The Impact of a Digital Children's Literature Program on Primary Students' Reading Motivation

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Submitted in partial fulfillment

of the requirements for the degree of

Master of Education

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St. Catharines, Ontario

Abstract

This qualitative study stemmed from a concern of the perceived decline in students' reading motivation after the early years of schooling, which has been attributed to the disconnect between the media students are accustomed to using outside the classroom and the media they predominantly use within the classroom. This research documented the effectiveness of a digital children's literature program and a postreading multimedia program on eight grade 1 students' reading motivation, word recognition, and comprehension abilities. Eight students were given ten 25-minute sessions with the software program over 15 weeks. Preprogram, interim-program, and postprogram qualitative data were collected from students, teachers, and parents through questionnaires, interviews, standardized reading assessment tools, classroom observations, field notes, and student behaviour observation checklists. Findings are summarized into 3 themes. The motivational aspects and constructivist styles of instruction in the digital reading programs may have contributed to 5 student participants' increased participation in online storybook reading at home. Qualitative data revealed that the digital children's literature program and multimedia postreading activities seemed to have a positive influence on the majority of grade 1 student participants' reading motivation, word recognition, and listening comprehension skills. These findings suggest the promise of multimedia and Internet-based reading software programs in supporting students with reading and/or behavioural difficulties. In keeping with current educational initiatives and efforts, increased use of media literacy practices in the grade 1 curriculum is suggested.

Acknowledgements

Firstly, I would like to sincerely thank my Supervisor, Dr. Tiffany Gallagher. Your enthusiasm towards the area of literacy is truly inspirational. You have guided me to see how complex, yet interesting, the field of primary years literacy education is. I am extremely grateful for your patience and your willingness to provide gentle guidance and constructive feedback at each stage of the thesis compilation. Your example has been one of excellence and you have expected nothing less. For this I am truly thankful.

"If I accept you as you are, I will make you worse; however, if I treat you as though you are what you are capable of becoming, I help you become that".

(Johann Wolfgang von Goethe)

Next I would like to offer my sincere thanks to the Principals of the target schools. Thank you for your willingness to allow me to conduct my research study in your schools. I am truly thankful for your cooperation and your words of encouragement. To the staff of the target school, I extend my genuine thanks. Your outright willingness to consent to participating in this study was greatly appreciated, especially considering the timing of the data collection. I sincerely thank each of you for your positive attitude, promptness, honesty and patience and for enduring the number of interruptions associated with the study. Your commitment to the area of reading is to be commended. The students at this school are truly blessed to have such motivated and enthusiastic teachers.

I am truly grateful to the parents/guardians of the target schools. Thank you for your willingness to consent to participate in this study. Without your participation, I could not have achieved my goal. Your honesty in responding to the questions has

enabled a very accurate picture of reading attitudes to be gathered. Also to the students who completed the surveys, I offer my thanks. Your enthusiasm to participate and your honesty in responding to each question provided me with valuable data on which to base my conclusions and recommendations.

I would like to offer my thanks to those who offered constructive ideas and suggestions along the way. Furthermore, my sincere appreciation goes to those who proofread my thesis – in particular my co-supervisors Dr. Candace Figg and Dr. Ann-Marie DiBiase. Your willingness to give hours of your time to read, edit and offer constructive feedback has been invaluable in my quest to move the thesis towards submission.

I would like to express my deepest appreciation to my family and friends. Your words of encouragement motivated me to keep going, especially when the path seemed long and unending. My most significant heartfelt thank you goes to my parents. You always believed in the value of a good education and you consistently motivated me to reach for the stars. I sincerely thank you for the unending support and genuine words of encouragement that you gave me at each stage along the way. You always knew exactly what to say and when to say it to keep my spirits high and my mind focused. Thank you for always believing in me. Without your consistent support I could not have made it to the end of the journey. Also, throughout my life you have always highlighted the importance of being a good reader. You instilled in me, from a young age, the value of books and the pleasure that can be gained from reading. Your example inspires me to achieve.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

"A person reads a word or comprehends a text not only because she can do it, but because she is motivated to do it" (Guthrie & Wigfield, p. 404, 2000).

Motivation to read is both the essential element for actively engaging young children in the reading process and a strong predictor of later reading skills (Oldfather & Wigfield, 1996; Scarborough & Dobrich, 1994). Recent findings from educational research suggest that multimedia-based and online learning environments reflect the cultural diversity of today's 21st century students and may generate interest and motivation among children while improving their academic reading achievement (Castek, Bevans-Mangelson, & Goldstone, 2006). This study stemmed from a concern for the decline in children's reading enjoyment after the early years of schooling and accordingly examined the effectiveness of a digital children's literature program and postreading multimedia program on primary students' reading motivation, text comprehension, and word recognition abilities. In this first chapter of the thesis, there will be an introduction to the research problem, purpose, rationale, theoretical framework, guiding research questions, and limitations of this study.

Background of the Problem

Learning to read proficiently in the primary grades is one of the cornerstones of academic achievement and the foundation for children's later success in school. Much of the research on young children's reading has focused on cognitive aspects such as word recognition and comprehension skills (Guthrie & Wigfield, 2000). Yet, because reading is such an effortful activity, motivation is a factor in whether children choose to devote their energy to such a task (Deci & Ryan, 1985). Motivation to read is more than time spent on task; it is reflected in how children think about themselves as readers and how

they think about the act of reading and associated language-based activities (Deci & Ryan, 1985). Researchers have distinguished between intrinsic motivation, which refers to being motivated to do an activity for its own sake and out of interest and curiosity, and extrinsic motivation, or doing an activity to receive a reward or other form of recognition (Deci & Ryan, 1985; Deci, Vallerand, Pelletier, & Ryan, 1991). Although intrinsic and extrinsic motivation are moderately and positively correlated, and both predict the quantity of text that children read and how often they read, intrinsic motivation is a stronger predictor of reading and future reading performance among elementary students than extrinsic motivation (Baker & Wigfield, 1999). Intrinsic motivation sustains long-term learning and appears to be imperative to lifelong, voluntary reading (Gottfried, 1990). It is not surprising then that intrinsically motivated children often perform better in school to the extent that they seek challenges, are curious or interested in their schoolwork, and desire to master tasks (Baker & Wigfield, 1999).

One of the greatest challenges a teacher may face is motivating young students to engage the cognitive processes necessary to acquire reading skills. Even the brightest children may experience some difficulty with reading and will not become engaged in classroom activities without some degree of intrinsic motivation. Students' reading motivation is a topic requiring investigation for many years (Gambrell, Palmer, Codling, & Mazzoni, 1996). If students are taught to read but have limited desire to do so, then teachers will have only partially succeeded in their role as a teacher of reading (Gambrell et al., 1996). Students who can read but choose not to are a significant concern for educators (Gambrell et al., 1996). Since teachers are aware of the importance of motivation in reading development and achievement, it is critical for educational researchers to take an in-depth look at what really motivates children to read.

Statement of the Problem

Gambrell et al. (1996) found that by the end of the elementary school years, many students do not like to read. In particular, the decline in intrinsic motivation appears to be greatest from grades 1 to 4 (Eccles, Wigfield, Harold, & Blumenfeld, 1998; Stipek, 1993; Stipek & Hoffman, 1980). Concomitant with children's declining intrinsic motivation to read are declining beliefs in their own reading ability; this perhaps accounts, at least in part, for their declining interest in reading during the elementary years (Eccles et al., 1998; Stipek, 1993; Stipek & Hoffman, 1980).

Most recently, the decline in reading motivation has been attributed to the disconnect between the type of media students are accustomed to using outside the classroom and the media they predominantly use within the classroom (Doty, Popplewell, & Byers, 2001). Students spend a substantial amount of their free time on online learning environments such as the Internet, where they are flooded with text, images, video, animation, and sound (Clark & Foster, 2005). Prensky (2001) who coined the term "digital native" to describe today's young students who have been brought up in a digital world, explain that there is a gap between students preferred learning modes and experiences in the classroom. According to the 2005 *Young Canadians in a Wired World Phase II (YCWW II)* survey, 62% of students in grades 4 to 11 said they preferred the Internet compared to the library (Scheiter & Gerjets, 2007). While students are accustomed to having a range of means to communicate and process information outside of school, they often have to conform to a more restrictive media environment within school, as students spend most of their time in the classroom reading printed text and listening to their teacher (Doty et al., 2001). Decline in students reading motivation is also linked to the traditional pedagogy with teacher-centered reading instruction mode,

which is not responsive to the different learning styles of learners in the primary classroom (e.g., auditory, visual, tactile). As well, Davies and Brember (1993) found that reading in primary school is predominantly a fiction-based act. Those students who do not enjoy reading fiction texts independently may not develop a positive attitude towards reading or demonstrate a high level of reading motivation in school (Alloway & Gilbert, 1997; Ivey & Broaddus, 2001; Worthy, Moorman, & Turner, 1999). Especially in the early years, primary-aged students require a more hands-on approach to learning (Reeves, 1998).

To address motivational issues, most educators agree that multimedia-based and online learning environments have an effect in generating great interest and motivation among children while improving their academic reading achievement (Scheiter & Gerjets, 2007). In fact, the practice of incorporating multimedia and online technologies into the primary classroom opens up a new horizon for educators to improve the overall quality of early reading instruction. Specifically, Scheiter and Gerjets (2007) suggest that readers are more engaged with these digital texts because they promote a more active orientation to reading, are easier to read for most readers, meet a wide range of social and psychological needs, are more attention getting and attention holding, and make reading a more creative and playful activity. Among other benefits, these technological tools present opportunities to be responsive to different learning styles and can fulfill a given set of educational objectives in less time than needed in more traditional approaches (Reeves, 1998). However, elementary teachers have reported that multimedia and online technologies such as the Internet were seldom integrated into their classroom reading instruction (Huang, Moller, & Poirot, 2004; Scheiter & Gerjets, 2007). Moreover, only a few Canadian studies have explored the link between early reading experiences and

technological advances, especially with younger children in the beginning stages of reading (e.g., Chuang & Chen, 2007; Shade, Porter, & Sanchez, 2005). The question arises, then, as to whether Canadian elementary educators are integrating these new technologies into their existing reading curriculum and whether primary students' reading motivation will improve as a result of participating in such constructivist learning opportunities.

Purpose of the Study

The decrease in motivation to read across the elementary school years has stimulated concern about how students might be motivated to read and engage in literacy activities. The purpose of this study is to examine the effectiveness of a digital children's literature program and postreading multimedia program designed to enhance intrinsic reading motivation, word recognition, and listening comprehension abilities in young children.

Research Questions

The following research questions guide this study:

1. What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences?
2. What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward digital reading instruction?
3. How does a digital children's literature program and postreading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills?

Rationale

Morgan and Fuchs (2007) noted the importance of early reading experiences. In the primary grades, effective reading instruction that inspires and enables the child to become a lifelong reader is key to creating strong, competent readers and to preventing reading difficulties (Ministry of Education of Ontario, 2003). Effective early reading instruction enables all children to become fluent readers who comprehend what they are reading, can apply and communicate their knowledge and skills in new contexts, and are strongly motivated to read (Ministry of Education of Ontario, 2003).

Several studies have shown positive correlations between intrinsic reading motivation and reading achievement (Gottfried, 1990; Harter & Connell, 1984; Henderlong & Lepper, 1997; Lloyd & Barenblatt, 1984), suggesting that a decline in intrinsic motivation may signify a decline in reading achievement. As Stanovich (1986) noted, it may be that motivation is what mediates the *Matthew Effect*. The Matthew Effect refers to the effect by which, over time, good readers get better and poor readers remain weak (Stanovich, 1986). This cycle of poor readers enduring as poor readers throughout their lifetimes may begin as early as first grade (Stanovich, 1986). Increasing reading competence is motivating for students, and increasing motivation leads to more engaged reading time (Guthrie & Wigfield, 2000). For students who don't master reading skills early in their school years, reading may become a painful experience (Wigfield & Guthrie, 1997). As a result, they may decline opportunities for practice, putting themselves even further behind successful, motivated readers who may be independently reading as much as three times the amount of text as poor, unmotivated readers (Wigfield & Guthrie, 1997).

Educators, then, have a pivotal role in mediating the Matthew Effect in reading and helping children to develop and maintain positive attitudes towards reading. Since intrinsic motivation supports the growth of reading skills and can lead to long-term engagement in reading, primary teachers should seek to foster intrinsic reading motivation in the classroom. This might be accomplished by finding out about their students' reading attitudes and text preferences and providing them with stimulating reading texts and activities, such as multimedia and online resources (Castek et al., 2006). Such reading resources might be the key, as these texts are more reflective of the cultural diversity of 21st century students and have generated great interest and motivation for reading among students (Castek et al., 2006).

