Exploring the Affordances of the iPad for Literature Discussions

by

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Bachelor of Arts, University of Leicester, U.K., 1990
Master of Education, University of Victoria, 2015

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

MASTER OF ARTS

in the Department of Curriculum and Instruction

University of Victoria

Supervisory Committee

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Abstract

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This six-week qualitative exploratory case study examined the affordances of the iPad for students and teachers when used to video record discussions about literature. The 13 Grade 6 and Grade 7 participants self-selected their literature circle groups and their novels. Preparation for engaging in student-led literature discussions included specific teaching about participation in a literature circle discussion and a pilot study. Data included six 20-minute student literature discussion videos, students' individual reflective videos made on the iPads, and individual participant interviews with the researcher audio recorded on the iPad. The student reflective videos were partly transcribed and the participant interviews were transcribed. The data analysis involved open coding of the videos and transcripts using a system of screenshots and written codes. The three codes that emerged most often and that were most relevant to my research questions focused on the concept of audience. The students' behaviours, when videoing their discussions with the iPad, fluctuated through a continuum from acknowledgement of the teacher as audience to behaviours that suggested the teacher had been forgotten. The concept of audience also included the students themselves as mirrored in the screen, and an 'other' audience, which seemed to be YouTube. The findings suggested that the students' shifting perspective of audience around the iPad screen, which also acted sometimes as a participant and a co-regulatory more knowledgeable 'other', seemed to contribute to their self-regulatory behaviours and to their observed and professed engagement. Overall, the

analysis of the data revealed the use of the iPad for discussions about literature afforded students with opportunities to self-regulate their behaviours and discourse in ways they seemed to find engaging, and afforded me an unobtrusive window into their discussions, which provided an additional perspective on the students and their work.

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Acknowledgments

I would like to acknowledge and thank my dedicated and wise supervisor, Dr. Sylvia Panatleo, for her extensive guidance, kindness and responsiveness. I would also like to thank Dr. Ruthanne Tobin for all her advice. My patient husband, Calvin, has read and reread this document so many times; I thank him for his helpful comments and for all his support. I would also like to thank my children, Jacob and Madeleine, who inspire me. I acknowledge the fantastic support of my colleagues and administrators at my amazing school. Last, but very certainly not least, I would like to thank my students who enthusiastically took part in this project and who continually inspire me to become a better teacher.

Dedication

To my family, who have supported me throughout this process.

Chapter 1

Introduction

As a Grade 6 teacher I have an ongoing interest in effective ways to teach and motivate middle school students to read widely and to be able to discuss literature collaboratively. The initial impetus for my research was the search for ways to make literature circle discussions in my classroom feature more of the characteristics of effective exploratory talk (Mercer, Wegerif, & Dawes, 1999) with the overall aim of helping students to co-construct knowledge around their reading.

When pursuing my Master of Education degree in 2015, my project focused on using iPads for students to video themselves discussing their reading in French. When students used iPads for this purpose, I observed spontaneous use of role play, effective turn-taking, and focused on-task behaviour. Therefore, I experimented with students using iPads to video literature circle discussions in English Language Arts lessons.

When the students were working with iPads in English, their first language, I noticed more complex and subtle behaviours, such as evidence of intimacy and a relaxed tone. I also saw evidence of students' ability to make inferences about how to apply their strategic knowledge to a particular situation. For example, in using iPads to video themselves discussing literature, the students seemed to have a heightened awareness of themselves because they were able to watch their discussion in real time on the screen. This cognizance seemed to result in the students applying their knowledge of how to behave in a productive discussion, knowledge that had been developed in class through overt teaching and modelling earlier in the year and practised in a whole-class setting. My observations of the students seemingly experiencing engagement and enjoyment, and

simultaneously being more aware of what they were doing and how they could control their role within the task, led to my interest to explore how the affordances of the iPad affect literature circle discussions for students and teachers, especially with respect to the facilitation of exploratory talk.

I recognize that as a researcher my biases, assumptions and beliefs may have shaped my inquiry. With respect to my biases concerning iPad use in a classroom, I considered the iPad a worthwhile learning tool, and I expected to find results concerning student engagement when they used the iPads based on my prior experience with them.

In this chapter I provide an introduction to my research including the inspiration for the study. I outline my primary research question, as well as my guiding sub-questions relating to the potential opportunities the use of iPads to record literature circle discussions can afford in the middle school classroom, both for students and for teachers. I define some key terms, and situate the discussion of the significance of my research in the principles of social constructivism and in its connections to the British Columbia curriculum (British Columbia Ministry of Education, 2016). Finally, I present the potential benefits and importance of my study in particular.

Statement of Purpose

The purpose of the study was to examine more thoroughly the topic of the affordances of the iPad and their potential effects on students' literature discussions, including the use of exploratory talk.

A gap exists in the literature concerning some affordances of classroom use of iPads with respect to the use of this tool to record student literature circle work, and the potential of iPads to help students to learn effectively in groups. Sharples and Pea (2014)

posit that, “One way that conversation contributes to learning is by enabling and requiring learners to externalize their developing understandings (Eisenberg & Pares, 2014), and this contributes to metacognitive awareness” (p. 8). Few researchers have explored the potential role of iPads in helping students to externalize their understanding when talking together in groups. The research trend is on the technical aspects of the iPad, such as specific apps (Gasparini & Culén, 2011; Lynch & Redpath, 2012), or its physical affordances such as size, portability and flexibility (Berson, Berson, & McGlinn Manfra, 2012; Melhuish & Falloon, 2010). Despite an increase in studies about the use of the iPad in educational contexts over recent years, Bennett and Lin (2017) point out that, “limited research exists that showcases the most effective ways to use iPads for teaching and learning purposes” (p. 208). Standard (2013) states “since research is somewhat scarce at this time, we [educators] are the pioneers of discovering the most effective ways to utilize new technology in the classroom” (cited in Bennett & Lin, 2017, p. 41). Standard wrote these statements in 2013; the fact that Bennett and Lin cite him in 2017 is one illustration that little has changed in the intervening four years. The aim of my study was to contribute further to the body of research about the potential best uses of iPad technology in classrooms.

Research Questions

My research main question was: What are the affordances of iPads in literature discussions in middle school classrooms? This overarching question was broken down into the following two sub questions:

1. What opportunities can the use of the iPad offer to students with respect to their discussions about literature?

2. What opportunities can the use of the iPad offer to literacy teachers with respect to students' discussions?

Definition of Terms

I use the word 'affordances' in the general sense of the possibilities or opportunities and constraints allowed by the iPad technology. Jewitt (2015) states that the term affordances is a "complex concept connected to both the material and the cultural, social and historical use of a mode" (p. 72), and she cites Kress's use of the term to refer to the potentialities and constraints of different modes (p. 72).

Because iPads are the tool students used to make and upload videos in my study, I have referred to them throughout. Technology advances quickly and any networked portable device with a built in microphone and a screen large enough for the students to observe themselves while they are videoing would likely offer similar affordances.

I define literature circles following the definition by Daniels (2006), "Literature circles are small, peer-led discussion groups who have chosen to read the same story, poem, article, or book" (p. 2). The purpose of this structure is for students to interact with peers and their chosen text through ongoing discussions. Students are expected to guide their own learning by making connections and focusing on issues that are meaningful to them (Ernst-Slavit, Carrison, & Spiesman-Laughlin, 2009).

Exploratory talk is a term originally coined by Barnes (1976) to describe learning talk where students draft and redraft their speech in order to allow them to explore their ideas and co-construct meaning in small groups, before being required to articulate their ideas in a more complete form, as opposed to presentational talk which involves the pressure to perform polished speech to the whole class or the teacher. Mercer, Wegerif

and Dawes (1999) used the term exploratory talk as a description of discourse that foregrounds the function of discussion as exploratory rather than as complete. Mercer and Littleton (2007) extended and adapted Barnes's ideas and described exploratory talk as dialogue in which students engage critically but constructively with each other's ideas. As well, students offer statements and suggestions for joint consideration which may be challenged and counter-challenged, but challenges are justified and alternative hypotheses are offered. Participants all actively participate, and opinions are sought and considered before decisions are jointly made (Mercer & Littleton, 2007, p. 59).

Significance of the Study

The significance of the study is linked to the revised British Columbia curriculum that was introduced in 2015, which is based on the principles of social constructivism derived from Vygotsky's (1978) sociocultural theory. Student participation in literature discussions, if implemented effectively, can address multiple relevant Curricular Competencies in the 2016 British Columbia Grade 6 English Language Arts curriculum, in particular: "Think critically, creatively, and reflectively to explore ideas within, between, and beyond texts" and "Exchange ideas and viewpoints to build shared understanding and extend thinking" (British Columbia Ministry of Education, 2016, p. 10). Furthermore, student engagement in successful literature circle discussions can contribute to almost all of the 'Big Ideas' which drive the English Language Arts curriculum design, such as: "Exploring stories and other texts helps us understand ourselves and make connections to others and to the world"; "Exploring and sharing multiple perspectives extends our thinking"; "Questioning what we hear, read, and view contributes to our ability to be educated and engaged citizens" (British Columbia

Ministry of Education 2016, pp. 10-11). I believe it would be difficult to implement the curriculum successfully without helping students to engage in scaffolded discussions around literature, so ways to facilitate and extend exploratory talk are particularly relevant in current classrooms.

Building on Vygotsky's (1978) theory that individuals develop and organize their thoughts through their articulation, the research findings on literature circles indicate that with good preparation and scaffolding, and careful navigation of power and social dynamics in the classroom, the use of small discussion groups can be an effective way for children to extend their understanding of literary texts (Applebee, Langer, Nystrand, & Gamoran, 2003; Bourne & Jewitt, 2003; DeBlase, 2005; Nystrand, 2006; Smagorinsky & Fly, 1993). If the use of iPads can lead to enhanced focus and increased engagement, then they have the potential to help students participate effectively in literature discussions.

The use of the iPad as a video camera in the classroom can be a technology that changes the way that students work by its very presence. Merchant suggests that iPads are a technology so tightly woven into an activity that they participate in the action, and he uses Latour's (2005) term 'actants,' meaning participants in courses of action (as cited in Merchant, 2015, p. 146), to describe the way the iPads are "active' in helping to shape the actions of their users. Some factors in contributing to this effect may be due to the iPad's portability and flexibility, allowing students to work in different physical spaces (Bennett & Lin, 2017; Melhuish & Falloon, 2010; Miller, 2012). Another key affordance of the iPad is its 'invisibility' (Learning and Skills Improvement Service, 2010 as cited in Melhuish & Falloon, 2010, p. 6). Murphy (2011) highlights "the unobtrusive and tactile nature of the device" which he suggests is "an important element in facilitating rather

than hindering discussion and interactions between groups of students" (p. 23). Furthermore, Meurant, 2010 suggests the iPad acts as a central focal point for discussion, rather than a distraction during group activities (as cited by Murphy, 2011, p. 23). These factors taken together suggest that rather than the iPad functioning as a neutral observer and recorder of students' discussion, its presence may affect the way students behave, for example holding them accountable for their discussions while simultaneously enabling feelings of autonomy and providing a playful space, these affordances may further the effectiveness of their discussions.

The child centricity of the iPad also seems to play a role in how students react to it; researchers have reported increased student engagement through the use of mobile devices in classrooms (Banister, 2010; Flores, Musgrove, Renner, Hinton, Strozier, Franklin & Hil, 2012; Granberg & Witte, 2005; Hill, 2011; Hutchison, Beschorner, & Schmidt-Crawford, 2012; Li & Pow, 2011). Evidence also exists of the power of the iPad's role as an icon representing a networked and teen led YouTube culture. Sharples and Pea (2014) note that outside school, children use their mobile devices to create social networks and to constantly converse, and that in so doing they develop skills that are valued in the knowledge economy, despite having been developed for personal and social reasons (p. 10). This body of knowledge indicates that the iPad is more than merely a video camera, and that its affordances may lead students to behave in certain ways in its presence, such as reacting playfully to their own image on the screen while nonetheless having an in depth discussion about the book because they know that a teacher will watch the video. These behaviours may motivate and engage them, and ideally, simultaneously extend and facilitate their exploratory talk.

Overview of Thesis

In Chapter One, I have provided an introduction to my research including the inspiration for the study and the significance of iPad use in the classroom. I outlined my primary research question, as well as my guiding sub-questions relating to exploratory talk and the use of iPads in the middle school classroom. Finally, I presented the potential benefits and importance of my study.

In Chapter Two I explore the theoretical frameworks of social constructivism, sociocultural theory (Vygotsky, 1978), and Rosenblatt's (1994) transactional theory. Conceptually, I explore Gee's (1989) work on discourses and Discourses, exploratory talk, dialogic teaching, Mercer's (2000) work on interthinking, and multimodality, and Dewey's (1899) work on how learning is optimally driven by student interest. I review literature on the following topics: the advantages of using literature circles in classrooms and the conditions conducive to their effective implementation, as well as their limitations; the potential benefits and drawbacks of online literature circles; student engagement; the role of technology, and specifically iPads, in the classroom; and the teacher's role in the implementation of technology in the classroom.

In Chapter Three I detail the methodology used in the research: case study methodology. I describe the research site, review the research design, data collection and analysis procedures, and discuss limitations and restrictions issues of the research.

In Chapter Four, I discuss the findings that were revealed from analysis of the student-made videos on the iPads during their literature circle discussions, my observations, and student feedback via feedback videos on the project and during the

semi-structured interviews. I discuss the central themes that emerged from my data analysis and offer conclusions regarding these themes.

In Chapter Five, I first reflect on my central research question as well as my sub-questions. I then review the pedagogical and research implications of these conclusions, with respect to the literature reviewed in Chapter Two. Finally, I present my final reflections on the use of iPads to record literature circle discussions in middle school classrooms.

Chapter 2

Theoretical and Conceptual Frameworks and Literature Review

In Chapter Two, I provide an overview of the theoretical perspectives, conceptual frameworks, and scholarly literature that informed my research on the role of iPads and the benefits of their purposeful use in the classroom to help students to engage in meaningful discussions around literature. I situate my work in social constructivism and Vygotsky's (1962) sociocultural theory, as the tenets of these theories emphasize how students learn by talking together, which is a central aspect to the successful implementation of literature circles. I also reference Rosenblatt's transactional theory, which stresses that students will have different responses to the text based on their individual transactions.

Conceptually, Gee's (1989) work on discourses and Discourses provides a perspective to consider the discourse environments of both school and the literature discussion group itself with respect to how students discuss their understandings of the literature they have read. Exploratory talk and dialogic teaching are important approaches to adopt if a teacher is going to use small group literature discussions; students need space and time to work towards meaning in an exploratory manner, and if students believe talking together is a valid way to work, ideally they will be able to engage fully in literature circles in ways that could extend their thinking. Furthermore, in this chapter I consider Mercer's (2000) work on interthinking, a concept which provides a rationale as to why discussion groups can be a powerful way for students to extend their individual thinking by working in a group. Multimodality (Jewitt & Kress, 2003), an approach whereby the many ways in which humans communicate in addition to language are

considered, provides a lens through which students' interactions with the iPad can be analyzed and interpreted.

Additionally, I explore and critique a number of primary research studies and scholarly works that consider the rationale for the inclusion of literature discussions in classrooms (e.g., Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009; Sanacore, 2013), exploratory talk (e.g., Kucan & Beck, 2003; Rojas-Drummond et al., 2014; Wolf, Crosson & Resnick, 2005), the conditions conducive to effective literature discussions (e.g., Evans, 2002; Hillier, 2004; Peterson, 2016; Soares, 2009), and the limitations of literature discussions (e.g., Berne & Clark, 2006; Miranda, 2015; Peterson, 2016), as well as studies where findings suggested that high quality discussions can prompt readers to reach a deeper understanding of the text (e.g., Clarke & Holwadel, 2007; Rosenblatt, 2013), and literature exploring the potential benefits and drawbacks of online literature circles (e.g., Day & Kroon, 2010; Edmonson, 2012; Grisham & Wolsey, 2006).

I consider studies on student engagement (e.g., Axelson & Flick, 2010; Fredricks, Blumenfeld, & Paris, 2004; Guthrie et al., 2004) because one of my motivations for using iPads to video literature discussions was the apparent engagement reported anecdotally by students when involved in this activity during previous years my classroom. I also briefly discuss both self-regulation and co-regulation (Hadwin & Oshige, 2011; Zimmerman, 2000) because I was interested in the role the iPad played in helping students to learn to self-regulate, and whether the iPad might act as a proxy for a more 'capable other' in a co-regulatory way.

Scholarly studies that have focused on the role of iPads in the classroom are limited. I was unable to find any studies that focused on the affordances of the iPad in

direct connection to literary discussions. However, in order to provide a context for how iPads have been used in classrooms, I critique several general studies on iPad use in the classroom (Li, Pow, Wong & Fung, 2010; Smith & Santori, 2015), as well as discuss a meta-analysis of studies on iPad use in the classroom by Dhir, Gahwaji and Nyman (2013). I also explore studies that focused on the iPad's physical affordances (Merchant, 2015; Murphy, 2011; Peng, Su, Chou, & Tsai, 2009; Traxler, 2010), and its less tangible affordances (Fisher, Lucas, & Galstyan, 2013; Lenters & Grant, 2016). Furthermore, I discuss studies where researchers have explored the teacher's role in modelling and explicitly teaching the skills necessary for the meaningful use of iPads in the classroom (Falloon & Khoo, 2014; Lynch & Redpath, 2012; Montrieux, Vanderlinde, Courtois, Schellens, & De Marez, 2014). I share findings from the research by Falloon and Khoo (2014) who studied children's exploratory talk while using an iPad app. Finally, I critique studies where researchers are critical of the role of iPads in the classroom and classify them as a distraction (Bennett & Lin, 2017; Hoffman, 2013; Lynch & Redpath, 2012).

Theoretical Frameworks

Social constructivism and sociocultural theory.

Constructivism is a theory of learning which posits that students learn by actively constructing their own knowledge (Duffy & Cunningham, 1996; Fosnot, 1996; von Glasersfeld, 1996). Concepts are not directly transferred from teachers; they have to be conceived by the students, who use available schemata to construct knowledge that is viable and meaningful for them in an ongoing process of construction, evaluation, and modification. The theory of social constructivism extends constructivism by incorporating the role of other actors and culture in a student's development. Social

constructivists focus on the key role played by the environment and the interactions among individuals. The theory of social constructivism is foundational to talking about texts during literature circles because this organizational structure can give space for students to talk about their reading, with the aim that they can co-construct meaning and come to a deeper understanding through talking about their reading with others (Daniels, 2002).

Sociocultural theory (Vygotsky, 1978) focuses on development of cooperative dialogues between a novice and an expert in order to help the less knowledgeable member learn the ways of thinking and behaviour in the shared community. By contrast, social constructivism has as its basis the concept that knowledge is individually constructed and socially mediated; by getting engaged in a wide range of activities with others, learners internalize the outcomes activated by working together. According to sociocultural theory, culture is central to a child's development, with speech and writing developing as ways to mediate the social environment. Vygotsky (1978) stressed the essential role that social interactions play in cognitive development, and he wrote about how the development of higher-order cognitive processes are rooted in experience and the socially situated context. Vygotsky (1978) stated that these cognitive processes appear "twice: first, on the social level, and later, on the individual level; first between people (interpsychological) and then inside … (intrapsychological) …. The transformation of an interpersonal process into an intrapersonal one is the result of a long series of developmental events" (p. 57). Thus, the use of small group literature discussions in class is founded in Vygostky's theory

because by talking about their own response to literature with others, students can deepen their understanding and co-create knowledge.

A sociocultural approach to research and methodology is centered on the social formation of mind (Tharpe & Gallimore, 1988; Thorne & Lantolf, 2006; Wertsch, 1985). The argument is not that social activity influences cognition, but that social activity is the process through which human cognition is formed. The idea that students learn by talking together is central to the concept of literature circles which are built on the tenets of social constructivism and sociocultural theory. If evidence indicates that using the iPad to record student discussions can help them to stay on task and participate productively, then the use of the iPad can be seen as a useful tool in the classroom to promote social constructivist learning.

Rosenblatt's transactional theory.

Since my research focused on exploring students' discussion of literature and understanding the nature of their responses, I situated my research in the work of literary theorist, Louise Rosenblatt. According to Rosenblatt's (1994) theory, readers' individual interpretations of the text arise from their individual transactions with the text. She questioned the notion that meaning was contained within text, and contended that a reader and text 'transact' to create meaning. The transaction is between reader and text, and meaning is made through this "dynamic" process (Rosenblatt, 1994, p. 1063) that is a "complex, nonlinear, recursive, self-correcting transaction" (p. 1094). Rosenblatt described how a reader's social and cultural background and literary experiences and context are integral to the complex process of reading and construction of meaning. According to Rosenblatt (1994), "every reading act is an

event, or transaction involving a particular reader and a particular pattern of signs, a text and occurring at a particular time in a particular context" (p. 1063).

Rosenblatt (1994) described how readers embrace a predominant "stance" which will affect their selective attention and therefore prioritize some aspects of a text over others (p. 1066). She coined the terms "efferent" and "aesthetic" to describe the two main stances a reader may adopt. The efferent stance describes the "ideas, information, directions and or conclusions" (Rosenblatt, 1994, p. 1067) a reader pays attention and responds to, while the aesthetic stance focuses on a reader attending to the feelings, ideas, situations, scenes, personalities and emotions evoked during the reading event. The selection of a stance, or a position on the continuum between the two predominant stances, guides a reader as she organises and synthesizes her reading. Thus, instructional approaches to literature that promote the adoption of an aesthetic stance focus on the individual lived-through experience of the text, where the reader brings to the reading his/her own life knowledge and personality. Approaches that promote an efferent stance to literature emphasize reading for taking away information (Rosenblatt) such as a quiz focusing on the events that occurred in the book. Furthermore, Rosenblatt emphasized the need for educators to teach students how to attend to both the affective and cognitive aspects of reading. In my classroom, I encouraged the students to adopt an aesthetic stance during their literature circles, and I used the iPads as a tool to capture the students' work in a multimodal environment, which allowed me to give them formative feedback based on their discussions as the project developed.

Conceptual Frameworks

Gee, discourse and Discourse.

The environment in which a student studies will impact the way they talk, act and think. When students are talking about books in school they are simultaneously engaged in both discourse and Discourse as defined by Gee. He distinguished between Discourses 'with a capital D' and "the connected stretches of language" (Gee, 1989, p. 6) that constitute discourses 'with a little d'. According to Gee (1989), Discourses are more than simply words being spoken, written or read but rather "ways of being in the world; they are forms of life which integrate words, acts, values, beliefs, attitudes, and social identities as well as gestures, glances, body positions, and clothes" (p. 6). Discourse (with a capital D) is as an 'identity kit,' that allows people to successfully participate within a particular setting or social group. Thus, the setting of school presents a Discourse community that children become familiar with, although it may be different from the primary Discourse acquired at home (Gee, 1989). Discourse communities are also created within classrooms and literature discussion groups.

Exploratory talk.

When students engage in discussion where they co-construct knowledge, they usually engage in exploratory talk. Exploratory talk can also be a type of discourse engaged in by students and teachers within the larger Discourse community of the classroom, as defined by Gee (1989). Exploratory talk is a term originally coined by Barnes (1976) to describe learning talk in classrooms as opposed to presentational talk, which he defined as talk of a more formal nature, such as talk to a teacher or to a whole class. Mercer, Wegerif and Dawes (1999) used the term exploratory talk as a description

that foregrounds the function of discussion as exploratory rather than as complete and polished. Mercer and Littleton (2007) extended and adapted Barnes's (1976) ideas and described exploratory talk as dialogue in which students engage critically but constructively with each other's ideas, offer statements and suggestions for joint consideration which may be challenged and counter-challenged, and justify challenges, offering alternative hypotheses. In this definition of exploratory talk, participants all actively participate, and opinions are sought and considered before decisions are jointly made (Mercer & Littleton, 2007, p. 59). For small group discussions about literature to be effective, considerable evidence has revealed that students need to be taught how to engage in constructive dialogue that features various types of talk such as exploratory talk.

Exploratory talk can play a central role in effective literary discussions in class; evidence has suggested that students benefit from the chance to explore their ideas together before they need to express them in a formal way (e.g., Alexander, 2008; Bakhtin, 1981; Barnes et al., 1969; Boyd, 2012; Boyd, & Maloof, 2000; Haneda & Wells, 2012; Mercer & Hodgkinson, 2008; Michaels, O'Connor, & Resnick, 2008; Mohr & Mohr, 2007; Nystrand, Gamoran, Kachur, & Prendergast, 1997; Wolf et al., 2005). Smagorinsky (2013) relates Vygotsky's social learning theory to classroom discourse, pointing out that "what matters is using the developmental potential of speech to generate and explore ideas, rather than to always speak and write in ways that meet an assessor's approval" (p. 194). Smagorinsky is building on Barnes's (1976/1992) argument that students in school are expected to use final draft speech, an emphasis that tends to produce less talk. He asserts that students need more opportunities to use speech in

exploratory ways, “where they can stumble and grope their way toward an idea without worrying about how it sounds as it emerges from their mouths or pens” (Smagorinsky, 2013, p. 193).

Many researchers, such as Nystrand et al. (1997) and Sanacore (2103), have concluded that children need to be taught how to engage in productive exploratory talk, as left to their own devices the talk they engage in will not necessarily be useful. In my experience, the use of iPads to record student literature discussions, which feature much exploratory talk, seems to facilitate reflection and self-awareness in peer-led discussions, as well as keeping students on task for extended periods of time.

Interthinking.

Effective exploratory talk can lead to students being able co-construct their own understandings individually and build knowledge within the group. Vygotsky’s (1978) idea that students need to work and talk together in order to learn effectively is supported by Mercer’s (2000) work on ‘interthinking.’ This concept emphasizes the importance of the group to cognitive development. Mercer (2000) used the term ‘interthinking’ to describe the way that humans think collectively through oral language in order to pursue common goals. He argues that humans have evolved to be social and to work together collectively, refuting earlier theories that humans have evolved in order to best compete with one another in the way that other primates have. In his more recent work, Mercer (2013) argues that humans are most successful at problem solving and at developing individual cognition when they engage together in dialogue (p. 151). Littleton and Mercer (2013), in their work on interthinking, built on Vygotsky’s concepts of ‘intermental’ and ‘intramental’ activity, theorizing that not only does the development of understanding

depend on this interplay between social and individual cognition, but also "the distinctive nature of human thinking in general is instantiated in our ability to think both collectively and alone" (p. 10). This concept would suggest that group work is an essential component of learning and that it is a teacher's responsibility to help students to develop the skills needed to work together effectively.

As discussed in the section on social constructivism and sociocultural theory, evidence suggests that working in a group can enable individuals to deepen their individual understanding through the process of discussing, challenging and exploring ideas and opinions (e.g., Alexander, 2008; Bakhtin, 1981; Vygotsky, 1986). Indeed, the importance of the social environment for learning continues to be an important topic of research in educational circles. Mercer (2013) cited the United Kingdom's Royal Society of Arts (RSA) seminar in 2010, which brought together researchers from evolutionary psychology, neuroscience, computer-related studies, and educational research, where one of the key issues that emerged was "[t]he brain's sociality: The brain's constant orientation to others and the creation of meaning through brains interacting, rather than through the operation of individual internal cognition" (RSA, 2010 as cited in Mercer, 2013, p. 148). The collaborative power of the brain is one of the pillars of literature circles. Woolley, Chabris, Pentland, Hashmi and Malone (2010), who studied 699 people working in groups of two to five to perform a wide variety of tasks, found converging evidence of a general collective intelligence factor that explained a group's performance on a wide variety of tasks. The researchers claimed that this "c factor" was not strongly correlated with the average or maximum individual intelligence of group members but rather correlated with the average social sensitivity of group members, the equality in

distribution of conversational turn-taking. They called this phenomenon "collective intelligence" (Woolley et. al, 2010).

Mercer (2013) suggests three possible explanations to describe how this concept of collective intelligence might function, although he uses the term 'interthinking': appropriation, where students learn problem solving strategies from one another during exploratory talk and go on to apply them individually; co-construction, where students co-construct knowledge through exploratory talk and can later use that knowledge individually; and, the most compelling for him, transformation in which: "the argumentation involved in collaborative problem solving might promote children's metacognitive, critical awareness of how they reasoned" (p. 155). Mercer posits the 'transformation' explanation embodies Vygotsky's claims about the effects of social experience on psychological development, and the key role of language in shaping individual cognition. The transformation explanation also aligns with Wegerif's (2010) arguments that human reasoning is dialogic and that a skilled thinker can take and consider differing viewpoints (p. 307). Transformation suggests the benefits students can derive from effective exploratory talk are greater than had previously been thought. If the use of iPads to record exploratory talk encourages students to self-regulate their group work and to keep on task, then perhaps recording with the iPads can play a role in facilitating student group participation well enough for them to experience transformation.

Dialogic teaching.

In order for exploratory talk and interthinking to be successful, research evidence suggests teachers need to help students understand the role they play in constructing their

own understanding. Robin Alexander (2006) used the term dialogic teaching, developed from the ideas of Paulo Freire and Bahktin, to describe the instructional stance in which the teacher aims to enable students to find their own way towards meaning rather than imposing a 'correct' view. Dialogic teaching involves ongoing talk between teacher and students, not just teacher-presentation, as well as dialogue among students themselves. Through dialogue, teachers can elicit students' perspectives, engage with their developing ideas and help them overcome misunderstandings. When students are given opportunities to contribute to classroom dialogue in extended and varied ways, they can explore the limits of their own understanding and practice new ways of using language as a tool for constructing knowledge. A number of researchers have argued that although knowledge is embedded in talk (e.g., Baker, 1997; Heap, 1991), it is often provisional and regulated, as learning is connected to the successful compliance with specific interactional procedures in classrooms (Freiberg & Freebody, 1995). Edwards-Groves and Hoare (2012) point out that "what counts is the systematic ways in which classroom teachers and their students mutually construct the power and precision of verbal and non-verbal interaction in the production of classroom knowledge" (p. 85). A dialogic approach is essential in encouraging students to use exploratory talk; if students think there is only one 'right' answer, then they are considerably less likely to engage in meaningful discussion or to work together effectively to construct understanding.

