggesting that we save the remaining gift cards to give to the fourth teacher we most likely will have on our team next year. “For next year, if we have a fourth class, we can get them [the apps] on their iPads and bring them [the teacher] up to speed...because we want to continue this next year” (Edie, Session 2). Towards the end of the CFG, Heather brought up the idea of teaching other teachers in our school about CFGs since we have gained experience doing this one together (Heather, Session 15). As well, when Megan, the K – 2 instructional support teacher interviewed us, she saw the success of our group without being directly involved. “Just from doing these interviews, I’m on board with you already. I really hope we can all get to try those [CFGs]” (Megan, Jenn Interview 3). Hearing the teachers verbalize that they want to continue CFGs tells me this study and form of professional learning was significant. The fact that my teammates and other educators in our school see the value of CFGs, tells me this study was not only a success, but also that CFGs have the potential to become an ongoing school-wide initiative.

Recently, I was contacted by an elementary school principal in Bernards Township, New Jersey to work with each grade-level of teachers on enhancing the way they engage in learning communities. There is even a possibility that I will provide professional development to this entire district on how to implement learning communities. As I move forward in guiding educators engaging in CFGs, I need to find ways we can be more critical with one another so that we can enhance our practice. With the right CFG supports and structures in place, learning communities have the potential to shape not only my school, but also educational reform in many ways.

## References

- American families see tablet as playmate, teacher, and babysitter. (2012, February 16).  
Retrieved from: <http://www.nielsen.com/us/en/insights/news/2012/american-families-see-tablets-as-playmate-teacher-and-babysitter.html>
- Andreu, R., Canos, L., Juana, S., Manresa, E., Rienda, L., & Tari, J.J. (2003). Critical friends: A tool for quality improvement in universities. *Quality Assurance in Education*, 11(1), 31 – 36.
- Attard, C. & Curry, C. (2012). Exploring the use of iPads to engage young students with mathematics. *Mathematics Research Group of Australasia Inc.*, 75 – 82.
- Bill & Melinda Gates Foundation. (2013). *Ensuring fair and reliable measures of effective teaching: Culminating findings from the MET project's three-year study: Brief*. Seattle, Washington.
- Boeije, H.R. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality and Quantity*, 36(1), 391 – 409.
- Borthwick, A. & Pierson, M. (2008). *Transforming classroom practice: professional development strategies in educational technology*. Arlington, Virginia: International Society for Technology in Education.
- Boushey, G. & Moser, J. (2006). *The daily 5: Fostering literacy independence in the elementary grades*. Portland, Maine: Stenhouse Publishers.
- Burke, W., Marx, G.E., & Berry, J.E. (2011). Maintaining, reframing, and disrupting traditional expectations and outcomes for professional development with critical friends groups. *The Teacher Educator*, 46, 32 – 52.
- Clary, D.M., Styslinger, M.E., & Oglan, V.A. (2012). Literacy learning communities in

- partnership. *School-University Partnerships*, 5(1), 28 – 39.
- Cochran-Smith, M. & Lytle, S.L. (1999). Relationships of knowledge and practice: Teacher learning in communities. *American Educational Research Association*, 24(1), 249 – 305.
- Costantino, T. (2010). Critical friends group: A strategy for developing intellectual community in doctoral education. *Inquiry in Education*, 1(2), 1 – 12.
- Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. (3rd ed.). London, United Kingdom: SAGE Publications Ltd.
- Crichton, S., Pegler, K., & White, D. (2012). Personal devices in public settings: Lessons learned from an iPod touch/iPad project. *The Electronic Journal of e-Learning*, 10(1), 23 – 31.
- Cuban, L. (2013). A second look at iPads in Los Angeles. Retrieved from:  
<https://larrycuban.wordpress.com/2013/12/06/a-second-look-at-ipads-in-los-angeles/>
- Cuban, L. (2001). *Overused and undersold: Computers in the classroom*. Boston, MA: Harvard University Press.
- Curlette, W.L. & Granville, H.G. (2014). The four crucial Cs in critical friends groups. *The Journal of Individual Psychology*, 70(1), 21 – 30.
- Curry, M. (2008). Critical friends groups: The possibilities and limitations embedded in teacher professional communities aimed at instructional improvement and school reform. *Teachers College Record*, 110(4), 733 – 774.
- Dana, N.F. & Yendol-Hoppey, D. (2008). *The reflective educators guide to professional development*. Thousand Oaks, CA: Corwin Press.
- Dana, N.F. & Yendol-Silva, (2003). *The reflective educators guide to classroom research*.



- Thousand Oaks, CA: Corwin Press.
- Definition of professional development and standards for professional learning. (2013, August). Retrieved from <http://www.state.nj.us/education/profdev/regs/def.pdf>
- Delacruz, S. (2014). Using nearpod in elementary guided reading groups. *TechTrends*, 58(5), 63 – 70.
- Dooner, A.M., Mandzuk, D., & Clifton, R.A. (2007). Stages of collaboration and the realities of professional learning communities. *Teaching and Teacher Education*, 24(1), 564 – 574.
- Douglas, K.H., Wojcik, B.W., & Thompson, J.R. (2012). Is there an app for that? *Journal of Special Education Technology*. 27(2), 59 – 70.
- DuFour, R. (2004). What is a professional learning community? *Educational Leadership*, 61(8), 6-11.
- DuFour, R., DuFour, R., & Eaker, R. (2008). *Revisiting professional learning communities at work: New insights for improving schools*. Bloomington, IN: Solution Tree.
- DuFour, R. & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: Solution Tree.
- DuFour, R. & Fullan, M. (2013). *Cultures built to last: Systemic PLCs at work*. Bloomington, IN: Solution Tree.
- DuFour, R., DuFour, R., Eaker, R., & Many, T. (2006). *Learning by doing: A handbook for professional learning communities at work*. Bloomington, IN: Solution Tree.
- Dunne, F., & Honts, F. (1998). Proceedings from American Educational Research Association 1998: *That group really makes me think! Critical friends groups and the development of reflective practitioners*. San Diego, CA.
- Easton, L.B. (2009). *Protocols for professional learning: PLC series*. Alexandria, VA: ASCD.

Englert, C.S. & Tarrant, K.L. (1995). Creating collaborative cultures for educational change.