Researchers and educators have noted the motivation and learning potential of digital technologies in education (Scheiter & Gerjets, 2007). Scheiter and Gerjets (2007) concluded that in the research on the impact of computer and Internet use on the classroom structure, the most consistent effect is an increase in motivation and closely related constructs such as interest and enjoyment of schoolwork, task involvement, persistence, time on task, and retention in school. Most recently, there has been an increase in the quality and quantity of media available on the Internet and development of new online technologies such as "talking storybooks" that may preserve the motivation bump that computers bring to ordinary classroom literacy activities (Leu, 2000).

While some educators might deny the value of these changes for literacy education, it is no longer possible to ignore them in a world of networked information resources (Rochlin, 1997). Proficiency in the new (multimedia) literacies of the Internet will become essential to young students' literacy future (International Reading Association, 2001). Teachers not only need to learn to be technologically literate but also

learn to embrace the language of their "digital native" students (Prensky, 2001) and provide them with the tools that will define the 21st century.

Theoretical Framework

The current study has been framed within a constructivist model of learning, which combines research from both cognitive and social psychology and draws on the theories of Piaget (1973) and Vygotsky (1978). Constructivism emphasizes the importance of learner control, which is assumed to engage and actively involve students in the learning experience as well as to help them construct their own meaning of the materials (Rieber, 1992). According to this view, students do not passively absorb information; rather, meaningful learning involves the active creation and modification of knowledge structures (Carey, 1985). The cognitive constructivist viewpoint developed from the ideas of Jean Piaget, and emphasizes the importance of the cognitive processes that occur within individuals (Osborne & Wittrock, 1985; Piaget, 1973). According to Piaget, knowledge is actively constructed by learners in response to interactions with environmental stimuli; understanding, therefore, is built up step by step through active participation and involvement. Like Piaget (1973), Vygotsky (1978) perceived that learning evolved from both the experiences and maturation process of an individual and also matched learning with developmental levels. To Vygotsky, human mental activity and the construction of knowledge have their origin in social processes (Oxford, 1997).

The present paper also drew on the theories of intrinsic motivation, particularly the self-determination theory of Deci and Ryan (1985). Deci and Ryan (1985) define self-determination as "a quality of human functioning that involves the experience of choice, in other words, the experience of an internal perceived locus of control, which is integral to intrinsically motivated behaviour" (p. 38). Motivation is a prerequisite and corequisite

for learning, so the essence of a constructivist-informed classroom is one in which the teacher explicitly plans strategies for student motivation and integrates these at all stages of the learning (Turner, 1995). When making a case for digital reading, researchers and educators often use words like choice, interest, control, involvement, stimulation, challenge, and curiosity to capture their motivational and constructivist qualities (Piet, Kommers, & Dunlap, 1996). The purpose of this study was to investigate the connections between constructivist theory and motivation and to explore how intrinsic motivation to read may be enhanced through such constructivist learning environments as an online digital children's literature program and postreading multimedia program.

Definition of Terms

This research explored reading instruction in the primary years, with a specific focus on students beginning their first grade year. For the purposes of this study, *reading motivation* referred to "an internal or external influence that activates, guides and maintains or directs behaviour, which must be instigated and sustained for a period of time" (Gambrell et al., 1996, p. 284). Several components of *reading motivation* which will be further discussed in this review include curiosity or interest, preference for challenge, learner control, involvement, competition, recognition, and grades (Guthrie et al., 2007). Formerly known as hypermedia-based children's literature programs, *digital children's literature programs* refer to interactive reading programs (or *talking storybooks*) that are accessible by any web browser and read to or by students in the form of hypertext, whereby graphics, audio, video, plain text, and hyperlinks intertwine to create a generally nonlinear medium of information (Lewis, 2000).

Scope and Limitations of the Study

This study aimed to evaluate the effectiveness of a digital children's literature program on improving intrinsic reading motivation, word recognition, and text comprehension abilities in grade 1 children. Technical problems relating to the digital children's literature program presented the greatest challenge, the selection of respondents, limited sample and geographical area, interview techniques, analysis of the data, and the conclusions drawn must all be taken into consideration by the reader. These limitations will be further discussed in Chapter Three.

Outline of Remainder of the Document

Chapter Two provides a review of the literature as it relates to reading development, reading programs, and digital technologies in reading instruction. Chapter Three presents the qualitative research methods chosen for the purpose of this study. Specifically, the subject and site selection, procedure, data gathering, recording, and analysis of the data are presented. Additionally, Chapter Three outlines the actions taken to establish the credibility of the findings. Research in education cannot control all aspects of the methodology; the assumptions that have been made about the data as well as the limitations of this study's design are clearly stated within this chapter. This section of the thesis also outlines the ethical guidelines followed to ensure that the participants have been protected. Chapter Four presents the research findings of the study, and the major themes that emerged from the data collected are analyzed. Chapter Five summarizes this thesis, presents the conclusions, and outlines the implications for theory and practice and suggestions for further research.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

A study designed to investigate the effectiveness of a digital children's literature program and postreading multimedia program on grade 1 students' intrinsic reading motivation, word recognition, and listening comprehension abilities, was informed by the following review of literature relating to early reading acquisition. This chapter review begins by describing the theoretical framework of this study. Second, the series of stages through which children progress as they learn to read will be presented, followed by a discussion of two sets of skills required for proficient reading, namely, word recognition and comprehension. Fourth, a focus on three essential components of a Balanced Literacy Program, including Read-Aloud, Shared Reading, and Guided Reading, is provided. Finally, a review of the contextual and innate influences on children's reading development will be presented (sections 5 & 6). The potential benefits of multimedia and online technologies in reading instruction, especially for students with reading disabilities, attention deficits and/or behaviour difficulties (sections 7 & 8) are included.

Theoretical Framework

As previously mentioned, Piaget's (1973) constructivism is premised on his view of the psychological development of children. Within his theory, the basis of learning is discovery: "To understand is to discover, or reconstruct by re-discovery and such conditions must be complied with if in the future individuals are to be formed who are capable of production and creativity and not simply repetition" (Piaget, 1973, p. 66). A further feature of Piaget's (1973) cognitive constructivist theories is known as *assimilation* and *accommodation.* According to Piaget (1973), individuals construct their own knowledge of the world through these two processes of learning. Assimilation is the process by which new information is merged with existing knowledge structures without

changing those structures (Piaget, 1973). Accommodating new information, on the other hand, requires that existing knowledge be restructured to fit new information, which eventually transforms the way a learner views and understands the world (Piaget, 1973). Equilibration involves the child striking a balance between himself or herself and the environment, between assimilation and accommodation (Piaget, 1973). This study borrows these two concepts of assimilation and accommodation from Piaget's constructivist theory of learning and applies them to the current experiences of grade 1 students and teachers with these new digital technologies at home and in their classrooms.

According to Vygotsky's (1978) social constructivist theory, learning is a continual movement from the current intellectual level to a higher level which more closely approximates the learner's potential; this movement occurs in the "zone of proximal development" as a result of social interaction. The zone of proximal development is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (Vygotsky, 1978). Learners should constantly be challenged with tasks that refer to skills and knowledge just beyond their current level of mastery; this will capture their motivation and build on previous successes in order to enhance the confidence of the learner (Vygotsky, 1978). These feelings of competence and belief in potential to solve new problems are derived from firsthand experience of mastery of problems in the past and are much more powerful than any external acknowledgment and motivation (Prawat & Floden, 1994).

Such constructivist theories emphasize that the learner can reach the deepest level of understanding or "operative awareness" only if she or he is personally involved, and that can happen only if she or he finds some pleasure in doing it. Thus, according to these constructivist views, the reconstruction of meaning requires effort on the part of the learner. Sustaining motivation to learn is strongly dependent on the learner's confidence in his or her potential for learning. From an educational point of view, the term "motivation" refers to an "internal state that activates, guides, and maintains learning behaviour" (Brophy, 2004, p. 289). Motivation has been recognized as an important factor in the construction of knowledge. Since knowledge is actively constructed by the learner, learning depends to a significant extent on the learner's internal drive to understand and promote the learning process. Intrinsic motivation is required to initially arouse students to want to participate in learning, and it would also be needed throughout the whole process until knowledge construction has been completed. Deci and Ryan (1985) refer intrinsic motivation to initiating an activity for its own sake because it is interesting and satisfying in itself, as opposed to doing an activity to obtain an external goal (extrinsic motivation). Self-determination is the capacity to choose and to have those choices, rather than reinforcement contingencies, drives, or any other forces or pressures, be the determinants of one's actions (Deci & Ryan, 1985). According to this theory, intrinsic motivation occurs "when a person does the activity in the absence of a reward contingency or control" (Deci & Ryan, 1985, p. 34). Intrinsic motivation is "manifested as curiosity and interest, which motivate task engagement even in the absence of outside reinforcement or support" (Ryan, Connell, & Grolnick, 1992, p. 170).

Constructivism assumes that learners are active and curious (Turner, 1995). In place of the textbook, the driving force of instruction is the students' natural curiosity to

explore and make sense of the world (Turner, 1995). As Perkins (1986) maintains, knowledge is a process of design and not something to be transmitted from teacher to student. Thus, students should be engaged in this highly motivating process of constructing their own knowledge (Perkins, 1986). For example, today, computer software programs serve as exceptionally powerful cognitive tools, which refer to technologies that enhance the cognitive powers of human beings during thinking, problem-solving, and learning (Jonassen & Reeves, 1996). In the cognitive tools approach, media and technology are given directly to learners to use for representing and expressing what they know. In doing so, learners are fully involved in the learning process (Reeves, 1998).

Stages of Reading Development

According to Chall (1983), students proceed through predictable stages of learning to read. In Chall's model, each stage builds on skills mastered in earlier stages; lack of mastery at any level can halt the progress beyond that level. In Stage 0, the earliest prereading, logographic stage (from birth to about age 6), children mimic the reading process without actually reading (Indrisano & Chall, 1995; Ministry of Education of Ontario, 2003). The child learns simple concepts of reading, including the reading of signs, understanding the names of letters, and pretending to read books (Indrisano & Chall, 1995). Children in this stage become aware of the letters of the alphabet, the left-to-right principle of print, and sound similarities between words (Chall, 1983; Ministry of Education of Ontario, 2003).

During the beginning reading stage or decoding stage (Stage 1), which is typically acquired by the age of 6 or 7 (kindergarten and grade 1), the learner becomes aware of the relationship between sounds and letters and begins applying this knowledge to text.

This demonstrates that the reader has achieved understanding of the critical concept of the alphabetic principle and is learning sound-symbol correspondences, the alphabetic code (Torgeson & Mathes, 1999). In Stage 1, phonological awareness is a critical requirement in learning to read effectively in an alphabetic language. An essential part of phonological awareness is the ability to consciously "manipulate" the sounds within words (phonemes), in particular, the skills of blending separate phonemes into words, which provides the foundation for decoding words and is highly predictive of reading success (Torgeson & Mathes, 1999; Ministry of Education of Ontario, 2003).

Through grades 2 and 3, a student generally enters the second stage of the reading process (also known as the *confirmation stage*), which involves confirming the knowledge acquired in the previous two stages and gaining fluency in those skills (Chall, 1983; Ministry of Education of Ontario, 2003). Fluency is defined as "the ability to identify words accurately, read text with greater skill, ease, and better comprehension" (Ministry of Education, 2003, p. 13). A fluent reader becomes automatic in reading texts that are predictable, patterned, interesting, and uses language and thought processes already within his or her experience and abilities (Indrisano & Chall, 1995). This stage is critical for the beginning reader, as automatic word recognition enables the reader to process text in greater units and to use the capacity of his or her working memories for grasping meaning (Indrisano & Chall, 1995). Thus, at this point, the reader should be able to give attention both to meaning and to the print, using them interactively to build reading fluency and sight word vocabulary. Sight word reading includes the rapid reading of words as whole units without phonetically sounding out each word (this includes irregularly spelled words; Ehri, 1991).

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Stages 0 through 2 constitute a *learning to read* stage, at the end of which children are no longer glued to the print on the page (Chall, 1983). In these early stages of reading development, they have learned the alphabetic principles and can recognize the printed words, also called the medium, and can now read passages with ease and expression (Chall, 1983). During each of the successive stages (Stages 3 to 5), a considerable change takes place whereby the major tasks shift from learning the medium to learning the message (Chall, 1983; Ministry of Education of Ontario, 2003). Decoding the words on the page no longer consumes all of their cognitive attention; cognitive capacity is freed for processing meaning (Chall, 1983). At this point, children are ready to make the important transition from *learning to read* to *reading to learn* (Stages 3 to 5; Chall, 1983).

At Stage 3 (grades 4 to 8), the student has attained a certain degree of reading proficiency and ability and begins to use reading as a tool for learning and gaining new information (Chall, 1983). From this point on, in Stages 4 and 5 (through high school and college), the texts and other materials typically read become more varied and complex in content, language, and cognitive demands (Chall, 1983). In order to read, understand, and learn from these more demanding texts, the readers' knowledge, language, and vocabulary need to expand, as does their ability to think critically and broadly. For the purposes of the current research, the focus will be on Stage 1 of the reading process.