Substantial evidence exists for the educational value of collaborative learning; a meta-analytic review conducted by Roseth, Johnson, and Johnson (2008) of 148 studies that involved students aged 11 to 15 revealed that cooperative learning has positive effects on academic achievement. This focus on speech as a way of discovering and

building understanding within a group is a fundamental pillar of effective small group discussions about literature in class, which was the ultimate goal of my study.

Multimodality.

In a dialogic classroom where students' voices are honoured, a multimodal approach can provide a lens through which to further enhance understanding of communication. Although traditionally literacy has centred around the printed word, there has been an evolution of its meaning to incorporate other ways in which humans communicate; the term multimodal is used often when discussing visual or design literacies, digital literacies, or non-linguistic modes of communication, and as Van Leeuwen (2015) points out, oral discourse is almost always multimodal (p. 447). Multimodal understandings of literacy view meaning-making as shared, consumed, and remade through a variety of representational and communicational modes (Jewitt & Kress, 2003; Siegel & Rowe, 2011). This view of literacy recognizes text forms, ranging from linguistic texts to texts that communicate through visual, spatial, oral, auditory, and gestural modes, as deeply encoded with meaning. These modes are organized sets of meaning-making resources and are continually created and transformed by users to meet the needs of their audience (Jewitt, 2008). When combined, these modes work in conjunction with each other to communicate meanings that would not be possible through the use of a single mode (Semali & Fueyo, 2001). Because my study focused on the use of the iPad, which when used as a video camera is a medium which captures and simultaneously mirrors students' intonation, body language and gesture as well as their words while they are participating in discussions, multimodality provides a potentially useful lens through which to analyze and interpret their work.

The origins of multimodality are found in the work of early theorists in semiotics, starting with Saussure (1959) and Peirce (1977), who both foregrounded an opening up of what text is or can be in their work with respect to literacy learning. Their theories formed the basis of what is now known as multimodality. Dyson (1982, 1983), and Harste, Woodward and Burke (1984) questioned the centrality of print in literacy and published studies that did not privilege written language above other symbol systems in literacy learning and development. Street's work (1984) challenged the prevailing view of literacy as a monolithic skill with an unchanging essence that develops through an unfolding of school-oriented skills and argued that, in contrast, literacy is a set of social practices that are socially situated and discursively constructed, making it more appropriate to speak of multiple literacies than a single literacy. In 1996, the New London Group (Gee, Kalantzis, Kress, Luke and others) stimulated an interest in applying multimodal analysis to education with their publication of a manifesto for a pedagogy of multiliteracies. "Multiliteracies" was a call to educators to rethink literacy pedagogy in light of the diverse "cultures that interrelate and the plurality of texts that circulate [as well as] the variety of texts associated with multimedia technologies" (New London Group, 1996, p. 61).

The concept of multiliteracies aimed to take into account all modes of communication; in their manifesto the New London Group (1996) identified five different modes of meaning-making in literacy education: (1) linguistic, (2) visual, (3) audio, (4) gestural, and (5) spatial (p. 65). Each mode has its own systematic semiotic resources, and its own internal grammar for potential meaning-making. For example, Kress (1999) notes that language "is necessarily a temporally, sequentially organized

mode … [t]he visual by contrast is a spatially and simultaneously organized mode" (p. 79). The concept of multimodality includes understanding how these various modes are "orchestrated" in order to create a multimodal "ensemble," a material product which combines "a plurality of signs in different modes into a particular configuration to form a coherent arrangement" (Kress, 2010, p. 162). The meaning communicated or represented by one mode interacts with the meaning of others to create new meanings. Multimodality was a significant concept to my study because the use of the iPad as a video camera captured more than simply the students' dialogue, for example, gesture and facial expressions. The mirroring effect of the camera, whereby the students watched themselves as they engaged in discussion, seemed to make the students more aware of all five of the modes of meaning-making as defined by the New London Group (1996). Furthermore, all of these modes of meaning-making were accessible to me when watching the students' videos to give them feedback, and when analyzing the video data I collected for the research.

Social constructivism, sociocultural theory, Rosenblatt's transactional theory, Gee's work on discourses and Discourses, exploratory talk, Mercer's work on interthinking, dialogic teaching and multimodality are the perspectives and concepts that, taken together, build an argument for the value of having students work together in groups to discuss literature. Next, I provide a review of relevant literature.

Review of Relevant Literature

The following topics are explored below in the literature review: exploratory talk; the rationale for literature circles, both face-to-face and online, and their respective benefits and limitations; the integration of technology in classrooms; the use of iPads in

classrooms, and their affordances and limitations; and the role of the teacher with respect to the use of technology in classrooms.

Exploratory talk.

Theorists and researchers have long recognized the critical role of student engaged involvement in classroom talk and the importance of talking to learn (eg. Alexander, 2008; Bakhtin, 1981; Barnes et al., 1969; Boyd, 2012; Boyd & Maloof, 2000; Haneda & Wells, 2012; Mercer & Hodgkinson, 2008; Michaels et al., 2008; Mohr & Mohr, 2007; Nystrand et al., 1997; Vygotsky, 1986; Wolf et al., 2005). To actively engage in exploratory talk, students need to feel "at ease, free from the danger of being aggressively contradicted or made fun of" (Barnes, 2008, p. 5). Mercer and Littleton (2007) classified classroom talk into three types that represent social modes of thinking: cumulative (building on each other without real engagement with ideas), disputational (disagreeing with each other without providing support for why), and exploratory talk (including both cumulative and disputational but providing reasoning for why). Mercer and colleagues (Mercer, 1996; Mercer & Littleton, 2007; Rojas-Drummond & Mercer, 2003) refined the definition of exploratory talk as discussion in which people engage critically but constructively with each other's ideas and relevant information is offered for joint consideration. Proposals may be challenged and counter-challenged, but reasons are given and alternatives are offered. Agreement is sought as a basis for joint progress. Knowledge is made publicly accountable and reasoning is visible in the talk.

Fundamental to my research was the notion that exploratory talk is an essential element of successful collaborative activity. A study that focused on the idea that collaborative activity might promote exploratory talk and its potential for increasing

comprehension was carried out by Rojas-Drummond et al. (2014); the researchers aimed to explore the development and promotion of reading comprehension in the context of the implementation of a programme, called 'Learning Together' (LT), which centred on collaborative activities designed to promote oral and written communication. Participants, 120 Grade 6 children from two public schools in Mexico City, followed the same, tightly prescribed, state curriculum. Sixty children participated in the LT programme throughout the year in parallel with their regular classes, and the other 60 students in the control group continued with their regular classes. The LT programme, which was conducted in 18 sessions of 90 minutes each over a period of 7 months, involved students engaging in diverse creative projects that required joint problem solving and co-creation of knowledge, and promoted the use of 'Exploratory Talk' as defined by Mercer (2000). The data, consisting of integrated summaries written by the children of the three texts they read, were analyzed following Van Dijk and Kitsch's (1983) strategic model of text comprehension. The results suggested that the students who participated in the LT programme improved significantly in the capacity to integrate information from different types of text in comparison with the control group. The study is relevant to my research because the findings that the promotion of exploratory talk and a dialogic style of teaching positively affected literacy and comprehension suggest that finding ways for teachers to observe exploratory talk, as iPads allow them to do, could be an important step in helping teachers to understand, assess and encourage the exploratory talk engaged in by their students.

Some researchers have examined the role of teachers in providing the needed scaffolding and safe environment to best foster exploratory talk. Miller (2003) explored

how teachers mediate discussions of literature in order to foster students' "habits of mind" (p. 290). She synthesized several ethnographic case studies she had conducted over the course of a decade, and used three specific case studies to demonstrate "how constructivist literature study - particularly open-forum discussion - shapes students' knowing and thinking" (Miller, 2003, p. 290). The case studies typically involved weekly observations of whole class discussions held in secondary English classrooms in three urban schools over the course of an academic year. Miller took field notes and audiotaped each observation and collected classroom artifacts and the writings of students. Additionally, she conducted semi-structured interviews of teachers and select focus students. She looked for themes and categories related to each student's engagement in thinking and brought these back to the focus students for "verification or confirmation" (Miller, 2003, p. 292). In the open-forum discussion format Miller (2003) observed that the students "began 'talking with each other' rather than 'talking at each other'" (p. 294), and asserted that teachers can mediate students' ability to socially construct their understanding of text by scaffolding strategies that facilitate students' interpretive and evaluative abilities. Thus, when teachers mediated literary discussions that encouraged and allowed multiple "cultural and critical perspectives" (Miller, 2003, p. 290), students learned different habits of mind than they did in contexts that did not allow for multiple perspectives. The findings from this study suggested that when teachers provide sequences of support rather than pre-conceived and pre-determined answers, they can successfully create a community of learners that value the social construction of knowledge in a safe environment.

Although in Miller's (2003) research the teacher was present to direct discussion, the iPad can allow a teacher to be simultaneously present but not physically present, in that the students are working alone with the iPad but they know the teacher will watch the video. I believe the use of iPads to video student literature discussions is a way for teachers to experience the discussions without their physical presence. However, in order to help develop their discussion skills, teachers need to provide formative feedback to students after they review the videos, as well as initial instruction as noted below.

Further evidence for the role played by teachers in fostering the right environment for exploratory talk to take place was suggested by Applebee et al. (2003), who collaborated in research to examine "dialogic interaction, support for envisionment building, and extended curricular conversations" (p. 693). Data were gathered in 64 participating classes in 19 middle and high schools by a team of five field researchers, and consisted of an initial literacy performance assessment and follow-up assessment and student questionnaire. Field researchers audiotaped four lesson observations for each classroom. Applebee et al. found that teachers offered higher track students more opportunities to engage in open discussion than low-track students, and that there was higher engagement in extended curricular conversations at the high school level than the middle school level. Applebee et al. (2003) described the teacher's role as one of "directing conversational traffic, focusing issues, and guiding students through the text to answer their own questions" (p. 712).

The research by Applebee et al. (2003) and Miller (2003) emphasizes the importance of the teacher's role in creating a dialogic environment in the classroom and in modelling and scaffolding effective exploratory talk. In my experience the use of iPads

can help the teacher to model and scaffold exploratory talk. As described in Chapter 3, before the project began I showed video clips from previous years' literature circle work and encouraged the students to identify and talk about the ways in which the videoed discussions were effective. This modelling provided a starting place to discuss how to engage in effective discussions. Furthermore, in the early weeks of the project, I showed the students examples of groups that were engaging in effective exploratory talk and highlighted what they were doing well. I found that students responded well to this modelling by their classmates.

In conclusion, research findings support the assertion that well-structured and modelled exploratory talk can support students' learning in classrooms. If the affordances of the iPad can allow the teacher to experience student discussions without being present, then iPads could become a useful tool for teachers in the classroom to formatively assess, model, and support effective exploratory talk.

Literature circles.

According to Daniels (2002), author of *Literature Circles: Voice and Choice in the Student-Centered Classroom*, literature circles are "small, peer-led discussion groups" whose members have chosen to read the same book (p. 2). The overall aim of the learner-centered approach of literature circles is the engagement of students in higher level thinking and reflection through collaboration and construction of meaning with other readers through discussion and exploration of different points of view about a text. Important principles of literature circles, as described by Strube (1996) include students choosing their own books to fit their purposes, having time to read and using strategies to sample, interpret and respond to what they have read. Daniels's (2002) work built on

earlier scholarship by Atwell (1987), who advocated for student choice and voice to be championed in the Language Arts classroom. Literature circles need to be modeled to students so that the students understand how to engage productively in discussions about literature (Daniels, 2002; Sanacore, 2013). One popular way to model a discussion is through the use of the 'fishbowl' technique (Kong & Fitch, 2002) whereby one group of students discusses their book while the others watch and the teacher and/or students can provide a commentary on discussion skills.

Although I use the term literature circles throughout, other terms have been used for these discussion groups such as "Book Club" (McMahon & Raphael, 1997), "Conversational Discussion Groups" (Wiencek & O'Flahavan, 1994), or "Transactional Literature Discussions" (Dugan, 1997). All of these approaches share an ideological belief that students are "active constructors of their own knowledge and understandings. Ideally, they work through understandings in reciprocal relationships rather than as the receivers of knowledge" (Berne & Clark, 2006, p. 676). This model of student learning is in opposition to the "empty vessel" paradigm of instruction (Freire, 1970) whereby students are considered to be passive recipients of a teacher's knowledge. The use of literature circles in class is based on the theory of social constructivism, where students are co-constructing knowledge by discussing their ideas with others. Furthermore, Vygotsky's (1978) ideas about how knowledge is socially mediated is supported by the use of discussion in small groups to help learners internalize the ideas activated by working together.

The implementation of literature circles can allow for high levels of student interactions as the collaborative discussions led by students can provide them with the

opportunity to talk to each other about literature (Beck & Sandora, 2016; Beers & Probst, 2013; Shanahan, 2013). Furthermore, small group discussions can relieve the pressure for students to perform in a large group, and provide a more intimate environment (Day & Ainley, 2008). The perceived safety of a small group structure may allow students to take risks, share more of their thoughts and feelings, and try new strategies, and provide more equity among voices in a classroom (Bettis, Ferry, & Roe, 2008; Daniels, 2006; Eeds & Wells, 1989). Reading is essentially a social practice which is related to the unique social communities that students inhabit. Therefore, encouraging students to talk about their reading in literature circles can give them a space to articulate their own understandings and appreciate those of others in the group (Gee & Green, 1998). Ideally, students are able to build confidence through these discussion groups (Daniels, 2006), which may lead to deeper conversations and increased engagement. Engagement can be further cultivated through choice, because many literature circle formats include the component of student choice in the reading material they discuss (Daniels, 2006). In a critical analysis of literature circles, Sanacore (2013) observed that the use of literature circles can be a "vehicle for nurturing personal and critical responses to text" which can "foster a sense of community, support analytical discussions, and encourage sophisticated and higher levels of thinking" (p. 117). He also pointed out that literature circles can help students who are at risk of failure with respect to traditional literature teaching because engaging in dialogue can support all learners.

Discussion about the literature that students have read can lead them to deeper understanding about their own transaction with the text. Clarke and Holwadel (2007) assert that, "book groups capture the belief that reading is transactional and that meaning

is not just found in the text or a reader's head but also in the transaction between the reader and the text" (p. 21). In articulating their transaction with the text during literature circles, students can come to understand their reading more deeply. Rosenblatt (2013) asserts that

> When students share responses to transactions with the same text, they can learn how their evocations from the same signs differ, can return to the text to discover their own habits of selection and synthesis, and can become aware of, and critical of, their own processes as readers. (p. 949)

Thus, high quality discussions can prompt readers to reach a deeper understanding of the text (Beck & Sandora, 2016; Beers & Probst, 2013; Shanahan, 2013). Having interacted first with the text on an individual level, talking about the text in a literature circle structure has the potential to enhance the transaction the students experience individually with the text. Furthermore, Rosenblatt (2013) states that "such discussion can help students develop insights concerning . . . metalinguistic understanding of skills and conventions in meaningful contexts" (p. 948). If the use of the iPad to record student discussion can keep them accountable to one another and the teacher, then the use of this digital tool could lead to longer discussions with possibly more opportunities for the development of deeper understanding of the texts they have read.

Literature circles are often implemented by teachers wanting to promote critical thinking in the classroom. Findings from a study by Soares (2009) of gifted middle school students and a study by Hillier (2004) of Grade 11 students revealed that literature circles supported students' critical thinking in that students considered multiple viewpoints and made connections with the text in order to apply the texts to real issues

and real-world scenarios. Additionally, Hamilton, (2013), who explored the effect of implementing literature circles on reading comprehension with a sample population of five Grade 10 classes, found "observable gains occurred through the higher level of student questioning and students responding with evidence cited from the text" (p. 98). Furthermore, Day and Ainley (2008) studied a teacher's experiences with literature circles and her Grade 6 English Language Learners and students with special needs. The teacher in the study reported her realization that the students were "far more capable of producing higher-level thinking on their own than I ever thought possible ... They came up with the synthesis and analysis pieces all on their own, through their own student-led discussions" (Day & Ainley, 2008, p. 172). This teacher's reaction supported other findings that literature circles can benefit students at all reading levels, and showed that the implementation of literature circles, through their social and interactive nature, can be an effective tool in teaching students to think critically and ask critical questions.

As described previously, a core belief of constructivism is the need to understand the complex world of lived experience from the point of view of those who live it. Thus, research focusing on the students' perspectives in literature discussions is relevant. Evans (2002) explored 22 Grade 5 students' perceptions of how they experience literature discussion groups. The yearlong study was carried out during the students' regular literature discussion time, which lasted 20-30 minutes twice a week. The researcher was a participant-observer who also taught the students some of the skills needed to participate in discussion groups. Evans took field notes, videotaped sessions of eight different groups, and met regularly with the groups to reflect on discussions as they watched segments of videotaped sessions. Qualitative data analysis was conducted both

simultaneously with the data collection and after all the data had been collected. Initial analysis was in the form of research memos looking for emerging themes, and disconfirming evidence was used to refine the initial themes. Member checking was used in group reflections carried out throughout the year and in a whole-class discussion at the end of the year. The findings from the data analysis suggested the following: (a) the students had a clear notion of the conditions conducive to effective discussions; (b) the students perceived the gender make-up of groups as influential in their participation and experience; and (c) the students found the presence of a 'bossy' group member influenced their participation in discussions. This study is relevant to my research because it focused on the students' experiences which emphasize the importance of affect and its influence on participation, and by extension, cognition.

Limitations of literature circles.

In addition to the potential benefits that can result from students participating in literature circles, limitations to productive discourse have also been identified by some researchers. In their meta-analysis of the effects of classroom discussion on students' comprehension of text, Murphy, Wilkinson, Soter, Hennessey, and Alexander (2009) considered how various approaches to student discussion of literature in groups resulted in higher level student comprehension. Although, the researchers found that literature discussions were "extremely effective" (Murphy et al., 2009, p. 760) at increasing student talk and allowing students more classroom time to share their thoughts, they concluded that approaches varied considerably in their effectiveness. Those approaches more effective at promoting students' comprehension were categorized as more efferent in nature. Furthermore, the researchers found that relatively few approaches were effective

at increasing critical thinking and reasoning; in many cases increased student talk did not lead to increased comprehension and they stated that "[s]imply putting students into groups and encouraging them to talk is not enough to enhance comprehension and learning" (Murphy et al., 2009, p. 761). These findings are important to note because discussion groups are not an end in themselves. As discussed in the section on exploratory talk, student talk in groups needs to be taught and modelled in order to be effective. If students wander off task or engage in unproductive dialogue then the opportunities for learning can be considerably diminished.

Other researchers have found that barriers to effective literature circles can be caused by social and power dynamics in the classroom, by gender and race issues, or by barriers to accessing discussions faced by students who are not skilled in the secondary discourse of school (Allen, Möller & Stroup, 2003; Evans, 1996, 2002; Lewis, 1997; Maloch, 2005; Peterson, 2016). Furthermore, a teacher's failure to adequately scaffold and prepare students for small group work can lead to poor outcomes, particularly with readers who struggle (Almasi & McKeown, 1996; Maloch, 2002, Miranda, 2015). Peterson's (2016) study of 34 students in a multiage Grades 3 and 4 classroom, in a city in the Southwestern United States explored the affordances and drawbacks of decentralized small group discussion. Data were collected by gathering and expanding detailed field notes, recording discussions (audio and video) of literature to capture as much classroom interaction as possible, selecting student artifacts generated as part of the small group experience, and conducting focused student and teacher interview. These data were analyzed using a combination of constant comparative methods and a micro analysis of talk. Practical and theoretical implications from the data analysis suggested

that decentralized small groups are valuable in a variety of ways, but children need to be guided in developing effective interactional styles. The researcher also suggested that there seems to be a need for students to have debriefing sessions in which a teacher facilitates discussions that might lead to more in depth understandings of texts and literary elements.

Although direct instruction is not a large part of literature circles, it is important when beginning the process of introducing the practice to students. Whittaker (2012) suggests that, when working with students who are struggling with reading "individual students may need guidance in choosing texts appropriate for their reading level" (p. 216). Assisting students in choosing which book is most suitable for their needs may allow students to more readily engage in meaningful conversation about the text with peers. Whittaker also explains that the teacher might have to step into a role that is not the facilitator or the educator in order to help individuals without stigmatizing them. She identifies many "formats for teacher involvement that range from most to least intrusive and include teacher as leader, group member, outside observer of one group, and roaming observer of multiple groups" (Whittaker, 2012, p. 219). Although Whittaker focused on readers who struggle, research suggests that all students benefit from focused instruction around literature circles.

Students having difficulties with literacy do not necessarily benefit from the use of literature circles. Miranda (2015) carried out a study to determine if and how the use of literature circles would impact the comprehension of non-fiction texts as well as student self-perception of their reading comprehension skills. The participants were 4 Grade 9 students in one Academic Intervention Services (AIS) classroom within a rural high

school located in western New York. The study included the collection of pre- and post-intervention comprehension and self-perception data. An intervention that introduced literature circles and their roles, a period of student practice, and a lesson on generalizing the skills learned to all literature, occurred over an unspecified number of weeks. The results of the study were measured based on comparing the pre-and post-intervention data for individual students as well as the group as a whole. Results suggested that student comprehension was not positively affected by the use of literature circles, while student self-perception of reading skills was positively impacted slightly. The number of participants was small, and the researcher acknowledged the limitation of relying on a small data set, with just one student's missing post-test potentially having a disproportionate effect on the findings. However, the findings highlight the fact that although literature circles are meant for students to mostly work collaboratively, with the teacher as the facilitator, readers who struggle, such as those in this study, might need more support in the form of more direct help from the teacher when it comes to interacting with group members independently.

Berne and Clark (2006) analyzed the processes of literacy learning, and the products of literacy understanding that took place when a class of 29 Grade 9 English students partook in small-group peer-led discussions of the literary text "The Lottery." The process of small group work for literature discussion was modelled and discussed with students. Having read the book, the students participated in 20 minute discussions in groups of 4 or 5 students, who were heterogeneous in reading ability. The researchers took field notes and audiotaped the discussions. The transcripts were coded for comprehension strategies, nonstrategic comprehension-related talk, and other talk. The

results suggested that the students used multiple comprehension strategies and engaged in sustained talk about the text. The transcripts also revealed that student voices were not equally heard in the discussions, student talk often resembled serial monologues, and students did not seem to be employing comprehension strategies intentionally to create richer understandings of the text. Berne and Clark concluded that students need to be held accountable for participating in discussions, and they need to be taught to engage in dialogue with one another about text and how to employ comprehension strategies effectively. This study, although limited in scope and overly reliant on a fairly small data set, is relevant because the findings reveal the 'inner workings' of small-group discussion and emphasize the importance of scaffolding in the form of explicit teaching about how to engage in effective dialogue and accountability with respect to effective discussion groups.

Despite the potential barriers to effective literature discussions caused by power dynamics in the classroom or inadequate scaffolding, Sanacore's (2013) thesis that well-scaffolded and modelled peer-led literature circles can encourage reflection and lead to students' cognitive growth is supported by many others who have concluded that well organized literature circles can be beneficial for students (e.g., Applebee et al., 2003; Murphy et al., 2009; Wilfong, 2009).

Online literature circles.

Some classroom teachers have included an online component to literature circles discussions, which can provide students with a variety of different options to extend face-to-face discussions. Researchers have found that online literature circles can develop and enhance a sense of community among participants (Day & Kroon, 2010; Edmondson,

2012; Grisham & Wolsey, 2006), and enhance face-to-face discussions (Carico & Longan, 2004; Edmondson, 2012; Kitsis, 2010). Furthermore, findings from studies suggest that online literature discussions can provide students with the opportunity to develop new literacy and critical thinking skills (Carico & Longan, 2004; Day & Kroon, 2010; Edmondson, 2012; Forest & Kimmel 2016; Grisham & Wolsey, 2006; Stewart, 2009; Wolsey & Grisham, 2007). Several researchers have also reported evidence of enhanced engagement through the use of an online component of literature circles (Carico & Logan, 2004; Day & Kroon, 2010; Edmondson, 2012; English, 2007; Grisham & Wolsey, 2006; Kitsis, 2010; Stewart, 2009; Walker, 2010).

A study conducted by Grisham and Wolsey (2006) focused on three Grade 8 classes for three years in a southern California middle school. The aim of the research was to better understand if electronic threaded discussion groups created group coherence among students. The researchers wanted to share information about the readings with the students as well as have the students share with one another. Students in the study were assigned or chose their own groups for reading and discussing a text, and over the course of a year, students read and responded to seven novels, four of which included an online discussion forum in the form of threaded discussion groups, which are asynchronous. Unlike “chat rooms” where posts are done in real time, in an asynchronous format the threads accumulate over time. Thus, one student might post a response to the novel on Monday, and another student respond to that post on Tuesday. Asynchronous communication means each participant has an opportunity to speak without pause. Wolsey had been using literature circle discussion with students prior to the study. Data collection for the study consisted of student interviews, documents such as journals, and

threaded discussions. Data were analyzed by critical analysis which involved counting words and time online, and ranking of online discussion for indicators of references to other students' literary responses and to the book itself, quotes, paragraphs, descriptive words and humour. The findings revealed that students "felt a sense of responsibility to their peers to keep reading and that the electronic community created a sense of 'home' where authentic student voices were encouraged" (Grisham & Wolsey, 2006, p. 658). The sense of accountability was found to improve students' reading and responding of texts. This study is one of several that concluded that a feeling of community was enhanced by the use of online literature circles.

Day and Kroon (2010) suggested that a sense of community was enhanced with student participation in online discussions. Their study explored the implementation of literature circles with 56 Grade 6 students in language arts classroom in the Pacific Northwest. Students were scaffolded with teacher modeling of how to engage in face-to-face discussions, as well as how to use tools for online discussions. They participated in three rounds of online literature circles and three rounds of face-to-face discussions over the course of a school year. For both the face-to-face and online discussions, students needed to come prepared with post-it notes that contained references and connections to passages they had read, and they were taught a mini lesson that developed prompts to help online discussions progress. Observations, interviews, surveys, and transcripts from online discussions were collected and analyzed. The researchers stated that students' posts to one another demonstrated they cared and supported each other, and that the encouraging comments enhanced students' sense of belonging and connection to peers.

Edmondson (2012) made use of wikis, a website that allows users to contribute and edit entries, in her Grade 10 English class to enhance students' face-to-face literature circle discussions. During the study students met daily with their literature circle groups for discussions, created a reading schedule and assigned each other roles. The students mainly wrote on the wikis at home but the teacher made computers available for students to catch up in class if they had been unable to access what they needed. Students reported feeling as though they were on a team. The author also suggested that the sense of community that developed in the online discussions improved face-to-face discussions (Edmondson, 2012).

Limitations of online literature circles.

Although a few researchers reported cautions about using some technologies in class, many indicated the benefits of online literature circles outweighed the drawbacks, and they suggested strategies to minimize or work around potential shortcomings (Day & Kroon, 2007; English, 2007; Grisham & Wolsey, 2006; Kitsis, 2010). In terms of limitations, Larson (2009) reported that some students had difficulty discerning the intended tone of electronic exchanges. Grisham and Wolsey (2006) found that some students experienced difficulty with typing and believed this skill limited their responses. The reliability of technology and limitations associated with access were also mentioned in some studies (Carico & Logan, 2004; English, 2007; Kitsis, 2010; Stewart, 2009). Furthermore, English (2007) suggested that some parents may not be comfortable with their adolescents engaging in an online forum and recommended that teachers use a site provided through their district so that it is not public. Similarly, Kitsis (2010) mentioned the importance of securing blog sites to ensure that only her students would view the

blogs, and asking students not to use their real names in the blogs. English (2007) acknowledged that setting up an online forum for students requires registering the students, which may be both time consuming and daunting. Ensuring that students use the space as intended by the teacher also requires the provision of teacher scaffolding, modelling and monitoring for students concerning online literature discussions. Overall, limitations and concerns about the use of online literature circles focused more on issues of privacy and access rather than any inherent drawbacks to the online discussions in themselves. Issues of privacy and access are relevant to discussions about all aspects of using technology in schools, including the use of iPads to film literature circles in class. However, these privacy issues can be mitigated to a certain extent with care and awareness, such as not allowing video of students to be uploaded to a public server.

Student Engagement

One of the motivations for using iPads to video literature discussions was the apparent engagement reported anecdotally by students when involved in this activity during previous years in my classroom. Student engagement is a complex term encompassing feelings and sense-making as well as participation. Hu and Kuh (2002) define engagement as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (p. 555). Axelson and Flick (2010) explain that definitions of student engagement are often "tangled semantically as well as conceptually" (p. 39), sometimes overlapping with other constructs. Focusing on engagement in school-aged children, Fredricks, Blumenfeld and Paris (2004), drawing on Bloom's work (1956), identify three dimensions to student engagement: a) behavioural engagement, such as attendance and involvement, which is

considered crucial for achieving positive academic outcomes and preventing dropping out; b) emotional engagement, such as interest, enjoyment, or a sense of belonging; and c) cognitive engagement, for example seeking to go beyond requirements and master difficult skills.