*Remedial and Special Education*, 16(6), 325 – 336.

Fahey, K.M. (2011). Still learning about leading: A leadership critical friends group. *Journal of*

*Research on Leadership Education*, 6(1), 1 – 35.

Franzak, J.K. (2002). Developing a teacher identity: The impact of critical friends practice on the student teacher. *English Education*, 34(4), 258 – 280.

Fullan, M. (2007). *The new meaning of educational change* (4th ed.). New York and London Teacher College Press and Routledge Falmer.

Gettinger, M., Stoiber, K.C., & Lange, J. (1999). Collaborative investigation of inclusive early education practices: A blueprint for teacher-researcher partnership. *Journal of early intervention*, 22(3), 257 – 265.

Glaser, B.G. & Strauss, A.L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Chicago, IL: Aldine Publishing Company.

Glazer, E.M., Hannafin, M.J., Polly, D. & Rich, P. (2009). Factors and interactions influencing technology integration during situation professional development in an elementary school. *Computers in the Schools*, 26(21), 21-39.

Hall, G., & Hord, S. (2010). *Implementing change: Patterns, principles, and potholes* (4th ed.). Upper Saddle River, New Jersey: Pearson Inc.

Hilman, M. & Marshall, J. (2009). Evaluation of digital media for emergent literacy.

*Interdisciplinary Journal of Practice, Theory, and Applied Research*, 26(4), 256 – 270.

Hoaglund, A.E., Birkenfeld, K., Box, J.A. (2014). Professional learning communities: Creating a foundation for collaboration skills in pre-service teachers. *Journal of Education*, 134(4), 521 – 528.

- Holmes, B. (2013). School teachers' continuous professional development in an online learning community: lessons from a case study of an eTwinning learning event. *European Journal of Education*, 48(1), 97 – 112.
- Hur, J.W. & Brush, T.A. (2009). Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K-12 teachers? *Journal of Research on Technology in Education*, 41(3), 279 – 303.
- Hutchison, A. & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the United States. *Reading Research Quarterly*, (46)4, 312 – 333.
- International Reading Association. (2009). *New literacies and 21<sup>st</sup> century technology: A position statement*. Newark, Delaware.
- Ismail, I., Azizan, S.N., Azman, N. (2013). Mobile phone as pedagogical tools: Are teachers ready? *International Education Studies*, (6)3, 36 – 47.
- Jewitt, C. & Kress, G. (Eds.). (2003). *Multimodal literacy*. New York: Peter Lang.
- Louis, K.S. & Kruse, S.D. (1995). *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: Corwin Press.
- Lujan, N. & Day, B. (2010). Professional learning communities: Overcoming roadblocks. *International Journal for Professional Educators*, 76(2), 5 – 17.
- McClanahan, B., Williams, K., & Kennedy, E. (2012). How use of an iPad facilitated reading improvement. *TechTrends*, 56(3), 20 – 28.
- Merriam, S. (2009). *Qualitative Research: A guide to design and implementation*. (1st ed.). San Francisco: Jossey-Bass.
- Milman, N.B., Carlson-Bancroft, A., & Boogart, A.V. (2014). Examining differentiation and utilization of iPads across content areas in an independent, preK-4<sup>th</sup> grade elementary

- school. *Computers in the schools: Interdisciplinary Journal of Practice, Theory, and Applied Research*, 31(3), 119 – 133.
- Mishra, P. & Koehler, M.J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017 – 1054.
- Moore, J.A. & Carter-Hicks, J. (2014). Let's talk! Facilitating a faculty learning community using a critical friends group approach. *International Journal for the Scholarship of Teaching and Learning*, 8(20), 1 – 17.
- Mouza, C. & Greenly-Barrett, T. (2015). Bridging the app gap: An examination of a professional development initiative on mobile learning in urban schools. *Computers and Education*, 88(1), 1 – 14.
- Murray, O.T. & Olcese, N.R. (2011). Teaching learning with iPads, ready or not? *TechTrends*, 55(6), 42 – 48.
- National School Reform Faculty. (2014). Retrieved from: <http://www.nsrffharmony.org/>
- O'Bannon, B. & Thomas, K. (2014). Teacher perceptions of using mobile phones in the classroom: Age matters! *Computers and Education*, 74(2), 15 – 25.
- PC News Encyclopedia. (1996). Retrieved September 1, 2014, from <http://www.pcmag.com/encyclopedia/term/52520/tablet-computer>
- Pella, S. (2011). A situative perspective on developing writing pedagogy in a teacher professional learning community. *Teacher Education Quarterly*, winter, 107 – 125.
- Perry, N.E., Walton, C., & Calder, K. (1999). Teachers developing assessments of early literacy: A community of practice project. *Teacher Education and Special Education*, 22(4), 218 – 233.

Pierson, M.E. (2001). Technology integration practice as a function of pedagogical expertise.

*Journal of Research on Computing in Education*, 33(4), 413 – 430.

Putnam, R.T. & Borko, H., (2010). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4 – 15.

Reeves, D. B. (2009). *Leading change in your school, how to conquer myths, build commitment, and get results*. Alexandria, VA: Association for Supervision & Curriculum Development.

Riveros, A., Newton, P., & Burgess, D. (2012). A situated account of teacher agency and learning: Critical reflections on professional learning communities. *Canadian Journal of Education*, 35(1), 202 – 2016.

Shulman, L.S., & Shulman, J.H. (2004). How and what teachers learn: A shifting perspective. *Journal of Curriculum Studies*, 36(2), 257 – 271.

Smith, T.R., McGowan, J., Allen, A.R., Johnson, W.D., Dickson, L.A., Najee-ullah, M., & Peters, M. (2008). Evaluating the impact of a faculty learning community on STEM teaching and learning. *Journal of Negro Education*, 77(3), 203 – 226.

Snow-Gerono (2005). Professional development in a culture of inquiry: PDS teachers identify the benefits of professional learning communities. *Teaching and Teacher Education*, 21(1), 241 – 256.

Stanford, P., Crowe, M.W., & Flice, H. (2010). Differentiating with technology. *Teaching Exceptional Children Plus*, 6(4), 1 – 9.

Stevenson, C.B., Duran, R.L., Barrett, K.A., & Colarulli, G.C. (2005). Fostering faculty collaboration in learning communities: A developmental approach. *Innovative Higher Education*, 30(1), 23 – 36.