Two Domains of Early Reading Development

An overview of the qualitative characteristics at each stage of Chall's (1983) reading development suggests that a useful way to conceptualize these elements is the emphasis of the two major aspects of reading: the *medium* or word recognition (alphabetic writing that corresponds to the sounds of words), and the *message*, the

meaning (of the story) that is read (Al Otaiba et al., 2008). The following section will review these two sets of foundational skills which are critical to early reading acquisition, namely: code-focused decoding skills (word recognition) and meaning-focused oral language skills (comprehension; Hoover & Gough, 1990).

Word Recognition

Code-focused (decoding) skills are those skills that facilitate children's learning and application of the alphabetic principle for word recognition (Storch & Veronicahurst, 2002). As abovementioned, word identification or word recognition constitutes the foundation of the reading process and is fundamental in order to learn how to read fluently (Al Otaiba et al., 2008). Word recognition implies, among other things, that children understand the principles of the alphabet or, in other words, see that the sounds of a spoken word correspond to the letters of a written word; every letter of the alphabet represents, in principle, a speech sound with a meaningful distinction (Al Otaiba et al., 2008). At the level of early literacy, word recognition implies that children can transpose the letters of a word into sounds (the grapheme-phoneme association), connect the sounds to a spoken word, and assign a meaning to this word (Ehri, 1991; Tunmer & Hoover, 1992).

Research has shown that at least three factors or variables play an important role in explaining and predicting word recognition: phonological and phonemic awareness, knowledge of the names of letters, and rapid naming (Justice, Pullen, & Pence, 2008). In addition to phonological and phonemic awareness, knowledge of (the names of) the letters during the kindergarten years is a good predictor of early literacy and an important factor in the development of word recognition, as letters facilitate the perception of phonemes and are essential for the transfer to reading (Ehri, 1991; Ehri & Wilce, 1987;

Scarborough, 1998). Scarborough (1998) found that the rapid naming of visual symbols is as strongly related to word recognition. Manis, Seidenberg, and Doi (1999) concluded that rapid naming is strongly related to early literacy and constitutes - in addition to verbal capacity (language comprehension) and phonological awareness - a good and independent predictor of reading (Carver & David, 2001). Wolf, Bally, and Morris (1986) also found that the naming tasks proposed by Denckla and Rudel (1974), in which children must name familiar letters, numbers, colors, and pictures as quickly as possible, were good predictors of the rapid identification of words by first graders. Longitudinal research by Torgesen, Wagner, Rashotte, Burgess, and Hecht (1997) also showed that phonological awareness and naming speed for visual symbols during the initial years of elementary education played an important and independent role in the explanation of word recognition acquisition.

Recognition of words via the transposition of a series of letters into sounds is a fairly slow process in the beginning (Cunningham & Stanovich, 1993). To the extent that the child reads more frequently, word recognition becomes more automatized. As Chall (1983) and Perfetti (1985) described, this automatization process starts in the first grade and is very important for the further development of reading comprehension, as it reduces the memory load and thereby enables reading comprehension. Therefore, teaching children how to successfully identify words in context is critical. One of the ways that beginners learn to read words is by sight (Ehri, 1991; Gaskins, Ehri, Cress, O'Hara, & Donnelly, 1997). Sight word reading is the act of memorizing connections between word meanings and their visual forms (Ehri, 1999). Brown, Sinatra, and Wagstaff (1996) maintain that a literacy tool to consider for teaching high-frequency sight words is a "word wall" or a wall with these high-frequency words posted for easy student reference.

Word walls can help increase students' word knowledge and awareness of words. As attestations to this claim, Brown et al. (1996) note that the majority of all elementary educators as well as second grade students recommend the use of a word wall in the classroom-this implies that beginning readers find word walls helpful to them.

Comprehension

Notwithstanding the foundational nature of word recognition, the importance of comprehension cannot be underestimated. Comprehension refers to understanding the meaning of written and spoken words, sentences, and text (Al Otaiba et al., 2008). Readers attempt to understand the written message of the writer at different levels (lexical, syntactic, semantic, and pragmatic; Al Otaiba et al., 2008). Story comprehension is appropriating meaning from text (Justice et al., 2008). Of particular interest to the present study is the fact that reading storybooks aloud to young children will familiarize them with story structure, which in turn may help facilitate their comprehension of stories (Justice et al., 2008). Overall, fluent and proficient reading relies on a sound linguistic base including semantic, syntactic, and pragmatic knowledge (Morrison, Bachman, & Connor, 2005). Four factors are important in explaining and predicting reading comprehension: rapid recognition of words, vocabulary (including knowledge of the world), listening/reading comprehension, and reading strategies (Aarnoutse, van Leeuwe, & Verhoeven, 2005).

As Chall (1983) noted, in the early literacy stages, the components related to recognition of words play an important role in reading comprehension. Decoding is the first step in word recognition, as this gives access to the meaning of words; if a child cannot decode a word, the child cannot comprehend it (e.g., Adams, 1990; Chall, 1983; Ehri, 1991; Pressley, 2000). Tan and Nicholson (1997) showed that the rapid recognition

and understanding of the meaning of words improves reading comprehension, probably by freeing up more short-term capacity for reading comprehension (Anderson & Freebody, 1981; Juel, 1988).

In addition to word recognition and vocabulary, listening is central to and predictive of reading comprehension. During elementary school, a child's maximum level of reading comprehension is determined by the child's level of listening comprehension (Sticht & James, 1984). Listening comprehension refers to children's understanding of stories and other texts that are read aloud to them and lays the foundation for children to later be able to "understand what they read, remember what they read, and communicate with others about what they read" (National Institute for Literacy, 2001, p. 48). It is important to note that, for most kids, listening comprehension develops at a faster speed and remains at a higher level than reading comprehension; the listening comprehension of the average child begins to develop around 12 months of age, while the reading comprehension typically begins to develop in kindergarten or first grade (Sticht & James, 1984).

Phonemic awareness, the ability to recognize the elements of oral language and discourse on which reading depends (Nation & Snowling, 2004), is essential for successful reading. Decades of research summarized by the National Reading Panel (2000) demonstrates that young children need to be able to hear and recognize the sounds of language, and its vocabulary, in order to learn to read. Beginning readers develop a foundation for reading by listening to the sounds of language and manipulating them and by listening to the vocabulary and syntax through which meaning is constructed (National Reading Panel, 2000). Reading comprehension, then, relies on connecting to general

background knowledge and previously learned vocabulary, which can all be learned through listening, especially in the early grades (Nation & Snowling, 2004).

The fourth factor that influences reading comprehension is the ability of readers to use comprehension strategies-activities or procedures used by readers-to comprehend written and spoken language. These strategies can be performed before, during, and after reading a text and help students become purposeful, active readers who are in control of their own comprehension (Jacobs & Paris, 1987). According to Pressley and Afflerbach (1995), good readers are able to find the main idea of a text, make predictions about the upcoming text, associate ideas in text to what they already know, and infer the meanings of unfamiliar vocabulary based on context clues. Research strongly indicates that teaching elementary students to use a repertoire of comprehension strategies increases their comprehension of text (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989). For example, the ability to monitor comprehension appears to have a firm scientific basis for improving text comprehension among student readers, as they know when they understand what they read and when they do not, and have strategies to "fix" problems in their understanding as the problems arise (Pressley et al., 1989).

According to Bus, Van Ijzendoorn, & Pellegrini (1995), these reading strategies can be taught through the use of storybook read-alouds, which have been found to improve young students' word recognition/sight vocabulary, comprehension as well as their reading motivation and engagement. Such listening activities can provide beginning readers with valuable opportunities to engage in higher level critical thinking skills, even before they learn to decode fluently (Bus et al., 1995).

Reading Components of a Balanced Reading Program

The term "balanced reading instruction" has been used to describe literacy programs that balanced reading *to* children, reading *with* children, and reading *by* children (Holdaway, 1979). In general, a balanced reading program is one that includes reading, writing, spelling, phonics, and other skills-based instruction. The following components of "Reader's Workshop" can all be part of a balanced reading program: Read-Aloud, Shared Reading, and Guided Reading. This section will also describe the use of Literacy Centers in a balanced literacy program and provide opportunities for students to practice the skills and strategies taught during Reader's Workshop.

Read-Aloud

Becoming a Nation of Readers, the report of the National Commission on Reading, states that a read-aloud is "a strategy in which a teacher sets aside time to read orally to students on a consistent basis from texts above their independent reading level, but at their listening level (Anderson, Hiebert, Scott, & Wilkson, 1985). As abovementioned, students' listening comprehension is usually higher than their reading comprehension; thus, listening and following along to a story will often result in better comprehension than simply reading it independently and encourages students to focus on the story rather than on unfamiliar vocabulary (Anderson et al., 1985). As so aptly stated by Fox (2001),

> If we want our children to learn how to read anything- let alone to read more or to read more diverse or more difficult material- it helps immeasurably if we can give them as much experience of the world as possible. (p.100)

In other words, the more students listen to a read-aloud and the more they read by themselves, the more experience they'll have of the world through the things they encounter in books.

Reading aloud has been a cornerstone of literacy development and classroom practice for over a century (Sulzby & Teale, 1991). In most primary classrooms, a teacher reading aloud to students likely occurs on a daily basis (Brabham & Lynch-Brown, 2002). In fact, surveys of elementary school teachers conducted by Lickteig and Russell (1993) showed that 76% read aloud daily and 100% read aloud several times a week to students in the pre-primary and primary grades (Lickteig & Russell, 1993; Lindholm-Romantschuk, 1990). Lundberg and Linnakyla (1993) reported linkages between language growth, reading achievement, and the amount of reading done by their teachers. Consistent with Morrow and Smith's (1990) findings, reading storybooks aloud to children enhances their knowledge of the conventions of print; letter and symbol recognition; receptive and expressive vocabularies; reading fluency; listening and reading comprehension skills (Clay, 1991; Lundberg & Linnakyla, 1993).

Feitelson, Goldstein, and Kita's (1993) study included 139 grade 1 students from one elementary school in a disadvantaged suburb in Haifa, Israel. Feitelson et al. (1993) compared two groups over a 6-month duration; the experimental group was read to for the last 20 minutes each school day, while the control group continued with their normal routine. Tests which measured children's vocabulary, technical reading skills, comprehension, causality, story structure (picture storytelling task), accuracy, and sentence length were administered before and after the study period of 6 months (Feitelson et al., 1993). Findings were further supported with a diary kept by the school counselor, classroom observations, and interviews with teachers and students in the

experimental groups (Feitelson et al., 1993). Feitelson et al. found that students in the experimental group produced gains significantly higher on all of the various tests than those of the control group; students who were read to scored higher on tests measuring for decoding ability, listening, and reading comprehension as well as the active use of language. Feitelson et al. (1993) also discovered that the use of the picture storytelling task indicated that the first graders developed appropriate story schema; specifically, students were able to infer causal relationships from picture clues, retell the plot of the picture story, and produce accurate contents of the story to the researchers. Feitelson et al. (1993) provide evidence that illustrates the role of daily storybook reading on children's oral language, story, and literacy acquisition.

Reading aloud can also lead to increases in motivation, engagement in learning, and positive attitude toward reading, especially in "struggling or aliterate" students (who choose not to read; Dreher, 2003). When teachers read engaging texts aloud, alliterate students often become more motivated to read on their own. Lesesne (2001), for example, noted that teacher read-alouds, in addition to motivating "struggling or aliterate" students to read, can also introduce avid readers to a world of books they might not otherwise find or be able to read on their own. Listening to teachers read is a pleasurable activity for students and leads to more positive attitudes toward reading (Lesesne, 2001). Sharing texts aloud with students enables teachers to explicitly model their value for reading (Gambrell et al., 1996; Worthy, 2002). In a survey of over 1,700 students' best reading experiences, Ivey and Broaddus (2001) found that 62% indicated a preference for teacher read-alouds.

According to *The Report of the Expert Panel on Early Reading in Ontario* (Ministry of Education of Ontario, 2003), reading aloud to children exposes them to a

variety of literature, provides them with new vocabulary, and contributes to their oral and written language development; further, reading aloud should occur every day in the early stage of reading instruction to stimulate the children's interest in books and reading.

Group configuration can also make a difference in the effects of reading aloud. Morrow and Smith (1990) explored the effects of group size during read-alouds on children's comprehension and response. Adults read storybooks to 27 kindergarten and first grade children from five U.S. school districts. Each child heard three stories read in each of three settings: one-to-one, small-group (3 children per group), and whole-class (15 children or more). Measures were taken on only the third reading in each setting. Morrow and Smith (1990) found that children who heard stories read one-to-one and in the small-group setting performed significantly better on probed and free recall comprehension tests and generated more questions and comments than children in the whole-class setting. Thus, reading to children individually or in small groups appears to lead to a more active discussion and greater comprehension than whole-class readings.