Guthrie et al.'s (2004) four elements of engagement in relation to students' engagement with reading include the following: a) time on task; b) positive interaction with the environment; c) depth of processing during learning; and d) amount and diversity of students' reading activities in and out of school (p. 404). These aspects correspond to the behavioural, emotional and cognitive dimensions of engagement described by Fredricks et al. (2004), with the addition of the fourth element referring to amount and diversity of students' reading activities in and out of school. Guthrie et al. (2004) suggest these four aspects of engagement contain two commonalities: that students are relatively energized, active, effortful, and involved, and that students use their cognitive systems fully, with an emphasis on either cognitive strategies or conceptual knowledge (p. 404).

The elements of engagement identified above are interrelated and generally considered as interdependent. Indeed, some scholars suggest the term engagement should be reserved specifically for work where multiple components are present (Guthrie & Anderson, 1999). Axelson and Flick (2010) posit that behavioral engagement is often erroneously seen as a proxy for emotional and cognitive engagement, and even as a proxy for learning itself. Furthermore, they claim that "we do damage to the messy reality of student learning if we disaggregate the various forms of engagement from each other, or valorize one of its forms above the other" (Axelson & Flick, 2010, p. 38). Axelson and

Flick (2010) propose that student engagement might be understood as a "metaconstruct" because of the interrelatedness of behavioral, emotional, and cognitive engagement.

Engagement is not a new idea in educational circles; interest was recognized as a vital educational factor as long ago as 1913, when John Dewey published the book *Interest and Effort in Education*. For Dewey (1913), educative contexts are derived from the identification of students' "genuine interest" (p. 14). Situations and activities that are of true interest are ones in which students experience focus and the ability to execute agency. Within these situations or activities, students can grow in new directions and are therefore drawn to be engaged. Thus, the choices students make while participating in learning activities are critical to their growth. Dewey suggested that to create educative settings in schools educators generate what Hansen (2006) calls new modes of "engagement and experiment, of reaction and response, of uncertainty and incipient understanding" (p. 177) in order to spark students' imaginations and capture their interest.

Students' level of engagement and positive involvement in a task is a predictor of long-term academic performance (Appleton, Christenson, & Furlong, 2008; Bridgeland, DiIulio Jr., & Morison, 2006; Perry, Liu, & Pabian, 2010). Research findings suggest that outstanding teachers invest substantial time and energy in supporting students' motivation and engagement (Dolezal, Welsh, Pressley, & Vincent, 2003). Motivation and engagement may particularly influence the development of reading comprehension because motivated students usually want to understand text content fully and, therefore, process information deeply; thereby motivated students gain in reading comprehension proficiency (Guthrie, Wigfield, Metsala, & Cox, 1999).

Griffiths, Lilles, Furlong and Sidhwa (2012) write that engagement, in all its forms, is a "proximate determinant of both current and future academic achievement" (p. 569). Trowler (2010) references multiple researchers who have found that specific aspects of engagement, such as involvement, time on task, and quality of effort "have repeatedly been linked to positive outcomes" (p. 34).

Student engagement can be influenced by various factors, including future consequences of engaging in a task, level of self-regulation, task effort, and task persistence (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996). The use of iPads to record literature circles may foster student engagement as iPad use has been correlated with supporting social construction of learning and engagement in students (de Winter, Winterbottom, & Wilson, 2010; Enriquez, 2010), and fostering productive collaborative learning (Chiong & Shuler, 2010). Furthermore, the use of literature circles has also been seen to increase student engagement (Aronson, 2001; Daniels, 2001; Lang, 2011; Yazzie-Mintz & McCormick, 2012).

Self-Regulation

Engaged students often exhibit a high level of self-regulated learning. Theorists describe self-regulated learning as a multidimensional process through which individuals strategically and purposefully manage and control their behaviours, cognition, and environment to attain their goals (Pintrich, 2000; Zimmerman, 2000). Self-regulated learners not only demonstrate effective metacognitive skills, such as planning and self-evaluation, but also they are skillful at using diverse strategies to optimize their learning. For example, they use cognitive strategies to enhance the acquisition of information (e.g., elaboration, rehearsal of information), self-control tactics to manage emotions and

behaviours (e.g., delay of gratification, anxiety reduction), and environmental control strategies (e.g., help-seeking) (Karabenick & Berger, 2013; Zimmerman & Martinez-Pons, 1988). Self-regulated learners also report more positive motivational beliefs about enjoying and being interested in performing academic tasks (i.e., task interest), and valuing the importance of such tasks (i.e., perceived instrumentality) (Cleary, 2006; Cleary & Chen, 2009).

As discussed below, use of the iPad has been observed to promote student interaction and motivation to stay engaged (Montrieux, Vanderlinde, Courtois, Schellens, & De Marez, 2014; Rossing et al., 2012). In contrast to a sociocognitive perspective of self-regulated learning that emphasizes self-regulation developing within the individual assisted by external modeling and feedback, co-regulation emphasizes social emergence and sharing of who does the regulation through a zone of proximal development (Vygotsky, 1934/1998b). Hadwin and Oshige (2011) describe co-regulated learning as a transitional phase in a learner's acquisition of self-regulated learning, which typically involves a student and a more capable other, such as a more advanced student, sharing in the regulation of the student's learning. The term 'capable other' refers to a role rather than a particular person, and with respect to my study, the 'capable other' would be the iPad in its role as a proxy for the teacher. In seeing their conversation mirrored on the screen, the students may have been reminded of the conventions of literature circles and this mirroring may have helped them to regulate their behaviours. During co-regulatory activity, all participants assume expert and novice roles through varying aspects of the shared activity; in this context the iPad screen could be viewed as a participant in the process of co-regulation.

Some researchers have reported that students view iPad integration, with its portability and ability to enable meaningful group discussion, as positively facilitating their engagement in learning complex subject material and achieving improved academic performance (Hesser & Schwartz, 2013; Rossing et al., 2012). Thus, technology can promote engagement and self-regulation, allow new ways of working, and provide powerful tools to enable teachers to help students to work together in effective ways. In the following section I review the literature on the use of technology in the classroom context.

Technology in the Classroom

Technology in the classroom is of interest to educators because of the ways that it can be used to transform learning. Burnett (2009) carried out a review of 38 empirical studies published from 2000 to 2006 on the integration of technology within literacy education. She noted that "all but four studies cited reported interventions designed purely by researchers rather than embedded classroom practice. Ethnographic studies based in classrooms with well-established digital literacy practices may well yield very different results to those reported here" (Burnett, 2009, p. 30). She further observed that Reinking and Labbo (2000 as cited in Burnett, 2009) argue that many educators have simply grafted technology onto existing practices rather than using it in more transformative ways. Burnett used the example of the technological recommendation framework in England, published in 2006, which concentrates on operational rather than cultural or critical digital literacy, where children's achievement is still measured in their performance on SATS tests based on print literacy (p. 31). Burnett argued for the need to focus on the distinctive aspects of digital literacy, rather than simply using it as a tool to

extend print literacy skills, because technology use is not an end in itself. Burnett (2009) concluded her review with the opinion that "there is a need to understand more fully what happens when technology is integrated within classroom sites, and the values, processes, interactions and relationships which surround its use" (p. 31). I consider the use of iPads to video literature circles to be an authentic use of technology that can enhance classroom practice because I have experienced how the affordances of this tool can positively affect the way students work, as well as the quality of their discussions. The use of the iPad as a video camera can offer the opportunity for a teacher to witness students' discussions in an unobtrusive way, which allows for meaningful and ongoing formative feedback to enable the students to improve their discussion skills.

Although, as Burnett (2009) argued, the use of technology is not an end in itself, it is of interest because of the ways of learning it can allow and enable. Melhuish and Falloon (2010), in their critical review of the way the iPad can support learning, noted that while many examples of prosaic uses of technology in classrooms exist, "few examples currently exist of how they might be used as cognitive tools to solve complex problems, and to engage students in authentic and meaningful tasks" (Herrington, Mantei, Herrington, Olney, & Ferry, 2008 as cited in Melhuish & Falloon, 2010, p. 7). Melhuish and Falloon suggested it is the greater collaboration and student autonomy afforded by the use of technology that can lead to enhanced metacognition. Bennett (2008) claimed that "[d]ecentralized control readily lends itself to disrupting conventional views of teaching and learning, offering a space in which young people, who are already exploring a multiplicity of roles within digital worlds, are empowered" (p. 298). Furthermore, Burnett and Merchant (2017) pointed out that for educators "what has always mattered

still matters" and that iPad technology is important because it is a means of helping students to engage with one another and with texts (p. 241). Nonetheless, Falloon and Khoo (2014) note how "considerable empirical evidence exists demonstrating how learning with and through technology can help develop skills such as student collaboration, interactivity, communication, and negotiation, when engaged in socioculturally-based learning tasks" (p. 14).

To a large extent, the effective use of technology in classrooms is dependent on the teacher's approach to its integration. Harris, Mishra and Koehler (2014) describe a framework called technological pedagogical content knowledge (TPACK) which outlines the kinds of knowledge needed by a teacher for effective technology integration. The TPACK framework emphasizes how the connections among teachers' understanding of content, pedagogy, and technology interact with one another to produce effective teaching. A key aspect of the TPACK framework focuses on teacher autonomy and teachers as designers, particularly with technologies that change at a very rapid pace (Koehler & Mishra, 2008; Mishra, Koehler, & Kereluik, 2009). Harris et al. (2014) also argue for the need to develop newer techniques and approaches that recognize the "pragmatic, applied and creative goals of teaching with technology" (p. 109). The important thread is that the use of technology needs to be purposeful in order to achieve a learning goal, rather than the use of technology for technology's sake. The use of iPads as video cameras in discussion groups focuses on the opportunities enabled by the technology, both for the students, for example, in allowing them to work in independently away from the teacher, and for the teacher, in giving an unobtrusive window into the students' discussions to allow for meaningful feedback.

The need for technology use in classrooms to be purposeful was suggested in some of the earliest studies on this subject. For example, the results of a foundational study in the use of technology in classrooms by Wegerif, Mercer and Dawes (1998) suggested that software of an open design, requiring students to generate their own content, prompted the most exploratory discussion in their inquiry as to whether computer-supported activities enhanced exploratory talk and critical thinking in the classroom (p. 204). The researchers analyzed over 50 hours of talk between children working to solve a problem made up of teacher-led and collaborative activities, with some of the latter being computer-based. One of their key findings was that "the educational activity is not defined by the software alone but by the software in pedagogic context" (Wegerif et al., 1998, p. 210). They stressed the importance of explicitly teaching collaborative talk and using technology that required and encouraged critical thinking. Despite the fact this study was carried out 20 years ago, it is nonetheless of relevance to my teaching goals in the use of iPads: videoing is an open-ended task and the framework that I give students to discuss their reading is designed to prompt critical thinking. The use of iPads to video student work allows the focus to be on the students' talk rather than the technology, and aims to use the 'invisibility' of the iPad to encourage exploratory talk while simultaneously holding the students accountable for effective time management.

The use of the iPad in classrooms.

The iPad, launched in 2010, has been rapidly adopted by educational establishments; its combination of affordances has been cited as being particularly suited to educational use. Geist (2011) described it as a breakthrough or "game changer" (p. 758) learning device. While much early commentary about iPads took the form of

promotional hype and teacher anecdote, more substantive recent studies have emerged, illustrating outcomes from iPad use in different learning contexts ranging from special education (Miller, Krockover, & Doughty, 2013) to university and college (Cochrane, Narayan, & Oldfield, 2013; Geist, 2011). Other researchers have explored iPad use in early literacy programmes (Falloon, 2013; Getting & Swainey, 2012; Hutchison, Beschorner, & Schmidt-Crawford, 2012; McClanahan, Williams, Kennedy, & Tate, 2012), and in teaching STEM concepts (Aronin & Floyd, 2013).

Despite the relative paucity of research specifically on the use of iPads in connection with exploratory talk in classrooms, learning with and through technology can help develop skills such as student collaboration, interactivity, communication and negotiation, when engaged in socioculturally-based learning tasks (Goodfellow, 2001; Hollan & Stornetta, 1992; Kleine Staarman, 2009; Roschelle et al., 2010; Sharples & Pea, 2014; Zurita & Nussbaum, 2004). Furthermore, findings from recent studies have pointed to perceptions of enhanced learner on-task engagement when using iPads (Henderson & Yeow, 2012; Manuguerra & Petocz, 2011; Montrieux et al., 2014). However, not all of the research on iPad use in the classroom is positive; some researchers have claimed that the device distracted students from intended learning due to challenges involving unrelated apps and websites (Rossing, Miller, Cecil, & Stamper, 2012).

A small number of studies have explored the role of the iPad in facilitating discussion. Of particular interest is the study by Falloon and Khoo (2014) undertaken with a class of 19 five-year-old children in New Zealand. The researchers used Mercer's (1994) talk types framework to explore the nature of talk students engaged in while they were using the iPads and interacting with each other and their teacher. The researchers

also explored how features of the device may have influenced this talk. Falloon and Khoo (2014) concluded that "the interaction and combination of iPad design features (i.e., its public work space affordances) and open-design apps, can provide a useful medium for teachers to improve the talk quality of students" (p. 28). The authors stressed the pivotal role of the teacher in helping students master skills supporting exploratory talk. They recognized the role of iPads and apps in creating motivating and engaging skill-practice environments, but emphasized that students still need a toolkit of strategies and capabilities to apply to them. The results of this study provide evidence that the affordances of the iPad can enhance student discussions.

More recent studies on students' iPad use have investigated students' interactions with iPads through different lenses. A study conducted by Maine (2017) involved eight 11-year-old students from a medium-sized urban primary school in the United Kingdom. The aim of the study was to investigate children's game-play orientations as they played a specific digital game and the domain-specific and intertextual schematic understandings they drew on as they played. The participants were experienced digital game players who volunteered to play the digital narrative game *Monument Valley* (ustwo, 2015) in an after school iPad Club. The participants worked in pairs and chose their own partners. The game's dialogic interaction was formed through "the space of future action" (Salen & Zimmerman, 2004, p. 67) embedded in its design, which meant that different actions in the game prompted different responses, although only certain actions enabled progression so the final outcomes were the same.

The sessions were video and audio recorded and Maine (2017) conducted post-play discussions where the students talked about their gameplay and ideas. The students

were also encouraged to keep a notebook of their responses to the game. Maine did not provide details on the duration of the study or the number of sessions. Although the particular focus of the study was on highlighting the children's gameplay as literary practice, using Rosenblatt's (1994) reader response theory as a lens through which to view the children's dialogic interactions with the game, pertinent to my study was Maine's consideration of the children's interactions with the iPad. Analysis of the recordings of the gameplay suggested that not all of the children were successful at the negotiation and collaboration necessary to share a single touch device, and that teachers might want to consider setting ground rules on how to successfully collaborate when using a tablet.

Also related to my research was Maine's (2017) reference to Fleer's (2014) use of the term 'flickering' to describe movement between play and reality, or in the case of digital games, the virtual and real worlds as she noted how the participants seemed to be simultaneously present within the world of *Monument Valley* (ustwo, 2015); above it in their direction of its action; and outside it as they called on their schematic knowledge of other texts and knowledge about gaming and expectations of the mode (p. 222). This notion of 'flickering' is similar to the phenomenon I observed in my study when the students seemed to be simultaneously aware and not aware of the teacher's presence via the iPad screen.

Dhir, Gahwaji and Nyman (2013) conducted a systematic review of the literature concerning iPads in classrooms. Overall, 72 articles were subjected to full-text search. The articles were analyzed based on the grounded theory approach to identify the instructional benefits of using the iPad in classrooms, highlight the common

misconceptions about the use of iPads in educational environments, and to sketch some future trends relevant to incorporating iPads into learning environments. Dhir et al. listed the advantages of the iPad as a teaching tool in the classroom as its portability, its suitability for supporting teaching activities in small groups, its ease of use, and its potential for increasing engagement (p. 717). The findings suggested the iPad can have a positive impact on literacy skills, student performance, instruction, and pedagogical skills. The authors also proposed that there is "a need to develop guidelines for preparing new curricula and pedagogical strategies for successfully integrating the iPad into any educational settings" (Dhir et al., 2013, p. 721). The researchers emphasized the need for the use of iPad technology in the classroom to be purposeful in order to have positive benefits for the learning environment. The use of iPads to video literature discussions is a purposeful use of the technology with a view to enhancing student engagement and quality of the discussions.

Research on iPad use in class tends strongly to the general rather than the specific. For example, Smith and Santori (2015) examined the phenomenon of iPad-based teaching and learning in order to describe its best features and to share the teachers' and students' perspectives. The qualitative research project was carried out in six middle-grades classrooms across two public school districts in the mid-Atlantic region of the United States during one academic school year, and employed the portraiture methodology, a subtype of ethnographic grounded research conducted in naturalistic settings. In each of the two schools the researchers selected three teachers of various content areas based on the following criteria: they were currently integrating iPads into their classroom practice; and they and their students perceived the iPad-based teaching

and learning as positive and potentially beneficial. The researchers carried out 12 teacher interviews and four principal interviews, as well as 13 observations of class sessions, approximately 40 minutes in duration, that involved iPad use. After each observation, they interviewed three or four students (total of 19 students) to gain students' perspectives on the observed lesson and on iPad-based teaching and learning in general. According to the authors, the findings suggested that iPad use in class facilitates differentiation and visualization of content and concepts, and fosters independence and agency amongst teachers and students alike. Furthermore, Smith and Santori posited that analysis of the data suggested that iPad use is dynamic, fun, engaging, collaborative and interactive. Despite the obvious limitation of the study in the high risk of bias caused by pre-selecting teachers and students who saw iPad use as positive, the findings nonetheless add to the literature in this area, despite their very general nature.

Like other researchers, Li, Pow, Wong, and Fung (2010) noted that although the use of technology is not an end in itself or a magic wand, when used in an "active, constructive, intentional, authentic and collaborative process", it can be a vehicle for developing students' technological literacy and growth (p. 172). Li et al. (2010) carried out a qualitative case study in Hong Kong with primary school-aged children, which sought to answer whether immersion in a technology rich environment led to an enhancement of students' information and technology literacy. Students in the case study classes had been volunteered to take part in a pilot project, whereby each student was furnished with a tablet PC, purchased by their parents. Tablet PCs are comparable in size and affordances to an iPad. Data collected for the study included lesson observations and student shadowing, focus-group discussions, in-depth interviews, evaluation of selected

student work, and students' self-reported logging of daily learning experiences. These qualitative data were coded for evidence of student learning. The authors reported that the tablet PC implementation had positive effects on students' cognitive, metacognitive, affective, and sociocultural learning. They particularly noted stronger skills in collaboration and sharing among the students, and claimed the tablets "enhanced students' motivation and efficacy in learning" (Li et al., 2010, p. 179). The authors acknowledged that some aspects of what they were seeking proved elusive to measurement. As well, their findings are limited because they did not acknowledge the strong possibility of bias amongst the respondents. However, the researchers followed a rigorous methodology and the claims they made were fairly modest. Like other researchers such as Dhir et al. (2013) and Smith and Santori (2015), Li et al. (2010) emphasized the benefits of technology being dependent on their constructive and purposeful use.

Affordances of the iPad.

Research on the affordances of the iPad tends to focus on its physical affordances rather than on any metacognitive affordances. These physical affordances, such as portability, weight and 'invisibility' (Learning and Skills Improvement Service, 2010 cited in Melhuish & Falloon, 2010, p. 6), are often the starting point for those seeking to integrate iPad technology into the classroom. One of the affordances of the iPad most often cited as a positive attribute in educational settings is its portability. This portability is in opposition to older models of technology where work took place, as Traxler (2010) points out, "in dedicated times and places where the user has his or her back on the rest of the world for a substantial and probably premeditated episode" (cited in Melhuish &

Falloon, 2010, p. 3). The fact that the iPad can be carried to different spaces around the school can enable students to feel they are working autonomously and have a sense of a private space (Bennett & Lin, 2017; Hutchinson, Beschomer & Schmidt-Crawford, 2012; Hutchison & Reinking 2011), while at the same time holding them accountable for conducting their discussion because they know their conversations are being recorded. Fisher, Lucas and Galstyan (2013), in their study on the role of iPads in constructing collaborative learning spaces at an American university, claimed that their findings offer "strong support for the adoption of these devices for ... their ability to transform the spaces in which students work" (p. 176). The authors advised that when teachers "consider the adoption of new technology," they "should pay close attention to the physical space of the classroom and the space that technology occupies, always seeking settings in which students in collaboration can transform their private workspaces" (Fisher et al., 2013, p. 176). Although this research was carried out with undergraduates, my experience also suggests that students respond positively to the autonomy experienced when working away from the teacher afforded by the portability of the iPad/ Thus, this affordance can be seen as potentially contributing towards student engagement.

Further evidence for the advantages provided by the physical affordances of the iPad was suggested by Merchant (2015), whose study critically appraised claims that the iPad is particularly appealing for young children because of its weight, portability and intuitive touch-screen interface. The data presented, from a close analysis of children aged 14–22 months in two story-app sharing interactions with an adult, were drawn from a larger project that focused on the interactions of young children when accessing books on iPads and the ways in which the technology supported early literacy development.

Researchers conducted observations of babies and toddlers under three years of age in an urban area in the North of England as they used iPads to look at interactive stories both with and without adult support. These iPad encounters were video-recorded for subsequent analysis. Filming took place over three days in each setting, and two researchers were present on each occasion. Data analysis revealed that iPads and similar devices can play a part in early childhood literacy and supported the thesis that the portability and interface of the iPad were appealing to children. Merchant (2015) suggested that more work is needed to deepen understanding of how children explore touch screens, how adults can support them, and how app design can be sensitive to the ways that children interact with these devices.

As noted above, another important physical affordance of the iPad is its invisibility. Peng, Su, Chou and Tsai (2009) posit that mobile technologies such as the iPad can be 'woven into' students' lives in a much more fluid and seamless way than desktop technologies, as their "very ubiquity and mobility make [them] a discrete learning form" (cited in Melhuish & Falloon, 2010, p. 4). Murphy (2011) refers to the "unobtrusive and tactile nature" (p. 23) of the iPad, which is considered an important element in facilitating interactions between groups of students. He suggests the device acts as a central focal point for discussion, rather than a distraction during group activities. This affordance is important during the iPad's use for videoing literature discussions as it enables the focus to be on the students' discussion rather than on the technology.

Because the iPad is very often associated with 'gamified apps,' this use is often the first a teacher will make of them. However, as Lynch and Redpath (2012) point out,

this use does not put the student in the role of producer and is therefore of little value in transforming learning. In what they refer to as "ethnographic fieldwork" to generate data about students' use of iPads, and their attitudes towards them in an elementary classroom in Australia, research by Lynch and Redpath (2012) included interviews and observations, and collection of students' work samples and curriculum framework documents. They noted the students demonstrated "a high level of motivation towards using these devices" (Lynch & Redpath, 2012, p. 10), and that when used for production and communication of knowledge, rather than being used to consume knowledge through 'gamified apps,' these devices could position "the learner as a producer, an active community member and, at times, a teacher" (p. 22). In my research, student use of the iPad as a video camera focused on the student as meaning maker and on the students' discussions rather than the technology. As such, I believe the use of the iPad as a video camera in discussions encouraged the production rather than the consumption of knowledge.

I considered the role of affect and some of the less tangible affordances of the iPad in addition to the physical affordances of the iPad in my study. Research that fore-fronted some of these affective affordances was carried out by Lenters and Grant (2016). They investigated the use of iPads in the classroom as devices for students to give feedback to one another in class rather than face-to-face, and to consider how and if iPads added to student learning. They conducted the study over a five-week period in a Grade 5 classroom in Canada. Fifteen students participated, and all but two were English language learners. Once the students had written story introductions, they were provided with a simple framework to guide the feedback they gave to their assigned partners via

recordings on the iPad. Data collection included observations, interviews with teacher and students, students' written stories and students' recordings of feedback to their peers (some audio only, some video). The researchers' data analysis involved the use of a socio-material lens for interpretation to explore whether introducing a multimodal recording device, such as an iPad to the peer feedback loop simply added a digital overlay to an established classroom routine, or whether it actually created new conditions of possibility for young writers. Lenters and Grant (2016) concluded that allowing "emergent practices of writing to unfold in somewhat unruly ways through the use of technology" (p. 199) can provide a context in which students experience agency, motivation and success. Furthermore, the researchers suggested that those teachers considering the use of iPads in the classroom pay attention to the social role the device plays in learning. Lenters and Grant (2016) proposed that "by thinking of the multimodal recording device as a 'participant' in the learning process, one may consider more readily the ways its incorporation serves to either enhance or displace helpful practices" (p. 197). The description of the iPad as a "participant" by Lenters and Grant was helpful when framing my own observations because the iPad seemed to play a greater role in students' literature discussions in my classroom than merely a recorder.

The use of the iPad as a video screen may affect the way students relate to one another in discussion groups because of the distancing effect of the screen and the way that it can provide an external reflection of the group. Sharples and Pea (2014) suggested that one of the ways that conversation contributes to learning is "by enabling and requiring learners to externalize their developing understandings …. and this contributes to metacognitive awareness" (p. 8). The authors further proposed that a shared external

representation of the subject matter is an important element of this productive learning conversation, stating that, “even before the advent of computers, technologies were developed to externalize classroom understanding: slate tablets, student notebooks, blackboards, and interactive whiteboards allowed teachers to explain difficult concepts and students to express their thoughts” (Sharples & Pea, 2014, p. 8). iPads can provide an external representation of the students’ interaction while they are working, and as such, may contribute to building understanding and metacognitive awareness.

The role of the teacher when using iPads in class.

While it is important that technology is seen as a tool rather than an end in itself, it is also crucial to focus on the role of the teacher in the classroom with respect to the use of technology. Bennett and Lin, in their 2017 overview of iPad usage and appropriate applications in K-12 classrooms, stressed the importance of teacher training and focused instruction to maximize the benefits and minimize the potential distractions of the iPad in the classroom. The significance of the teacher’s role in modelling and teaching appropriate ‘ground rules’ in order to enable students to benefit from using iPads was highlighted in the study by Falloon and Khoo (2014) described earlier in this chapter. To review, the researchers used Mercer’s (1994) talk types framework to explore the nature of talk engaged in by a class of 19 five-year-olds in New Zealand while they were using the iPads and interacting with each other and their teacher. The researchers also considered how features of the iPad may have influenced this talk. The findings indicated exceptionally high levels of on-task talk, but that this talk was mostly of an affirming and non-critical nature and unsupportive of outcome improvement or refinement. Falloon and Khoo noted that while the iPad seemed to offer unique potential as a shared, public

learning device, the pedagogical role of the teacher in helping students learn appropriate 'ground rules' to raise talk quality was critical. The researchers discussed the important role teachers play in helping young students build oral-interaction strategies to capitalize on high levels of learning engagement, and the unique features of iPads.

The importance of the role of the teacher was further emphasized in the research conducted by Montrieux et al. (2014) that explored the teachers' role in the implementation of tablet computers in secondary education. The study was carried out in a school in Flanders, Belgium, which was an 'early adopter' of iPad technology. Through the analysis of focus group interviews with randomly selected teachers and students, the authors concluded that their findings confirmed "that teachers are the determining key component for the success or failure of the implementation of technology" (Montrieux et al., 2014, p. 487). In my study the teacher's role was essential, not only in choosing to use iPads as recorders of literature circles, but also in modelling and scaffolding exploratory talk, and in using the information from the videos to give effective formative feedback in order to promote student engagement and interest.

Limitations of iPad use in the classroom.

Some researchers have concluded that iPads can be a distraction in the classroom rather than a useful tool, due to challenges such as students accessing unrelated apps and websites (Kaganer, Giordano, Brion, & Tortoriello, 2013; Rossing, Miller, Cecil, & Stamper, 2012), or pop up advertisements (Falloon, 2013). A study by Hoffman (2013) undertaken in a 1:1 iPad classroom, explored 55 high school English class students' engagement with learning tasks using iPads, and whether or not their perceptions of levels of engagement (defined as on/off task behaviour) matched observational data.

Hoffman's findings were mixed; she stated that while students observationally demonstrated high levels of on-task response, this response was due more to the extent to which the task was engaging and how much the teacher was monitoring the use of the iPads. Some students reported that it was easy to disguise non-learning activity such as messaging or social networking, due to the ease with which apps could be shuffled. Other student comments highlighted their perception that they learned better when they needed to "physically write the words out, instead of just pressing buttons" (Hoffman, 2013, p. 15). The findings from this study highlighted the fact that iPads need to be used purposefully in order to be useful tools in the classroom. Although Hoffman's study was with high school students, her findings are generalizable to many classroom situations at all levels because students of all ages are often more familiar with iPad technology than their teachers and it is not difficult to disguise off-task activity for some tasks. In my study students were not able to disguise off-task behavior because the entire discussion was recorded.

A further limitation of iPad use in the classroom to consider is the fact that some students may feel intimidated in the presence of the screen and may be silenced by the idea of their ideas being recorded. Although it is common for adults to adjust their behaviour when they are being recorded, students of middle school age seem very comfortable with the medium of filming and I did not see any evidence of a silencing effect in the videos or in the reflections. Nonetheless, it is important to acknowledge that this possible limitation.