- Tomlinson, C. A. (2001). *How to differentiate instruction in mixed-ability classrooms*. (2<sup>nd</sup> ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Vescio, V., Ross, D., & Adams, A. (2007). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24(1), 80 – 91.
- Vo, L.T. & Nguyen, H.T. (2010). Critical friends group for EFL teacher professional development. *English Language Teaching Journal*, 64(2), 205 – 213.
- Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. (1<sup>st</sup> ed.). Cambridge, MA: University Harvard Press.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York, NY: Cambridge University Press.
- Wilson, S.M., and Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. *Review of Research in Education*, 24, 173 – 209.
- Yin, R.K. (2014). *Case study research: Design and methods*. (5<sup>th</sup> ed.). Thousand Oaks, CA: Sage Publications.
- Zipke, M. (2013). *Building an E-Book library: Resources for finding the best apps*. The Reading Teacher, 67(5), 375 – 383.

## Appendix A

## Agenda from February 27, 2015 (Session 7)

**Purpose:** Discuss evaluation of Reading Raven app

**Check in:** Any notes you take, give to me. What did it look like to implement the app? When? How many students? Mini lesson first?

**Protocol:** Created by me based on our evaluation sheet

1. Each participant shares her thought for question 1 (with no additional comments). After each participant shares, open it up for discussion.
2. Repeat step one for each of the 6 questions
3. Debrief the protocol and how they liked using the evaluation sheet. Any changes? I would a space for “other”

**Decision making:** Refer back to last week’s article about promoting questions and suggest making a table with prompting questions and a space for additional anecdotal records for a few students to continue analyzing this app.

*Someone else want to facilitate next week?*

## Appendix B

## Outline of Critical Friends Group Sessions

	<i>Date</i>	<i>Topics</i>	<i>Structure/Protocol</i>
1	January 8, 2015	Prior to session, read 2 articles on critical friend groups to discuss  Form ground rules	The Final Word  Forming Ground Rules
2	January 16, 2015	Establish what a quality literacy app looks like	Peeling the Onion
3	January 22, 2015	Share and evaluate apps that can track student progress	Tuning
4	February 6, 2015	Discuss implementation of the app Essential Word Sorts	Success Analysis
5	February 12, 2015	Analyze student data (high/medium/low) from Essential Word Sorts app	Collaborative Assessment Conference
6	February 20, 2015	Prior to session, read an article on evaluating digital media to discuss  Create a criteria for selecting literacy apps	The Final Word  *Group generated protocol
7	February 27, 2015	Discuss implementation of Reading Raven app	*Facilitator generated protocol
8 Facilitated by Heather	March 13, 2015	Prior to session read an article on eBooks to discuss  Create a criteria for selecting eBooks	The Final Word  Peeling the Onion
9 Facilitated by Edie	March 20, 2015	Share and evaluate an eBook based on criteria	Tuning
10	April 10, 2015	Share and evaluate a second eBook based on criteria	Tuning
11	April 14, 2015	Share and discuss more eBooks  Determine how to organize all of the eBooks shared	Open discussion
12	April 21, 2015	Collaborative search for nonfiction eBooks	Open discussion



		Determine how to categorize the eBooks shared	
13	April 24, 2015	Create an educator/parent handout to use as a resource	Open discussion
14	May 6, 2015	Revise handout  Establish an agenda and plan logistics for Kindergarten Family Tech Night	Open discussion
15	May 13, 2015	Reflect on critical friends group experience using written summaries of each session	The Final Word
***	June 8, 2015	Kindergarten Family Tech Night	Welcome Sharing our research Exploring apps “family style” Closure

*Note.* Protocols are used from National School Reform Faculty or Protocols for Professional Learning by Lois Brown Easton. All participants were present for each session except Heather was absent for session 13.

## Appendix C

## Interview Protocol #1

*To be administered by the K-2 Instructional Support teacher at the beginning of the study.*

“Thank you for agreeing to be a part of Jenn’s research study. We are meeting today because you are a participant in the kindergarten critical friends group (CFG). Before the CFG begins, I am excited to ask you some questions about your professional development experiences and perspectives. Please view this interview as an opportunity to engage in an open conversation on your thoughts.”

1. What kinds of professional development or learning opportunities have you had?
  - a. What role did you play?
  - b. What was the content/activities/structure like?
  - c. Describe an experience that was positive. Why was it positive?
  - d. Describe an experience that was not positive. Why wasn’t it?
  - e. Describe an experience that was challenging?
2. When you hear the term CFG, what do you think of?
  - a. In what context have you heard the term being used?
  - b. Can you give an example?
3. What do you think would happen if you met weekly with your teammates to collaborate on differentiating literacy instruction with iPads?
  - a. What might this look like?
  - b. How do you think this CFG will help your practice?
4. Those were all the questions I wanted to ask you today. Is there anything else you’d like to add?

## Appendix D

## Interview Protocol #2

*To be administered by the K-2 Instructional Support teacher at the midpoint of the study.*

“Thank you for agreeing to meet today. Now that we are in the middle of our CFG, I would like to ask you about your experiences thus far. I encourage you to reflect and continue to be thoughtful in your responses.”

1. Now that you are engaging in a CFG, how would you describe a CFG to somebody who was unfamiliar?
2. Describe what the CFG you have been engaging in looks like.
  - a. What did it look like in the beginning?
  - b. What does it look like now?
  - c. What do you think accounts for this change?
3. Describe the interactions you have had with the other teachers in the CFG.
  - a. Share an example.
  - b. How have these interactions changed and/or developed?
4. How is your work in the CFG different and/or the same from your normal teaching practices?
  - a. Share an example.
5. How are you using the iPads to differentiate literacy instruction?
  - a. What are some examples?
6. Describe something you would have liked to do differently in the CFG. For example, the structure, activity, and/or content?
7. Those were all the questions I wanted to ask you today. Is there anything else you'd like to add?

## Appendix E

## Interview Protocol #3

*To be administered by the K-2 Instructional Support teacher at the conclusion of the study.*

“Thank you for agreeing to meet today. Now that we have completed our work/project in our Critical Friends Group, I would like to ask you about your overall experiences. Just like in the past, please feel comfortable to express and elaborate on all of your thoughts.”