It seems clear that reading aloud is important for children's literacy development; however, what is being read and how children engage in these read-alouds also affects the benefits that children accrue from listening to good books (Flood, 2003). That is, in addition to group size and frequency of read-alouds, the type of text and oral presentation of literature are all factors that may influence children's reading achievement and motivation (Flood, 2003). Engagement in storybooks should not be limited to the traditional adult-led read-alouds with hard copy texts, as this gives very little control of the learning process to the students (Korat & Shamir, 2006). It has often been said that the computer could be used to supplement reading to children, as it produces experiences and effects similar to adult-read printed books and can help teachers and parents give

students the necessary individual attention (Meyer & Rose, 1999). The high availability of online storybooks poses a novel situation in which children, especially those who come from home and school environments where such literacy stimulation activities as joint book reading are not available, no longer need adults to "read" to them because they can do so independently via the use of an electronic book (Korat & Shamir, 2006). This digitized form of a book includes lively and attractive features which have potential as a valuable tool for promoting reading and emergent literacy learning, especially among young children from diverse demographic backgrounds (Korat & & Shamir, 2006).

Shared Reading

Holdaway (1979) investigated the benefits of family storybook reading and proposed bringing that "shared book reading" experience into the classroom through the use of big books, or other enlarged text. This simulation of the family experience in the classroom was called Shared Reading (Holdaway, 1979). Holdaway (1979) further suggested that Shared Reading, in conjunction with the reading aloud of picture storybooks, provides the teacher with a prime opportunity to introduce these children to the joys of reading and of books (Holdaway, 1979). Shared Reading also involves active participation and considerable interaction on the part of students and teachers, which makes it both an enjoyable and motivating reading activity for children (Ministry of Education of Ontario, 2003).

During Shared Reading, the teacher provides instruction to the whole class or a small group by reading a text that all students can see, using an overhead, a big book, a chart, or a poster (Ministry of Education of Ontario, 2003). The teacher reads the text with the students, sharing the responsibility for reading at key instructional moments

(Ministry of Education of Ontario, 2003). The same text can be revisited several times for a variety of instructional purposes (Ministry of Education of Ontario, 2003).

Shared Reading provides the teacher with the opportunity to model effective reading. Specific strategies are used to improve students' listening comprehension and understandings about the relationships between spoken and written language that develop during this stage and help them with word solving (Ministry of Education of Ontario, 2003). For example, teachers can help children gain knowledge of an important function of print-namely, that print can be used to communicate stories (Flood, 2003). Teachers can model how readers observe conventions of print, such as directionality (Flood, 2003). Teachers can also call attention to the forms of print, including letters of the alphabet and punctuation, and can develop their students' phonemic awareness by pointing out or having children identify words that rhyme or words that begin or end with the same sounds (Flood, 2003). In terms of the development of word identification ability, Shared Reading serves the crucial function of moving children from paying attention only to pictures to paying attention to print (Flood, 2003). Shared Reading should occur daily in the early stages of reading instruction and provides a bridge to Guided Reading (Ministry of Education of Ontario, 2003).

Guided Reading

Guided Reading is the bridge between shared reading and independent reading (Ministry of Education of Ontario, 2003). A major focus of Guided Reading is to teach children to use reading strategies, particularly strategies of word identification and reading comprehension, that can be used in their independent reading (Ministry of Education of Ontario, 2003). It allows teachers to help students make the transition from teacher modeling to student independence (Ministry of Education of Ontario, 2003). A

comprehensive treatment of Guided Reading, based on the research of Clay (1991), is provided by Fountas and Pinnell (1996). As described by these authors, the strategies promoted through Guided Reading include those for maintaining fluency, for detecting and correcting errors, and for problem solving with new words (Clay, 1991; Fountas & Pinnell, 1996).

Guided Reading has many of the same components of Shared Reading. However, it is conducted with a smaller number of students and focuses more on the individual reading needs of each child. During Guided Reading, teachers work with small, homogenous reading groups, and guide them through instructional-level books. While some students are meeting in a Guided Reading group, the teacher needs to develop meaningful literacy tasks and activities in which the rest of the class participates (Ministry of Education of Ontario, 2003).

In Guided Reading, the teacher scaffolds the learning of a small group of students as they apply strategies previously taught during read-alouds and shared reading to an unfamiliar, but carefully selected, text (Fountas & Pinnell, 1996). This teaching method reflects Vygotsky's (1978) theory of *zone of proximal development* in that each group works within their individual reading abilities, where the students can interact with the text that is considered to be at their *instructional level*, and are reading texts with rates of 90-94% accuracy (Fountas & Pinnell, 1996). The use of texts at the instructional level of the students in each group should provide just the right balance of challenge and support, easy enough for students to read and comprehend a text with the strategies they have, but challenging enough to require some strategy use (Fountas & Pinnell, 1996). The teacher's role in Guided Reading is to support the students as they talk, read fluently, think their way through a text using effective reading strategies, provide the necessary prereading

cues and prompts to assist students as they apply previously taught strategies to a new text (Ministry of Education of Ontario, 2003). Thus, one of the benefits of Guided Reading is that no student reads passively for very long before being prompted to recall, think about, or apply what was read; rather, Guided Reading encourages the habit of thinking while reading (Burns, 2006). Guided Reading is also extremely helpful to students who have difficulty focusing independently on printed material for a sustained period of time, as they have expert leadership from the teacher as to what they should pay attention to while reading silently, and they have a short, defined amount of time for concentrated reading (Burns, 2006).

Literacy Centers

Literacy Centers are usually specially designed independent or small-group tasks where students rotate through the centers that take place in certain parts of the classroom (Fountas & Pinnell, 1996). Effective Literacy Center activities are sufficiently open-ended to allow for creativity and student choice, promote student collaboration, facilitate student motivation, and provide targeted practice for students working independently and successfully without supervision (Daniels & Bizar, 1998). While teaching the Guided Reading lesson, some teachers give the same kind of seatwork to the rest of the class to keep them occupied; however, other teachers believe in sending students to Literacy Centers (Fountas & Pinnell, 1996).

Contextual Influences on Reading Development

Consistent with the above findings, the forms and functions of reading and reading instruction itself are largely determined by family and teacher influences on children's reading development and motivations to read within a sociocultural context.

Therefore, contextual influences on reading development have also informed the design of this study.

Bronfenbrenner's (1979) theory of ecological development offers a useful way to consider some of the levels, or contexts, of influence on children's reading acquisition. According to Bronfenbrenner, children's lives unfold within multiple settings and in relationships with multiple others; each of these settings functions in a dynamic, reciprocal process between the settings and the individual child. Thus, reading development is not merely reflections of the children themselves but also of the nature of reading experiences, resources, and interactions (directly or indirectly) encountered by children across settings. Specifically, these frameworks account for influences of social environment on reading development in terms of (a) the qualities of environments, such as activities, resources, and strains, and (b) the quality of social relations within and across these settings (Bronfenbrenner, 1979).

At the broadest level, the *macrosystem* is considered the outermost layer in the child's environment and is comprised of cultural and societal values, customs, and laws (Bronfenbrenner, 1979). Another level of influence is *exosystem*, which is described by Bronfenbrenner (1979) as the school boards or school systems children attend. These bodies often dictate to teachers how and what elements should be part of an effective reading program, which can strongly affect reading achievement and motivation across societies. However, among the most powerful systems influencing the individual child are the *microsystems* that collectively reinforce and challenge one another to form a collective mesosystem (Bronfenbrenner, 1979). Single microsystems are children's individual relationships. For example, parents, siblings, peers, and teachers play an important role in the engagement of young children in literacy events (Bronfenbrenner,

1979). Through their resources, experiences, and interactions, children's microsystems can create supportive or hindering environments for their reading development (Bronfenbrenner, 1979).

Home Literacy Environment and Socioeconomic Status

Two factors that significantly influence the collective mesosystem are the home literacy environment and socioeconomic status. Research has indicated a significant positive relationship between the child's attitude toward reading based on home experiences, and achievement in reading in the schools (Teale & Martinez, 1986). For example, children raised in environments where oral language is encouraged and where their parents foster a love for literature by exposing them to simple stories, appear to have been the building blocks for becoming lifelong readers and successful learners. As previously stated, the practice of parents reading to their children has shown to be significantly related to an improvement in children's language development as well as their intrinsic reading motivations (Sénéchal, LeFevre, Thomas, & Daley, 1998). Specifically, this practice has been shown to improve children's: receptive and expressive vocabulary, literal and inferential comprehensive skills, letter and symbol recognition, and most important, general interest in books (Sénéchal et al., 1998).

The quality and quantity of these parental interactions with their children around storybook reading and other literacy events are moderated by the socioeconomic status (SES) of their families and home literacy environments. Children's initial reading competence has been linked to the availability of reading materials and literacy activities within the home (e.g., frequency of parental book reading to children; Alexander, Entwisle, & Olson, 2001; Dickinson & Snow, 1987; Heath, 1983; Wells, 1985). Differences in the accessibility to books in the home have been noted among families

from low and middle class families and significantly relate to children's reading achievement (Scher, Baker, & Mackler, 1997).

While children from middle and high socioeconomic status families are familiar with storybook reading when they begin school, those from low socioeconomic status families tend to be disadvantaged in literacy development because book reading experiences in the home are infrequent (Adams, 1990; Teale & Martinez, 1986). The net result is that children in low socioeconomic status households have less exposure to books (Evans, 2004; Lee & Burkam, 2002; Lonigan, Burgess, Anthony & Baker, 1998; Vernon-Feagans, Hammer, Miccio, & Manlove, 2002) and are less likely to be regularly read to by their parents (Federal Interagency Forum on Child and Family Statistics, 2005; Lee & Burkam; Lonigan et al., 1998). Given these findings, it is not surprising that children attending schools with a greater population of families of low socioeconomic status (SES) backgrounds achieve less in literacy learning (Snow, Burns, & Griffith, 1998). The reading achievement gap between children from affluent families and those from low socioeconomic families is evident in kindergarten; economically disadvantaged kindergarteners present lower early reading abilities, acquire language skills more slowly, exhibit delayed letter recognition and phonological sensitivity, and are at risk for reading difficulties (Bowey, 1995; Feitelson et al., 1993; Lonigan et al.; Reese, 1995).

Nord, Lennon, Liu, and Chandler (2000) investigated family involvement and engagement in home literacy activities with children aged 3- to 5-years. The findings in Nord et al.'s report showed that children with one or more of these risk factors were less likely than other children to have frequently engaged in literacy activities with their families; this was especially true for reading to children and visiting the library with them.

Parental Attitudes and Expectations of Student Reading

Interest in reading is as much a prerequisite as a consequence of book reading, so that the mere presence of models and materials such as books may not stimulate children's development as effectively as parental and teacher support during and attitudes towards book-reading activities (Quandt & Selznick, 1984). Quandt and Selznick (1984) suggested that from an early age, children learn from their significant others how competent they are in activities. Thus, examining the role of parents and teachers in relation to children's perception of competence may reveal possible reasons for children's reading achievement (Lynch, 2002). The following sections will examine the attitudes and expectations of parents and teachers which are a factor in children's reading achievement.

Attitudinal and other aspects of a literate environment may cause differences in children's reading achievement (Sulzby & Teale, 1991). A study by Bandura (1993) showed links between parents' sense of academic efficacy and aspirations; parents' sense of efficacy to promote their children's academic development and the educational aspirations they hold for them enhance their children's beliefs in their own academic efficacy and raise their aspirations and academic achievement. According to Bandura (1993), unless parents also build their children's sense of efficacy, they (the children) are likely to view high standards as beyond their reach and disregard them. Bandura (1993) suggests that parents' self-efficacy plays an important role in children's own self-efficacy beliefs and children's academic achievement.

In fact, relationships exist among parents' reading beliefs, children's reader self-perceptions, and their reading achievement (Lynch, 2002). Lynch's (2002) one-year study included 66 students, aged 8 and 9, and 92 parents involved in a family literacy

project located in a rural area of eastern Canada. Three instruments were used in Lynch's (2002) study: a Questionnaire for Parents, a Reader Self-Perception Scale (RSPS; Henk & Melnick, 1995), and a standardized reading test (Test of Early Reading Ability-2 [TERA-2]; Reid, Hresko, & Hammill, 1989). Lynch (2002) found significant positive and negative relationships between parents' self-efficacy beliefs and children's reader self-perceptions (Lynch, 2002). Children's self-perceptions as readers significantly related to their reading achievement (Lynch, 2002). Involvement and self-efficacy statements on the questionnaire were positively related to each other (Lynch, 2002). Parents who had stronger beliefs in their ability to improve their child's reading achievement were more involved with their child's reading; consequently, their child had less reading difficulties and higher reader self-perceptions than children of those parents with a lower sense of efficacy (Lynch, 2002). This positive relationship between parents' self-efficacy beliefs and children's self-concept as reader shows that parents' sense of efficacy for their children's academic development may enhance children's beliefs in their own academic efficacy (Bandura, 1993; Lynch, 2002).