Conclusion

Literature circle discussions relate to Rosenblatt's transactional theory (1994), social constructivism, and sociocultural theory (Smagorinsky, 2013) as students involved in these discussions share their personal insights and connections to texts, and ideally create new and deeper understandings together during the discussions. The inclusion of literature discussions in classrooms has the potential to not only engage students, but also to provide students with opportunities to develop new literacy and critical thinking skills (Murphy et al., 2009; Sanacore, 2013). As well, exploratory talk, a type of discourse often engaged in by participants during literature discussions, can encourage co-construction of knowledge and extend critical thinking (Clarke & Holwadel, 2007; Kucan & Beck, 2003; Rojas-Drummond et al., 2014; Rosenblatt, 2013; Wolf et al. 2005). Effective literature discussions are most likely to take place when the conditions conducive to them are created and maintained by the teacher (Evans, 2002; Hillier, 2004; Peterson, 2016; Soares, 2009). Although a few researchers reported cautions about limitations to effective classroom talk, many indicated how the benefits outweigh the drawbacks and suggested strategies to minimize or work around potential shortcomings (Berne & Clark, 2006; Miranda, 2015). Furthermore, online literature circles can offer similar benefits and drawbacks to face-to-face literature circles (Day & Kroon, 2010; Edmondson, 2012; Grisham & Wolsey, 2006).

The use of iPads to record literature discussions may offer opportunities to teachers and to students with respect to accountability and engagement. The use of iPads in classrooms has been seen to be beneficial to learning if used in purposeful ways (Dhir et al., 2013; Li et al., 2010). Both the iPad's physical affordances (Merchant, 2015;

Murphy, 2011; Peng et al., 2009; Traxler, 2010), and its less tangible affordances (Fisher et al., 2013; Lenters & Grant, 2016) can be harnessed in ways that can offer opportunities for both teachers and students. The teacher plays an important role in modelling and explicitly teaching the skills necessary for the meaningful use of iPads in the classroom (Falloon & Khoo, 2014; Lynch & Redpath, 2012; Montrieux et al., 2014). Nonetheless, some researchers are critical of the role of iPads in the classroom and classify them as a distraction (Bennett & Lin, 2017; Hoffman, 2013; Lynch & Redpath, 2012).

In Chapter Three I describe the methodology used in my research to better understand the potential of purposeful iPad use for recording classroom literature discussions, as well as discuss the data collection and analysis processes.

Chapter 3

Methodology

In Chapter Three I provide an overview of qualitative research and instrumental case study research, which provide a basis for my research project. I describe the setting of the study including the school site, the positioning of myself as the teacher researcher, the participants, and the participant selection process. Details about the data collection process follow, including an overview of the data collected during the research: videos made over six weeks by each of the four groups of students on the iPads during their literature discussions, reflective videos made by each of the students after finishing the project, semi-structured interviews with each of the individual students, which were audio recorded and transcribed, and notes from my observations recorded in my research journal. I then detail the data analysis process, including descriptions of the preliminary processes for developing categories, and the categories that emerged from the data.

Research Design

Qualitative research.

In seeking to answer my research questions, which concerned the opportunities the use of iPads to record literature discussions might afford to students and to teachers, I used qualitative methods to examine a complex and multi-faceted phenomenon which focused on the way students interacted and spoke with one another during iPad discussions, and on their thoughts and interpretations about the discussions expressed in their reflective videos and individual interviews. I followed procedures set out by Creswell (2014), who emphasizes that it is important to conduct qualitative research, as far as possible, in a natural setting, to use multiple sources of data, and to analyze data

both inductively and deductively. Creswell (2014) further adds that the researcher should be recognized as a key instrument and the focus should be kept on the meaning the participants hold, and within these constraints, there is room for emergent design and reflection in the attempt to develop a complex, holistic account of the study (pp. 185-186). The natural setting for my project was the classroom. My multiple sources of data included the videos the students made during class, the reflective videos students recorded at the end of the project, the semi-structured interviews I conducted with each participant, and my classroom observations noted in my research journal. Six student videos, made over six weeks for each of the four focus groups, provided breadth of the students' discussions. For the reflective videos, which the students all made individually after the project ended, I sought to elicit the participants' understandings about their experience with the iPads recording their discussions; this information was triangulated in the semi-structured interviews with each focus study participant, and these interviews were designed to continue to centre on participants' meaning-making as central to the analysis.

Case study.

My exploratory instrumental case study was based on Creswell's (2013) definition of a case study being an "in-depth exploration of a bounded system" (p. 465). The 'bounded system' (Creswell, 2013) of my case was 13 focus students from two different classes. The use of three groups of three students and one group of four, with a range of abilities and two age groups enabled me to gather a breadth of data.

Yin (2013) also defines a case study as an "in-depth inquiry into a specific and complex phenomenon ('the case'), set within its real-world context" (p. 321).

Furthermore, Yin (2009) advocates the use of case study for allowing researchers to "retain the holistic and meaningful characteristics of real life events" (p. 4), which describes my exploration of the phenomenon of iPad use with literature groups in my classroom. The study was 'instrumental' because it served "the purpose of illuminating a particular issue" (Creswell, 2013, p. 465), in this case the opportunities the use of iPads to record literature circle discussions may offer teachers and students.

Case study research has the potential to enhance understandings of teaching contexts, learning communities, and individual learners. Hamilton and Corbett-Whittier (2013) suggest there should also be a focus on collecting rich and varied data, and that the data needs to be triangulated (pp. 11-12). Case studies have historically been regarded by some researchers as a less desirable form of inquiry than other methods; Yin (2009) attributes this "disdain" (p. 14) to concern over lack of rigour. I sought to mitigate the risk of lack of rigour, and to collect and triangulate rich and varied data by gathering a total of 538 minutes of video data: six 20-minute videos from each of the four groups made by the students over six weeks, were triangulated by student reflection videos, my observations, and student semi-structured interviews. The findings were corroborated with the participants during the semi-structured interviews.

My role as the teacher researcher.

I situate myself as the researcher and also a teacher with 24 years of experience across Grades 6 to 13 in four different countries. I am a female Caucasian and was born, raised, and then taught for many years in the United Kingdom, emigrating to Canada in 2008. I currently teach a Grade 6 French Immersion class, and am also responsible for teaching English Language Arts to two other separate classes in addition to my own.

Yearly, my classes participate in literature circles. My learning objectives in teaching literature circles are to create and support the environment for analytical thinking and reading skills through developing a community of readers. I do not assign student roles and I encourage open discussion. I require students to write questions, interesting ideas, connections, unknown vocabulary words and other reactions to their reading on sticky notes which they place in the books prior to literature circle discussions. I model and teach strategies for effective exploratory talk, as defined by Mercer and Littleton (2007), before the start of the literature circle unit.

This project focused on analyzing the discussions of students with whom I had a power-over relationship in my role as their teacher. Being the teacher researcher, and an insider, I was aware of the specific challenges common to those in my position. Bell (2014) highlights the difficulty of being objective, where a teacher's relationship with the students can make an objective stance difficult to maintain (p. 54). McNamee and Bridges (2002), in their consideration of ethics in educational research, posit that the position of teacher researcher is problematic because of the potential for the blurring of the lines of consent because regular classroom activities may be very similar to those being undertaken for the purpose of research (p. 31). Therefore, students may be confused about which classroom exercises are for research purposes and which exercises are part of regular class work. In my study, although overwhelmingly activities completed for classroom purposes comprised the data set, I clearly communicated to the students that information generated from these activities would be used as data.

Furthermore, as most students feel accountable to their teacher, they may struggle to understand that they can decline to take part in research or to change their minds after

initially consenting to participate. These issues are particularly important when working with younger students, such as the 10- to 12-year-olds in my study, who tend to have a strong relationship with a teacher and who are often very concerned about behaving in ways they believe would be pleasing to the teacher. As the homeroom teacher of the Grade 6 class in my study, and the former homeroom teacher of the Grade 7 group, I was most aware that the majority of the students wanted to please me because of their age and our relationship, and that I needed to be very careful to avoid students feeling coerced or pressured into participating in the research. Also, I recognize it was difficult for students to see me in a role other than their teacher.

I sought not only student consent but also parent/guardian consent for participation in the research. I explained carefully to the students and their parents, both in writing and during a meeting at the beginning of the school year, how consent could be withdrawn at any time, and that I would not know the identity of those students who agreed to take part in the research until the end of the school year. Despite these precautions, when carrying out the semi-structured interviews some students appeared to answer the questions in a way they thought I wanted them to as their teacher, rather than how they might have replied to a researcher who did not have that role. For example, it seemed that some of them tried to ‘explain away’ off-task behaviour shown on the videos because they thought that I, as their teacher, might not like to see it. I tried to mitigate this issue by having the students create individual reflection videos after finishing the project. Some students seemed to be more open about their feelings and behaviours when using the individual reflective video format than when being interviewed by myself.

Advantages to the position of teacher researcher were the access that I had to the students and my relationship with them. The students were keen to participate in the research and I believe at least part of their enthusiasm was due to our relationship and their desire to help me. Nearly all of the students agreed to take part in the study, which meant I was able to select groups to represent a diversity of abilities and genders rather than being constrained to using only certain groups because they were the only students who gave permission. As the teacher researcher, I had a strong understanding of the students and their backgrounds. Hubbard and Power (1993) state "we teachers bring a depth of awareness to our data that outside researchers cannot begin to match" (p. xiv). Being both the teacher and the researcher can bring complexity to relationships in the classroom but can also bring depth. I believe my teacher relationship with the students allowed them to trust me as a researcher in a way they may not have trusted an outsider.

Research Context

The school.

The research occurred in an inner city public middle school (Grades 6-8), with a population of approximately 520 children, in a small city in Western Canada. The school serves a broad range of students, including refugees, recent immigrants and children in care. More than 10% of the student body identify as First Nations and 16% of the school's population are identified as needing extra support in English Language Learning in order to access the curriculum. The school is dual track, with more than 55% of the students enrolled in a French Immersion program. Based on my experience at the school for nine years, I have observed that students in the French Immersion track tend to come from more affluent middle-class neighbourhoods. Although there are significantly fewer

English Language Learners and students with special needs in the French Immersion track than in the English track of the school, there are students with a broad range of abilities and backgrounds in both tracks. The two classes involved in the study, both taught by me, were both in the French Immersion track.

The school is considered a leader amongst middle schools in the school district in its approach to innovative teaching and Project Based Learning. Indeed, other school administrators and out-of-district teachers regularly visit the school to observe lessons and speak to teachers. The administration is very supportive of technology and has made the acquisition of iPads and Chromebooks a priority over recent years. All classrooms are equipped with projectors and document cameras. As a result of the initiatives of the school and my own focus on technology in the classroom, I have 12 iPads in my classroom the students can use, and I have easy access to more iPads if I need them in a nearby classroom. The students use the iPads frequently, and are very familiar with the procedures around their use and with uploading their work to my YouTube channel and to Google Classroom.

Thus, my research was limited to those students I was teaching during the 2016-2017 school year who came from the French Immersion track of the school. In keeping with the main purpose of instrumental case study, my research served to illuminate a phenomenon rather than to generalize (Yin, 2015, p. 12).

Ethical considerations.

I gained approval from the University of Victoria Ethics Committee (see Appendix A), and from my school principal (see Appendix B) and my school district (see Appendix C) prior to data collection. As the participants were my students, all parent (see

Appendix D) and student (see Appendix E) permission forms were returned directly to the principal. In order to ensure I would have data to work with, I gave the principal a list of the students in each group shortly after I began the project and he confirmed that I had enough groups of students who had given permission in order to carry out the data analysis. Written consent from both students and their parents was required for participation in this project. The students' participation in the unit was part of their regular ELA classes, but being in the research project was voluntary. As stated previously, I was unaware of which students agreed to participate in the research until after the final grades had been submitted for the year.

Selection of participants.

My sampling was limited to those groups where all students and their parents had given permission for them to have their work analyzed for the purpose of the research. Within these limitations, I chose students demonstrating a range of abilities and included both genders. I understand gender to be a fluid construct and indeed, not all of the students I teach identify in a binary way. However, based on my interactions with and observations of the children, their overt presentation of themselves and my conversations with their parents/guardians, the students in the particular focus groups I used identified themselves as boys and girls. Therefore, I use these terms when referring to the students.

As described later in this chapter, the children chose their own discussion groups; out of all the groups in both the Grade 6 and the Grade 7 class, only one was a mixed gender group. Not all members of this group returned signed consent forms agreeing to participate in the research. However, the gender make-up of the groups was not a focus element of the study.

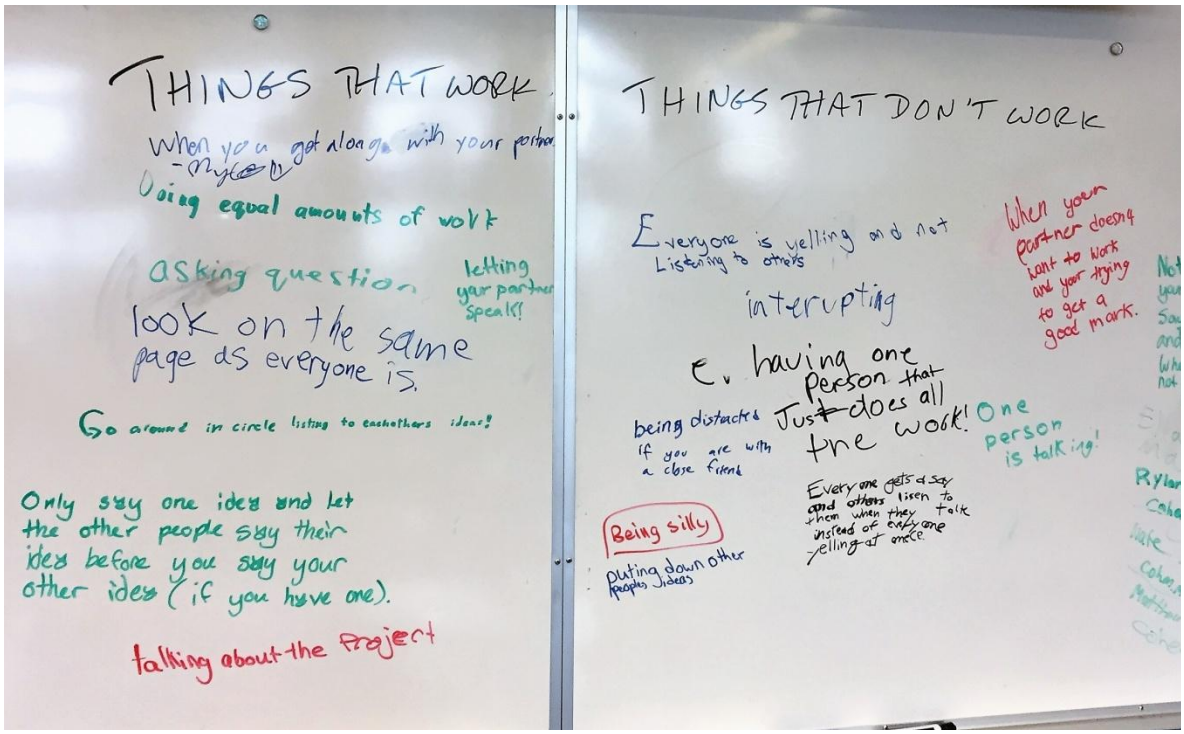
The participants were six Grade 6 students and seven Grade 7 students, two groups from each of two classes. There were seven female participants and six male participants, one participant has First Nations ancestry, one identifies as Hispanic, and the others are Caucasian. Groups A and B were in Grade 6 and this project was the first time they had worked in a literature discussion group in my class other than during the pilot project. Groups C and D were in Grade 7; in addition to teaching these students in Grade 7, I taught them English in Grade 6 and they had completed a literature discussion project with iPads with me during that school year. I carried out my research in the classes to which I taught this project so that I was able to give all the groups similarly focused instruction and feedback about working in a small group to discuss literature. Although all of the students in both classes completed the project, I collected data from only the two groups from each class.

Procedures.

Preparation for literature circles.

As stated above, all of the students in the Grade 7 class were taught English by me in Grade 6 and therefore they had previously participated in literature circles with iPads. In order to ensure the students in both classes were prepared for the level of exploratory talk that I wanted them to use in literature circles, they watched video examples of former students engaging in productive discussion about their books (i.e., discussions where all students participated, listened respectfully, and built upon one another's ideas). After viewing the videos, the students recorded their ideas on a whiteboard about what would work well or not when discussing their reading in groups (see Figure 1), and we discussed their ideas together.

Figure 1. Students' Brainstorm About Group Discussion Behaviours



Furthermore, productive talk was modelled in class by having groups practice and reflect on ways of interacting through activities such as guided discussion groups with pauses to 'think aloud' about strategies; one group also modelled a discussion while others watched and commented. The students were given examples of connections and discussion points that could be marked with sticky notes in order to help them understand how their notes could focus their discussions, and written guidance about how to make and mark connections, as well as how to come to a discussion prepared. In addition, I showed the students a copy of a book containing sticky notes from a previous student, and then played an excerpt from the video where the student used her notes to structure the discussion. I also modelled examples of questions that might open up the discussion such as, "How would you have reacted if you had been the main character here?" and

encouraged students to use questions such as these in their discussions. Approximately a week of lessons (45 minutes/day) was devoted to this preparatory work.

Pilot study.

In order to increase the rigour of my study, explore technical needs and identify features of interest for the intervention, I piloted the project in November 2016 with a two-week literature circle project. Conducting a pilot study enabled me to be more efficient when undertaking my research and to see potential procedural problems. During the pilot project, several technical issues were encountered such as difficulties uploading videos. Some of the issues I was able to solve by freeing up more memory space on the iPads, but I was not able to fully resolve this problem, as detailed below in the section on limitations. The main focus of the pilot for the students was on using effective exploratory talk; I used the pilot project to model important strategies for talking together about their reading. I also taught the students how to upload their videos to my YouTube channel and they were able to practice doing so. When it came time to create groups for the project in the Spring, the experience of working in groups during the pilot project helped the students understand to prioritize group formation that facilitated productive talk and was based on an interest in similar books. I used the pilot project to not only address technical and practical difficulties but also to practice following systematic procedures when organizing the data, such as streamlining the way the videos were named so that the group and week were immediately obvious.

Student grouping for the literature circles.

Students chose their own groups with the direction to aim for three members. From experience and the pilot study, I have found that when groups are larger in number

than three, some group members do not get a chance to contribute effectively, and that groups of two do not have enough voices to create an environment of discussion and are adversely affected if a member is absent. Research findings on group size and productivity suggest that smaller groups are typically more productive than larger groups (Bass & Norton, 1951; Wheelan, 2009; Young, 2012). According to Hare's research (1981), groups of two and three were more unified in task completion than larger groups, which have a tendency to form sub-groups. Smaller groups may place more responsibility on individual participation, and possibly allow for more risk-taking and greater opportunity for students to hold each other accountable. For these reasons of productivity, unity and individual responsibility, I encouraged the students to form groups of three members. Nonetheless, classroom dynamics, class size, and the importance of choice sometimes resulted in groups having more or fewer members than three, and one of the groups in the study had four members.

Participation in literature circles can provide opportunities for students to choose not only their book, but also their group through their book choice. I allowed the students to choose their own groups, and by extension their books, in order to encourage students to take ownership of their learning, as I have experienced that students are often more engaged when they can be more personally involved. This approach is supported by research on student voice, which describes the importance of validating students' expertise, opinions and ideas by maximizing opportunities for students to give their input into what happens within the school and classroom, thereby, ideally, increasing engagement (Clarke, 2013; Wolf, 2010). Additionally, by providing the students with choice about group formation they had the opportunity to group themselves according to

common interests, rather than ability or another teacher-imposed quality. Students interested in the same text, topic and or author were encouraged to work together; this way of grouping can benefit students by allowing them to help one another more according to their varying abilities (Burns, 1998). I have found that students respond positively to being able to choose who to work with, although occasionally I have intervened to help students with grouping so that some individuals are not excluded, by pointing out mutual interests or encouraging two pairs of students to form a group of four.

Choice of novels.

The choice of novels and groups was intertwined because members needed to agree to read the same novel. Therefore, the choice of both groups and books were made simultaneously. Daniels (1994) supports the idea of empowering students with book choice, pointing out that "the students, not the teacher, pick the readings….. [and] groups are .... formed on the basis of students' mutual interest in a particular book" (pp. 6-7). Two lessons were devoted to students choosing the right book and group, and I allowed another week in which they could change their minds before the project began. There were several readjustments of groups after the students' initial groupings, based on friendships and sometimes on an inability to settle on a book that all group members wanted to read, although by the end of the allotted week all of the students were in groups and had chosen a book. I gave the students free choice as to which book they would like to read; the school librarian gave them a 40-minute introduction to 15 books that she thought they might find interesting; although the students were not required to choose books suggested by the librarian, many did. Each class spent two 45 minute lessons in the

school library during the week of book and group choice, where the librarian and I helped them to negotiate groups and find books they wanted to read. Some groups decided to read more than one novel during the six weeks of the literature circle cycle. I emphasized that the book should be challenging in the subject matter or reading level for students. In past years, I have found that the vast majority of groups chose books that were suitably challenging. If a group selected a book I did not consider to be sufficiently challenging, I explained why it was not a good choice and guided them towards a different decision. However, all the groups chose books I considered to be suitable for them as readers. In a reflective questionnaire I gave to 90 students in 2015 about literature discussions, the only statement that 100% of the respondents 'strongly agreed' on was: "[b]eing able to choose our own book was important." The importance of choice of text was discussed in Chapter 2. As stated by Marinak, Gambrell and Mazzoni (2012), "choice, challenge and collaboration" are powerful motivators (p. 2). I believe providing students with as much autonomy as possible in the selection of groups and books has relevance to student engagement.

Framework of literature circle project.

Once the students had chosen their book, they divided the book into six approximately even sections. During each of the six weeks the students were engaged in the project, they were tasked with reading their predetermined section, marking areas of interest, and recording questions, comments and connections on sticky notes. On literature circle discussion days, one day per week, the students sat in their self-selected groups in isolated parts of the room or in other areas of the school, such as corners of the library, the hallway or the back room in the library, and began their discussions which

they recorded in their entirety on the iPads. As the teacher, I monitored the various areas where students were working during the lesson, but I rarely interrupted their discussions and indeed I tried to keep my presence unobtrusive by moving quietly between groups and not intervening. Students knew turn taking was not prescribed and that they were to engage in free flowing conversation that included all participants. The students used an iPad to record their discussions for 20 minutes, and used the sticky notes they had placed in their books during their reading to form the basis of their discussions. At the beginning of each video the students reported if they all had their books and notes, and towards the end of the 20 minute duration they were tasked with making predictions about what they thought would happen next in the novel or to the characters. After the students completed their discussions they uploaded their videos to my YouTube channel, returned to the classroom, and started on their independent reading of the next section of the novel for the following week. The students uploaded their weekly videos at the end of their discussions, so I could watch them and provide commentary and formative assessment as part of their English Language Arts curriculum.

Length of videos.

I specified to the students that the videos needed to be 20 minutes in length. In the past when doing this project, the videos needed to be a minimum of 15 minutes but I did not give a maximum time limit. I decided to ask for uniformity in length for this project to make comparison more easily possible. In viewing the videos it was clear that some groups struggled to find content to keep the conversation going for 20 minutes, as evidenced by their frequent glances at the timer and often explicit reference to the time and how much remained. Some groups, however, found 20 minutes to be too short in

duration and they had difficulty fitting what they had to say into the time frame; several students commented on this aspect in their reflection videos.

Videos of 20 minutes in length proved to be problematic to upload as 20 minutes approached the limits of the memories of the iPads. Because the iPads are owned and managed by the school district, the procedure for freeing memory space by clearing off apps was complex and the head Apple technician for the school district had to come and personally help me at one point because the problem could not be solved remotely. Thus, uploading videos caused frequent difficulties. If students were unable to upload during class time, I needed to upload the videos from the iPads at the end of the day myself to ensure no data were lost. This procedure was particularly time consuming because I did not know which groups I was following so I had to upload all the videos for the two classes. If I had not been concerned about preserving the data for the study, I would have done my school-based assessment of the videos directly from the iPads when confronted by technical uploading issues.

Reflective videos and interviews.

After finishing their books and their six weekly videos, during the seventh week of the project, the students made individual reflective videos responding to questions about their thoughts about the project, whether they felt listened to by others in the group, as well as how they felt about the format of using video and the iPad, and whether and how they thought the iPad recording of their discussions affected their discussions (see Appendix F for reflective video questions). After my grades were submitted in June, when I was allowed to know which students had given permission to participate in the project, I selected the focus groups. I carried out individual semi-structured interviews

(see Appendix G for interview questions) with the students from the selected groups to elicit insights about the students' views and opinions on the literature circle project and the aspect of using iPads to video their discussions, and to triangulate my observations from watching the class and reflective videos.

Collection of Data

As described previously, each group met once weekly over six weeks during the 2017 Spring Term for literature discussion groups about their chosen books. The discussions lasted for 20 minutes and were recorded on iPads, and each video was uploaded to my YouTube channel. The individual reflective videos the students made at the end of the project were approximately five minutes in duration. They were also uploaded to my YouTube channel, and later transcribed and coded. Data collection also included my class observation notes on how the affordances of the iPad seemed to affect oral discourse content and behaviours in discussion groups. These notes took the form of an electronic journal where I recorded comments during the discussions.

I interviewed each student who was a member of one of the focus groups at the end of the school year (except for one student who was away on holiday at that point in the term). The questions asked during the semi-structured interviews were designed to elicit insights about the students' views and opinions on the literature circle project and using iPads to video their discussions. These data were used to corroborate my observations from watching the videos. Each interview lasted about five minutes and was audio recorded on iPads and transcribed by me. The interviews took place during the second week of June in a quiet room at the back of the library while the rest of the class was reading. Thus, data collected for the study included the following:

- 24 twenty minute videos made by the students on the iPads during their literature discussions over a six-week period,
- students' individual videoed reflections made at the end of the project,
- transcriptions of individual student semi-structured interviews, and
- classroom observations made by me during the project.

Data Analysis

Literature discussion videos.

Because my research was qualitative and multimodal in nature, I decided that qualitative content analysis was a suitable method for analyzing and interpreting the data. Research using qualitative content analysis focuses on the characteristics of language as communication, with attention to the content or contextual meaning of the text (Budd, Thorp, & Donohew, 1967; Lindkvist, 1981; McTavish & Pirro, 1990; Tesch, 1990). Qualitative content analysis is a research method for the subjective interpretation of the content of data through the systematic classification process of coding and identifying themes or patterns and as such seemed appropriate for my study. I used the BORIS software (Friard & Gamba, 2016) to help me code my data and I saved all of my transcriptions and screenshots on Google Docs.

The main type of data collected for the research was videos – the uploaded weekly videos of literature circle discussions the students recorded on the iPads. I initially open coded the data from the videos. Saldaña (2015), in his coding manual for qualitative researchers, noted that "coding is not a precise science; it is primarily an interpretive act" (p. 4) and that all researchers have their own biases or filters that affect how they perceive and therefore code data (p. 7). Case study researchers need to follow

systematic procedures and not allow "equivocal evidence or biased views to influence the direction of the findings and conclusions" (Yin, 2009, p. 14). I watched the videos and read the transcriptions multiple times before beginning to code in order to immerse myself in the data and develop an understanding of the nature of the data. In open coding as many headings as necessary are created to describe all aspects of the content (Burnard, 1991, 1996; Hsieh & Shannon, 2005). The aim of grouping data is to reduce the number of categories by collapsing those that are similar or dissimilar into broader higher order categories (Burnard, 1991; Dey, 1993; Downe-Wamboldt, 1992). When formulating categories by inductive content analysis, the researcher allows codes and patterns to emerge and comes to a decision, through interpretation, as to which things to put in the same category (Dey, 1993). Because my aim in teaching literature circles was to extend students' exploratory talk, this lens influenced my interpretations and therefore my initial open codes from the videos focused on the students' use of exploratory talk as described by Mercer and Littleton (2007), such as partners engaging critically but constructively with each other's ideas, challenges and counter-challenges which were justified, active participation by all students, and opinions being sought and considered before decisions were made jointly. I also coded for affordances of the iPad which seem to extend and facilitate exploratory talk, such as role play and playfulness with the medium of the recording, and awareness of the timer seeming to keep the students on task. I further coded for evidence of other affordances of the iPad, such as the students addressing one another through the screen rather than face-to-face, and for multimodal communication of play and active participation, evidenced through observations of facial expression and gesture.

I used BORIS software, developed by Friard and Gamba (2016), to code at the beginning of my process. BORIS is a free, open-source and multiplatform program that allows a user-specific coding environment to be set for a computer-based review of videos. I was able to code in a very detailed way with the BORIS software because it was possible to analyze video frame by frame if necessary, but I found that my data were becoming overwhelming, as almost every utterance and gesture could be coded and I had 480 minutes of video data just from the literature discussions. Although I found the BORIS software useful because I could pinpoint behaviours in order to screenshot them, it has limitations when used with such a large data set as mine because coding frame by frame rapidly produces too much data to work with effectively. Saldaña (2015) recommends that visual data, such as the video data that I was working with, should be analyzed using an "holistic, interpretive lens guided by intuitive inquiry and strategic questions" (p. 52) so I developed a simpler system, whereby I used the BORIS software to play the videos, because it had a very accurate timer and allowed me to fast forward or rewind one frame at a time if I needed to, but I used a combination of screenshots and written notes to code into a Google Doc document for each video. My coding of the data at this point focused on behaviour towards the iPad camera and I developed the following codes: speak a greeting like in a vlog; address camera directly, ignore others in group; appeal to camera; show unusually polite behaviour; use physical gesture rather than words; and address the teacher via the iPad.