1. Now that you have participated in a critical friends group, how would you describe a critical friends group to a teacher who was unfamiliar?
  - a. What are a few key words you would use to describe a critical friends group?
2. Think about how we worked in the CFG—in terms of the beginning, middle and end.
  - a. Describe what your CFG looked like.
  - b. Were there any changes? If so, then what were these changes? If not, then what do you think accounts for this consistency?
3. Tell me about the facilitation of the sessions when others facilitated.
  - a. How did you feel about the experience?
  - b. Share an example that stands out for you.
4. Tell me about your experience facilitating a session.
  - a. What did you discuss in your sessions?
  - b. What tools and/or resources did you use or create?
  - c. How did these help the work of the group?
5. Describe the interactions you have had with the other teachers that stood out in the critical friends group.
  - a. Share an example that stands out for you.
  - b. How have these interactions changed and/or developed?
6. In the first critical friends group session, a list of group norms was created. Can you share a few of these norms?
  - a. To what extent did the group adhere to these norms on a scale from one to ten (explain your rating).
  - b. Share an example of an instance of when the group did not adhere to the norms.
7. How effective do you feel the group was in being critical (giving honest feedback) with each other?
  - a. Share your effectiveness on a scale of one to ten. Explain your rating.
  - b. Share an example.
8. How are you currently using the iPads to differentiate literacy instruction?
  - a. What are some examples?

- b. Did your use of iPads change over the sessions? If so, what were these changes and why do you think these changes occurred? If not, then what do you think accounts for this consistency?
- 9. How was your work in the critical friends group similar to other professional learning you engage in? Explain.
  - a. Share an example.
- 10. How was your work in the critical friends group different from other professional learning you engage in? Explain.
  - a. Share an example.
- 11. What are the advantages or benefits to working in a CFG?
- 12. What are the disadvantages or challenges to working in a CFG?
- 13. Describe something you would have liked to do differently in the critical friends group. For example, in terms of the structure, activity, and/or content?
- 14. What types of supports do you think need to be in place to help foster critical friends groups in our school?
- 15. Those were all the questions I wanted to ask you today. Is there anything else you'd like to add?

## Appendix F

## Criteria for Selecting Literacy Apps

*Adapted from Hillman and Marshall's Six Domains for Using Digital Media  
with Young Children*

**Name of app:** \_\_\_\_\_

<b>Domain</b>	<b>Question</b>	<b>Evidence in our implementation</b> <i>(both positive and/or negative)</i>
Interactivity	Does it allow the child to actively participate? (critical thinking, creativity, decision making, problem solving)	
Appropriateness	Is it targeted to young children?	
Appropriateness	Does it contain significant content and outcomes?	
Appropriateness	Is the digital experience challenging but not frustrating?	
Results	Is there a clear and understood connection between the child's actions and the program's results?	
Results	Is feedback incorporated regularly to guide the child's performance rather than as a display of a success/failure or win/lose decision at the end?	

## Appendix G

## Criteria Checklist for Selecting e-Books

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**Developmental appropriateness**

*The e-book is not too hard and not too easy to comprehend.*

Additional notes:

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**Balanced interactivity**

*The e-book has limited movies, tracking, read aloud, and/or dictionary features.*

Additional notes:

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**Strong writing**

*The text in the e-book emulates our print books. Quality.*

Additional notes:

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**Ease of use**

*The e-book exhibits a clear organization for navigating.*

Additional notes:

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**Learning goals**

*The e-book meets our standards/curriculum and considers both genders.*

Additional notes:

## Appendix H

Recommended Literacy Apps: Kindergarten Family Technology Night

# Kindergarten App Recommendations

## Read With Me

E-book	Description	Price	Curriculum Connection
Miles and Miles of Reptiles	Learn about various reptiles and fun facts	\$5.99	-Read Across America -Living and Non-Living -All About
Monster at the End of This Book  Another Monster at the End of this Book	Interact with Sesame Street characters	\$3.99 each OR Both books are \$5.99	-Concepts about print
Good Night Little Rainbow Fish By Marcus Pfister	A new rainbow fish that goes back to the beginning	\$1.99	-Social/emotional learning -Character education
Five Little Monkey's Jumping on the Bed	Interactive counting book with monkeys jumping on the bed	\$2.99	-Math (counting and subtraction)
The Kissing Hand	Chester's first day of school where mother shares her secret about the kissing hand	\$3.99	-Back to school -Social/emotional learning
Mrs. Wishy Washy	Instantly immerses the reader into the story as children become the story characters	\$1.99	-Character study -Quotation marks -Sequencing
Elmer's Special Day	Find out what surprises the animals in the jungle have for Elmer when he invites them to join the parade	\$3.99	-Math (patterns) -Social/emotional learning
The Lorax	The Lorax attempts to save the forest	\$1.99	-Earth Day -Read Across America



Goodnight Goodnight Construction Site	Learn about different hard working trucks as they get ready to say goodnight	\$3.99	-All About
Spookly the Square Pumpkin	Find out how Spookly and the other pumpkins in the patch discover that sometimes being different can save the day	\$2.99	-Fall -Math (shapes) -Social/emotional learning
Don't Let the Pigeon Run This App	Create your own story and draw your own pigeon with the author	\$5.99	-Author study -Humor -Character development -Plot

## **Read By Myself**

<b>E-book</b>	<b>Description</b>	<b>Price</b>	<b>Curriculum Connection</b>
I Like Books by Innovative Investments Limited	37 nonfiction books for beginning readers	\$1.99	-Guided reading groups -Introduction to nonfiction
Raz-Kids	Leveled fiction and nonfiction books of various topics (levels A – Z)	Costly yearly subscription	-Guided reading groups -Introduction to nonfiction
Who Can Read by Pioneer Valley Books	10 leveled fiction and nonfiction books on various topics	\$9.99 for each level (A – G)	-Guided reading groups -Introduction to nonfiction

## **Word Work**

<b>App</b>	<b>Description</b>	<b>Price</b>	<b>Curriculum Connection</b>
Reading Raven	Self-paced lessons take the children from pre-reading to reading sentences	\$3.99	-Word study groups