Parents' beliefs about literacy development play an important role in the socialization of children into literacy (Bus, Van Ijzendoorn, & Pellegrini, 1995; McNaughton, 2006). Purcell-Gates' (1996) noted that children's early literacy development relates to parents' engagement in specific types of print literacy activities, including book reading. The interest in parents' book reading appears to be particularly inspired by the assumption that reading stimulates a literate orientation (Bus et al., 1995). As Nord et al. (2000) discovered, parents who read frequently to their children are likely to read more themselves, have more books (including children's books) in the home, and take their young children to the library (Bus et al., 1995). Parents who have a low level of

literacy, do not enjoy reading, and/or read infrequently may be unable to support their children's interest in reading, are less likely to initiate conversations to make texts enjoyable, or to find ways of making them comprehensible to an emergent reader (Bus et al., 1995; Purcell-Gates, 1996). Thus, the frequency and observation of parents' and children's reading experiences in their home environment, such as shared book reading, and parents' text type reading preferences (e.g. reading newspapers or reading on the computer in the child's presence), are likely to foster children's literacy development and reading motivation in the early grades (Bus et al. 1995; Purcell-Gates, 1996).

Teacher's Attitudes and Expectations of Student Reading

Alongside parents' reading attitudes and beliefs, it appears that teachers' instructional beliefs and classroom literacy instruction may also have a significant effect on students' reading achievement and motivation (Applegate & Applegate, 2004). Because of its importance to school success (including reading development) and concerns about children's literacy attainment, as well as the quality of classroom instruction, educational researchers have devoted considerable attention to identifying productive methods and approaches for teaching reading and writing (Graham, Harris, Fink, & MacArthur, 2001). Often overlooked, however, is the interaction between teachers' skills and knowledge and their beliefs. As Bandura (1986) noted, having the necessary knowledge and skills to perform a task does not ensure that the task will be performed successfully. Instead, teachers' sense of efficacy, or their confidence that they can perform the actions that lead to student learning, is a particularly powerful construct and one of the teacher characteristics that reliably predicts teacher practice and student outcomes (Bandura, 1986). Teachers with a strong sense of efficacy are more willing to try new ideas to meet their students' needs, are less critical of students when they make

errors, and are more positive about teaching (Graham et al., 2001). Not surprisingly, therefore, teachers' sense of efficacy is linked with students' level of reading achievement as well as their motivation and self-efficacy (Graham et al., 2001). Teacher efficacy influences effort and persistence, goals and aspirations, and overall quality of instruction (Graham et al., 2001).

In Graham et al.'s (2001) study, 153 primary grade teacher participants in the United States were asked to complete a survey instrument, the Teacher Efficacy Scale (Gibson & Dembo, 1984) that measured their efficacy in the areas of reading and writing. This measure contained 30 items and used a 6-point Likert scale to quantify agreement with teacher efficacy statements (Gibson & Dembo, 1984; Graham et al., 2001). Items on the first factor related to teachers' confidence in their abilities to affect student learning (Gibson & Dembo, 1984; Graham et al., 2001). The second factor related to the external constraints that might impede teaching, or in other words, teachers' beliefs concerning limits in the effectiveness of teaching, especially in overcoming environmental factors such as the influence of home or family background and the school's resources (Gibson & Dembo, 1984; Graham et al., 2001).

Graham et al.'s (2001) findings showed that teacher efficacy predicted observed teacher practices, and that the reported classroom practices of high- and low-efficacy teachers differed. Similar to Lynch's (2002) findings on parents' self-efficacy beliefs, teachers who had a high sense of efficacy reported a higher level of confidence about their own capabilities to teach literacy (Graham et al., 2001). Teachers with a low sense of efficacy were pessimistic about children's motivations and advocated strict classroom control, whereas teachers with a high sense of efficacy used activity-based approaches and co-operative learning activities more frequently and emphasized the value of a

democratic atmosphere and children as capable learners (Graham et al., 2001). As expected, the classroom composition predicted general teaching efficacy after grade, gender, education level, and years of teaching experience were controlled (Graham et al., 2001). School resources as well as the size of the school predicted teacher efficacy; teachers in smaller sized schools with greater resources (higher expenditures per pupil and more computers) expressed more positive feelings of efficacy (Graham et al., 2001). In addition to teacher characteristics (experience and education), then, it seems teacher efficacy is an important element in understanding effective literacy instruction. These findings indicate that teachers with a high sense of efficacy are generally more confident in their personal capabilities to effect change and overcome external factors such as an unsupportive home environment or a larger school with limited resources, all of which might limit children's progress in reading and writing (Graham et al., 2001).

Since classroom instruction is largely driven by the beliefs of the teacher, it is also important then to identify and explore the self-perception outcomes of students whose teachers had high or low class-level expectations (Blatchford, Burke, Farquhar, Plewis, & Tizard, 1989). There is increasing evidence for the effect of teachers' expectations on and beliefs about their students' capabilities. Blatchford et al. (1989) reported that teacher's expectations at the beginning of the school year make an overall positive or negative influence on student's reading achievement at the end of the school year. Blatchford et al. (1989) tracked over 300 students in the United Kingdom from the beginning of infant school until the end of their third year. Besides asking the teacher at the beginning of each year about the academic potential of children in the sample, Blatchford et al. (1989) kept careful records of the curriculum coverage each child was offered as well as sampling teachers' classroom behaviour towards the children in the study. This study

presented some of the strongest evidence for teacher effect. Expectations and attainment were highly correlated through the first 3 years of school; importantly, expectations were still a significant predictor of attainment after controlling for entry skills. Blatchford et al. (1989) also found mediating behaviours which might have contributed to a causal association between teacher expectancies and pupil grades. Although expectancies were unrelated to teachers' interactional behaviours in class (e.g., praise of pupils), they were related to the breadth of curricular tasks children were assigned. Children for whom teachers had higher expectations were given a wider range of reading and writing activities (higher level tasks). Similarly large outcomes were also reported for the grades that teachers assigned to students on their reports (Blatchford et al., 1989). Therefore, if children's reading performance was determined in part by *messages* teachers sent them about their abilities, Blatchford et al.'s (1989) study suggests that it is noticing the tasks given to them rather than interactional *messages* that informs pupils as to how well they are expected to do. Consequently, the classroom context can affect a child's academic self-concept, and eventually, attainment (Blatchford et al., 1989). Ordinary classrooms can also shape students' intrinsic motivation and a mastery goal orientation, through teachers' interactions, expectations, and pacing of the reading tasks (Blatchford et al., 1989).

It stands to reason that if reading models affect readers, then teachers will be influenced by their own model of reading or system of beliefs as well. Since teachers, particularly elementary school teachers, play a significant role in motivating children to read, they must share their own enthusiasm for reading (Applegate & Applegate, 2004). Teachers who are enthusiastic readers, whose teaching strategies foster a love for reading and a high level of engagement in reading, are more likely to encourage and cultivate at

least some kindred spirits in their classrooms (Applegate & Applegate, 2004). It can be expected then that highly efficacious teachers who enjoy reading are more likely to spend greater amounts of time reading to and with students using various reading instructional methods, such as computer technology, than low efficacious teachers.

Teacher Attitudes Toward Computer-Based Reading Instruction

As previously mentioned, the computer could be used to supplement reading to children, as it produces experiences and effects similar to adult-read printed books and can help teachers and parents give students the necessary individual attention (Segers, Takke, & Verhoeven, 2004). However, in the early years of computers, many educators felt that children in the prekindergarten years were too young to use them. Some even suggested that children be introduced to technology only "when they can type," and so many schools placed their computers in grade 4 and up. In the meantime, computers invaded the home (McCarrick & Xiaoming, 2007). Parents bought computers for older children and brought work home on laptops.

In recent years, much attention has been focused on the growing impact of information and communication technologies, such as the Internet, on the context for literacy and learning among 21st century students (Castek et al., 2006). The rapid infusion of the Internet into public schools makes it possible for students and teachers to particulate in a range of literacy events as well as have access to reading resources previously unavailable to them in the classroom (Castek et al., 2006). Such major cultural forces are important to literacy education that is traditionally based on the premise of preparing children for their life's opportunities (Castek et al., 2006).

Despite the rapid infusion of the Internet and its use as a prominent resource for supporting children's reading development and motivations, many teachers are still not

engaging in the full range of information and communication activities that could have educational and professional development benefits for teachers as well (H. Becker & Ravitz, 1999). In a national survey conducted in the spring of 1998 with 2,250 grades 4 through 12 teachers, only 16% of teachers used the Internet in their classrooms and have not undergone the shift from teacher-directed to learner-centered classroom practices infused with information and communication technology (Becker & Ravitz, 1999).

The purpose of McNabb, Hassel, and Steiner's (2000) study was to highlight the thinking of teachers and literacy researchers who are on the forefront of using the Internet to enhance their students' reading development and motivations. Data came from semistructured interviews and observations with 13 teachers spanning grades K-12 who were using the Internet extensively for literacy learning; of those 13, five were also observed with their students while using the Internet during classroom activities (McNabb et al., 2000). Third, an online survey of 56 teacher respondents was also conducted to gather in-depth, descriptive information about Internet-based literacy learning in the classroom (McNabb et al., 2000).

The findings from this study indicate a number of educational benefits study participants associated with using the Internet for curricular reading activities. Many teacher respondents suggested that engaging in Internet reading activities improves students' motivation and thus their ability to meet literacy standards (McNabb et al., 2000). Specifically, teacher participants reported that Internet-based learning activities make reading enjoyable for students, foster use of critical reading skills and facilitate students' reading fluency (McNabb et al., 2000). In addition, traditional reading skills that survey respondents said students achieve when using the Internet include vocabulary development and comprehension of text (McNabb et al., 2000). Individual teachers also

mentioned that the Internet shifts responsibility for learning to the student (McNabb et al., 2000). A special education teacher noted that Internet activities were effective with special learners (McNabb et al., 2000).

In support of McNabb et al.'s (2000) findings, Lewis's (2000) study examined the effectiveness of a digital children's literature software in enhancing the reading abilities of students with learning disabilities. Teachers of student participants were asked to view talking storybook programs for improving reading skills; teachers were enthusiastic about the potential of and recommended digital children's literature software for students with learning disabilities in the elementary grades (Lewis, 2000). Teachers were enthusiastic about programs with interactive graphics because they felt they would be highly motivating to students. Comments included, "it makes learning fun," "grabs kids," and "high interest level" (Lewis, 2000, p.15).

Teachers are central to implementing any change within a school system and play an important role in effectively implementing computer resources such as the Internet into their reading instruction practices (Leu, 2000). As Leu (2000) stated, "Clearly, the literacy of yesterday is not the literacy of today, and it will not be the literacy of tomorrow" (p. 744). With the increasing impact of computers and Internet access on young children's daily lives, teachers need to have ready access to the resources and professional support needed to meet the challenge of preparing today's youth with literacy skills applicable to the 21st century. Current research efforts have centered around online reading software and digital children's literature programs (or "talking storybooks"), which may also support preprimary- and primary-aged children's literacy and language development (Lewis, 2000).

Innate Influences on Reading Development

Reading is a sociocultural practice rooted within the interactions among parents/guardians, teachers, and young children (Morrow & Young, 1997). The social context within which reading occurs also influences the way students perceive themselves as readers and the degree to which they are motivated to engage in reading (Taylor & Larson, 1998). Since reading is an effortful activity that often involves choice, motivation is crucial to reading engagement. Motivation is an internal influence "that activates, guides, and maintains or directs behaviour and must be instigated and sustained over time" (Gambrell et al., 1996, p. 284).

Over the last 15 years, researchers who have studied children's reading have become increasingly interested in children's motivation to read (Wigfield & Guthrie, 1997). Motivations for reading are believed to be important both as a consequence of reading experience as well as a predictor of later reading skills (Oldfather & Wigfield, 1996; Scarborough & Dobrich, 1994). While there is speculation about the importance of motivation for subsequent reading development, motivation theorists (e.g., Snow et al., 1998) are only beginning to study what contributes to children's initial reading motivations and their desires to engage in literacy activities. There are several different factors that influence students' learning and motivation to read, and, as such, it is important that this study closely examines and considers the dynamic interaction between all of these factors. Although the relationship between motivation and reading has been studied in older children, little is known about how these factors interact during the first years of schooling. The following section will closely examine the purposes beginning readers have for reading. The particular dimensions in this section will be comprised of several constructs from the motivation field, including attributions related to reading,

achievement goal orientations related to reading, and extrinsic and intrinsic motivation related to reading.