In any study, it is important to continually return to the research questions in an iterative and robust manner during the coding and analyzing process in order to prevent focus being lost. This procedure is reinforced by 'Tesch's Eight Steps to Coding' (1990),

recommended by Creswell (2014), which includes the step of recoding existing data if necessary after initial analysis (p. 198). The research questions should guide a researcher about what data to analyze (Elo & Kyngäs, 2008; Schreier, 2012) and as such must guide the entire coding process. My research questions focused on the opportunities the use of the iPad to record literature circle discussions afforded to both students and teachers. I realized in the second phase of coding that the codes I generated did not accurately reflect my research questions. I therefore started again, having further refined and filtered my codes with my research questions uppermost, while continuing to use the same system of screenshots in addition to written codes. The codes that emerged the most often from the literature discussion videos that were most relevant to my research questions were as follows: teacher as audience; 'other' as audience; screen/mirror as audience; discussion etiquette; and awareness of timer.

Teacher as audience.

The code for teacher as audience included direct address to me, exemplified by use of my name, speaking in French (the default language in our classroom) or other clear indications that the students knew that I was the audience. For example, in Group C, week 2 at 17:54, the group finished their video with the words "Au revoir." I was also interested in the way the students switched from one audience to another. For example in group D's third video the students introduced themselves and then one of them said, "But you know my name," showing how their awareness of audience could flip. I discuss this notion of perception of changing audience in Chapter Four.

'Other' as audience.

As well as the students' apparent awareness of my presence, I also saw evidence of them frequently forgetting about my presence. For the code of the 'other' as audience I coded evidence of the students behaving as though their videos would be available on the Internet, despite them knowing the videos would be uploaded to my private YouTube channel and would be viewed only by me. This concept was demonstrated in greetings such as, "Hi kids!" or the students introducing themselves. In this category I further coded for evidence of students seeming to feel they were in a space where they could play and where free to indulge in exuberance and role play. I used the Oxford English Dictionary (OED Online, June 2017) definition of play as "activity engaged in for enjoyment and recreation rather than a serious or practical purpose" (OED Online, June 2017, n.p.). These behaviours seemed to contradict the behaviour that I coded as self-regulation.

During some of the videos, in particular those made by group D, one of the Grade 7 groups, the group appeared to be very comfortable with the presence of the iPad and did not seem to react to the screen in the same way as the other groups – they turned on the video and began their discussion. For this group, I used transcription, which I subsequently analyzed, in addition to screenshots because the evidence was more language-based than visual.

Screen/ mirror as audience.

The code of screen/mirror as audience was specific to the students being able to see themselves on the screen as they engaged in their discussion. Evidence for this code involved activities that seemed unlikely to have happened without the presence of the

camera, such as the students positioning themselves closer or further away from the screen to play with perspective, adjusting the screen, and playing with perceived images, such as sticking out their tongues. These activities seemed linked to the idea of the audience as 'other', as sticking out their tongues at the screen did not seem meant for me as the teacher. It is possible that in some of these instances the iPad was a distracting factor, an aspect I discuss in Chapter Four.

Discussion etiquette.

Under the heading of discussion etiquette, I coded examples of students reminding each other to get back on track, being unusually polite to one another, and turn taking. For example, in Group A, during week 1 of the discussions, a student said, "You continue, I'm sorry I interrupted." (12:51). I believe examples such as these reflected the students' awareness of my presence via the iPad and that they self-regulated their behavior accordingly. I also coded for discussion etiquette when one of the students was managing the group or holding other students accountable. For example, in Group A during the second literature discussion, when a non-participating student was asked what he thought about the relationship between two characters, his response perpetuated the discussion. The transcript excerpt follows: "What else do you think will happen? Come on. Well ... the numbers have to be something. Maybe they're codes or something like that" (19:11).

Awareness of the timer.

Awareness of the time needed to stay on task emerged as a code. I coded students referring to the timer and talking about how long remained in their discussion. For

example, during the second literature discussion, a member in Group B stated, “We’re totally not there yet.” (09:16), after consulting the timer on the screen.

Emergence of themes.

The goal of content analysis is “to provide knowledge and understanding of the phenomenon under study” (Downe-Wamboldt, 1992, p. 314). A prerequisite for successful content analysis is that data can be reduced to concepts that describe the research phenomenon (Cavanagh, 1997; Elo & Kyngäs, 2008; Hsieh & Shannon, 2005). Based on the understanding that after open coding, the list of categories should be grouped under higher order headings (Burnard 1991; McCain 1988), during my third round of coding I organized my five codes under the two broad themes of self-regulation and engagement. These two themes seemed to best describe the video data in relation to my research questions.

My open coding led to the creation of the category of (a) teacher as audience, (b) discussion etiquette, and (c) awareness of the timer, which I clustered under the theme of self-regulation. In Chapter Two I discussed how theorists describe self-regulated learning as a multidimensional process through which individuals strategically and purposefully manage and control their behaviours, cognition, and environment to attain their goals (Pintrich, 2000; Zimmerman, 2000).

I organized my codes of (a) ‘other’ as audience and (b) screen/mirror as audience under the theme of engagement. As descrobed in Chapter Two, engagement is a complex term. In their review of scholarly work on student engagement, Finn and Zimmer (2012) noted how engagement is multifaceted and researchers differ in how they define the construct. However, Finn and Zimmer (2012) identify four components common to

multiple definitions of engagement: academic, social, cognitive, and affective. These categories provided useful lenses through which to view my data. When viewed through the lenses identified by Finn and Zimmer (2012) and Guthrie et al.'s (2004) concept that students are relatively energized, active, effortful, and involved (p. 404), the codes of 'other' as audience and screen/mirror as audience correspond to the social and affective components of engagement.

Other data.

My other data were the transcriptions of the individual student reflection videos, where the students reflected on aspects of how they worked together based on a list of questions, and the transcriptions of the semi-structured interviews, which I recorded on the iPads as audio only. My timeline was very short to code the data from when I knew which groups I was following to when I was able to carry out the semi-structured interviews. However, I had watched all of the videos as the project progressed in order to assess the students, so I was able to note emerging patterns in the data and make preliminary pattern matching notes to develop questions for the semi-structured interviews at that earlier stage in the project, despite not knowing at that point which groups I would be following.

I analyzed the student reflective videos and the semi-structured individual student interviews after the third round of coding the videos. As I stated previously, I created transcriptions of the reflective videos before coding them as the multimodal aspect of the video seemed much less relevant without the context of group interaction. I also transcribed the semi-structured interviews before coding them as they were audio

recorded. All of the data from these transcriptions fit into the codes I had developed for analysis of the class videos.

I re-read my class observation notes but I did not find them to be very helpful because my observations of how the students were working yielded far less useful data than the videos which recorded their behaviour in much richer detail. As a result, I did not use data from my classroom observation notes.

Summary

Overall I found the coding to be a complex process that required several iterations. I needed to repeatedly go back to the data in order to confirm my interpretations. It was necessary to accept that any categorization would be incomplete and would reveal my biases. Indeed, one of the criticisms of thematic coding made by Gibson and Brown (2009) is that categories imposed on "complex lived features" can "potentially hide rather than reveal" (p. 129) because what is left out can be as important as what is included. I found it helpful to return to Creswell's (2014) advice and focus on categorizing, analyzing and recoding as necessary (p. 198). For example, my initial focus on behaviours connected to exploratory talk changed, and my later focus was more on interaction with the screen and evidence of self-regulation and engagement. In summary, the continual re-reading and re-watching of the videos led eventually to some clarity and the emergence of my two key themes of self-regulation and engagement.

In summary, in this chapter I described how I carried out my qualitative exploratory instrumental case study on the affordances of iPads for students and teachers. I described my methodological lenses, the significance of the setting of the study, the

selection of participants, the data collection, and the processes involved in the analysis of the data. I discuss the findings of my data analysis in Chapter Four.

Chapter 4

Findings and Analysis

In this chapter I report the findings from the data analysis. Firstly, I provide a description of the case – the four focus groups of the study. The case description is followed by the presentation of the two major themes that emerged from the study with respect to the affordances of using the iPad to record literature discussion for students and teachers: self-regulation and engagement. For self-regulation, I discuss how the presence of the iPad appeared to influence how the students addressed me, the teacher, and how they employed discussion etiquette, as well as evidence that the use of the iPad seemed to influence students' efforts to keep their discussions to the 20-minute imposed timeline. I also consider how the students' sense of audience seemed to fluctuate from that of teacher to that of an unknown other. In considering the theme of engagement, I present data that indicated students were sometimes addressing an unknown audience or engaging with their own image on the screen, which seemed to lead to play, role play and exuberance. I present further evidence of student enjoyment of the project gathered from their reflections and answers to the interview questions. Overall, the findings indicated how the use of the iPad for student discussions about literature afforded students with opportunities to self-regulate their behaviours and discourse in ways they seemed to find engaging, and afforded me an unobtrusive window into students' discussions which provided an additional perspective on the students and their work.

Case Description: The Participants

The case for my study consisted of four focus groups from the two classes to whom I taught English Language Arts. My relationship with the students as their teacher

allowed me to build “holistic understandings through prolonged engagement” and to develop “rapport and trust within a clearly defined and highly relevant context” (O’Leary, 2014, p. 195). Pseudonyms are used throughout. When I use photographs to illustrate my findings, I do not refer to the students by their pseudonyms to avoid linking pseudonyms to images in order to protect anonymity. The group configurations are outlined in Table 1 below.

Table 1 Group Configuration

Group A (Grade 6)	Group B (Grade 6)	Group C (Grade 7)	Group D (Grade 7)
Harry	Jane	Megan	Hunter
Mark	Molly	Beth	Owen
Sam	Alexa	Freya	Simon
		Lucy	

Group A.

Group A was composed of three Grade 6 students: Harry, Mark and Sam. Harry read well above grade level expectations and frequently chose to read above alternative activities. He struggled to express himself in writing because he was easily distracted and lacked self-confidence. He suffers from an anxiety disorder and experiences difficulty presenting in front of others and speaking to teachers. The second student, Mark, also read above grade level expectations. He often chose to read graphic novels and struggled to maintain focus reading longer print texts. Mark has ADD, which was not medicated at the time of the study. He was highly distractible and experienced difficulty co-operating with others. The third student in this group, Sam, read slightly below grade level expectations. He rarely chose to read as a leisure activity, preferring video games, drawing or physical play and expressed in his reflection that he did not like to read and

had never read an entire novel before this project. He generally worked well in groups and cooperated with his peers.

The boys in Group A chose a book they all professed to enjoy, *Legend* (2011) by Marie Lu, a dystopian science fiction novel. They read to their goal each week and came prepared with notes to discuss on all but one occasion. Twice, different members of the group had read a few pages further than to the agreed goal. Generally, their discussions went well, although on several occasions they ran out of notes to discuss before the 20 minutes was over and they found it difficult to maintain the discussion. The group had a tendency to retell the story to the iPad when they were unable to make connections or maintain a discussion, but there were some examples of exploratory talk and they were able to discuss the connections they made. On two occasions, Sam was absent but joined in the conversation via Facetime using my iPhone. This group did not always work effectively together; evidence on the videos revealed Sam and Harry finding it frustrating to work with Mark and ignoring his behaviour to continue the discussion, or signaling they did not wish to be associated with uncooperative behaviours, such as when Mark sang while Sam and Harry were discussing the book.

Group A frequently demonstrated behaviours that seemed to be play and role play. They often played with their images, posture and expressions in front of the camera, positioning themselves or the iPad in order to create effects of perspective or making faces. The boys had a tendency to ‘mug’ to the camera, often addressing an unknown audience and seeming to forget me, the teacher as audience. They sometimes spoke in different voices and in one video they fashioned a microphone from of an origami square and a pencil, which they held up to the speaker like a television presenter.

Group B.

Group B also consisted of three Grade 6 students: Alexa, Molly and Jane. Alexa read above grade level expectations, she was cooperative and tended to work well with classmates. Molly, who read at grade level expectations, had strong presentation skills, although in social interactions with peers she seemed immature for her age. The third student, Jane, read texts below grade level expectations and her inferencing and comprehension skills were also below grade level. She tried to avoid reading whenever possible in class and during her interview she stated that she did not choose to read at home or at school. She struggled to stay on task in all classroom activities. Although Jane was highly social and interested in others, she tended to either dominate or withdraw in group activities.

Group B read *Escape From Mr. Lemoncello's Library* (2013) by Chris Grabenstein, a book they all said they enjoyed in their video reflections at the end of the project. On one or two occasions a group member did not bring her notes, but they all read the book to their goal each week. Participation in discussions was uneven. Alexa had a lot to say, but she tended to dominate the discussion and she frequently engaged in monologues to the camera. Molly would join in with her own observations and talk about her connections to the book. The least academic of the students, Jane, was often disengaged and distracted. Despite having read the book and recorded some notes, she seemed to find making connections and participating in discussion difficult and her observations about the text were superficial in nature. Jane frequently derailed the conversation by talking about irrelevant subjects or she disengaged and made faces at the camera. On one occasion she stuck out her tongue for 16 seconds and on another day she

placed her head in her hands for several minutes. During her self-reflection video and interview with me, she acknowledged that she did not speak as much as the others but she claimed her lack of participation was because the others did not let her contribute. However, the videos contained multiple examples of the other girls inviting her to speak.

Group C.

Group C consisted of four Grade 7 girls. As explained previously, these students had experience of working with iPads on literature discussions during the previous academic year. Beth, Megan and Lucy were high achieving students who were cooperative and had strong group negotiation skills. Academically, Freya was weaker than the others, but she met grade level expectations for reading and comprehension and she worked well in the group.

Group C read three books from the *Cherub* series by Robert Muchamore: *The Recruit* (2004b), *Class A* (2004a), and *Maximum Security* (2005). They read one-half of a book each week. Group members all read to the goal and brought their notes each week. They engaged in discussions competently, and their discourse and behaviours indicated a serious approach to the discussions. When compared to the videos created by Groups A and B, Group C engaged much less in overt play and role play, and participated in consistent exploratory talk.

Group D.

Group D consisted of three Grade 7 boys: Owen, Simon and Hunter. Owen was a highly thoughtful and verbally eloquent student who read materials well beyond grade level expectations. The second student, Simon, was designated gifted and read texts well beyond grade level expectations. His gifted designation showed most obviously in areas

of the curriculum pertaining to Science and Math. Simon had some difficulty with creative work as he tended to be literal in his interpretations. The third student in Group D, Hunter, also read texts above grade level expectations and frequently chose to read as a leisure activity both in school and at home; he was a sociable and easy-going student.

Group D read a classic science-fiction novel, *Fahrenheit 451* (1953) by Ray Bradbury. During their interviews and self-reflections, each student declared how they enjoyed the book and the ideas engendered in it. The students read to their goal each week and came to the lesson prepared with notes, except on one occasion when Owen had left his book on a bus after a school trip. They engaged eagerly with one another in discussion, and many examples of exploratory talk were evident during each week's discussions.

Themes that Emerged From Analysis of the Data

As described in Chapter Three, the main data gathered during the study were videos made over six weeks by each of the four groups of students on the iPads during their literature discussions. In addition, I collected reflective videos made by each of the students after finishing the project, and conducted semi-structured individual interviews with each participant, which were audio recorded and transcribed. These data were analyzed through several rounds of coding, and then organized into themes.

The most prominent finding from the data analysis was that students frequently self-regulated their behaviours during their literature discussions. This self-regulation seemed to be influenced by the fact that the teacher, signaled by the iPad screen, was the audience for the videos. A second key finding was that of engagement. The students seemed engaged in the activity and demonstrated play behaviours during their

discussions. I particularly focused on the social and affective components of engagement as identified by Finn and Zimmer (2012). My findings for both these themes were triangulated with responses from the students' reflections and interviews.

Self-regulation.

Across groups, I coded 164 student utterances or gestures during the videos that suggested self-regulation such as addressing me, the teacher, unusually polite behaviour, turn-taking, and careful listening to one another. Furthermore, I coded the students' awareness of the timer and the time they spent on task as self-regulation. During the interviews and self-reflective videos, 11 of the 13 students stated they felt accountable for their behaviours during the discussions because of the presence of the iPad. For example, Harry conveyed that the iPad was "like a watchful eye" and Beth talked about how "the iPad is there, watching us." The presence of this "watchful eye" seemed to create a feeling of student accountability for regulating their own and their peers' behaviours and for continuing the discussions for the full 20 minutes each week.

Teacher as audience.

During their discussions, the students directly addressed me, 'told tales' on one another to me, appealed to me as referee, and justified themselves to me. The students' sense of audience seemed to change frequently from that of teacher to that of an unknown 'other' and back again, a phenomenon I discuss later in this section.

Direct address.

The students addressed me directly or seemed to signal to me through the camera 49 times in the class videos. This behaviour sometimes took the form of addressing the camera in French. As stated previously, the students were all in the French Immersion

stream of the school so our normal language of interaction was French in all classes except for English class. When the students addressed the camera in French it seemed to indicate they were addressing me and were therefore aware of me as the audience. For example, in Group B during week 2, a student who was distracted, looked at the camera, waved, said, “Bonjour.” (13:32). In Group C, during week 2 the students opened their video by saying, “Bonjour,” in unison and they finished their video with the words, “Au revoir.”

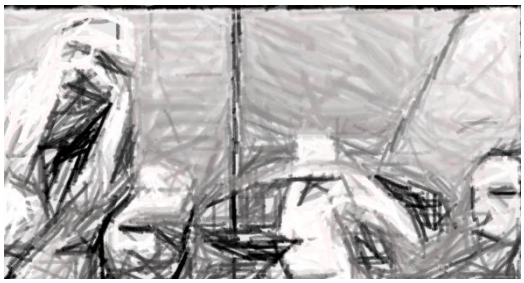
The students also addressed me directly through the camera. In Figure 2, the student in the middle of the screen mentioned that it was the last week of the project and they would need to return their books to the library after the lesson. The student on the far left looked up from her book, and addressed the camera directly saying, “Madame, you were right to not check this book out for me because I might have lost it.” She was referring to the fact that at the beginning of the project she did not have her library card and asked me to check the book out in my name. I said that I would prefer to wait until the next day when she had her library card because I wanted her to take responsibility for the book. The students all addressed me as ‘Madame,’ even when they were speaking in English. Her allusion to our shared experience in this extract suggested that the word ‘Madame’ was directed at me.

Figure 2. Screenshot Group B Discussion #6. Direct Address

Group	Week	Time	Observed behaviour
B	6	16:51	

The students also addressed me directly without using my title. In Figure 3 the student on the far left had informed me at the beginning of the lesson that she needed to leave half way through to go to a dental appointment. She received a text at this point during the video and turned from her phone to face the camera, stating, "I've got to go. My mom texted." Her reference to our shared knowledge indicated she was speaking to me as the authority figure via the iPad screen.

Figure 3. Screenshot Group C Discussion #6. Direct Address

Group	Week	Time	Observed behaviour
C	6	06:10	

'Telling tales.'

I coded further evidence of the students' awareness that I, the teacher, would watch the videos, and that this knowledge seemed to affect their behaviour, when the

students appealed directly to the camera to resolve disputes, to ‘tell tales.’ In Figure 4, one student accidentally tore the page of the book while removing a sticky note; this action was not obvious to a viewer of the video when it happened. The student in the centre immediately looked straight at the camera and said, with some relish, “She ripped the book!” The student appeared to enjoy this opportunity to ‘tell tales’ to the teacher, while the student on the far right of the frame responded with an exaggerated gesture of shock.

Figure 4. Screenshot Group B Discussion #5. ‘Telling Tales’

Group	Week	Time	Observed behaviour
B	5	18:26	

In Figure 5, it seemed that the boy in the glasses was appealing to the camera as the teacher, despite the fact that I was not physically present, to witness the fact that the other boy had broken the ‘rules’ of the project. The student on the left had announced a “spoiler alert,” revealing that he had read further in the book than the agreed point for the day’s discussion. The boy in glasses reacted by looking straight at the camera while he delivered his admonishment, “That’s bad man! You’re not allowed doing that!” The first boy justified his behaviour by accusing the other one of having done the same thing the previous week, which the boy in the glasses described as “an accident” because the book was too good to stop reading; however he reiterated that in this case, reading ahead

"That's not an accident!" The conversation was directed at the camera in the case of the accuser, the boy with the glasses, who was making eye contact with the camera throughout. The 'accused' kept his eyes hidden in his book and did not look at the camera during the exchange.

Figure 5. Screenshot Group A Discussion #2. 'Telling Tales'

Group	Week	Time	Observed behaviour
A	2	15:59	
A	2	16:11	"That's not an accident!"

Appealing to teacher as referee.

Sometimes when the students addressed me directly it was to appeal to me as referee or to distance themselves from the actions of others. The tone of voice and facial expression of the boy on the far left in Figure 6 suggested he was appealing to me, the teacher, to witness that he was not able to work because of the boy in the centre's actions. The boy in the centre was singing loudly for about 20 seconds, and he was not only off task, but also making so much noise that the other boys could not speak to each other. The boy on the far left looked straight at the camera and said, "I hope you can hear that." The reaction of the boy on the right of the screen suggested a certain shock that the first

boy was appealing to the teacher, despite the fact the boy who was singing was quite obviously off task to anyone watching the video.

Figure 6. Screenshot Group A Discussion #3. Appealing to Teacher as Referee

Group	Week	Time	Observed behaviour
A	3	11:01	

Apologizing or justifying an action.

On 22 occasions the students addressed the camera directly to apologize or to justify an action that could have been interpreted as meaning they had not come prepared to the lesson. These articulations suggested they were using the iPad screen as a proxy for the authority of the teacher. For example, in Group D's second video at 00:20, Owen opened with a long explanation of where his book was (he had left it on the bus after a school trip). He explained he had nonetheless read it and apologized for not having it with him. One of the requirements of the literature discussion videos was for the students to begin by declaring whether or not they had read the section and had their book and notes with them.

A student justifying herself directly to the teacher via the iPad screen is captured in Figure 7. The student on the right is showing her sticky notes to the camera explaining, "I actually have my sticky notes today." She had not brought her notes the previous week and I had reminded her of the importance of doing so.

Figure 7. Screenshot Group B Discussion #3. Apologizing or Justifying

Group	Week	Time	Observed behaviour
B	3	00:23	

The instances of directly addressing me via the camera suggested the students were aware of the iPad's role as a proxy for the teacher. Furthermore, these examples seemed to reveal the students saw the communication as being two way: not only was the teacher able to observe the students while they were having their discussions about the book, but also the students were able to communicate directly with the teacher in order to explain, clarify or justify their behaviours.

Interview comments about teacher as audience.

During their interviews, several students spoke about the self-regulatory effect of knowing I would be an audience for the videos, leading them to put more work into the project. It is also possible the iPads were playing a co-regulatory role as a more capable other (Hadwin & Oshige, 2011), by mirroring the students' conversation and thus reminding them of the genre of discourse necessary for a literature circle discussion. For example, Beth articulated: "[I]f we were just doing it on our own I don't think we would analyze or have actually thought about the book that much, because we wouldn't have thought, 'Oh, my teacher is going to see this.'" Similarly, Lucy credited the presence of

the iPad as a proxy for the teacher for the level of effort that her group put into their preparation and discussions.

> I feel like if there wasn't an iPad we probably wouldn't have done as much work and put in as much effort, you know? ….. We wouldn't work as hard on it or really think into things and get as in depth as possible.

Their awareness that I, the teacher, was the eventual audience for their videos was credited by the students as a reason for preparing thoroughly for the class and talking in depth during the videos, which led to them having more meaningful discussions.

Other students talked about the importance of the teacher as audience. Owen said, "We probably wouldn't have had the same conversations if we weren't recording them." Hunter intimated that an in-depth discussion about their book would not have seemed like a natural discussion to have without a sense of an external audience.

> We felt the iPads improved our conversations because with the iPads, we were presenting for someone, where if we were just having a casual conversation about the book, then it's like we were not really pressured. I guess we wouldn't be as open about what we learned from the book, so I don't think we would have had the same conversation.

Similarly, Simon spoke about the importance of the iPad for keeping his group on task.

> If you're just talking normally and you can hear everyone else talking normally, and you know that no-one's listening, then people tend to get distracted really easily, because you know it doesn't really matter, then you don't get anything done. But when you're talking to the iPad, you can see yourself being recorded and then you just, you stay on topic, especially when there's a time limit.

These students articulated the idea that the iPad screen, as proxy for the teacher, served as a reason to have in-depth discussions, and that they self-regulated themselves to have these discussions because of their awareness of the teacher as audience.

Although data indicated the students treated the iPad as a proxy for me, the teacher, at least for part of the time, some students stated that the mediation of the screen also provided a less stressful way to interact with the teacher. Owen said, "[I]t was a lot easier and probably less awkward than [having a discussion] in front of Madame or the class." When I asked Beth in her interview if she thought their discussion would be different if "I was sitting right there." She answered, "Yeah, that would be nerve racking." When I asked her to elaborate she said that with the iPad, "it just feels casual, it feels like you're having a conversation about a good book you read." Because I had taught this student for two years and I considered her to be a student who would not find my presence at all intimidating, I was surprised at the strength of feeling with which she expressed her opinion about the effect of a teacher's presence.

Overall, data from the videos and students' interview comments suggested that the iPad screen as proxy for the teacher as audience played an important role in the students' self-regulation during the project.

Changing perception of audience from teacher to 'other'.

The concept of the teacher being 'there but not there' came up frequently during the interviews; in answer to a question about who the students were addressing when they spoke to the iPad, Owen said, "I do see it as you on the other side but not as much as if you were properly on the other side, you know? Like there's kind of a wall in between." Simon stated, "I know that you're going to be listening to the recording but that you're

not listening to it right there and then." These responses suggested that the detachment from the teacher as audience afforded by the iPad screen meant that the sense of audience was not fixed for the students. They seemed to move fluidly and rapidly between awareness of the teacher and a state of forgetting about the teacher as audience, or they were simultaneously aware and not aware of the teacher as audience. Harry described it as, "I feel like I don't REALLY forget [the teacher's presence] but it just sort of, becomes sort of normal."

The sustained on-task, self-regulated student behaviour evident in the class videos seemed influenced by the students' awareness of the teacher as audience; interestingly, most students attributed their off-task behaviours to moments when they forgot about the role of the iPad as proxy for me. During her interview Lucy said, "I think we forget that you're actually gonna be watching this. Well, like, we forget and then we remember and we're like, 'Oh, Dang!'" Similarly, Alexa commented on this act of forgetting and remembering.

> I think sometimes we noticed it, but at the same time sometimes we forgot that we were doing a video that we had to upload and that we would get graded on, so I feel like sometimes we would just talk randomly. When we saw the iPad we would be like, 'OK we actually have to focus and we have to talk into it and talk about the thing.'

Furthermore, in the reflection videos some students referred to their fluctuating awareness of the teacher as audience. This phenomenon varied from group to group and did not seem to fit into any discernible pattern, although the Grade 7 students seemed to be aware of the presence of the teacher more consistently than the Grade 6 students. In

response to the question about whether the presence of the iPad made a difference to their discussions Molly stated that, “On the iPad I feel like I’m talking to just me, basically, a mirror of myself. But then people are going to watch this and I’ll be like, ‘Wooah, that’s me.’”

The concept of fluctuating audience seemed to contribute to the level of comfort and play the students displayed in the videos, which suggested they had forgotten the teacher as audience, coupled with behaviours that nonetheless showed their awareness that I would be viewing their recordings. An example of the students’ shifting sense of audience was evident in group B’s second video at 09:35. Alexa, who was telling Jane the audience did not want to hear the long digression she was relating about her shoes, started to speak and then corrected herself: “They don’t ..... Madame doesn’t want to hear about ....” The fact the students’ concept of audience could change so rapidly within the same comment suggested how closely the two different concepts of audience were entwined for the students.

Content in the transcript excerpt below from group D in week 3 at 00:14 provides an example of the students’ perception of a fluctuating audience between the teacher and an unknown other. Hunter and Owen introduced themselves by name but Simon stopped himself, realizing that it was a strange thing to do when I already knew them. The other boys turned the idea into a joke that I, as the teacher, was not doing my job if I was not watching the videos. Simon was presumably referring to the fact that I had been teaching him for 18 months when he said, “If you don’t know me by now that would be really weird.” But Hunter interpreted the idea that I would not know their names as, “That would mean you haven’t been watching our other videos,” which suggested his

perception of audience had switched, and the audience would only know their identities from the videos rather than our shared classroom experience.

O: Hi.

H: I'm Hunter.

O: I'm Owen.

S: I'm Simon. You should know me by now. If you don't know me by now that would be really weird.

H: That would mean you haven't been watching our other videos.

O: And if you weren't watching those videos what are you doing Madame? You're a teacher!

Students' fluctuating awareness of the teacher as audience while they were having their discussions seemed to lead to some of the more interesting affordances of the iPad for students, whereby they self-regulated yet simultaneously felt relaxed and engaged in play behaviours.

Discussion etiquette.