Essential Word Sorts Primary: Really Good Stuff	Students choose an avatar and sort words/pictures into groups	\$5.99	-Word study groups
Dora's ABC Vol. 2 Rhyming Words	Help your child become aware of the individual sounds in words and how they are sequenced and changed to make new words	\$4.99	-Word study groups

*Created by: Jennifer Kamm, Edie Palomba, and Heather Ruina  
May 2015*

## Appendix I

### Summary of Critical Friends Group Sessions

#### Session 1

I began this session thanking the participants for participating in this study. I shared the purpose of this study and how this study connects with our classroom/school/district goals. Then we moved into a protocol to create some ground rules. We came up with six: Building trust, trying new ideas, being open to different perspectives, being prepared, understanding and willingness to help each other, keeping what goes on in here confidential, and being respectful of time. Next, we moved into another protocol called The Final Word which established a structure to discuss two articles on CFGs. From this discussion, we were able to talk about the importance of being critical with one another (“critical care units”). We noted that an issue that is critical to one person may not be critical to another...none the less, we need to treat that person’s issue as critical. We also talked about how a CFG is different from the other kinds of professional development we have engaged in. We noted that this group will allow us to slow down and focus on one topic. Finally, we ended the meeting with coming up with a general structure for the next 14 sessions: we are repeating the cycle of planning/evaluating/decision-making.

#### Session 2

I began the session stating the purpose which is two-fold. I said first we will talk about what makes a quality app and then we will brainstorm ways that we can assess the children learning on the iPads. I then outlined the structure for the session: general discussion on how we each use the iPad in the classroom and doing a protocol called Peeling the Onion. Then I said we’ll reflect and debrief how the protocol went.

First, I opened with a general discussion asking, “What does it look when you’re using iPads in the classroom? When do you use them, how many kids are using them, what does it look like?” Edie said she uses them mostly during choice time and that students use them with headphones. She said she uses it mostly for math. Then Heather shared that she uses them at two different times: reading workshop and math. For reading, she has a chart with everyone’s names and they wear headphones and use a stylus. I said I use them during reading workshop and two kids share each of the 3 iPads. I also use them during free choice and in the mornings with the 5th grade helpers to work with the lower kids on Raz Kids.

Then we moved into the Peeling the Onion protocol where I summarized each step and stated the focus question: What does a quality app look like? I gave some time for silent writing and then we went around round robin and shared ideas. Part of the way through I summarized the list we had - looking for sound segmentation, making sure there’s a connection between the activities they’re doing so they can hear it, see it, trace it, etc., sound effects that aren’t overstimulating, reinforcement for the correct answer, independence, and leveled. After asking if there was anything else to add, Edie mentioned an app that can record progress. Then I said I would type up this list and give it out next session to refer to throughout the sessions. Then I led an open discussion of brainstorming, asking how we can determine if a child is successful on an app. I modeled some suggestions such as a self-regulation chart or teacher check sheet. We brought up the point that we don’t want to assess during guided reading. Edie

suggested we use an app that tracks progress such as Raz-Kids (since tracking was a criteria on the list we just brainstormed). This led us into some decision-making where we decided to bring 2 or 3 (then we reduced it to one) literacy app for next week that can track students. Finally, I gave out the PTO iTunes gift cards and we decided with the extra money, we would save it for next year's teacher (if we have a 4th class) to be on the same page as us.

### **Session 3**

I began the session stating that we are starting session three and we have a lot to get done in these next 12 sessions. I then explained the purpose of today's session: "It's to share our apps that we brought that can track student progress and then we can decide on one of them to implement and we can talk about how it goes next week." Then I outlined today's session by explaining we'll do a "check-in," use a protocol to share the apps we found, and then decide on one and how to implement it.

I began the "check-in" (open discussion) asking, "How did it go finding an app? What was your process for picking one?" Edie said she looked at finding apps in a different way because of the criteria we created. She said that knocked out quite a few apps. I said that I first used Google to find some recommendations but after having trouble, went back to review the apps I already had on the iPad. Heather added she went online too and researched top literacy apps and was able to find one. Then I stopped the group and remembered to pass out our group norms. Then we moved into the Tuning Protocol and I summarized what each step would look like. I asked if anyone wanted to start but they both let me model first. I shared the Dora Rhyme app. Then Heather and Edie asked me some clarifying questions. Then we took some silent writing time to write our thoughts about the app and shared out. Edie then shared Essential Word Sorts followed by Heather sharing Reading Raven. After we each shared our app, I said, "Do we agree that we want to do Edie's because you can print out reports on some of your kids?" We engaged in some decision-making to decide that we will try this app with a high, medium, and low student and bring back the data to share next week. Finally, we ended the meeting debriefing how the session went. Heather commented that she loved "being able to go and research and find something and then talk about it." Edie said, "the best thing is we came out with three great programs that we can use" because "every single one of them hits something that we need in our classroom." I made a connection to the pilot study I did last year where I was collecting too many apps. "I'm realizing we just need a couple of apps and just focus on those because that's really good."

### **Session 4**

The session began with Heather telling a story about asking her students if they enjoyed using Essential Word Sorts. "Tell me one thing you like about it or something. Maybe you think it's tricky or difficult. And they just keep telling me positive things. Arden was saying exactly what we had said about it in our first meeting; it was so funny. She said, I like that when you touch the word, I can hear the word. They say the word to me so then I know where to put it and then I learn the word."

I then explained how last week with all the snow days, we didn't get a chance to implement the app. So now that we had an extra week to implement it, the app isn't working to print out the student reports. Edie said that if we log in individually from the app, we can see the report for

each kid instead. I said I sent a help ticket to see if they can help us, but has been a week and haven't heard anything.

So I made changes to the session and explained that we can talk about what is going well with the app using the Success Analysis Protocol. I summarized each step of the protocol and then asked if anyone wanted to start. Heather commented that once they are logged in, they are independent. Edie then said she is hoping this app will replace paper sorts and that she sees students actually sounding out the words and really listening for that ending sound and the beginning sound to match it. Then Heather jumped back in saying that some of her students have trouble "pulling those little strings to attach it." Then we moved into clarifying questions for Heather and I asked her, "When are your kids using this app?" She said now during silent time but then moving it into reading. I asked Edie if she wanted to share and she said they are using it during guided reading time. I said I'm using them in similar ways and am curious to see if the data will show the kids "flinging" the answer. I then asked Edie how it went implementing a whole class mini lesson with the app before letting students use it individually. Heather and I agreed to try doing a whole class mini lesson on this app before our next session.