Attributions Related to Reading

Attribution theory (Heider, 1958) concerns students' beliefs about the factors that have caused their past successes or failures in reading, as this could impact on their approaches to future reading tasks. Most causal attributions can be categorized across three dimensions: internal versus external, stable versus unstable, and controllable versus uncontrollable (Weiner, 1986). Students may have an *internal locus* of causality, in which they perceive that the causes of their success or failures are mainly due to their own ability or effort, whereas an *external locus* of causality refers to factors such as task difficulty and luck that are external to the individual (Weiner, 1986). Ability, effort, and mood are all internal factors that cause success or failure. External factors include task difficulty and the attitude of the teacher (Weiner, 1986). Causes may also be attributed as *stable* over time (students usually regard their ability levels to be stable), whereas *unstable* causes are those that are short term in duration (effort or luck are usually regarded by students as short-term causes; Weiner, 1986). Stable factors contributing to a student's success or failure are those that do not change over time, such as ability. Mood or luck, which are changeable over time, are considered unstable factors (Weiner, 1986). Finally, the idea of *control* refers to how much control students have over the cause—individuals can control the amount of effort they exert but not the difficulty of the task (Weiner). An example of a controllable factor is how much time a student spends studying for a test; whether a course is hard or easy is an example of an uncontrollable factor (Weiner, 1986).

Seligman's (1975) research on learned helplessness can be predicted, explained, and influenced on the basis of Weiner's (1986) attribution theory as well as Nicholls's (1989) achievement goal theory, which will be further discussed in the following section. Learned helplessness is an outcome expectancy that effort, performance, and persistence are useless in relation to a student's achievement goal attainment (Seligman, 1975). Failure is regarded as insurmountable and attributed to stable, uncontrollable, internal factors such as lack of ability (Weiner, 1986). Students who have a history of failure believe that ability is not able to be controlled so they have no control over their performance in a task (Weiner, 1986). A student's perception of lack of control over a situation can lead to a lack of persistence at a task and a lack of motivation. Consequently, as will be discussed shortly, such students with performance-avoidance goals exert little effort on a reading task and tend to take the easy way out, shying away from activities that may actually pose a challenge or require sustained effort (Unrau & Schlackman, 2006).

Achievement Goals Related to Reading

The study of motivation deals with the causes of goal-oriented activity (Nicholls, 1984). Goal orientations relate to whether and why a child wants to be a good reader. Specifically, goal orientation marks a "set of behavioural intentions that determines how students approach and engage in learning activities" (Meece, Blumenfeld, & Hoyle, 1988, p. 514). Thus, achievement goals play a critical role in student reading motivation and behaviour (Morgan & Fuchs, 2007). Achievement motivation involves a particular class of goals, those involving competence, and these goals appear to fall into two classes: (a) *learning goals,* in which individuals seek to increase their competence to understand or master something new, and (b) *performance goals,* in which individuals seek to gain

favourable judgments of their competence or avoid negative judgments of their competence and achieve higher grades as a way to enhance one's ability status relative to one's peers (Covington, 2000; Dweck & Elliott, 1983; Nicholls, 1984). Performance goals favour superficial, rote-level strategies which are unrelated or negatively associated with deep-level processing. Performance goals are much more likely than learning goals to lead to ability rather than effort attributions and to result in feelings of learned helplessness (Covington, 2000; Dweck & Elliott, 1983; Nicholls, 1984). Performance goals can be divided into performance-approach goals and performance-avoidance goals. Students with performance/approach goals invest significant effort in their reading strategies. When students with performance-avoidance orientations experience failure, they may develop maladaptive forms of behaviour, such as learned helplessness, and create face-saving excuses for having read poorly by displaying a pattern of reduced effort and task persistence (Covington, 2000; Dweck & Elliott, 1983; Nicholls, 1984). Consequently, these students with performance-avoidance learning strategies have lower levels of reading achievement than intrinsically motivated students (Aunola, Nurmi, Niemi, Lerkkanen, & Rasku-Puttonen, 2002). Such performance-oriented, extrinsically motivated students become passive in reading activities and typically engage in less than 10 minutes of recreational reading per day (Guthrie, 1999).

Two major kinds of cognitive and motivational patterns deployed in achievement situations have been described in the literature (e.g., Onatsu-Arvilommi, Nurmi, & Aunola, 2002). The maladaptive strategies have been described in terms of various concepts, such as self-handicapping, learned helplessness, work-avoidant goal orientation, and maladaptive motivational styles (Onatsu-Arvilommi et al., 2002). Low reading achievement and reading difficulties are associated with the use of maladaptive

strategies, including failure expectations, a low level of persistence, engaging in off-task and disruptive behaviour instead of task-focused behaviour, and attributing success to external causes and failure to internal ones (Onatsu-Arvilommi et al., 2002). In contrast, good readers with high reading achievement have been shown to apply more adaptive strategies, such as task orientation (the child's intrinsically motivated tendency to approach, explore, and master the challenging aspects of a learning task), taking responsibility for their own learning, assuming control through effort in their learning, working hard, and attributing their success to internal causes (Onatsu-Arvilommi et al., 2002).

Achievement theorists hypothesize that learning goals lead to a deeper level strategic-processing of information which promotes engagement in self-regulated learning (Onatsu-Arvilommi et al., 2002). Onatsu-Arvilommi et al. (2002) wanted to further explore this theory and investigated the association between pupils' reading achievement strategies and motivational orientation goals and their subsequent reading performance during the first school year. One hundred and five (61 boys, 44 girls) 6- to 7-year-old children from four classes of two Finnish primary schools were tested three times during their first year of primary school; in each measurement, the student's self-reported achievement strategies as well as their teacher's ratings of his or her reading competence were assessed (Onatsu-Arvilommi et al., 2002). Children also completed items based on the *Children's Academic Anxiety Inventory* (CAAI; Gottfried, 1990) concerning their worry about learning tests and doing as well as other children in reading.

Onatsu-Arvilommi et al. (2002) found that first-year children who used a maladaptive type of strategy in the classroom at the end of the first (autumn) term of their school year showed poorer reading skills during the second (spring) term of the first

school year compared with those who reported the use of adaptive achievement strategies. Specifically, Onatsu-Arvilommi et al. (2002) found that first-year students who were rated low in decoding were rated lower in task orientation and were rated higher in task anxiety than first-year students who scored higher in decoding. To complement this, first-year students who scored low in task orientation scored lower in decoding at age 7 than first-year students who scored higher in task orientation (Onatsu-Arvilommi et al., 2002). These findings point to the developmental interdependence of reading motivation and reading performance and suggest that the kinds of achievement strategies children deploy in the classroom during their first school year seem to provide a basis for the subsequent development of their academic performance in reading. Thus, students with high mastery orientation have a more adaptive motivational profile and more adequate reading strategy use than students with high work-avoidance orientation.

Salonen, Lepola, and Niemi (1998) also focused on whether differences in children's preschool behaviour affect their development of first-grade word reading. In the present study, Salonen et al. tested 127 children (53 girls and 74 boys) classified by teachers as *poor readers, good decoders*, or *good readers* in the spring terms of preschool up to the second grade, on an extensive range of measures including motivational tendencies in task performance and reading-related skills, including children's decoding, spelling, reading, and listening comprehension skills. Two different methods tapping motivational-emotional vulnerability were used. First, classroom teachers and researchers in preschool, grades 1, and 2 rated children's level of task orientation, ego-defensiveness, and social dependence (Salonen et al., 1998). Second, an experimental situation was arranged each year where children's play behaviour with LEGO® bricks was observed by teachers and researchers in free play versus induced pressure situations; their

motivational orientations were scored in order to determine whether there was deterioration in children's performance under stressful conditions such as competition and performance obstacles (Salonen et al., 1998).

On the basis of researchers' and classroom teachers' ratings of children's motivational-emotional profiles, the investigators found that first-grade word reading significantly correlated with preschool behaviour, such as that first-grade word reading correlated with and was predicted by preschool task orientation, ego-defensiveness, and social dependency (Salonen et al., 1998). That is, *poor readers* were seen as less task oriented and more ego defensive and socially dependent compared to *good decoders* and *good readers* (Salonen et al., 1998). Task-oriented children had better phonemic awareness in preschool and word reading in first grade than performance or non-task-oriented children (Salonen et al., 1998). As in Onatsu-Arvilommi et al.'s (2002) study, Salonen et al.'s (1998) findings suggest that subsequent development in children's reading ability is codetermined by initial level of reading skill, motivation, and task engagement and that early problems in learning to read and spell are related to motivational-emotional profiles in learning situations in the school context.

Thus, educators are recommended to encourage their students to focus primarily on learning goals (rather than normative comparisons), while keeping performance goals in perspective by enjoying extrinsic motivations such as recognition, without letting it become an overriding concern (Salonen et al., 1998).

Extrinsic Motivation

Extrinsic motivation involves engagement in an activity in response to external values and demands (Unrau & Schlackman, 2006). Extrinsically motivated students participate in an activity, not for its own sake but for what they will receive for

performing the activity, such as gaining others' approval, acquiring external rewards and good grades, and/or avoiding punishment (Hidi & Harackiewicz, 2000; Miller & Meece, 1997). With regards to reading, Wigfield and Guthrie (1997) reported that the dimensions capturing the construct of children's extrinsic motivation to read include: tangible forms of recognition for success in reading, reading for grades, favourable teacher evaluations, and competition. Extrinsically motivated students do not complete reading tasks for personal enjoyment or pleasure; rather, these students come to view reading as a chore not worth engaging in unless there is an offer of a significant extrinsic reward (Worthy, 2002).

Although there is concern that an overreliance on extrinsic motivators can interfere with students' intrinsic motivation to read, they are powerful influences in children's lives that can often be used effectively to engage them in different reading activities (Ryan & Deci, 2000). Further, some forms of extrinsic motivation may later become internalized and "owned" by the student (Ryan & Deci, 2000). For example, recognition for reading is very important to young children, who must rely on external feedback about their performance; children need to first be exposed to what is expected of them before they can evaluate their own performance in the classroom (Eccles et al., 1998). As they become older and more experienced in the classroom, they are able to recognize their own strengths and weaknesses, begin to work independently, and internalize the criteria for judging success and failure (Eccles et al., 1998). In line with this, the major influences on children's reading self-efficacy beliefs are how well they have done on similar tasks or activities and the feedback and encouragement that they receive from others (Das, Schoman-Gates, & Murphy, 1985).

Thorndike's (1932) law of effect helps explain the important role of feedback in learning. Thorndike stated that behaviours that lead to satisfaction increased the probability that these same behaviours would occur again under similar circumstances. Skinner (1969) modified Thorndike's (1932) law of effect and fit it into a more general framework of reinforcement theory. According to Skinner (1969), reinforcement can be considered to be a type of feedback that informs the learner about the adequacy of their responses and also increases the probability that the behaviour will occur in the future. According to McClenaghan and Ward (1987), feedback has two important functions. First, it can motivate students, and second, it can provide information that they can use to correct or improve their learning (McClenaghan & Ward, 1987). If the behaviour is incorrect, the immediate feedback allows the learners to make corrective modifications and prevents continued practice of the incorrect behaviour (McClenaghan & Ward, 1987). On the other hand, if the behaviour is correct, immediate feedback can motivate students to continue (McClenaghan & Ward, 1987). The immediacy of feedback on the correctness of student responses has been found to improve learning and retention (Epstein & Brosvic, 2002; Epstein et al., 2002).

It is a common educational practice in this country to encourage students to read books, based on the belief that skill in reading is partly an outgrowth of the amount of time and practice students devote to independent reading (Wigfield & Guthrie, 1997). In order to motivate and monitor student independent reading, schools resort to a variety of practices such as requiring a book review; however, the book review usually does not provide immediate feedback because teachers grade them when they have time (Kulhavy, 1977). Attempts that fail to provide the necessary immediate and positive feedback are seen as contributing to an increase in the child's lack of confidence in their own reading

abilities (Kulhavy, 1977). Even though engaging in a task to receive good grades and praise has been found to be inherently extrinsic, these incentives can also provide useful information about competence and mastery. Desiring this sort of feedback may later promote a child's intrinsic interest in the reading material or activity rather than an extrinsic orientation (Lepper, Corpus, & Iyengar, 2005). In contrast to the delayed feedback students typically receive when completing comprehension worksheets in class, and as will be further discussed in Chapter Three, the computer-based reading activities in which student participants engaged after their online storybook read-aloud incorporated an immediate feedback strategy in order to examine the effects of immediate feedback on students' reading motivation and achievement.

Competition-the desire to outperform others-is another aspect of children's extrinsic motivation to read (Unrau & Schlackman, 2006). The priority for extrinsically motivated, performance-oriented students is to be superior and to outperform their peers in learning tasks. These students often complete reading activities that are not challenging academically and extend these tasks in order to avoid the risk of publicly failing (Miller & Meece, 1999; Westen, 1996; Wigfield & Guthrie, 1997; Woolfolk-Hoy, 2005). Task avoidance strategies may also be adopted by these students to mask their lack of reading competence or comprehension (Woolfolk-Hoy, 2005).