The students' awareness of the teacher as audience seemed to lead them to self-regulate their discussion behaviours and discourse. I coded 84 examples of the students discussing politely, listening to one another and contributing to the discussion in effective ways from the class videos, which I coded as discussion etiquette. The students' self-regulation shown through discussion etiquette in the presence of the iPad may have been attributable to the fact that they could view themselves working on the screen as well as their awareness of me as audience. Although the Grade 6 groups were not as effective as the Grade 7 groups at engaging with one another's ideas, and there were occasions when

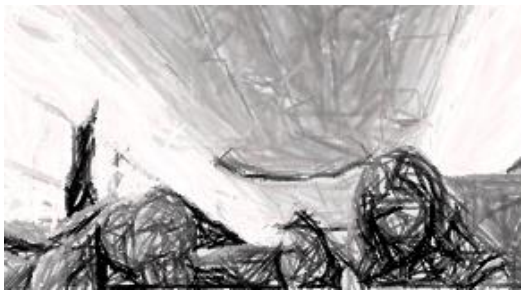
one group member would engage in a monologue or retell the plot of the book without making many connections, there were nonetheless many examples of discussion etiquette in the Grade 6 groups. For example, in Group A's first video at 00:43 Harry asked, "Can I interrupt for a second?" and then at 10:30 Sam said, "Can I just say one thing?" At 12:51 Harry stated, "You continue, I'm sorry I interrupted." In my experience, this level of formality and restraint was unusual for these students working together without supervision, despite these skills having been explicitly taught.

The role of the screen.

Self-regulatory behaviour during the discussions often seemed mediated through the screen, suggesting that viewing their images played a role in reminding the students to regulate their discussion behaviours. For example, I coded seven instances on the videos when the students raised their hand to talk, a visually-based formal classroom behaviour which is unusual in my experience when students are working in autonomous groups, as in Figure 8.

Figure 8. Screenshot Group A Discussion #1 and Group C Discussion #4. The Role of the Screen

Group	Week	Time	Observed behaviour
A	1	08:20	

C	4	17:42	

The camera being used as a focal point for the students' attention is shown in Figure 9 from group A week 2. The student on the left is distracted and off-task. The student with the glasses puts his hand on the other boy's head and physically orients him towards the camera with the words, "On topic. Let's go. Look at the camera." This action indicated the students' awareness of the screen, which played a role in their self-regulation. They behaved in ways that suggested that attention to the screen signified attention to the work of the group which was part of the etiquette of discussion.

Figure 9. Screenshot Group A Discussion #2. The Role of the Screen

Group	**Week**	**Time**	**Observed behaviour**
A	2	16:37	

The role the screen played in the students' self-regulatory behaviour was also suggested in this example from Group B in Figure 10. The student in the centre was making loud off topic remarks while the student on the right was talking about her connections. The student on the left "shushed" the off-task student with a physical

gesture directed at the screen, rather than turning to her friend to tell her to be quiet. The fact this action was mediated through the screen suggested that the iPad functioned as tool for self-regulation.

Figure 10. Screenshot Group B Discussion #2. The Role of the Screen

Group	Week	Time	Observed behaviour
B	2	09:00	

The students seemed to regard the screen as an important element of the discussion and that as part of discussion etiquette, it was necessary to be seen on the screen in order to be fully participating. In Figure 11 one of the students brought the student on the far left of the screen 'into shot' so that she could be seen.

Figure 11. Screenshot Group C Discussion #3. The Role of the Screen

Group	Week	Time	Observed behaviour
C	3	00:56	

The adoption of a leadership role.

In some groups, one student voluntarily took on the role of leading the group. This role was particularly evident in group A where Harry noticeably was the discussion

leader, frequently reminding the others to stay on task or eliciting their participation by inviting them to share their notes or ideas if the discussion was stalling. This adoption of a leadership role was unusual behavior for Harry because in other classroom activities he was very shy and reticent to put himself forward. In these examples from week 3, Harry stated, "Let's try not to get…sidetracked" at 00:43, a stated intention for the other boys' agreement. At 03:31 he seemed to want to focus the conversation through his question, "Ok, any more sticky notes fellas?" At 11:12 Harry asked Mark to concentrate and expressed frustration at his off-task behaviour: "I'd slap you but we're on camera." At the 17:30 point of the discussion Harry stated, "Let's get more on topic," indicating that even after this length of time they shared an intention to work for the full 20 minutes because they were self-regulating, despite the fact that the video evidence suggested that this group in particular found it challenging to maintain a discussion for 20 minutes.

Student perception of discussion etiquette.

Students' comments during the interviews supported my observations that they were employing discussion etiquette such as unusual formality and politeness in the discussion work recorded on the videos. In response to the question during the semi-structured interview, "Tell me about what you learned during this project," 9 of the 12 students commented on an improvement in their discussion skills. Hunter indicated that discussion etiquette had played a role in his skill development when he stated, "I think that it [the project] definitely helped with my conversation skills, probably 'cos we, um, each took turns and we shared our thoughts with one another and I think I learned a lot from that." Lucy explained that, "I think we learned, kinda like to work better in a group.

I don't know why but, like, 'cos we had to, like, we had better conversations." Similarly, Simon conveyed that:

> I've learned that to have a conversation with a group of people you have to all think ... so you're not all talking at the same time and that you don't argue. I think you have to be able to accept the other people's ideas and think about them before you say your own.

These comments indicated that the students were self-regulating and making an effort to engage in positive dialogue during the discussions.

During their interviews, 7 of the 12 students interviewed indicated they would have "goofed off" without the presence of the iPad screen regulating their group work. For example, Sam stated, "I think that would be different [working without an iPad] because I think we wouldn't be focused … we would be just, like, doing silly things." The view that discussion etiquette required students to not behave in 'silly' ways was echoed by Molly in her reflection. She stated, "I'm not sure if we would have acted the same, like we might have been goofing off or something if we weren't recording." During her interview, Molly expanded on her ideas about the presence of the iPad helping her group to behave in ways that were appropriate for maintaining an effective discussion. According to Molly, the iPad screen helped them to adhere to the discussion etiquette of working calmly and cooperatively. "It [the iPad] kind of makes you feel more organized and it makes you need to discuss more things and kind of not fight about who is doing which bit and stuff." When I asked her to elaborate how the iPad made her feel more organized she answered that, "Because when you're recording you can't just be

like, switching around places everywhere and like poking each other and having papers flying everywhere."

As well as stating the presence of the iPad screen helped them to participate more effectively in the discussions because it helped them to self-regulate their behaviours, some students also credited the iPad's presence with helping them to stay on topic in order to discuss their ideas. Alexa's comments follow.

> If we hadn't had anything there we could have talked about, like, a completely random subject, I feel like, for a long time. Sometimes we started to drift off, so then I feel like if we didn't have the iPad we would …never actually get to what we were wanting to do.

Similarly, in her interview, Lucy was emphatic about the difference the iPad made to the amount of work her group accomplished because they were aware that keeping on track was part of discussion etiquette.

> I think that would be VERY different, like we wouldn't have done nearly as much work without the iPad to like, make sure that we're actually doing stuff not just talking about random stuff. I feel I would've done some work but definitely not as much as we did with the iPad.

Freya also articulated that the presence of the iPad kept her group on track and aware of the discussion etiquette criterion of staying on topic. "I think [without the iPad] we'd get a bit off topic and like, a bit wandery, 'cos the iPad kind of keeps us on track and stuff. It's really helpful."

The students' observations that they self-regulated their behaviours during the discussions because the presence of the iPad as a proxy for the teacher made them feel

accountable for taking turns, approaching the discussion seriously, and keeping on track triangulated my observations from the videos of the students employing discussion etiquette.

Awareness of the timer.

In addition to the self-regulatory behaviours around discussion etiquette, the students also stayed on task for the full 20 minutes for each video they made. I specified to the students at the beginning of the project that the videos needed to be 20 minutes in length; as stated previously, I asked for uniformity in length to make comparison between videos more easily possible. I coded 31 student references to the 20-minute time frame in the videos created by the students.

Twenty minute time frame.

Students in the two Grade 6 groups sometimes struggled to find enough content to talk about to keep the conversation going for 20 minutes, as evidenced by their frequent glances at the timer on the iPad screen and often explicit reference to the remaining time. For example, Harry in Group A's fifth video said at 11:01, "We're only at 11 minutes, Oh, my Lord." At 14:02 he commented, "We still have so long." Similarly, in Group B's second video at 09:16 Jane remarked, "We're totally not there yet." On several occasions these two groups appeared to reach the end of their notes and ideas about the book, but in referring to the timer on the iPad they prompted one another to restart the discussion, as in Group A week 3 at 10:29 "You guys talk about your sticky notes. We're only 10 minutes in."

The influence of the constraint of the timed nature of the video on the length of their conversation was also something the Grade 6 students in Groups A and B mentioned

during their reflective videos and their interviews when asked about whether the iPad changed their behaviours in the discussion. Mark reflected that "We wouldn't have the same conversations [without the iPad]. We wouldn't have talked for 20 minutes because nobody would have got to check." During her interview, Alexa said, "I feel like when we saw the iPad we were like, 'OK guys' …. because, like, we also saw the time on there."

For those groups that found it difficult to have a discussion that lasted for 20 minutes, the required time frame seemed to encourage them to keep going. There was evidence of students posing new questions to one another and, in the process of staying on task for that length of time, discovering that they did indeed have new things to say. In group A in week 2 at 19:11, Harry said, "Let's just stall for the next minute ... what else do you think will happen? Come on", which led to a revival of the conversation after it had trailed off.

In contrast to the Grade 6 groups, the two Grade 7 groups complained that 20 minutes was too short, as illustrated in Figure 12 where the girls reacted in shock to Lucy's observation that they had only 6 minutes left in their discussion.

Figure 12. Screenshot Group C Discussion #3. 20 Minute Time Frame

Group	Week	Time	Observed behaviour
C	3	14:00	

Indeed, the Grade 7 students spoke differently than the Grade 6 students about time in their interviews and reflections, which triangulated my observations that students

in Groups C and D found the time frame was short and they felt some urgency about staying on task so they could fit their discussions into the 20 minutes. During his interview, Simon, a member of Group D, said, “When you’re talking to the iPad, you can see yourself being recorded and then you just, you stay on topic, especially when there’s a time limit.” Megan, a member of Group C, referred to the idea of having to limit their conversation to fit the 20-minute time frame during her reflection: “If we weren’t recording them it may feel different, because we could see ourselves in the video as it was happening with the camera, and we could also see how much time we’d spent, and we had to limit ourselves to really talking on topic.”

For the two Grade 7 groups who seemed to find 20 minutes too short a time period to have the discussion they wanted, there was evidence of them policing themselves and one another to stay focused so as not to waste time because they found their time was limited. For example, in week 3 at 09:15 when Freya noticed the time and realized they were still talking about the beginning of the section nearly half way through the video she said, “Let’s go faster.”

Conclusion.

Analysis of the data revealed that self-regulatory behaviour seemed to play an important role in the literature discussions: the students regularly came to class prepared, having read and annotated their books, and participated in the discussions for 20 minutes each time, showing for the most part active listening and good group skills, which created positive conditions for discussions to take place. Evidence from the videos of the students’ awareness of the teacher as audience, their use of discussion etiquette, and their awareness of the timer, triangulated by the students’ comments about their own

behaviour articulated during their reflections and interview answers, suggested that the iPad's "watchful eye" encouraged these self-regulatory behaviours during the project.

Engagement.

The second theme that emerged from the data analysis was that of engagement. As discussed previously, engagement is a term that can be defined in many ways. I focus on Finn and Zimmer's (2012) categories of social and affective engagement, including Guthrie et al.'s (2004) concept that students are relatively energized, active, effortful, and involved when they are engaged (p. 404). In coding for these characteristics in the videos, I highlighted instances of the students addressing an unknown audience ('other' as audience) and examples of them using the screen as a mirror to reflect their playful interactions (screen/mirror as audience). Interactions with both these perceived audiences often seemed to lead to play and role play. I used the Oxford English Dictionary definition of play as "activity engaged in for enjoyment and recreation rather than a serious or practical purpose" (OED Online, June 2017, n.p.). Although student participation in the literature discussions was for a 'practical purpose' and was, indeed, serious work, their play behaviour was not a necessary element of the work they were doing, but rather behaviour they engaged in 'for enjoyment.' I coded examples of role playing when students used different voices and adopted personae. I interpreted the level of comfort the students demonstrated on camera while involved in their literature discussions, evidenced by their play and role play, as indicators of affective and social engagement. Because the play and role play was iPad based, and often screen specific, I considered the iPad to be an important element in what I coded as evidence of engagement.

Audience as 'other'.

The addressing of an unspecified audience, that did not seem to be the teacher, occurred frequently in the videos and frequently seemed to lead to instances of play or role play. I coded for audience as 'other' when students used phrases used such as, "Hi guys." and "Hey kids!", which did not seem to be salutations directed to me as their teacher. The students often introduced themselves by name on the videos, although I obviously knew them; this form of greeting seemed to indicate they were thinking of a different audience from the teacher at those times. When the students behaved on the videos as though their audience did not know them or that their audience needed to be entertained, I coded such examples as behaviour for audience as 'other'. I interpreted this entertaining behavior as seeming to fit the social genre of YouTube videos made for an audience of the Internet. In her interview, Jane explained how, "You need to make it fun, you can't just like [puts on serious voice and face] 'and this is what we're talking about', so you need to make funny faces…...or they'll just turn it off." The reference to "they" as in "they will just turn it off" was consistent with the plural voice adopted by students in other examples with phrases such as "they don't want to hear…", where the students are not referring to the teacher as audience. Furthermore, the reference to the video being turned off is not consistent with the idea of the teacher as audience; I would be watching the videos to assess them and would not turn off a video because it lacked entertainment value.

Need to entertain audience.

Examples from the discussion videos that seemed to indicate the students perceived the audience needed to be entertained included students mugging or posing for

the camera as in Figures 13, 15 and 16, practicing an elaborate catchphrase (Group A, 18:25, week 6), singing a ‘waiting tune’ from a popular television show while waiting for a student to find a spot in the book (Group B, 07:02, week 2), and using a different voice to suggest a radio or television announcer (Group A, several examples). The screenshots in Figure 13 show examples I coded as the students behaving as though the teacher had been forgotten and they were addressing a different audience. The facial expressions, gestures and phrases such as, “Hey there children!” and “I hope you enjoy and peace.” did not indicate students were addressing the teacher as audience.

Figure 13. Screenshots Group A Discussion #1, #2 & #3. Need to Entertain Audience

Group	Week	Time	Observed behaviour
A	1	20:00	 “Thanks for watching!!”
A	2	03:36	 “Hey there children!”

A	3	20:16	

"I hope you enjoy and peace"

When the students behaved in ways consistent with the idea of the social genre of YouTube videos made for an Internet audience, as though their audience needed to be thanked, entertained and persuaded to tune in again, I coded these behaviours as reference to an audience as 'other'. For example, in Group A's fifth video at 15:06, Harry announced that, "Next week we're going to have a special, special edition," which appeared to be an incentive to tune in that I, as the teacher, did not need. Similarly, when discussing who should invite others to speak in Group A's first video at 05:40, Mark said, "I'm the host. I have the special radio voice," suggesting the taking on of a certain persona and the need to entertain the audience. At the end of Group C's second video, the students said in unison, "See you next time!" despite the fact that I, as their teacher, would see them five minutes later. This phrase suggested a 'sign off' from a vlog or other performance that viewers would tune into regularly rather than students finishing up a class video.

Audience expectations.

The idea that the students felt there was a certain etiquette or style necessary for an Internet audience, and that they behaved in this style frequently on the videos, was corroborated in the reflection videos and interviews; several students mentioned the

importance of appearance on the screen. Jane observed in her reflection that, “You wanna’ make it look good on camera.” and Lucy said in her interview, “I try and sit up straighter, like, just not slouching and stuff.” This interaction with a perceived audience that was not the teacher seemed to energize and involve the students in an engaged way and often led to play and role play behaviours. The students in Group A referred specifically to a YouTube audience, and the expectations of behaviours consistent with what that audience might expect; in the exchange detailed in Figure 14 the student in the centre was off-task so the student with glasses said to him, “I’d slap you but we’re on camera.” He then appeared to reconsider his comment and covered his face, with the words, “OK, scratch that!” The boy on the far right of the screen, then said, “That’s gonna be on YouTube!” in a voice that suggested that he found the prospect amusing. The expression of the boy with glasses at this point seemed to indicate that he ruefully accepted this verdict as unavoidable.

Figure 14. Screenshot Group A Discussion #3. Audience Expectations

Group	Week	Time	Observed behaviour
A	3	11:12	 “I’d slap you but we’re on camera.”

A	3	11:16	
			"OK, scratch that!"
A	3	11:21	
			"That's gonna be on YouTube!"

Screen/mirror as audience.

On many occasions the students seemed to be using the iPad screen almost as a mirror, with their reflections being their audience; in these instances the students' gestures and comments did not seem directed at me or at another outside audience but rather they seemed intended to be reflected back to the student or the group itself. This playful interaction with the screen suggested enjoyment and engagement. In contrast to the Grade 6 groups, where I coded 108 instances of students using the screen in a mirror-like way to reflect their image in play, I coded only 12 instances where the Grade 7 students in Groups C and D played with their images in this way. I attributed the Grade 6 and Grade 7 students' different behaviours towards the screen as one indication of their different approaches.

In Figure 15, the exaggerated gestures of students in Group B were directed at the camera and did not seem to be intended for me. Similarly, they did not seem to be gestures a student would make in response to another student's comment in a face-to-face group environment. Rather, they seemed intended for the screen to be reflected back to the student herself or the group in a spirit of play and exuberance.

Figure 15. Screenshots Group B Discussion #1, #2 & #6. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
B	1	12:27	
B	2	10:16	
B	2	19:51	

B	6	16:35	

The focal role of the screen to the students was further suggested in Figure 16. The student from Group B illustrated the point she was making by showing the page to the camera rather than to her fellow students. She seemed to be treating the screen as another participant in the conversation rather than an inanimate object.

Figure 16. Screenshot Group B Discussion #3. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
B	3	03:31	
B	3	15:11	

The use of the screen as a mirror or as an audience is also evident in Figure 17, where the students struck a finishing ‘pose’ for their last frame of their final video. There

did not appear to be any reason for this action beyond playing with their image on the screen for fun.

Figure 17. Screenshot Group B Discussion #6. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
B	6	19:47	

Some evidence of play was iPad specific and depended on the image being reflected, as shown in Figure 18. The student, who was picking up the iPad after it had fallen down, noticed his image was upside-down and played with his on-screen image in a way that suggested exuberance. Obviously, this kind of visual play would not work without a screen to reflect it.

Figure 18. Screenshot Group A Literature Discussion #5. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
A	5	19:41	

The videos included evidence of the screen being used in a mirror-like way to reflect role play, particularly in many of Group A's videos. This behavior suggested

comfort with the medium as well as exuberance and play. In Figure 19, the boys fashioned a ‘microphone’ out of a discarded origami square and a pencil. The boy with the glasses used it to prompt the student in the centre to speak. This action seemed directed at the screen to be reflected back to the students. All of the group members were looking at the screen and both the student holding the ‘microphone’ and the student talking into it seemed to be responding to their on-screen image with expressions that suggested they were playing roles. A ‘game show host’ persona was used particularly often by Harry, a shy student who as mentioned previously, rarely spoke up in class voluntarily. The screen of the iPad seemed to offer Harry an environment where he seemed to feel comfortable expressing his sense of humour and creativity, and he seemed to enjoy trying out different roles. Whenever Harry played with roles he made eye contact with the screen, suggesting the role play was influenced by the presence of the iPad and his awareness of his image on the screen.

Figure 19. Screenshot Group A Discussion #4. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
A	4	18:08	

Differences between the Grade 6 and 7 groups in play and role play.

Although examples of the students playing with the screen/mirror as audience were overwhelmingly from the two Grade 6 groups, the Grade 7 groups did use the screen in this playful way. In Figure 20 from Group C, the girl on the far left noticed a

'rude' sticky note containing a swear word written by the girl next to her, she reacted with an exaggerated gasp and the other girls also looked at the note and reacted in a similar manner. Their gasps and shocked expressions were directed towards the screen where they saw them mirrored. The students shared a moment of complicity, apparently coming to the conclusion that it would not be appropriate to read the note aloud. Moments later they shook off the reaction and the girl on the far right restarted the discussion with a bright, "It's OK! so, I was...."

Figure 20. Screenshot Group C Discussion #3. Screen/Mirror as Audience

Group	Week	Time	Observed behaviour
C	3	16:41	

The differences between the Grades 6 and 7 students with respect to engaging in overt play behaviours may have been due to a multiplicity of factors including the Grade 7 students' maturity in comparison to the Grade 6 students, or the fact that the Grade 7 students had engaged in this project last year, or simply the differing personalities of the students in the groups. Outside of the focus groups in each class the differences in play behaviours were less stark than those evident in the videos made by the Grade 6 and the Grade 7 students, but the Grade 6 students still exhibited a much higher incidence of play behaviours. Although the Grade 6 students used the iPads in other classwork, this project was the first time they had used iPads to make such long videos other than during the pilot project, and the novelty still seemed to be a factor in the students' engagement with

the technology. Conversely, the Grade 7 students, who had previously used the iPads when participating in literature discussions when they were in Grade 6, seemed to treat them more as a tool or a focal point for discussion rather than a toy.

Despite the facts the Grade 7 students in the two focus groups engaged in a paucity of explicit play and role play behaviours and they made far fewer references to an audience that I coded as 'other', they nonetheless reported high levels of engagement in the project in their reflections. For example, Owen stated that, "It ended up being very fun to discuss these things. Even before the lessons we wanted to talk about things, but we had to stop and wait till the lesson to talk about it in the group." Similarly Hunter reflected that, "It was one of my favourite projects I did all year. Like, I would actually look forward to making these videos." Beth also conveyed how the project had been beneficial to her in terms of encouraging her to read. "I really liked the project. Just lately I've been falling out of reading a lot, and I'm glad I did this project because now I'm totally into reading again." Although their engagement was expressed in a less exuberant fashion than that of the Grade 6 groups on the videos, and they seemed far less likely to engage an 'other' audience, the Grade 7 students nonetheless demonstrated Guthrie et al.'s (2004) concept that students are relatively energized, active, effortful, and involved when they are engaged (p. 404) through their on task behavior and enthusiastic discussions. Furthermore, the Grade 7students conveyed their enjoyment of working with the iPads in their reflections and interview comments.

Perception of the iPad screen as a distraction.

The iPad can be a powerful tool and the students watching their mirror images in the screen can become distracted; the temptation to interact with one's image was strong

for some students, as evidenced by many instances of them making faces or otherwise playing with their image. Many students referred to this 'distraction' element in their interviews when asked what they thought were the disadvantages of using the iPad. Mark expressed that iPads are inherently distracting, stating that, "It is distracting because it's an iPad and they are naturally distracting." Similarly, Molly seemed to find distraction an inherent characteristic of working with a screen: "We were still listening, but um... I don't know, it was just fun to do that [make faces]. We didn't really have a reason [why] we did it, it was just fun to see our faces doing that." Harry was of a similar opinion, noting that, "You can't make faces in the iPad if there is no iPad, so maybe we would have concentrated better." Three Grade 7 girls noticed they were distracted by seeing their image and worrying about how they looked on the screen. In her interview, Freya said, "I get super distracted because I'll be like, 'Wow, I look really awkward', so I'll kind of like change what I'm doing, and I'll just get really off topic." Beth articulated a similar sentiment during her interview:

> I find that sometimes we will look at ourselves in the screen and then we'll kind of get distracted and kind of forget what we're talking about, and then I would find I'd be looking at myself and then, everyone would be talking about something and I totally missed the conversation.

Megan, in her reflection said that:

> The thing about the iPad is like it's kind of distracting to watch yourself ….you'd look up and someone else is talking and, I don't know if it's just me that does that but I would just look at myself and be like [makes a face that looks zoned out] so it can be kind of distracting in that way.

It is possible that the students and I interpret their behaviours differently. Perhaps what I identified as exuberance and play, and coded as evidence of engagement and enjoyment, the students were seeking to explain as distraction because they thought that I, in my role as teacher rather than my researcher, would be displeased with off-task behaviour. Despite the fact that many students claimed they were distracted during the videos, evidence suggested that most of them were still listening and engaging with the discussions, even when they were making faces or playing roles.

During the interviews when students conveyed that they found the screens distracting, I asked how they would organize literature circle discussions if they were the teacher. Only Mark and Jane offered other solutions. Interestingly, these two students were the least consistently on task of all the focus students and the two who participated in the most play behaviour with the screens. They both suggested recording the discussion groups with the iPads turned around so the camera was capturing the conversation but the students could not see the screen. When answering my question, the other 10 students said they would prefer to work with rather than without an iPad. For example Beth said,

> I still think the iPad would be the most effective because, if you were just wandering around, even if you would see us you wouldn't see our whole entire conversation, and you know, you wouldn't be able to hear everything, and I feel like if it was just like a microphone it won't feel as much of a conversation. It would feel more like an interview.

Although the iPad screen clearly offered an element of distraction for some students, the benefits seemed to outweigh the drawbacks for the majority of students.

Conclusion.

In this section I discussed the behaviours I coded as evidence of engagement: the play and role play behaviours that emerged when the students referenced an audience as 'other,' and when they treated the screen/mirror as being the audience. I also examined the concept of distraction that emerged during the semi-structured interviews. In these instances of play and role play the students seemed to have forgotten my presence and demonstrated social and affective engagement through their child-centric behaviour. Although differences were evident in the Grade 6 and Grade 7 students' play behaviours with the iPad, all of the students were energized, active, effortful, and involved when making the videos, and many of them also reported high levels of engagement with the project in their reflections.

Summary

In summary, the central themes that emerged from the data were those of self-regulation and engagement. In my examination of the theme of self-regulation I highlighted instances when student participants referred to the teacher as audience through direct address and through signaling and gesture, which suggested they were aware of the teacher and that this awareness was an element in their self-regulated behavior. I also considered the relevance of the way the students' sense of audience seemed to change from that of teacher to that of an unknown other and back again. Furthermore, as discussed above, the students demonstrated many characteristics of discussion etiquette such as listening well to one another and engaging politely in discussion, which I interpreted as self-regulation. Finally, I discussed how they self-regulated themselves by considering the timer and making conscious efforts to keep their

discussions to the 20-minute timeline. I presented further evidence of self-regulation in considering the students' own reported feelings of accountability articulated in their reflections and their answers to the interview questions.

In considering the theme of engagement I presented examples of data that suggested the students were sometimes addressing an unknown audience or engaging with their own image on the screen, both of which seemed to lead to play and role play as their awareness of the teacher as audience fluctuated. I presented further evidence of engagement gathered from the students' reflections and their answers to the interview questions. I commented about the different ways the Grade 6 students and the Grade 7 students behaved towards the screen.

In Chapter 5, I discuss the major findings of the study based on my research questions in consideration of the theories, concepts and literature reviewed in Chapter Two. The limitations of my study and future research recommendations are also presented. In addition, I examine the educational, empirical, and methodological implications of the current study for educators and researchers.

Chapter Five

Discussion and Conclusions

In this chapter I review the research purpose and context, and summarize the key findings of my study that explored the affordances of iPads in literature discussions in a middle school classroom. First, I discuss the key findings of the research, with reference to the literature reviewed in Chapter 2. Second, I situate the findings within the context of social constructivism, a theory based on the concept that knowledge is individually constructed and socially mediated, and Vygotsky's (1978) sociocultural theory. Vygotsky wrote about the essential role social interactions play in cognitive development and how the development of higher-order cognitive processes are rooted in experience and the social context. I also consider the connections of my findings to Rosenblatt's (1994) transactional theory, and to Gee's work on Discourses as well as the concept of exploratory talk. Third, I discuss the findings in relation to my two sub questions: (a) what opportunities can the use of the iPad offer to students with respect to their discussions about literature? and (b) what opportunities can the use of the iPad offer to teachers with respect to students' discussions about literature? I conclude the chapter by stating the limitations of the study, and proposing areas for further research and pedagogy.

Summary of the Research

My qualitative exploratory case study examined the topic of iPads and their potential affordances for both students and teachers. Specifically, I explored the possible opportunities the use of an iPad can offer students while engaging in discussions about literature, as well as the potential opportunities offered to teachers when students use an

iPad to record their discussions about literature. As described previously, the 20-minute student videos made on the iPads over six weeks by each of the four focus groups of Grade 6 and Grade 7 students during their literature discussions were visually coded and partly transcribed. After finishing the six-week literature circle project, the students responded to questions about their group work and their use of the iPad in the form of individual reflective videos of approximately five minutes. These videos were also transcribed. At the end of the school year I interviewed the focus group participants individually, for approximately five minutes each, about their experiences with and opinions about the project. The interviews were audio recorded and transcribed. These data were analyzed to identify the affordances of the use of the iPad to record literature discussions for students and teachers. The data analysis procedures involved open coding of the videos and transcripts using a system of system of screenshots and written codes.

Key Findings

Self-regulation, engagement and audience.

Data analysis revealed that when videoing their literature circle discussions with the iPad, the students' behaviours seemed influenced by their perception of making a video for an audience. I coded evidence of student awareness that they were performing for the teacher, for themselves as mirrored in the screen, and for an imagined or 'other' audience, which seemed to be a YouTube audience. The type of audience being perceived seemed to fluctuate: it changed in conjunction with a shift in roles and behaviours through a continuum from full awareness and acknowledgement of the teacher to behaviours that indicated the teacher had been completely forgotten. My findings suggested the students were continually shifting their perception about

audiences around the iPad screen, with the iPad also acting sometimes as a participant in the conversation and a co-regulatory more knowledgeable ‘other’. These perceptions of audience and seeing the iPad as a “player’ in the conversation seemed to contribute to their self-regulatory behaviours, and to their observed and professed engagement.

The fluctuating awareness of the teacher as audience.