After discussing how to give a mini lesson on the app, we discussed how to make the student logins and passwords easier to build student independence. The meeting ended with some brainstorming on how to implement the app. Heather said we could have charts to show the students which color level to go in while Edie said if you're doing the Daily 5 you can verbally tell the child which color to press. After Heather asked a question about leveling, Edie showed us there is an easy and hard level. We ended the meeting playing on our iPads to adjust the passwords.

### **Session 5**

This session started off with Edie helping Heather figure out how to get Internet onto her iPad. She suggested putting in a help ticket to the district. I jumped in and commented as well noticing that sometimes when I log into Essential Word Sorts I get the "server error" message too. I said that I haven't heard back from the people who run the app so we will look at each student's progress in their individual accounts.

Then I moved into a "check-in" asking "how's it going using them?" I shared how I did the mini lesson with the class to model how to use the app. I said it helped to show them how to connect the words and pictures with that hook tool. Edie said the only thing she doesn't like is that it lets the kids hover over the answers and the one that "clicks in" is the right answer. Therefore, they can get the answer right even if they don't know the answer. I then mentioned how I noticed on some of the word sort boards it doesn't say the word. Heather noticed that too and then we referred to the iPad to check. We are thinking it is a technical thing and the iPad is too slow saying the word. Edie said, "Are we ready to move onto a new app?" and laughed.

I outlined what today's session would look like saying that first we'll do a protocol called the Collaborative Assessment Conference Protocol so that we can show the progress of our low, medium, and high students. Then we'll end deciding what to do for next week.

After explaining the steps for the protocol, Edie opened her app to pull up the report for one of her low students. Since hers wasn't working yet, I began with mine sharing out the statistics of which sorts were completed. Edie and Heather then shared theirs. Then I opened it up to a discussion of what we noticed in general about the low students' progress. "What do you see or what are we not seeing, if anything from this data?" We agreed that we are seeing it is helpful for these low students. We repeated this process for our middle students and then high students. I ended the protocol saying, "This is definitely changing the way at least we do word study. It makes it very easy to differentiate instruction."

Then we got into an open discussion about the upgraded app and how after sending a help ticket many times to this app company, I have not been able to reach them. I then asked where the group would like to go next and provided some suggestions such as "we could bring more apps, try one of the other two we found," look at data on Raz-Kids etc. Heather wanted to try Reading Raven and we all agreed that was a good idea. Edie said we should try all three apps that we had previously shared since we felt they were all worth sharing. We agreed we would bring back some anecdotal notes on how the implementation went and just use it with our lowest reading group since this app focused on strategies for the lower students. Finally, we spent the rest of the time pulling up the app and playing around with logging in.

### **Session 6**

I began summarizing that Monday we were off for President's Day, Tuesday was a snow day, and Wednesday we were on a field trip. Thus, we were not able to effectively implement Reading Raven. To keep the momentum going, I found an article instead on how to evaluate digital literacies with young children. I made the connection that during the first couple of sessions, we created a criteria for selecting apps and this article can support and enhance our thinking. I said we will start the session off repeating the protocol the The Last/Final Word. Then we will talk about if we want to create a tool to guide us in looking at the Reading Raven app.

I passed a copy of the protocol out for them to read and asked if they had questions. Then I asked if anyone wanted to start first. Heather shared a quote about the importance of not just putting the kids on the iPad, but needing adult support as well. After Edie and I commented on that, Heather had the final word. Then Edie shared a comment about whether our content is meeting our outcomes. After Heather and I commented and Edie got the final word, I followed the same process and shared how adults can ask the children probing questions to evaluate. Then I opened it up to anything else from the article anyone wanted to bring up. Heather mentioned the idea of taking one day a week in place of guided reading to do guided reading using the iPads. We all agreed this was a great way to use the apps we've been sharing.

Next, I moved into a discussion by asking two questions: "We're looking at the app itself and then we're looking at how the students are doing on it. How can we assess both of them and come back next week with same data? What should that look like?" Heather jumped in and said "should we almost take the factors in here that they talk about?" This led us into doing another protocol we created ourselves where we used the chart in the article to silently select the

questions we felt would be appropriate. Then we shared out and created our own evaluation based on this chart. I said I would type it up and give it to them on Monday to use to assess Reading Raven. Heather added another idea about parent involvement and said that parents can come in and work with the students on Raz-Kids and other apps. Edie then said, “I was wondering if maybe at the end of this, of our study here maybe should have a parent night.” That led us into an exciting discussion on what that would look like.

### **Session 7**

I began the session stating the purpose which is “to discuss the Reading Raven app.” I said first we’ll do check-in, then move into a protocol, and then end with some decision making to talk about what to do next week.

Heather then noticed I had my chart filled out and asked if we were supposed to fill it out. I said it’s up to her - she can simply use it as guide to talk from. I then checked in asking, “When did you implement it? Did you do it with a small group this time? In general?” Edie said she used the app in groups of three with headphones. She said she couldn’t tell how they were doing because they had their headphones on. But she found even her high kids liked it. She noticed that it took one group 30 minutes to complete the lesson and one of her lowest students struggled because she didn’t know her sounds. Heather said she used the app differently because she used it with 3 kids since there were limited openings on the app. She said depending on how the app goes, she would open the app up to the other students. She mentioned that the children were able to follow the app and didn’t have any problems. Even like logging in. She said the students were laughing and were really engaged. I then spoke and said I picked four lowest kids and put them on each of the 3 iPads (at separate times) totaling 12 students. I found that they loved the app but saw some of the students were flinging answers. However, “the app won’t let you move on until you actually answer correctly. So it would start to frustrate them and they actually had to think.”

After the check-in, we moved into a protocol that I created. I summarized the steps and we began first talking about the interactivity of the app. All three of us agreed that it was interactive for many reasons: music, graphics, critical decision-making, self-sufficiency, skill building, repetition, and creativity. Then we moved into talking about appropriateness. We found it was appropriate in many ways: divided by ages, clear font, big font, brightness of color, repetitiveness, wasn’t over stimulating, sticker reward. We also noted that it wasn’t too challenging because there was verbal reinforcement. Heather added that it wasn’t too frustrating because the app slowly took them level by level. I mentioned the only thing that could be frustrating was the part where the kids were timed to make a choice. Next we moved into talking about results. Heather said the woman gives feedback right away on the app and I said “it’s nice that they can either keep going from where they left off or start over.” I also said while it shows results, it doesn’t show a progress report for the teachers, like Essential Word Sorts did.