Intrinsic Motivation

According to Deci and Ryan (1985), intrinsic motivation is the innate propensity to engage in an activity for enjoyment or personal pleasure. Students who are intrinsically motivated are more likely to aspire to long-term literacy commitments than extrinsically motivated students (Deci & Ryan, 1985; Dweck & Leggett, 1988; Eccles et al., 1998; Nicholls, Cheung, Lauer, & Patashnick, 1989). Unlike extrinsically motivated students,

rewards or punishments are not required for intrinsically motivated students to complete reading tasks (Hidi & Harackiewicz, 2000). Rather, Wigfield and Guthrie (1997) reported that the major aspects tied to children's intrinsic motivation to read include curiosity, involvement, control, choice, and preference for challenge.

Curiosity influences students' motivation to read and is a complex attribute that motivates them to seek and explore a wide variety of unique stimuli (Kostelecky & Hoskinson, 2005). Curiosity is an internal factor that guides students to want to know more about a given topic, to fulfill an innate desire to learn about and understand their world (Guthrie, 1999; Guthrie & Wigfield, 2000). Being curious and wanting to investigate (read) something to gain personal understanding enhances task enjoyment and engagement and affects students' attitudes towards reading. Further, the classroom environment influences students' internal curiosity and affects the extent to which students are motivated to read. For example, by linking classroom literacy activities explicitly with purposeful "real world" activities, students' natural curiosities about their world can be expressed, and they see learning as a relevant and necessary part of their lives (Yopp & Yopp, 2000).

A second motivational aspect is students' involvement in reading, which is defined as students' sense of immersion or absorption during reading and the investment of many hours reading books and materials (Reed & Schallert, 1993). Students who are intrinsically motivated become deeply involved in their activity and devote much time and energy to reading in and out of school (Ryan & Deci, 2000; Wigfield & Guthrie, 1997). As shown by indicators of involvement such as print exposure (Cipielewski & Stanovich, 1992) and student self-reports of reading volume (Wigfield & Guthrie, 1997), young students who read for personal pleasure and enjoyment typically engage in

independent recreational reading for more than 30 minutes per day (Aunola et al., 2002; Guthrie, 1999; Sweet, Guthrie, & Ng, 1998).

The idea of *control* refers to students' feelings of self-determination and autonomy—students are more likely to be motivated when they perceive themselves to be in control of their behaviour. Self-determination may be enhanced, for example, by allowing choice in literacy activities. Involving learners in the decisions regarding their reading activities should increase their intrinsic motivation to learn and read (Kamii, 1991; Randi & Corno, 2000). According to Kamii (1991), as well as Randi and Corno (2000), the use of choice of reading material in the classroom increases students' motivation, effort, and performance. In line with this, most studies of choice of reading material and its effect on reading motivation and engagement (e.g., Deci & Ryan, 1985; Deci et al., 1991) claim that teacher-controlled environments reduce a student's sense of autonomy, decrease intrinsic motivation, and result in poor reading attitudes and performance in the classroom. As well, allowing students to make choices within the context of reading instruction will increase their sense of autonomy, intrinsic motivation to read, afford them with greater learner control, and lessen their perceptions of teacher control (Flowerday & Schraw, 2000). When examining the influence of perceived control (e.g., self-described feelings of competence and autonomy) on reading motivation, Flowerday and Schraw (2000) found that learners who reported greater perceived control were more motivated to read and actively involved in their classroom. Thus, granting students control of and engagement in the learning experience permits them to construct their own meaning of the reading materials rather than be passive recipients of the information (Flowerday & Schraw, 2000).

Further, research by Edmunds and Bauseman (2006) found that student choice was a key factor in students' intrinsic motivation to read. Edmunds and Bauseman (2006) interviewed 16 grade 4 students with varying reading abilities to determine what motivated them to read. When the students discussed with the researchers the literature they were reading, 84% mentioned books they had chosen themselves compared to 16% who talked about the books that had been selected by their teacher. Choice was also identified as an important factor when reading nonfiction books. Moss and Hendershot (2002) conducted a 2-year ethnographic case study with two grade 6 Language Arts classes at a school in Ohio in the United States. Moss and Hendershot (2002) wanted to examine the students' motivation for selecting specific books during small-group and voluntary reading. The students in Moss and Hendershot's (2002) study reported that when they were allowed to choose their own reading selections, they became more motivated to read specific genres of literature, many of which were nonfiction titles. More specifically, Moss and Hendershot (2002) found that 75% of the participating students admitted that they were driven to select their nonfiction books by their curiosity and interest about the topics, which fostered their intrinsic motivation to read.

The final factor that impacts children's motivation is what is known as "reading challenge" (Baker & Wigfield, 1999, p. 452). Challenge is defined as "the satisfaction a reader gets from mastering a complex text" (Baker & Wigfield, 1999, p. 452). Intrinsically motivated students have high perceptions of their abilities and embrace challenges as opportunities to develop new skills and to improve their competence level (Metsala, 1996). However, researchers such as Gambrell and Marinak (1997) have found that reading challenge is tempered by the degree of difficulty and the amount of time it takes to accomplish the goal. Goals that are challenging at an appropriate level and that can be achieved in a relatively short period of time are most likely to be pursued by intrinsically motivated readers. These intrinsically motivated students display persistence

in reading activities when encountering difficulties and believe exerting effort promotes successful reading outcomes (Hidi & Harackiewicz, 2000).

Intrinsic motivation has strong cognitive as well as motivational influences. Gottfried's (1990) work on intrinsic motivation in young children showed that early intrinsic motivation correlates with later motivation and reading achievement and that later motivation is predictable from early reading achievement. Gottfried (1990) conducted a study of the development of children's intrinsic motivation, reading achievement, and perceptions of competence. Participants were 107 children who had been in a 2-year longitudinal study of development from the first grade through the fourth grade (age range, 7-9 years). Intrinsic motivation was measured by responses to the *Young Children's Academic Intrinsic Motivation Inventory* (*Y-CAIMI*; Gottfried, 1990). The *Y-CAIMI* contains four subscales which measure intrinsic motivation in the subject areas of reading, math, enjoyment of school learning, and difficult school work (Gottfried, 1990). Standardized reading achievement tests, end-of-year report card grades in reading, as well as teacher's ratings of children's academic performance in and intrinsic motivation toward reading were obtained through completion of the teacher version of the *Child Behaviour Checklist* (Achenbach & Edelbrock, 1986) when the children were 7, 8, and 9 years old (Gottfried, 1990).

The results supported Gottfried's (1990) hypothesis that academic intrinsic motivation is positively and significantly related to children's school achievement; intellectual ability, and perception of competence, as well as positively related to teachers' ratings of pupils' motivation. Young children with higher academic intrinsic motivation tended to have significantly higher achievement and intellectual performance, more favourable perceptions of their academic competence, and were perceived by their

teachers as significantly more motivated (Gottfried, 1990). Academic intrinsic motivation at ages 7 and 8 predicted later intrinsic motivation at age 9, and the stability of motivation increased over this period (Gottfried). Overall, young children with higher academic intrinsic motivation functioned more effectively in school (Gottfried, 1990). Thus, the development of academic intrinsic motivation in beginning readers is an important goal for educators because of its inherent importance for future motivation as well as for children's effective school functioning.

Chapman, Tunmer, and Prochnow (2000) examined the early interplay between reading-related motivation, performance, self-concept, and reading competence in 60 beginning school children from the age of 5 to 8 years. After two years of schooling, participants were assessed as having positive, negative, or typical academic self-concept. Chapman et al. (2000) found that reading performance predicted subsequent reading-related self-concept when children were as young as 6½ years old. Moreover, Chapman et al. (2000) indicated that low prereading skills prior to the last year of kindergarten were associated not only with weak performance in word reading and reading comprehension in grade 1, but also with more low motivation during preschool and grade 1. Children with negative academic self-concepts performed poorly on reading-related tasks and reported more negative reading self-concepts than did children with positive or typical academic self-concepts (Chapman et al., 2000).

Results from aforesaid studies (e.g., Gottfried, 1990; Chapman et al., 2000) consistently support the conclusion that children's levels of reading skill correlates with and later predicts their reading motivation, as indicated by their goal orientations, attitudes, and attributions towards reading. The interaction between poor reading and low intrinsic motivation may "snowball" or increasingly influence each other in such a way as

to lead to long-term reading failure; if so, identifying and preventing this early may be critical to preventing such failure (Spear-Swerling & Sternberg, 1994). Once children have entered the "swamp" of negative expectations, lowered motivation and limited practice, it becomes increasingly difficult for them to get back on the road of proficient reading (Spear-Swerling & Sternberg, 1994, p. 101). These results suggest that there may be a group of children whose major problem is not in the domain of cognitive functioning and learning, but rather in self-efficacy beliefs and motivational strategies in reading.

In sum, since intrinsic motivation contributes to the growth of reading skills and can lead to long-term engagement in reading, educators should foster intrinsic reading motivation (Ames, 1992). Student-centered instruction is a potential method for enhancing intrinsic motivation among students, which attempts to engender active learning and leads to students being more challenged and being given more and control over reading instruction and activities (e.g., Piaget, 1973; Thornburg, 1995; von Glasersfeld, 1989; Vygotsky, 1978). Ames (1992) further recommended that classroom reading tasks should be relevant to the students' lives so there is a perceived benefit in understanding the content. In creating motivationally positive learning environments, schools should draw on the experiences and culture of their students as reading instruction and activities are designed and implemented (Ames, 1992). The prevalence of student-centered, technology-based instruction stems from the fact that computers are assumed to foster improvements in the intrinsic motivation of students (Thornburg, 1995). It is therefore important to examine the effects of student-centered instruction in conjunction with technology-based instruction on students' intrinsic motivation to read.

The New Literacy of the Digital Age

The definition of literacy is rapidly and continuously changing as new computer technologies for information and communication emerge. The development of digital technologies in the digital era presents students in the emerging information society with situations that require them to employ a growing assortment of cognitive skills in order to perform and solve problems in digital environments. Today, the definition of literacy has expanded from traditional notions of reading and writing to include the students' ability to learn, comprehend, and interact with technology (Gilster, 1997). These 21st century partnership skills are often referred to as "digital literacy," which is the "ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (Gilster, 1997, p. 15). Seamless integration of word processing, multimedia, and online tools such as the Internet facilitates and supports digital literacy on many levels (Gilster, 1997). Gilster (1997) defined *hypermedia* as "a classification of software programs, which combine a variety of multimedia including electronic text, graphics, still photographs, animations, sound and video, in a non-linear computer-based environment with which users can interact" (p. 5).

Today's young students, who have been brought up in a digital world, may be referred to as *digital natives* (Prensky, 2001). This generation of digital natives have lived their lives completely immersed in technology and are "fluent in the digital language of computers, video games, multimedia and online environments such as the Internet" (Prensky, 2001, p. 8). Over the last several years, the number of children with access to computers, multimedia, and online technologies has increased significantly. According to Clark and Foster (2005), young Canadians are now among the most wired in the world, as they spend a substantial amount of their free time on online learning environments, such

as the Internet. In fact, the majority of students in grades 4 to 11 preferred the Internet to library-based reading materials (Scheiter & Gerjets, 2007). These online learning environments provide the user with new purposes for reading and new ways to interact with or comprehend information. As one looks at the interface of technology and literacy, perhaps most potentially rewarding for literacy educators is the role of technology in reading acquisition and instruction, especially for primary grade populations (de Jong & Bus, 2002).

Media Education in Ontario

Skills related to high-tech media such as the computer and Internet are particularly important because of the power and pervasive influence these media wield in children's lives and in society (Ministry of Education of Ontario, 2006). Children's growing fascination with computers laid the foundation for digital media literacies that foster skills and competencies needed in the current media environment. In 2006, Ontario introduced a new Language curriculum for grades 1-8 that included a new expectation strand: Media Literacy (Ministry of Education of Ontario, 2006). The Media Literacy strand gives media education the same focus as the traditional strands included in the curriculum: Oral Communications, Reading, and Writing (Ministry of Education of Ontario, 2006). Whereas traditional literacy may be seen to focus primarily on the understanding of the word, media literacy focuses on the construction of meaning through the combination of several media *languages*, namely images, sounds, graphics and words (Ministry of Education of Ontario, 2006). Media literacy explores the impact and influence of mass media and popular culture by examining texts, including Internet websites (Ministry of Education of Ontario, 2006). According to the 2006 Ontario curriculum, grade 1 teachers are expected to plan activities that blend expectations from

the four Language strands in order to provide students with the kinds of experiences that promote meaningful learning and that help students recognize how literacy skills in the four areas reinforce and strengthen one another (Ministry of Education of Ontario, 2006).