Behaviours observed on the videos and comments expressed during the interviews suggested that students were aware of the teacher as an audience and this factor motivated them to regulate their behaviour. This perception fluctuated on a continuum between a state of being fully aware of the teacher to a state of forgetting the teacher’s presence. This fluctuation seemed similar to the concept of ‘flickering’ described by Fleer (2014 as cited by Maine, 2017, p. 222), a shift of focus between play and reality when players of an online game seemed to be both simultaneously present within the game world; above it in their direction of its action; and outside it as they called on their knowledge and expectations about gaming. Fleer’s term of ‘flickering’ provides a metaphor for the particular findings of my study in describing a continual fluctuation of focus between different audiences. I observed this fluctuation as a layering of the different audiences, whereby the students were aware of each but shifted focus seamlessly between them. A fundamental difference between the fluctuation I observed and Fleer’s concept of ‘flickering’ is that my students were not playing a fictional role but were rather observing themselves in real time as participants in a literature circle when they focused on their image on the screen.

Regardless of whether or not the students perceived the teacher as audience all the time, the use of the iPad to film literature discussions seemed to motivate the students to feel accountable for their learning. As discussed in Chapter Two, Berne and Clark (2006) wrote that students need to be held accountable for participating in discussions because in their research they found that student voices were not equally heard in the literary discussions, and that students did not seem to be employing comprehension strategies intentionally to create richer understandings of the text. Accountability was an integral feature of discussions filmed with the iPad during my study because the students knew I would be watching the videos. Thus, student knowledge that the teacher will watch the videos may help to overcome some of the problems caused by students not feeling accountable such as that documented by Berne and Clark. Grisham and Wolsey (2006) also found that accountability to the teacher was an important aspect of online literature circles and that furthermore, students "felt a sense of responsibility to their peers to keep reading" (p. 658). In Grisham and Wolsey's research the sense of accountability and responsibility to one another was found to improve students' reading and responding to texts. Although the students' awareness of the teacher as audience fluctuated during the recording of their videos during my research, student behaviours suggested they felt accountable to me through the screen for their talk.

Screen/mirror as audience.

The fluctuation of perceived audience along a continuum included the students seeing themselves as an audience. On many occasions the students seemed to be using the iPad screen as their audience, or rather, the image of themselves on the screen as if

mirroring their performance; in these instances their gestures and comments seemed intended to be reflected back to the student or the group itself. For example, as described in Chapter Four, in Group A's discussion during the fourth week the students fashioned a 'microphone' out of a discarded origami square and a pencil which Harry used to prompt Sam to speak. Both of the students seemed to be responding to their on-screen image with expressions that suggested they were playing roles. This use of the screen as a mirror is a distinct use of iPad technology but I could find no reference to it in the literature. My findings indicated that the reflection of the students on the screen played an integral role in the students' behaviour towards this audience.

Although reflective interaction with the screen seemed to lead to playfulness and engagement in the two Grade 6 groups, Grade 7 student interactions with the iPad screen seemed to be more about having a focal point for their discussions. The apparent comfort the Grade 7 students showed when treating the screen as a mirror and using it as a focal point for their discussions suggested they felt it was a safe space in which to explore their ideas. The creation of this safe environment connects to the assertion of Barnes (2008) that to actively engage in exploratory talk students need to feel "at ease, free from the danger of being aggressively contradicted or made fun of" (p. 6). During their interviews and reflections several students expressed that their enjoyment of the project. For example, Owen said, "It ended up being very fun to discuss these things" and Hunter stated that, "It was one of my favourite projects I did all year. Like, I would actually look forward to making these videos." These

reflections suggested the students felt relaxed and at ease during the project and were therefore more likely to engage in exploratory talk.

During their interviews and reflections several Grade 7 students made reference to the fact that the presence of the iPad encouraged them to discuss ideas provoked by their reading, as though the presence of the screen validated the discussion; for example, during her interview Lucy said, "[Without the iPad] we wouldn't work as hard on it or really think into things and get as in depth as possible." The presence of the iPad, in Lucy's opinion, encouraged her to discuss her ideas more deeply. Her comment reinforces Smagorinsky's (2013) assertion about classroom talk in that "what matters is using the developmental potential of speech to generate and explore ideas" (p. 194). When the Grade 6 students played with their images on the screen and when the Grade 7 students treated the screen as a focal point for their discussion, their behaviours suggested they had forgotten the teacher as audience or 'other' as audience at that point and were not focused on speaking in a way to "meet an assessor's approval" (Smagorinsky, 2013, p. 194). In this respect, the students' perception of the mirror/screen as audience, evidenced by apparent comfort and playfulness, seemed to afford students with opportunities to explore their ideas together in a safe space.

The playful behaviours, such as face pulling and role play the students engaged in as they watched themselves in the 'mirror' of the screen occurred often and was seemingly for their own enjoyment. This playful behaviour, which seemed to facilitate engagement in the project, echoes Vygotsky's (1978) belief that emotion and cognition are inseparable. This playful behaviour also connects to the findings reported by Evans

(2002) on Grade 5 students' perceptions of how they experienced literature discussion groups. Evans emphasized the importance of affect and its influence on participation, and by extension, cognition. The playful student behaviours I observed during my study and the students' comments in their interviews and reflections, such as Molly's comment that, "We didn't really have a reason we did it [make faces], it was just fun to see our faces doing that," suggested the students enjoyed interacting with the screen. Emotional engagement in a task is an important aspect of student engagement (Fredricks et al., 2004; Guthrie et al., 2004), and many of the study participants commented on finding the project "fun." Aspects of the students' "fun" included screen-specific play such as making faces or the use of role-play.

'Other' as audience.

Aside from watching themselves on the screen and referring to me, the teacher, as an audience, the students also seemed to view themselves as speaking to a more abstract or distant audience. This 'other' imagined audience of YouTube seemed to be evoked when some student participants engaged in spontaneous role play with the iPads. For example, some students engaged in role play that emphasized performance such as the adoption of a game show host persona or a "radio voice" and some students made direct reference to YouTube, such as in Groups A's third video when Lee said, "That's gonna be on YouTube." When the students' behaviours seemed to indicate they were making YouTube videos, despite the fact they knew that only I would watch the videos, this pretence conveyed their level of comfort in the youth-focused environment of YouTube, which may have been an influential factor in the engagement they demonstrated during the project. Without iPads it would seem

unlikely that students working face-to-face, without a screen, would reference YouTube culture in the way that was evident in my data because YouTube culture is screen-based by nature. The interactive youth-focused secondary Discourse (Gee, 1989) of YouTube culture (i.e., amateur videos made for general Internet consumption) plays an important role in the lives of many middle-school aged students. Indeed, findings from a recent study of social media use revealed that 90% of young people in North America use social media sites such as YouTube daily (Perrin, 2015). Thus, it was unsurprising to see YouTube culture's influence on the way that students interacted with the screen.

iPad as distraction.

As discussed in Chapter Two, some researchers have concluded that iPads can be a distraction in the classroom rather than a useful tool (Hoffman, 2013; Kaganer et al., 2013; Rossing et al., 2012). However, these studies focused on students' abilities to access other apps or websites on the iPad as a potential source of distraction, whereas in my study students were not able to disguise off-task behaviour because the entire discussion was recorded. I did not find any research that has explored the use of iPads to film literature discussions so my study extends the literature on the use of the iPad in the classroom. In their reflections and interviews some of my students referred to the iPad as being distracting because they made faces and played with their image in the screen or because they were distracted by their own appearance. However, evidence suggested that most of the students were listening and engaging with the discussions even when they were making faces or playing roles. I therefore conclude that the students sought to

classify behaviour they thought I would not approve of as a ‘distraction’, whereas I saw their playful behaviour as evidence of child-centric engagement.

Situating the Findings Theoretically and Conceptually

Student perception of the fluctuating audience embodied in their interactions with the iPad screen provides a lens through which to view the theoretical foundations of this study. In classrooms individuals develop knowledge amidst other individual learners, and thus, social constructivism is an important theoretical framework to explain the role of other actors and culture in a student’s development. Furthermore, in Vygotsky’s (1978) sociocultural theory, he described how learning can happen through discourse between a novice and an expert and between peers. The small group discussion structure provided a focus for students to engage in dialogue with their peers. In my study, the students’ changing perceptions of audience seemed to lead to a constantly shifting sense of collaboration, whereby students were both experts and novices at different moments with one another. For example, in Group A, Harry’s perception of the YouTube audience seemed to encourage him to play a presenter role, which may have moved the boys’ discussion towards deeper analysis, even though he was a novice in terms of analysis at that point in the literature circle cycle.

Because my research focused specifically on discussions of reading, I used Rosenblatt’s (1994) transactional theory as a way to view the discourse between students who were reading and interpreting texts. Rosenblatt (1994) questioned the notion that meaning was contained within text, and contended that a reader and text ‘transact’ to create meaning. In order to support this meaning-making process my initial instruction about literature discussions encouraged the students to adopt what

Rosenblatt (1994) coined a predominantly aesthetic stance where a reader's social and cultural background and literary experiences and context are integral to the complex process of reading and construction of meaning. The nature of the student participants' talk indicated they frequently focused on their lived through experiences (Rosenblatt, 1994) when discussing their books rather than retelling events in the book. In particular, when students shifted their attention between their perceived fluctuating audiences the change in focus often lead to a movement from summarizing the book to a more exploratory discussion. The cultural background of most of the middle-school aged children I teach includes the culture of amateur films made for YouTube; the videos of the literature discussions revealed students behaving in ways consistent with the norms of this YouTube culture, such as behaving as though their audience needed to be entertained and persuaded to tune in again, suggested that they were drawing on their cultural background in their transaction with the literature in this study. This evidence of the students drawing on their social and cultural background during their transactions with texts during is consistent with Rosenblatt's (1994) definition of an aesthetic stance.

As a way to understand how schools can validate students' cultural backgrounds and experiences while helping them to co-create meaning about their reading, I considered the work of Gee (1989) on Discourses. Gee (1989) used the term 'Discourse' to describe an 'identity kit' that allows people to successfully participate within a particular setting or social group. He described Discourses as "ways of being in the world ... forms of life which integrate words, acts, values, beliefs, attitudes, and social identities" (p. 6). The setting of school presents a Discourse community that children

become familiar with, although it may be different from the primary Discourse acquired at home and other child-centric Discourses in which students are comfortable. A group of middle-school students potentially bring a variety of Discourses to a literature discussion, such as student, gamer, daughter or playmate. Through the lens of Gee's work, teachers can honour students' talk with its child-centric perspectives rather than always insisting on a school-centric Discourse. In my study Gee's work on Discourses complements Rosenblatt's transactional theory in regards to exploring the expertise that children may bring to a group discussion and the complexity of both the children's perspectives and the dynamic of interaction combining affective and procedural talk. The filming of the students' literature discussions with iPads seemed to support the inclusion of these various student Discourses by creating a space, through the students' perceptions of the fluctuating audiences, where student-centric Discourses could be simultaneously layered with the more traditional school-focused Discourse of a literature discussion. The filming of literature discussions on the iPad thus allowed a space for play behaviour and potentially disruptive child-centric behaviour to be layered into the dynamic of exploratory talk, and extended the concept of audience to include the engaging wider youth-focused culture that seemed to be represented by the 'other' or YouTube audience referenced frequently by the students.

The mixing of complex student perspectives and 'groping towards meaning' (Smagorinsky, 2013) can increase the likelihood of what appears to be off-task talk. If students feel their experiences are valued and their voices are heard in school they are more likely to engage meaningfully in the essentially social practice of reading, which is related to the unique social communities that students inhabit (Gee & Green, 1998).

As discussed in Chapter Two, a foundational concept of literature circles is that working effectively in a group can enable participants to deepen their individual understanding through the process of discussing, and challenging and exploring ideas and opinions (e.g., Alexander, 2008; Bakhtin, 1981; Barnes et al., 1969; Vygotsky, 1986). Students' learning talk in groups was called exploratory talk by Barnes (1976). Mercer and Littleton (2007) extended and adapted this term to refer to dialogue in which students engage critically but constructively with each other's ideas and participants all actively participate (p. 59). However, as I explained in Chapter Two, many researchers (e.g., Nystrand et al., 1997; Sanacore, 2013), have concluded that children need to be taught how to engage in productive exploratory talk, as left to their own devices their talk will not necessarily be useful for building understanding. In my experience, teaching middle school-aged students how to engage in exploratory talk is not always enough to ensure they are able to self-regulate sufficiently to be able to work together constructively. Therefore, it was interesting that the students' awareness of the teacher as an audience for their literature discussions filmed on the iPad seemed to help them regulate their behaviour which overall resulted in effective participation in literature discussions. Thus, by suggesting that accountability is an important factor in students' engagement in exploratory talk, my research findings extend the body of literature that suggests students will be able to engage effectively in exploratory talk if they are simply taught how to do so. The teacher-as-audience when students film literature discussions on the iPads is one way to provide accountability.

In the next two sections I present the findings from my study that answer each of the two guiding research questions and connect these findings to relevant research literature.

Opportunities the iPad can Offer to Students During Literature Discussions

My first research question focused on the opportunities the use of the iPad can offer to students with respect to their discussions about literature. In Chapter Four I described the analysis of the videos and transcripts of the literature circle videos, and how the students' reflections and interviews revealed their engagement in self-regulation in literature circles. Data analysis revealed the students self-regulated in the presence of the iPad as a proxy for the teacher. Viewing the students' recordings enabled me to observe how the students came to class prepared, having read and annotated their books, and how they exercised self-regulatory behaviour during the discussions in terms of employing discussion etiquette, such as turn-taking and engaging critically but constructively with one-another's ideas, in addition to staying on task for 20 minutes. As described above, the students' awareness of different audiences may have created conditions conducive to exploratory talk. Furthermore, evidence of play and role play on the videos and the students' reported feelings of enjoyment in the project from the reflections and interviews revealed a high level of affective engagement.

Affective affordances.

Analysis of the interviews and reflective videos revealed the students' opinions that addressing the iPad as proxy for the teacher was less intimidating or stressful than addressing the teacher directly or the class. However, students engaged directly with me via the iPad screen to explain or justify themselves or ask for help. This condition of

feeling relaxed while working but nonetheless aware of the teacher, reported and evidenced by the students, seems to be an important affordance of the iPad in relation to students' feelings of accountability when having discussions about literature. Barnes (2008) suggested that to actively engage in exploratory talk, students need to feel "at ease, free from the danger of being aggressively contradicted or made fun of" (p. 6). The examples of play and role play documented on the videos reported in Chapter Four suggested the students felt comfortable with each other and with working with the iPads. This level of comfort described and displayed by the students is consistent with the findings of Day and Ainley (2008), who contended that small group discussions can relieve the pressure for students to perform in a large group, and provide a more intimate environment; this view is echoed by other researchers who have noted how the perceived safety of a small group structure may allow students to take risks, share more of their thoughts and feelings, and try new strategies, as well as provide more equity among voices in a classroom (Bettis & Roe, 2008; Daniels, 2006; Eeds & Wells, 1989).

As discussed in Chapter Two, students' level of engagement and positive involvement in a task is a predictor of long-term academic performance (Appleton et al., 2008; Bridgeland et al., 2006; Perry et. al., 2010; Steinberg, 1997). The evidence of student engagement in my study reflected Dewey's (1913) emphasis on the importance of sparking students' imaginations and capturing their "genuine interest" (p. 14). Engagement is a complex term that encompasses the interrelated aspects of behavioural, emotional, and cognitive engagement. Indeed, Axelson and Flick (2010) propose that student engagement might be understood as a "metaconstruct" because of this level of interrelatedness among these three aspects of engagement.

Behavioural, emotional and cognitive engagement are all aspects of successful exploratory talk as defined by Mercer and Littleton (2007), whereby students need to be able to dialogue critically but constructively in order to actively participate in productive discourse. If one or more aspects of students' development of behavioural, cognitive or emotional engagement is not yet at a stage to enable students to participate effectively in exploratory talk, teachers need to provide scaffolding to support the development of these skills. The use of the iPad to film literature discussions can support this skill development because it affords a child-centric focus and in my study was perceived positively by the student participants. The finding that some students found a means of expression in role play suggested that this play might provide a bridge to span the gap between their ability to discuss their books critically and constructively and their desire to participate.

Furthermore, scholars have suggested that learner engagement is socially situated (Gee, 2012; Vygotsky, 1978) and requires meaningful learning activities (Guthrie et al. 2004). Researchers have also found that self-regulated learners report more positive motivational beliefs about enjoying and being interested in performing academic tasks and valuing the importance of such tasks (Cleary, 2006; Cleary & Chen, 2009). In addition, iPad use has been correlated with supporting students' social construction of learning and engagement (de Winter et al., 2010; Enriquez, 2010), and fostering productive collaborative learning (Shuler et al., 2010). My findings of the playful interaction between the students and an imagined or real audience when discussing literature in the perceived safe space of the iPad screen seemed to provide evidence that the students saw their filmed discussions on the iPad as a socially situated and educationally meaningful environment, which provided the conditions necessary for

engagement. The behavioural, emotional and cognitive dimensions of engagement described by Fredricks et al. (2004) were evident in my findings as participation, play and discourse that seemed to develop students' understanding of their reading. Analysis of the reflections and interview comments linked evidence of self-regulated behaviour to students' engagement in the project. For example, Owen stated that, "It ended up being very fun to discuss these things. Even before the lessons we wanted to talk about things, but we had to stop and wait till the lesson to talk about it in the group." This statement suggested that Owen was self-regulating by not discussing his ideas about the book before the lesson because he felt engaged in, and motivated by, the activity of filming the group discussion with the iPad and wanted to 'save' his ideas to share with me, the teacher, and the other group members around the focal point of the iPad screen.

Procedural affordances: Development of students' skills.

One of the affordances of using iPads to record literature discussions is the potential for teachers to use examples from the students' videos to demonstrate effective discussion strategies to the class, thereby affording the students the opportunity to improve their own discussion skills. Researchers such as Applebee et al. (2003), Berne and Clark (2006), Miller (2003) and Murphy et al. (2009) have noted the importance of careful scaffolding and explicit instruction to help students participate effectively in small group discussions. The opportunity provided by the videos captured on the iPad for the teacher to provide ongoing formative feedback can afford students with the opportunity to continue to watch and improve their discussion skills throughout the school year. During their research on literature circles, Clarke and Holwadel (2007) had students watch videos of themselves discussing literature in order to provide them with

opportunities to critique their participation. By watching the videos of their discussions, which were filmed by a researcher, the students began to "critically reflect upon their group interactions" and strive to improve their participation behaviours (Clarke & Holwadel, 2007, p. 25). The concept of students watching videos of themselves and their peers discussing literature in order to develop their discussion skills is similar to the 'fishbowl' technique, which is a common way to model small-group activities and discussions in education (Kong & Fitch, 2002). Kong and Fitch (2002) found fishbowls to be an effective strategy to foster student engagement in book club discussions. As described in Chapter Three, when teaching the students how to engage in effective discussions, I showed them videos of previous groups of students discussing each other's ideas critically and constructively. I also showed students some of their own videos a few weeks into the project in order to give them formative feedback. In this way, one might use the iPad to scaffold the development of students' skills through modelling and feedback while they are developing the skills and maturity to work entirely without supervision.

A further procedural affordance of the use of the iPad to record literature discussions is related to students having enough time on task to explore their ideas. Boyd and Markarian (2015), in their study of dialogic stance noted the importance of "students articulating their own thinking about books ... playing with language, exploring nuances" (p. 293). The idea that students need enough time to develop their ideas is echoed by Smagorinsky (2013), like many other researchers discussed in Chapter Two, who noted that students benefit from the chance to explore their ideas together before they need to express them in a formal way (e.g., Alexander, 2008; Bakhtin, 1981; Boyd, 2012; Boyd,

& Maloof, 2000; Barnes et al., 1969; Haneda & Wells, 2012; Mercer & Hodgkinson, 2008; Michaels et al., 2008; Mohr & Mohr, 2007; Nystrand et al., 1997; Wolf et al., 2005).

The mirroring effect of the iPad screen seemed to play a role in helping the students to focus on discussion strategies and behaviours that supported their role as participants in a discussion. Student comments in reflection videos such as, "Filming with a camera [rather than an iPad] would be weird, 'cos you can't see yourself and you can't correct your mistakes" (Sam), suggested the students' self-awareness facilitated by the screen was a factor in their self-regulation as it contributed to their development of skills, such as turn-taking, which are necessary for effective participation in a discussion group. As described previously, the two Grade 7 groups engaged in significantly more exploratory talk than the two Grade 6 groups. The difference could be explained by a multiplicity of factors, including the different personalities, maturity and student abilities. Nonetheless, the fact that the two groups who completed this project for the second time showed considerably more skill in discussion than the two groups participating in the project for the first time suggested that students' discussion skills may have developed. This observation is supported by researchers who emphasize the importance of careful scaffolding and explicit instruction to help students participate effectively in small group discussions (e.g., Applebee et al., 2003; Berne & Clark, 2006; Miller, 2003; Murphy et al., 2009). However, since I did not find any research which linked the concept of students developing their discussion skills through viewing their behaviour mirrored back to them, my findings may extend the research in this area.

Cognitive affordances.

As well as affective and procedural affordances, data analysis revealed potential cognitive affordances of the use of the iPad. Beck and Sandora (2016) posited that literature discussions with high levels of student interaction can prompt readers to reach a deeper understanding of the text, a finding supported by other researchers such as Beers and Probst (2013) and Shanigan (2013). The time students spend on task is an important element in increasing the likelihood of high quality literature discussions taking place and as such could play an important role in students reaching a deeper understanding of the text. However, Murphy et al. (2009) noted how in many cases, increased student talk did not lead to increased comprehension. If students wander off-task or engage in unproductive discourse then the opportunities for learning can be diminished considerably. In fact, Murphy et al. (2009) reported that the findings of their meta-analysis revealed relatively few approaches to literature discussions that were effective at increasing critical thinking and reasoning. Therefore, time on task is not in itself an indicator of productive dialogue. When filming with the iPad, students know the teacher can watch the entire discussion and assessment will not be based by how much time they spent talking, as may have been the case if they were working in groups with no oversight, but rather by how much time they engaged in productive discussion. The self-regulatory effect of the use of the iPad that I observed, which seemed to draw the students back on task when they became distracted and keep them immersed in thinking about their book and involved in discussion for 20 minutes at a time, increased their opportunity to engage in meaningful discussion.

Mercer's (2013) concept of interthinking, in particular the idea of transformation in which: "the argumentation involved in collaborative problem solving might promote children's metacognitive, critical awareness of how they reasoned" (p. 155) echoes Vygotsky's claims about the key role of language in shaping individual cognition. The concept of transformation suggests the benefits students can derive from effective exploratory talk can contribute to their ability to reason. My study suggested the use of iPads to record literature circles encouraged students to self-regulate their group work and to keep on task, which may have facilitated exploratory talk and by consequence, may have enabled the students to experience transformation.

Opportunities the iPad can Offer to Teachers During Student Literature Discussions

My second research question focused on the opportunities the use of the iPad can offer to teachers with respect to students' discussions about literature. Burnett and Merchant (2017) pointed out that for educators "what has always mattered still matters" and that iPad technology is important because it is a means of helping students to engage with one another and with texts (p. 241). Herrington et al. (2008) noted that while many examples of prosaic uses of technology in classrooms exist, "few examples currently exist of how they might be used as cognitive tools to solve complex problems, and to engage students in authentic and meaningful tasks" (p. 1). Although the use of technology in classrooms has changed and improved during the 10 years since Herrington et al. carried out their study, recent researchers are still emphasizing the benefits of technology being dependent on their constructive and purposeful use (Dhir et al., 2013; Smith & Santori, 2015). Murphy (2011) suggested the iPad can act as a central focal

point for discussion, rather than a distraction during group activities, referring to its "unobtrusive and tactile nature" (p. 23), which is an important element in facilitating interactions between groups of students. For teachers, my data analysis revealed that the most important affordances of the use of iPads were the provision of a different perspective on students, a unique window into understanding how engagement occurs when students use iPads, and opportunities for modelling and formative assessment. Indeed the purposeful use of this unobtrusive 'participant' (Lenters & Grant, 2016) in the students' discussions can afford a teacher a complicit window into their work, allowing for observations that can reveal additional information about students and providing for formative assessment opportunities.

Different observation opportunities.

A significant affordance of the iPad for teachers is the opportunity to observe students working without being physically present. Despite the fact my students were aware that I would watch the videos, which seemed to make them feel more accountable for their actions, my findings also revealed that at times, the students also forgot about my presence. Harry described the fluctuating awareness of the teacher as, "I feel like I don't REALLY forget [the teacher's presence] but it just sort of, becomes sort of normal." Although I did not find literature that specifically examined the affordance of the teacher being able to observe literature discussions without being physically present, Miller's (2003) research suggested that teacher-mediated discussion could be helpful to scaffold students' discussion skills. Miller's research, which was conducted over 15 years ago, did not address the issue of the teacher being able to be ostensibly and simultaneously present in more than one literature discussion at the same time, which the

iPad intervention can overcome. Burnett (2009) observed that many educators have grafted technology onto existing practices rather than using it in more transformative ways, she concluded her review of 38 studies with the opinion that "there is a need to understand more fully what happens when technology is integrated within classroom sites, and the values, processes, interactions and relationships which surround its use" (p. 31). The evidence from my study of the opportunity for a teacher to witness students' discussions in an unobtrusive way which allows for meaningful and ongoing formative feedback to enable the students to improve their discussion skills is an authentic use of technology that can enhance classroom practice. In some of the iPad studies that I reviewed in Chapter Two, for example those carried out by Falloon and Khoo (2014) and Maine (2017), the researchers recorded the students as they were working on iPads in order to gather research evidence. However, as stated previously, I did not find any literature that details teachers recording students working on iPads

As described in Chapter Four, the students seemed to be relaxed in the presence of the screen; as a result of the intimacy with which the students interacted with the screen I was able to see aspects of the students' personalities and abilities that were not always obvious in the classroom. For example, I was surprised when watching the videos at the depth of the questions that one of the Grade 7 students posed to his peers; I knew Owen was a student who was strong academically, but he tended to rush through his written work so it was often superficial. During the recorded literature discussions, Owen posed thought-provoking questions that led to many incidents of exploratory talk. An example of one of the questions Owen posed in the excerpt from the fourth video follows.

> He was talking about how he was young and he went to a chapel, right? And he talked about how all the people there were smiling and waving, you know, but there was nothing, you know, inside. He described them as porcelain, like they are "the colour for men and women with the porcelain eyes and the blood ruby lips, there was nothing, nothing," and this made me think, well, was he, are they born, are the people here born aware of everything that's going on? Born smart? Born thinking about it? Or are they...or is he the only one, who ... was thinking about how everything was, how everything was fabricated, in such a way? Do you understand what I'm saying? (Owen, 03:25)

Because he was a student who did not often go into detail in his written work, I had not observed the depth of his thinking and the acuteness of his observations. Watching Owen on the videos consistently ask searching questions of his friends and work, to not only construct his own understandings, but also to help others do so, allowed me a perspective on his abilities not provided by other classroom activities. As a result of watching the videos, I was able to give Owen positive feedback on his questions which encouraged him to continue to work in this way. I also used his work as an example to help other students to understand what exploratory talk might look like by sharing excerpts from his videos with the class with his permission.

This 'window' into the students' discussions provided by the iPad also allowed me to notice students in my study who were experiencing difficulties in participating effectively in their literature discussions. As discussed in Chapter Two, researchers have found that barriers to effective literature circles can be caused by social and power dynamics in the classroom, by gender and race issues, or by barriers to accessing

discussions faced by students who are not skilled in the secondary discourse of school (Allen et al., 2003; Evans, 1996, 2002; Lewis, 1997; Maloch, 2005; Peterson, 2016). Furthermore, a teacher's inattention to adequately scaffolding and preparing students for small group work can lead to poor outcomes, particularly with readers who struggle (Almasi & McKeown, 1996; Maloch, 2002; Miranda, 2015). When I observed one particular student making faces, disengaging from the conversation and articulating random and unrelated comments, despite the fact the work had been scaffolded and she had read the section and brought notes, I inferred at least some of her problems were due to her inability to comprehend what she had read because there seemed to be no evidence of other barriers to her successful participation. As a result of the data provided by the videos, I recommended the student for further testing and a learning disability was diagnosed that had been masked in other classroom activities. In addition, the recording of the discussions allowed me to show her mother and the professional, who was carrying out the testing, the behaviours that had triggered my concern, which helped to accelerate the assessment process. The fact that a teacher can observe literature circle discussions via the iPad affords multiple possibilities to observe challenges to students' effective participation that may be more difficult to observe during whole-class activities.

The intimate perspective of students' discussions afforded by the iPad, in comparison to what can be observed in a general classroom environment, also helped me to observe the work of Harry in more depth. Harry is a very shy student with an anxiety disorder and he rarely spoke out in class. Because Harry also had difficulty with written work, this project was the first opportunity I had to observe the extent of his ability to comprehend a text, as well as his sense of humour and his creativity. As a result of the

comparatively high level of work I observed Harry engage in during the literature circle project, I was able to give him positive feedback, which seemed to boost his self-esteem and to lead to him seeming more comfortable in class. Furthermore, because Harry seemed comfortable recording on the iPad, I offered him the opportunity to express his understandings using the iPad in other projects rather than asking him to present to the class, which he found much more difficult.