We moved into deciding where to go for next week. After giving some suggestions such as asking probing questions to the students, Heather said, "I was thinking another app, is my initial thought." We came to the conclusion that since we already picked a phonemic awareness app and word sort app, we should look at ebooks. Heather said we can look for if an asks comprehension questions and can you highlight things? Therefore, for next week we decided to pick one book and share it using the iPad.

### **Session 8**

Heather facilitated The Final Word protocol using the article. She began by summarizing the steps for how to do the protocol. Each person shared a quote from the article and everyone built on that quote. For instance, Heather mentioned the quote, "'E-books have the potential to bring exciting new digital features to the reader. But this needs to be in conjunction with strong writing, interesting language, subject matter that draws students in, and developmentally appropriate themes. The reader should be encouraged to read rather than watch a movie.'" After the protocol, Heather opened it up for an open discussion followed by asking, "How do you think the protocol worked with reading this article today?"

Then I facilitated the Peeling the Onion Protocol, where we created criteria for choosing an e-book. Our focus question was "What criteria should be considered when selecting an e-book?" Everyone had time to silently write their thoughts. Edie suggested creating a checklist. Everyone went around and shared an item they would like on the checklist as I kept notes. After the protocol ended, I asked Heather and Edie how they liked this protocol and Heather noted that she liked the idea of it being a chance to brainstorm. For the end of the week we decided we would find one or two e-books to share with the group and that Edie would lead the familiar Tuning protocol.

### **Session 9**

After giving an overview of what the remaining sessions would look like, Edie led the group in The Tuning Protocol to each share an e-book using the checklist we created. I shared Miles and Miles of Reptiles and then Heather and Edie silently wrote about it before we shared out our noticings. Then Heather shared Goodnight Goodnight Construction Site followed by Edie sharing an unsuccessful e-book called "Toughies First Adventures." At the closing, we decided to implement one of the e-books to see how the children interact with them in addition to downloading another one to share using the same protocol for the next session. When reflecting on how the session went, we noted that it was good to hear each other's ideas because we came up with the idea of using an e-book as mentor text to display on the board.

### **Session 10**

First, we went around and shared our experiences of letting the children use an e-book of our choice. Edie said that with a Dr. Seuss book, "It was interesting to see them really, when they were doing the rhyming words, just pushing and pushing and pushing and giggling at it." I shared how I used the same app and I noticed that the high, medium, and low students engaged



with the app differently. For instance, the high kids would be intrigued to click the word to hear the definition while the lower kids interacted with the pictures. Then we moved into the Tuning protocol where we were introduced to the ebooks *Goodnight Little Rainbow Fish*, *The Kissing Hand*, and *The Lorax*. Finally, we discussed what to do for the next session. While deciding, we ended up sharing some additional ebooks such as *Elmer's Day* and *Five Little Monkeys Jumping on the Bed*. We decided to download some of these ebooks our peers recommended and we would compile some kind of list to keep track of how/when to use them in our curriculum.

### **Session 11**

I began sharing the purpose of today's session which was to have an open discussion on any additional ebooks we wanted to share followed by creating a cumulative list. Edie shared *Mrs. Wishy Washy*, Heather shared *Spookly the Square Pumpkin*, and I shared *The Monster at the End of This Book*. We ran out of time to make a list of the books so we decided that the next time we meet, we would make a table that included a summary, price, and content connection. We said this could be for us to use next year and to share with the parents at our tech night.

### **Session 12**

Heather started the session sharing a Mo Willems ebook as it relates to our Mo Willems author study. We spent most of the session discussing this app. Then we realized we didn't have many nonfiction books so we went into the app store and downloaded an "I Like" series for beginning readers. Towards the end of the session, we created a skeleton for inputting apps and discussed how we should group them. We finalized on: read to me, read myself, and word work. Next week, we will be ready to create the document.

### **Session 13**

Heather was absent so with her approval, Edie and I continued to meet and input the apps we shared into the document on my laptop. Edie used her iPad to find a summary and price of the app while I typed it in. At the end, we went back and added the curriculum connection.

### **Session 14**

Today we revised the app recommendation sheet for us/parents. Then we had an open discussion to create an agenda for our tech night. We planned how the library would look and the order of events: welcome with charts/post-its, our presentation where we each present a slide, family exploration of the iPads, and closing remarks. I typed it up and gave Heather and Edie a copy for review.

## Appendix J

**Codebook** (9<sup>th</sup> and final version)**IMPLEMENTING A CRITICAL FRIENDS GROUP:****KINDERGARTEN TEACHERS' PERSPECTIVES**

By Jennifer Kamm

What happens when a critical friends group is implemented to help teachers use iPad applications to differentiate literacy instruction?

- a. How do teachers view a CFG as a form of professional development?
- b. What types of interactions and structures characterize the CFG?
- c. What supports and impedes the work of the CFG?
- d. In what ways does participation in the CFG shape teachers' ability to use iPad applications to differentiate literacy instruction?

**Theoretical Framework:**

Social Constructivism (Vygotsky)

- Communities of practice (Wenger, 1998)
- Knowledge of practice (Cochran-Smith & Lytle, 1999)

Code Name	Sub-Code(s)	Sub-sub-code	Origin	Definition	Example
Behaviors			Research Question (B)	The various ways participants communicate and collaborate with one another to enhance the group and/or classroom practice	
	Brainstorming		Research Glazer, Hannafin, Polly, and Rich (2009)	Creating a list of ideas on a specific topic	Basically, what we're going to do is just take a sheet of paper, and for a minute we're going to write

					down what you feel people need in order to work productively in a group. (Jenn)
	Reinforcing		Research Glazer, Hannafin, Polly, and Rich (2009)	Building on an idea (yours or someone else's)	Oh, good idea, yeah. Especially as we look at data and different student work, and things that we're trying with each other. (Jenn)
	Making connections		My transcriptions	Making a link to something somebody said	Heather, what you were talking about when we were walking in the hallway before. (Jenn)
	Questioning		Research Glazer, Hannafin, Polly, and Rich (2009)	Asking questions for clarification and/or introducing a new idea	Because once we start choosing these apps, how are we going to evaluate ourselves? (Jenn)
	Summarizing		My transcriptions	Restating an idea or group of ideas for clarification and/or to pull ideas together	So we have six. Six ground rules. Building trust, trying new ideas, being open to different perspectives, being prepared, understanding and willingness to help each other, keeping what goes on in here

					confidential, and being respectful of time. (Jenn)
	Explaining		My transcriptions	Providing directions, outing procedures, and/or developing/elaborating on ideas	With that said, yesterday you read two things. One was an article that defined what a Critical Friends Group is, and then the other one gave an example. (Jenn)
	Negotiating		My transcriptions	Discussing a specific topic with the intent of making a decision or solving a problem	For next year if we have a fourth class, we can get them on their iPads and bring them up to speed. (Edie)
		Consensus	My transcriptions	All or majority of the group in agreement	Yeah, I think it has to be a self-regulation. (Heather)
	Interacting				
		Relations	My transcriptions	Relationships formed based on comfort level. Willingness to take risks/vulnerability and admit challenges. Use of affirmation.	It's beautiful. It's immaculate, like super clean. (Heather)
		Reflections	My transcriptions	Thinking about one's own practice	I think that because we're so focused it really does expedite our time. (Edie)

	Facilitating			Guiding the work of the group and keeping the group on task. Creating opportunities for active participation and collaboration .	
		By facilitator		Guiding the work of the group and keeping the group on task. Creating opportunities for active participation and collaboration .	Anything different you have on your lists to add? (Jenn)
		By participants		Guiding the work of the group and keeping the group on task. Creating opportunities for active participation and collaboration .	We have to be really careful with the apps. (Edie)
Structures			Research Question (B)	How participation and delivery methods of the sessions are organized	

	Check-in		My transcriptions	The purpose of the session is stated in the beginning and/or participants are given a chance to share anything on their mind	So I figured today, instead, we can just talk about how it's going with this app, if you like it. (Jenn)
	Protocol		My transcriptions	A structured conversation is initiated	We're going to do that, actually using one of these protocols, and it's called Forming Ground Rules. (Jenn)
	Open discussion		My transcriptions	Participants have the opportunity to talk freely on the topic without the structure of a protocol. This discussion can happen organically or be prompted.	First, let's just have an open conversation about what does it look like when you're using iPads in the classroom. (Jenn)
	Resources		My transcriptions	Using articles and/or group-generated materials and tools	I took it from the article that we read, "Building an E-book Library," and I went on The Kirkus Review and I think that's where I found the book. (Jenn)
	Closure		My transcriptions	Group determines	I think that's it for today. I'll

				what the next session will look like	just keep on going and then hopefully we can print out some data next week and we'll look at it. (Jenn)
iPads			Research Question (D)	Discourse that revolves around using the iPad	
	Independence		My transcriptions	Students can use the app on their own	I was thinking of a way for us to record their progress for individual students so it would have to be an easy sign in that goes with being independent. (Edie)
	Adult support		My transcriptions	Adults model and scaffold child when using the app	I've got a reading group with the iPad working on it in front of us so we can actually see what they're doing and gauge what their understanding is. (Edie)
	Differentiation		My transcriptions	Talk about using the iPad with high, medium, and low students	You could input all of your students and track their progress and then there are two levels. (Heather)
	Content		My transcriptions	Talk about subject area	I just said how it works on

				and/or curriculum	those different skills, the rhyming, beginning, ending sounds, I think that's a positive, to give them a choice too. (Heather)
	Characteristics		My transcriptions	Components necessary for quality apps	I was thinking about the sound effects that are a lot of times with it. Sometimes they're overly noisy. (Edie)
	Implementation strategies		My transcriptions	Ideas and guidelines for classroom management/structure of iPad use	Yeah I'm hoping to use it [the app] to replace paper sorts because it really does bring in a lot of the sorts for the kids. (Edie)
Professional Learning			Research Question (A)	Discourse that revolves around past professional learning experiences and/or the current critical friends group	
	Time		My transcriptions	Making the most out of the session. Being prepared.	I think that because we're so focused it really does expedite our time, which is encouraging that we could be doing this as time goes on to



					help our students have more benefits in our learning. (Edie)
	Focus		My transcriptions	Staying on topic	Having a structured meeting and having a focused question like that gets us to where we need to go. (Jenn)
	Depth		My transcriptions	Rigor	We've really dived into that much deeper. (Jenn)
	Collabora-tion		My transcriptions	Working together, sharing ideas, giving feedback	I think it's really helped us to change the way we collaborate and change the way that we work with our students. (Jenn)
	Hands on		My transcriptions	Learning by doing. Taking action.	In that training, everything we did was hands on. (Heather)
	Structure/ delivery		My transcriptions	The size, context, content, and timing of the professional learning experience	You have so many questions but you haven't had a chance to really go into them. With protocols we're able to get to the meat of the problem right away. (Edie)
	Resources		My transcriptions	Using or creating tools	I really love that, being able to go and research and

					find something and then talk about it and get your opinions on it too like sit here together and look at them. (Heather)
	Applicable		My transcriptions	How relevant, authentic, and practical the learning can be implemented into the classroom	It's very systematic and it makes sense in the classroom, that's what you would do. (Heather)
	Accountability		My transcriptions	Expectations for meeting established goals	We will also try to implement the one we have in our class before Friday so we have a little bit of an idea. (Edie)
	Equal Investment		My transcriptions	Opinions valued, voices heard, confidentiality, and collegiality	I think you need to trust that whatever ideas you try in your classroom or, of course anything you share about students or anything like that, that we know it's a safe zone. (Heather)
	Choice		My transcriptions	Having options	For example, we're choosing apps for the iPads. When we choose it, we're just choosing maybe one per week and we

					get to use it in our classroom. (Heather)
	Student-focused		My transcriptions	Keeping the student's needs in the forefront of decision-making	Really we could really get all the kids moving forward on programs that are really beneficial to them as opposed to hit and miss at home at night by yourself. (Edie)