A further affordance of the different perspective provided by the iPad for the teacher is the multimodal aspect of the information it captures. Video captures body language, gesture and facial expressions as well as the words that students say. As discussed in Chapter Two, the New London Group (1996) identified five different modes of meaning-making in literacy education: (1) linguistic, (2) visual, (3) audio, (4) gestural, and (5) spatial (p. 65), all of which can be captured by the video camera of the iPad. The concept of multimodality includes understanding how these various modes are "orchestrated" in order to create a multimodal "ensemble," a material product which combines "a plurality of signs in different modes into a particular configuration to form a coherent arrangement" (Kress, 2010, p. 162). The meaning communicated or represented by one mode interacts with the meaning of others to create new meanings. Thus, the information about the students' discussions captured on the iPad can offer teachers a rich and multifaceted amount of information about the students' discussions, and about the students themselves as individuals.

Formative assessment opportunities.

The observation opportunities the use of iPads to record literature discussions can afford teachers leads to formative assessment opportunities. As Burnett and Merchant

(2017) posited, "[t]ablets…do not exist in isolation; the opportunities they present need to be seen in relation to other classroom practices and to what is, or is not, valued" (p. 240). In this project, what was valued was the development of the skills necessary for exploratory talk to take place so that students could co-construct knowledge about their reading. The recordings of the discussions on the iPads enabled me to see whether or not the students were using exploratory talk, and afforded me the opportunity to explicitly teach skills that may be lacking from one week of the project to the next. While use of the iPad does not specifically promote exploratory talk in and of itself, recording discussions on a weekly basis for an ongoing project can enable teachers to address potential issues that may be inhibiting effective discussions. The recordings also provide opportunities for ongoing weekly feedback. Teachers can identify the effectiveness of the strategies that have been taught and use this information to inform subsequent teaching practices. In the next section I discuss limitations of the study and make recommendations for further research and practice.

Limitations

As discussed in Chapter Three, my role as a teacher/researcher had some drawbacks. I believe it was difficult for the students to see me in any other way than their teacher and as such, the complexity of our relationship may have influenced their responses, particularly in the interviews when we were talking face-to-face. I suspect that some of the students' responses about the distractions of the iPad screen may be a result of them feeling a need to justify what they saw as off-task behaviour to me as their teacher. I used the iPad reflections as a way to mediate this effect, as the students seemed to find it easier to speak openly to the video screen than to me directly, as evidenced by

their frank comments during the reflections and their seemingly more guarded comments during the interviews. I nonetheless believe my role as the students' teacher was a limiting factor during the interviews. Furthermore, the closeness of my relationship with the students may have led to bias in my interpretation of what I choose to 'see' on the videos. I acknowledge that it would have been helpful to have a second researcher view a section of my video data analysis to confirm or disconfirm my codes and themes.

Furthermore, because I was the teacher of the students in my study, the focus groups were selected from my classes. Despite my attempt to include students with a wide range of academic ability levels in the focus groups, the fact that all participants were in the French Immersion stream of the school meant that the pool of students from which I selected groups may have been less diverse than would have been the case for the school as a whole. Parents who select French Immersion education for their children in the school where I teach tend to be more affluent, and children who have learning challenges often drop out of French Immersion because it is perceived to be more difficult; furthermore, students who arrive in Canada after Kindergarten age are not eligible to join Early French Immersion, which excludes many students in our school who are recent arrivals to Canada. As such, although I sought breadth in my sampling, the students in the study were almost all Caucasian and from middle class families and therefore may have experienced significant privilege.

The design of my study, which involved four focus groups, resulted in the use of data from only 13 students. A greater number of students may have led to more robust data because studies with large number of participants allow for more generalizability of claims. Similarly, a study that tracked the same groups of students over a period of years

would yield data that may reveal the development of skills over time, and might address some of the differences that I observed between the Grade 6 and the Grade 7 students.

Another limitation of the research concerned confidentiality. Despite the fact that the students and their parents agreed to the use of screenshots in the writing up of this research, I nonetheless was deliberately vague in my descriptions of students because I did not want them to be identified individually.

Finally, the use of video data has inherent limitations that are relevant to both researchers and teachers. The content I was able to view on the screen was limited by the screen's size, and sometimes the students' discourse was obscured by external noise such as other students talking too close to the microphone or interruptions that occurred when working in a public space like the hallway or the library. Furthermore, if students have the ability to edit the videos they can manipulate the content viewed by the teacher. In an attempt to mitigate this limitation, I did not allow the students to work with iMovie or other editing software. The students recorded their entire 20-minute conversation and subsequently uploaded it.

Recommendations for Further Research and Pedagogy

In an exploratory case study of this nature it is not possible to know how the students would have behaved while being recorded without the iPad screens. A direction for further research might be an experimental study of the differences between students working with and without the iPads to examine the influence of the screen specifically on the way that students work and their engagement during literature discussions.

The marked differences between the discussions and the way the iPad was used by the Grade 6 and Grade 7 students merits further research. In particular, the evidence of

considerably more exploratory talk in the Grade 7 groups and considerably more play behaviour in the Grade 6 groups warrants research as to whether this phenomenon was particular to the groups of students I studied, or whether it reflects developmental differences due to maturity, or a wider trend in general. Another study could examine whether the use of iPads to record literature circle discussions could lead to a progression in skills when students work in this way more than once, as was the case for the Grade 7s in my study. For example, a study tracking students' progression in discussion skills when using the iPad that started in Grade 3 and continued for several years would provide valuable data in respect to development of skills, particularly if tracked against groups that were discussing without iPads or groups who were using digital recorders.

With respect to pedagogical recommendations, the use of the iPad to record students' discussions in literature circles can enable teachers to observe students' discussions and potentially see why exploratory talk is or is not taking place. For example, if several groups are having difficulty with turn taking or disagreeing politely the first week, a teacher could focus on explicitly teaching these skills before the next literature circle discussion day, and she would then be able to see if students' skills in these areas had improved when watching the videos from the second week. Similarly, if one student was having difficulty in a specific area a teacher could focus on teaching that student the necessary skills. If lack of progress in the discussion was caused by a student not completing the reading, or not making or bringing their notes to class, these aspects could be addressed early on in the project, so that the student understood that this preparation was essential.

Any discussion of the use of technology in classrooms needs to be practical and address the difficulties of the classroom environment before teachers will adopt it. Pragmatic considerations of iPad use in classrooms include issues of storage, maintenance, memory capacity and uploading capabilities. Because technology moves quickly these issues change, and during the five years I have been using iPads regularly in my classroom I have confronted and solved these problems numerous times, only to be confronted by them again as the technology outpaces the solutions. At the time of writing this thesis, I had to change from using YouTube to upload student videos because of the two-step identification process introduced in 2016, which renders the simultaneous uploading of several machines in the classroom extremely difficult. I have started to use students' GAFE accounts (Google Accounts for Education) to store video from the iPad, from where the students upload the video to my Google Classroom or send a link to it. Teachers need to be flexible and willing to find new solutions in order to use technology successfully in the classroom, which is a barrier for many busy classroom practitioners.

My findings support the view of many researchers that iPad use in the classroom needs to be purposeful in order to be most effective (e.g. Dhir et al., 2013; Li et al., 2010). Furthermore, as emphasized by Lynch and Redpath (2012), when iPads are used for production and communication of understanding, rather than being used to consume knowledge through 'gamified apps,' they can "[position] the learner as a producer" (p. 22). The pedagogical implications of the use of iPads to video literature discussions include the importance of using iPads in a purposeful and creative way, for students to build knowledge rather than to consume it. Harris et al. (2014) argue for the need to develop techniques and approaches that recognize the "pragmatic, applied and creative

goals of teaching with technology" (p. 109). The use of iPads to video student discussions in my study focused on the students' talk rather than the technology, the 'invisibility' of the iPad seemed to encourage exploratory talk while simultaneously holding the students accountable for effective time management.

Final Thoughts

As discussed in Chapter Two, the organizational structure of literature circles can give space for students to talk about their reading with others, with the aim of co-constructing meaning and coming to a deeper understanding about their reading (Daniels, 2002). My findings indicated that the filming of the literature circles on iPads provided conditions conducive to students being engaged in their discussions when interacting with the mirrored audience of themselves and the imagined 'other' audience, while nonetheless self-regulating and employing discussion etiquette when remembering that the teacher was their audience. Student engagement and self-regulation seemed to contribute to their exploration of their own and each other's understandings of the text and the co-creation of meaning about their reading.

One of the strongest themes to emerge from the data analysis was the students' perception of various audiences, and that these perceptions constantly cycled and fluctuated when they were recording their discussions with the iPad. This fluctuation was evidenced in the way the students often engaged in play and role play that did not seem meant for the teacher within minutes or even seconds of directly addressing the teacher, and was corroborated in their reflections and interviews as a feeling of the teacher being 'there but not there'. In this interplay between the states of feeling accountable because they knew I would watch and feeling free to play in an autonomous space, the students

seemed able to negotiate a child-centric arena where they could play, but where they nonetheless felt accountable, which brought them back constantly to their discussion. Thus, the use of the iPad to film literature circle discussions can provide a bridge between group work being directly supervised by the teacher and group work that takes place entirely autonomously. This bridge could afford students time to develop their discussion skills in an autonomous environment, but that nonetheless allows teachers to provide feedback and help, as well as afford teachers with perspectives of students that they may not see during other classroom interactions. Interestingly, during my experiences of using the iPad to film literature discussions over the past three years, students did not get along with each other well enough to work in this way in only two of more than 90 groupings. In both of these cases one of the students chose to make videos alone, thereby losing the support of peers and the stimulation of discussion but nonetheless being able to talk about their own response to the book.

The spark that started me on this journey of exploration was the remark of a colleague who came into my class to talk to me while my students were recording their literature discussions with the iPads. This highly experienced teacher was amazed at the focus of the students and the atmosphere of serious work happening while students were simultaneously experiencing enjoyment. Indeed, she was even more surprised 15 minutes later when the students were still working happily and productively despite the fact that I had been talking to her and not attending to the students. As an experienced teacher myself, I was fairly sure that the same students would not have maintained a similar level of focus without the iPads. This exploratory study has enabled me to reflect on the elements of this activity and to reflect on and refine my day-to-day classroom practice,

and to learn more about how the purposeful use of the iPad can support students' development of the skills needed to participate effectively in knowledge-building discussions. Furthermore, engaging in the research resulted in me getting to know my students better because of the perspective afforded by the iPad, which meant that I was able to respond more readily to individual student profiles. Ultimately, I believe this responsiveness to my students' needs improved the quality of my teaching.

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Appendix A: Ethics Approval for Human Participant Research

University of Victoria

Office of Research Services | Human Research Ethics Board
Administrative Services Building | Rm B202 | PO Box 1700 STN CSC | Victoria BC | V8W 2Y2 | Canada
T 250-472-4545 | F 250-721-8962 | uvic.ca/research | ethics@uvic.ca

Certificate of Approval

PRINCIPAL INVESTIGATOR:	Charlotte Dorion	ETHICS PROTOCOL NUMBER Minimal Risk Review - Delegated	16-359
UVic STATUS:	Master's Student	ORIGINAL APPROVAL DATE:	07 Nov 16
UVic DEPARTMENT:	EDCI	APPROVED ON:	07-Nov-16
SUPERVISOR:	Dr. Sylvia Pantaleo	APPROVAL EXPIRY DATE:	06 Nov 17

PROJECT TITLE: **Exploring the Role of iPads in Literature Discussions**

RESEARCH TEAM MEMBER: None

DECLARED PROJECT FUNDING: None

CONDITIONS OF APPROVAL

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Modifications
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.

Dr. Rachael Scarth
Associate Vice-President Research Operations

Certificate Issued On: 07-Nov-16

16-359 Dorion, Charlotte

Appendix B: Letter to Principal

Principal Consent Form

Dear Mr. Macintosh,

I am seeking permission to conduct a study entitled "Exploring the Role of iPads in Literature Discussions," with the Grades 6 and 7 students I teach at Central Middle School.

As well as being a teacher at Central Middle School, I am currently a graduate student in the Department of Curriculum and Instruction at the University of Victoria. I am required to conduct research as part of the requirements for a Master of Arts degree. It is being conducted under the supervision of Dr. Sylvia Pantaleo.

Purpose and Objectives
The purpose of this research project is to focus on the language used and behaviours engaged in by the students in the presence of iPad screens while video recording their 'literature circle' discussions in English Language Arts. I have observed how easily the students speak to each other in the presence of the camera, and I am intrigued by the way that they address their imagined audience, despite the fact they know the videos are not made public. My research will focus on students' language use, and the ways they interact in the presence of the iPad. An overall goal of the research is to increase educators' understanding of the potential uses of this tool in the classroom, beyond simply recording students' responses, but as a device with an intrinsic potential to engage and motivate students.

Importance of this Research
Research of this type is important because iPads are becoming common devices in classrooms but there is a paucity of research around the most effective way to use them as tools for learning.

What is Involved
If you consent for this research to be conducted, the students will need to voluntarily participate in the study. If a student chooses not to participate in the research, she/he will complete all of the activities described above because I will be doing this unit regardless of her/his participation. Students and their parents/guardians will each be required to sign a consent form in order for the students to participate in the study. In the consent form I explain how students can withdraw from the study at any time without reason. Please find have attached copies of the parent and studentconsent forms, which will be sent home in both hard copy and digital form to the parents. In consenting to this research you will also be consenting to me using the parents' email addresses provided to the school for the purpose of my research.

Student participation will mean the videos they create for their English Language Arts literature circle work will be analyzed for the purposes of my research. In addition to the videos and observations I document about students' behaviours during literature circles, I will carry out semi-structured focus group interviews with four student groups - two from each of the Grade 6 and Grade 7 classes. I will not know which groups will be the focus groups until after the final grades are submitted in mid-June 2017 so therefore I will wait until that time to conduct small group, face-to-face interviews. These interviews, which will be audio recorded, are intended to gain insights about the students' views and opinions on the literature circle project. The interviews will occur during a silent reading block and the students will not need to make up any missed work. In my analysis of the video evidence I will look for features of exploratory talk such as partners engaging critically but constructively with each other's ideas, challenges and counter-challenges which are justified, active participation by all students, and opinions being sought and considered before decisions are jointly made.

Risks

There are no known or anticipated risks to students by participating in this research.

Benefits

The potential benefits of students' participation in this research include the furthering of knowledge in best practice using iPads in the classroom for literature discussions. The students will also benefit from focused instruction around how to participate in effective discussions. By reflecting on their role in literature discussions the students will gain insight into how they can work more effectively in groups.

Voluntary Participation

Student participation in this research must be completely voluntary. If students decide to participate, they may withdraw at any time without any consequences or any explanation. If students withdraw from the study their data will not be used. To withdraw after having given consent, parents or students will be asked to contact you.

Researcher's Relationship with Participants

To help prevent my relationship with the students from influencing their decision to participate, the following steps have been taken to prevent coercion. All returned consent forms are to be given to you, not to me. You will not reveal the names of student participants to me until after the final report cards have been completed in June.

Anonymity

In terms of protecting anonymity, pseudonyms will be used in the writing up of the research. I would like to use extracts from video so students may be recognizable, but these extracts will not be part of my written thesis.

Dissemination of Results

It is anticipated that the results of this study will be shared with others in my Master's thesis and in professional development involving other teachers.

Disposal of Data

Data from this study, including videos, field notes and interviews, will be erased, and any paper copies of data will be shredded within three months of the successful defense of my thesis.

Contacts

Individuals who may be contacted regarding this study include myself or Dr. Pantaleo at 250-721-7845. In addition, you may verify the ethical approval of this study, or raise any concerns

you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researcher, and that you consent for the students at Central Middle School to participate in this research project.

_____	_____	_____
Name of Principal	*Signature*	*Date*

Please keep a copy of this consent form, and return the second copy of the completed form to Charlotte Dorion.

Appendix C: Letter to Superintendent

Superintendent Consent Form

Dear Mr. Langstraat,

I am seeking permission to conduct a study entitled "Exploring the Role of iPads in Literature Discussions," with the Grades 6 and 7 students I teach at Central Middle School.

As well as being a teacher at Central Middle School, I am currently a graduate student in the Department of Curriculum and Instruction at the University of Victoria. I am required to conduct research as part of the requirements for a Master of Arts degree. It is being conducted under the supervision of Dr. Sylvia Pantaleo.

Purpose and Objectives
The purpose of this research project is to focus on the language used and behaviours engaged in by the students in the presence of iPad screens while video recording their 'literature circle' discussions in English Language Arts. I have observed how easily the students speak to each other in the presence of the camera, and I am intrigued by the way that they address their imagined audience, despite the fact they know the videos are not made public. My research will focus on students' language use, and the ways they interact in the presence of the iPad. An overall goal of the research is to increase educators' understanding of the potential uses of this tool in the classroom, beyond simply recording students' responses, but as a device with an intrinsic potential to engage and motivate students.

Importance of this Research
Research of this type is important because iPads are becoming common devices in classrooms but there is a paucity of research around the most effective way to use them as tools for learning.

What is Involved
If you consent for this research to be conducted, the students will need to voluntarily participate in this research. If a student chooses not to participate in the research, she/he will complete all of the activities described above because I will be doing this unit regardless of her/his participation. Students and their parents will be asked to sign a letter each to choose to participate and it will be explained that they can withdraw from the study at any time without giving a reason. Their participation will mean the videos they create for their English Language Arts literature circle work will be analyzed for the purposes of my research. In addition to the videos and observations I document about students' behaviours during literature circles, I will carry out semi-structured focus group interviews with four student groups - two from each of the Grade 6 and Grade 7 classes. I will not know which groups will be the focus groups until after the final grades are submitted in mid-June

2017 so therefore I will wait until that time to conduct small group, face-to-face interviews. These interviews, which will be audio recorded, are intended to gain insights about the students' views and opinions on the literature circle project. The interviews will occur during a silent reading block and the students will not need to make up any missed work. In my analysis of the video evidence I will look for features of exploratory talk such as partners engaging critically but constructively with each other's ideas, challenges and counter-challenges which are justified, active participation by all students, and opinions being sought and considered before decisions are jointly made.

Risks
There are no known or anticipated risks to students by participating in this research.

Benefits
The potential benefits of students' participation in this research include the furthering of knowledge in best practice using iPads in the classroom for literature discussions. The students will also benefit from focused instruction around how to participate in effective discussions. By reflecting on their role in literature discussions the students will gain insight into how they can work more effectively in groups.

Voluntary Participation
Student participation in this research must be completely voluntary. If students decide to participate, they may withdraw at any time without any consequences or any explanation. If students withdraw from the study their data will not be used. To withdraw after having given consent, parents/guardians or students will be asked to contact Mr. Macintosh. Both print and digital copies of parent/guardian and student consent forms will be sent home to the parents' email addresses that have been provided by the school with the Principal's permission.

Researcher's Relationship with Participants
To help prevent my relationship with the students from influencing their decision to participate, the following steps have been taken to prevent coercion. All returned signed consent forms are to be given to Mr. Macintosh. Mr. Macintosh will not reveal the names of student participants to me until after the final report cards have been completed in June.

Anonymity
In terms of protecting anonymity, pseudonyms will be used in the writing up of the research. I would like to use extracts from video so students may be recognizable, but these extracts will not be part of my written thesis.

Dissemination of Results
It is anticipated that the results of this study will be shared with others in my Master's thesis and in professional development involving other teachers.

Disposal of Data
Data from this study, including videos, field notes and interviews, will be erased, and any paper copies of data will be shredded within three months of the successful defense of my thesis.

Contacts
Individuals who may be contacted regarding this study include myself, Mr. Macintosh at cmacintosh@sd61.bc.ca or Dr. Pantaleo at 250-721-7845. In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researcher, and that you consent for the students at Central Middle School to participate in this research project.

Name of Superintendent	*Signature*	*Date*

Please keep a copy of this consent form, and return the second copy of the completed form to Charlotte Dorion.

Appendix D: Letter to Parents

University of Victoria

Department of Curriculum and Instruction

Parent/Guardian Consent Form

Dear Parents/Guardians,

Your child is being invited to participate in a study entitled "Exploring the Role of iPads in Literature Discussions," that I, Charlotte Dorion, am conducting with the Grades 6 and 7 students I teach at Central Middle School.

As well as being a teacher at Central Middle School, I am currently a graduate student in the Department of Curriculum and Instruction at the University of Victoria. I am required to conduct research as part of the requirements for a Master of Arts degree. It is being conducted under the supervision of Dr. Sylvia Pantaleo. I am contacting you with the Principal's permission, using the email address that you have provided to the school.

Purpose and Objectives

The purpose of this research project is to focus on the language used and behaviours engaged in by the students in the presence of iPad screens while video recording their 'literature circle' discussions in English Language Arts. I have observed how easily the students speak to each other in the presence of the camera, and I am intrigued by the way that they address their imagined audience, despite the fact they know the videos are not made public. My research will focus on students' language use, and the ways they interact in the presence of the iPad. An overall goal of the research is to increase educators' understanding of the potential uses of this tool in the classroom, beyond simply recording students' responses, but as a device with an intrinsic potential to engage and motivate students.

Importance of this Research

Research of this type is important because iPads are becoming common devices in classrooms but there is a paucity of research around the most effective way to use them as tools for learning.

What is Involved

If you consent for your child to voluntarily participate in this research, their participation will mean the videos they create for their English Language Arts literature circle work will be analyzed for the purposes of my research. All of the students will create videos of their discussion groups every week as part of this project, and these videos will be uploaded to my private YouTube channel. In addition to the videos and observations I document about students' behaviours during literature circles, I will carry out semi-structured focus group interviews with four student groups - two from each of the Grade 6 and Grade 7 classes. I will not know which groups will be the focus groups until after the final grades are submitted in mid-June 2017 so therefore I will wait until that time to conduct small group, face-to-face interviews. These interviews, which will be audio recorded, are intended to gain insights about the students' views and opinions on the literature circle project. The interviews will occur during a silent reading block and the students will not need to make up any missed work. In my analysis of the video evidence I will look for features of exploratory talk such as partners engaging critically but constructively with each other's ideas, challenges and counter-challenges which are justified, active participation by all students, and opinions being sought and considered before decisions are jointly made.

Risks

There are no known or anticipated risks to students by participating in this research.

Benefits

The potential benefits of students' participation in this research include the furthering of knowledge in best practice using iPads in the classroom for literature discussions. The students will also benefit from focused instruction around how to participate in effective discussions. By reflecting on their role in literature discussions the students will gain insight into how they can work more effectively in groups.

Voluntary Participation

Student participation in this research must be completely voluntary. If students decide to participate, they may withdraw at any time without any consequences or any explanation. If students withdraw from the study their data will not be used. To withdraw after having given consent please contact Mr. Macintosh. If your child is selected, I will contact you and your child after the grades have been submitted to confirm that your consent is ongoing. In order to participate, students must sign the enclosed student consent form.

Researcher's Relationship with Participants

To help prevent my relationship with the students from influencing their decision to participate, the following steps have been taken to prevent coercion. All returned consent forms are to be given to Mr. Macintosh, not to me. Mr. Macintosh will not reveal the names of student participants to me until after the final report cards have been completed in June.

Anonymity

In terms of protecting anonymity, pseudonyms will be used in the writing up of the research. I would like to use extracts from video so students may be recognizable, but these extracts will not be part of my written thesis.

Dissemination of Results

It is anticipated that the results of this study will be shared with others in my Master's thesis and in professional development involving other teachers.

Disposal of Data
Data from this study, including videos, field notes and interviews, will be erased, and any paper copies of data will be shredded within three months of the successful defense of my thesis.

Contacts
Individuals who may be contacted regarding this study include myself, Charlotte Dorion, at cdorion@sd61.bc.ca; Mr. Macintosh, Principal, at cmacintosh@sd61.bc.ca or Dr. Pantaleo at 250-721-7845. In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you consent for your child to participate in this research project. If you are accessing the consent form via email, please print only this page and return it.

_____	_____	_____
Name of Parent	*Signature*	*Date*

Visually Recorded Images/Data parent/guardian to provide initials, *only if you consent*:

- Photos may be taken of my child for: Analysis _____ Dissemination* _____
- Videos may be taken of my child for: Analysis _____ Dissemination* _____

*Even if no names are used, you [or your child] may be recognizable if visual images are shown in the results.

Please keep a copy of this consent form, and return the second copy of the completed form to Mr. Macintosh.

Appendix E: Letter to Students

Student Consent Form

Dear Students,
As well as being a teacher at Central Middle School, I am currently a graduate student in the Department of Curriculum and Instruction at the University of Victoria. I am required to conduct research as part of the requirements for a Master of Arts degree. My research project is called "Exploring the Role of iPads in Literature Discussions" and I am inviting you to participate in this study.

Purpose and Objectives
In my classroom participation in literature circles involves using an iPad to record your weekly discussions about a book. The purpose of my research is to explore students' language and interactional behaviours in the presence of iPad screens while video recording their literature circle discussions in English Language Arts. The overall goal of the research is to increase educators' understanding of the potential uses of iPads in the classroom. Research of this type is important because iPads are becoming common devices in classrooms but little research has explored the most effective way to use them as tools for learning.

Benefits
By participating in the research project you will be able to develop your knowledge and understanding about how to have effective discussions about literature, and how to work successfully in groups.

What is Involved?
During this research project you will:
a) read a novel of your choice with your group;
b) participate in small group discussions about the novel;
c) video your discussions using an iPad. The videos you compose will be uploaded to a private YouTube channel, which will be controlled by me, and accessible to my students.
d) possibly participate in audio recorded group interviews with me to discuss the work/videos you create. The interviews will take place during a silent reading block, you will not be required to do any extra work for the class time missed for your interview.

You need to choose whether or not you want to participate in the research aspect to the unit. However, all students will complete all of the activities described above, except for

the interview, because I will be evaluating the work you complete during the unit regardless of your decision to participate. Please note that I will not know if you are a participant in the study until the end of the school year in June. If you do not want to participate in the research, I will not use your videos for the study and you will not be involved in a group interview.

Inconvenience, Risks, Anonymity and Confidentiality

The school and students will be given different names (a pseudonym) so that when I write about the research project, readers will not know where the study took place or who was involved.

Participation in this research project involves no inconveniences or any known or anticipated risks. You may withdraw from participating in the research project at any time without explaining why you do not want to take part anymore. To withdraw, you or one of your parents/guardians can contact Mr. Macintosh that you have changed your mind about participating in the research project. If you no longer want to take part in the research project, I will not use any of your individual work that I have collected when I analyze the data.

My university wants me to be sure that you are continuing to want to take part in the research project over the seven weeks. Therefore, I will remind you at both the mid and end point of the research project that you may withdraw from the study, without any problems.

Once the study is finished and within three months of the successful defense of my thesis, the videos and information from the interviews will be erased and any paper copies of data will be shredded.

Sharing the Research Findings

I plan to share the findings of the research project with others through writing and defending a Master's thesis and presenting to other teachers. When I present the information to others I would like to use extracts from video so you may be recognizable, but these extracts will not be part of my written thesis. I will use pseudonyms for students and for our school.

If you have any questions or concerns about the research project, please ask Mr. Macintosh, or me, or have your parents/guardians contact my supervisor, Dr. Pantaleo at pantaleo@uvic.ca or 250-721-7845. Your parents/guardians have a letter that has more information about who they can contact if they have questions about the study.

By signing your name on this consent form you are showing that you understand what you will be asked to do in the research project, and that you want to take part. Please return your completed consent form and your parent's/guardian's signed consent form to Mr. Macintosh. If you are accessing a digital version of the consent form, please print only the last page.

Sincerely,

Charlotte Dorion

Student Consent Form

Please return this form to Mr. Macintosh in a post box outside his office.

"Exploring the role of iPads in Literature Discussions"

I understand what I will be asked to do in Madame Dorion's research project called "Exploring the role of iPads in Literature Discussions" and I want to participate.

_____

Student's Name

_____

Division

_____

Date

Please keep the consent forms and return only this signed, blue single-page to Mr. Macintosh.

Visually Recorded Images/Data Participant to provide initials, *only if you consent*:

- Photos may be taken of me for: Analysis _____ Dissemination* _____
- Videos may be taken of me for: Analysis _____ Dissemination* _____

Visually Recorded Images/Data Parent/guardian to provide initials, *only if you consent*:

Appendix F: Questions for Reflective Videos

1. Do you think that working with the iPads is different from if you had worked in groups without the iPad?

    a. Why or why not?
    b. Do you think you would have had the same conversations if you hadn't been recording them?

2. Did you feel that you got a fair chance to talk while you were making your videos?

    a. Did you feel like the other group members listened to your ideas?
    b. Do you think it would have been different without the iPad?

3. Did you enjoy being able to choose your book for lit triangles?
    a. Was it easy to choose?
    b. Did you get your first choice?
    c. Did it end up being a good choice?

4. Did you work well with your group?
    a. Was there anything that didn’t work well?
    b. What worked particularly well?

5. What else do you want to say about the project?

6. How do you think I should change the project for next year? Or should it stay the same?

Appendix G: Questions for Semi-Structured Interviews

The following interview schedule template was tailored to individual cases. The semi-structured protocol allowed for further prompts to be defined and followed during the interview

1. Talk about what you enjoyed the most about when you participated in Literature Circles in your English class.

2. What did you think about seeing yourself on the screen while you were working? Do you think it made any difference to how you were working?

3. In the videos that you made in class, it seemed like sometimes you remembered that I would be watching them, for example sometimes you said things directly to me, and sometimes you forgot, like when you or the others pulled faces at the camera, can you talk to me about that?

4. Do you think using the iPad to video your discussions made a difference to how you and your group worked during Literature Circles? If so how? If not, please explain.

5. Talk about your experiences what did you like or dislike about using the iPads to video your discussions. In your opinion, what worked well? What did not work well and why?

6. Do you think that your voice gets heard and your opinions are valued during Literature Circles? Why or why not? If you think your voice was not heard and your opinions were not valued, what changes would you recommend I make to the Literature Circle experience?