The use of multimedia and online applications in early childhood settings can be a powerful instructional approach in primary educators' Language curriculum, as they can help young students understand media and gain a level of media literacy (Blum, Watts, & Parette, 2008). For example, Microsoft PowerPoint™ is a multimedia program that can be used by teachers to present engaging and interactive presentations to their students across the curriculum (Blum et al., 2008). Such computer software programs can be used to support young students' emergent literacy skills such as alphabetic principles, concepts about print, vocabulary development, phonological awareness, and comprehension (Blum et al., 2008). Of particular importance are features within PowerPoint™ that allow manipulation of font size, colour, pictures, sounds, animation, slide design, and slide transitions within a presentation to deliver information in a clear, structured format (Blum et al., 2008). Because of the flexibility of PowerPoint™, primary educators can tailor visual images to the needs of their curricula and the learning styles of their students in the classroom; the program's multimedia features also promote student interest, engagement, and motivation, especially among young children who are at risk of reading difficulties (Blum et al., 2008). In using Microsoft PowerPoint™, Blum et al. (2008) observed that young children are more highly engaged in classroom learning activities. Rather than being passive learners, children are interacting with their peers, the teacher, and the visual images on the screen.

Digital Children's Literature Programs

As a way of preparing students to apply the basic principles of media literacy in their interactions with the media, grade 1 teachers can use these free reading materials as part of their classroom literacy instruction. At a time when instructional resource budgets may be limited, multimedia and online technologies such as the Internet have also made it possible to transform traditional oral and print stories by adding graphics, sound, animation, and video to offer young readers digital texts and interactive storybook choices (Castek et al., 2006). Such online "talking storybooks" are known as digital children's literature (Castek et al., 2006).

In the past few years, advances in software development have dramatically changed the nature of electronic reading software and have led to a new generation of online reading software, the talking storybook, or in more technical terms, digital children's literature (Alexander & Jetton, 2003). This digitized form of a storybook usually includes multimedia effects such as written text, oral reading, music, sound effects, and animations (Alexander & Jetton, 2003). Educators and researchers believe that the lively and attractive features of such online learning environments, such as the electronic storybook (eBook), provide a more authentic reading experience rather than the more traditional print-based methods of fostering literacy, and presents a useful means for supporting those children at the very beginning stages of reading development (e.g., Alexander & Jetton, 2003; de Jong & Bus, 2002; Labbo & Kuhn, 2000; Lefever-Davis & Pearman, 2005). In addition to the academic and motivational benefits in using multimedia applications such as PowerPoint™, online technologies as the "talking storybook" have also been found to generate great interest and motivation among children while improving their academic reading achievement (e.g., Alexander & Jetton,

2003; de Jong & Bus, 2002; Labbo & Kuhn, 2000; Lefever-Davis & Pearman, 2005). Alexander and Jetton (2003) note that when making a case for digital reading, researchers and educators often use words like control, choice, involvement, interest, and stimulation to capture its motivational qualities.

According to Merrill (1980), digital children's literature programs, which grant the user control of the learning situation, permit individuals to evaluate consequences associated with self-directed learning (Barab, Bowdish, & Lawless, 1997). The interactive features of digital children's literature programs and the users' ability to control the direction they take within these rich information contexts results in an increased sense of learner control and higher levels of intrinsic motivation (Becker & Dwyer, 1994). The responsibility of the learning becomes the learner's, as the learner chooses a path of reading based on his or her interests and cognitive needs (Barab et al., 1997). For example, the reader can control the speed and sequence at which he or she progresses through the talking storybook, the content that is presented, and the immediate feedback received (Barab et al., 1997). In relation to this, it has been suggested that learners make better decisions than teachers or instructional designers, because they have a large stake in the educational outcome and an intimate knowledge of their learning preferences (Niemiec, Sikorski, & Walberg, 1996). Thus, not only do such learner-controlled digital environments support the acquisition of content knowledge, but these environments may also train students' abilities to self-regulate their own learning process.

To stimulate the children's reading orientation and involvement in reading, eBooks let children activate reading of words, phrases, or pages in any order they want and are typically equipped with sound and animations that are activated by the child (Reinking & Watkins, 2000). Specifically, the eBook can include a forward button (a

coloured arrow that points to the right) and a backward button (an arrow that points to the left) on each screen, thereby allowing the children to return to previous screens or to continue on to the next one (Korat & Shamir, 2006). The children can also use a function that allows them to reread/relisten to the highlighted text by clicking on an arrow that repeats the text (Korat & Shamir, 2006). In this fashion, the children's attention is focused on the relationship between the text and oral reading by the highlighting of written text (de Jong & Bus, 2002).

The visual and aural elements of digital children's literature programs also support diverse learning styles which contribute to higher levels of motivation, interest, and involvement in beginning readers (Lewis, 2000). For example, each eBook mode contains realistic digitized speech and digital text, accompanied with rich, colourful, and dynamic illustrations, music, and film effects that dramatize story details and transform the e-book into a living, talking storybook (Lewis, 2000). The music creates an atmosphere of joy, while the vivid objects and characters appearing on the colourful screen cognitively engage the users in the events (Lewis, 2000). The interactive features found in digital children's literature programs and the users' control of their direction within these constructivist learning environments may explain some of the learning gains in such literacy skills as phonological awareness, vocabulary learning/word recognition, and comprehension (e.g., Chera & Wood, 2003; Korat & Shamir, 2006; Segers et al., 2004).

For example, Chera and Wood (2003) examined the effects of eBook and printed book reading on children's emergent reading with and without adult instruction. Fifteen children (aged 3 to 6 years) were given ten, 10-minute sessions with the animated multimedia "talking books" software over 4 weeks, while a matched control group (N =

15) completed normal activities (Chera & Wood, 2003). Chera and Wood (2003) found that the intervention group showed significantly higher increases in phonological awareness than the control group, who were read to by their classroom teacher.

De Jong and Bus (2002) wondered whether such visual and sound effects distract story comprehension among children, and instead, encourage them to think of the story as a game. In their study with 18, four-to five-year old Dutch kindergarten children, de Jong and Bus (2002) used a counterbalanced, within-subjects design to investigate whether the comprehension of books read electronically was similar to the comprehension of an adult-read book. The results showed that children frequently interacted with the animations embedded in the electronic stories, but there was no evidence that the animated stories distracted them from listening to the text presented by eBooks or that the animations interfered with story understanding (de Jong & Bus, 2002). Instead of interfering with the story, the animations produced some positive, motivational effects, as evidenced by the increased enjoyment that children reported on a rating scale after reading the story (de Jong & Bus, 2002).

Similar to Chera and Wood's (2003) study, de Jong and Bus (2002), Segers et al. (2004) also sought to investigate whether online book-reading software, which can be operated by the children themselves independently, can provide additional literacy support and contribute to the vocabulary learning and story comprehension of kindergarten children. The print-based version of the story was read to all the children first by their teacher (Segers et al., 2004). In two schools, the two teachers read the print-based version of the story to the class, and in the other two schools, the computer read the same story to each child individually; the experiment leader was present in the room to help if the child had difficulty manoeuvring through the computer program (Segers et al.,

2004). The second story was read to all children several weeks later, by the computer in the first two schools and by the teachers in the second two schools (Segers et al., 2004). A week before each story was read to the children, a vocabulary test was administered, which included the wordset from the story that would be read (Segers et al., 2004). The vocabulary test was administered again after the story was read to the children; on that day, the children were also asked to answer several comprehension questions and rearrange the story pictures in the correct order after they had listened to the story (Segers et al., 2004). After the story was read in the control group, the children rearranged the story pictures on a piece of paper to demonstrate their recall of the sequence of story events (Segers et al., 2004). Conversely, children in the experiment group viewed the story pictures on the computer screen with an occasional small animation within the story (Segers et al., 2004). Segers et al. (2004) found that children learned new words both from listening to their teacher and from listening to the computer, significantly more words were learned by children when the computer read the story. This study further suggested that such digital technologies combine words with visual images and sound and encourage students to construct complex mental schema, which results in a greater understanding of these words (Segers et al., 2004).

It is widely acknowledged that children from a low socioeconomic background not only are read to less often but also have fewer books at home compared to students from high socioeconomic families (Needlman, Klass, & Zuckerman, 2002). Similar to the aforementioned studies (e.g., Chera & Wood, 2003; de Jong & Bus, 2002; Segers et al., 2004), Korat and Shamir (2006) investigated the effects of an educational eBook on 149 five- to six-year-old kindergarten children's emergent literacy levels among two SES groups: low (LSES; 79 children) versus middle (MSES; 70 children). In each SES group,

children were assigned to an experiment group whereby they worked individually with the eBooks, and a control group, where they received the regular kindergarten reading program (Korat & Shamir, 2006). Pre- and postintervention emergent literacy measures included word meaning, word recognition, phonological awareness and comprehension (Korat & Shamir, 2006). Consistent with the other findings (e.g., Chera & Wood, 2003; de Jong & Bus, 2002; Segers et al., 2004), Korat and Shamir (2006) also found that word meaning of children from both middle and low SES improved following the educational eBook activity. Further, children from a low socioeconomic background showed a relatively greater degree of improvement in vocabulary (word recognition) and listening comprehension skills than did those who came from a middle socioeconomic background (Korat & Shamir, 2006). These positive results indicate that children from very different demographic backgrounds can make significant progress in their emergent literacy skills with the intervention of motivating educational software such as the *talking storybook.*

As abovementioned, storybook reading is an important factor in children's emergent literacy development (Bus et al., 1995), both at home and in the school environment. Research by Morrow and Smith (1990) also showed that teachers do not read stories to children individually, but rather to the entire class. The aforesaid studies (e.g., McKenna, Kear, & Ellsworth, 1995; Chera & Wood, 2003; de Jong & Bus, 2002; Segers et al., 2004; Korat & Shamir, 2006) confirm the notion that the wide availability of online digital literature programs poses a novel situation in which beginning readers no longer need adults to *read* to them individually because they can listen to storybooks independently via the use of an eBook. As previously mentioned, such multimedia and online resources may provide and generate the support, encouragement, and motivation

for reading appropriate to 21st century students, particularly those requiring special education services (Castek et al., 2006).

Computer Technology and Special Education

Reading disability (RD) is a developmental disorder characterized by significant underachievement on standardized tests of single-word reading, reading fluency, and reading comprehension, usually resulting from impaired phonological processing (Felton & Wood, 1989). Creating accessible and engaging lessons for students with RD in inclusive classrooms is particularly challenging for special educators in elementary school settings (Felton & Wood, 1989). Students with RD have difficulty accessing the texts that serve as the basis for instruction; years of repeated failure can leave them discouraged, unmotivated, and develop learned helplessness (Felton & Wood, 1989). According to Felton and Wood, it is imperative that special educators find ways to allow all students, including students with RD, to be successful in the general education classroom.

Special education technology research literature has focused on the promise of technology and computer-mediated instruction in expanding the ways in which teachers present reading tasks to students with learning disabilities (Felton & Wood, 1989). However, little research has been conducted with the new generation of multimedia and online reading software, especially with students who are characterized by the problems they encounter in acquiring beginning word recognition skills and comprehension strategies, and in extending their reading abilities to levels consistent with those of their peers without disabilities (Blum et al., 2008).

Lewis's (2000) study sought to examine the effectiveness of a digital children's literature program at improving the literacy skills of 6 students (2 in grade 3, 3 in grade

4, and 1 in grade 5) receiving special education resource services because of a school-identified learning disability. Their special education teachers also estimated that these students were reading 1 to 2 years below grade level, confirming reading as an area of need. Four different talking storybook programs (from the Disney's Animated Storybook and Living Books series) were used in this study. A project staff member worked individually with each student and recorded the student's interactions with the software program under instructional support conditions. Posttesting involved administration of word recognition measures which contained 50 high-frequency words and those central to the story's plot, a story retell activity, as well as an interview (to elicit students' perceptions of the software).

The results from Lewis's (2000) study showed that students' time on task increased as did the gains they made in reading skills (on average, 3.4 words per storybook). Although students who interacted with these programs did not experience greater gains on norm-referenced measures of reading than students who continued with their regular reading programs, neither were their gains inferior (Lewis, 2000). Talking storybook programs, as part of the total reading program contributed to students' overall reading skills development (Lewis, 2000). Students were asked whether they thought that talking storybook programs would help them to read better. Most students felt these programs would improve their reading skills because the story is read aloud; "it shows the words and you can read along with it" (Lewis, 2000, p. 12). This level of motivational value may increase the probability that reluctant readers will persevere in their interactions with digital texts (Lewis, 2000).

Even students with autism responded to the attractiveness of these programs, with increased attention to the reading task. Students were very enthusiastic about the talking

storybook programs they viewed (Lewis, 2000). When asked what they liked best, students identified features related to the interactivity of the software (Lewis, 2000). For example, several students commented on the animated graphics that brought story illustrations to life. One sixth grade girl said, "It looked like it was really happening" (Lewis, 2000, p. 12). A fourth grade boy observed, "It moves instead of a book that just stays" (Lewis, 2000, p. 12). Students also talked about text interactivity. As one fourth grader said, "I can find a word and it says it" (Lewis, 2000, p. 12). In most cases, students were not able to identify aspects of the programs they did not like; however, 2 second graders who viewed a program with no graphics interactivity complained that the pictures did not move (Lewis, 2000). Another important consideration was that teachers reported student gains in reading fluency and self-confidence; however these variables were not measured (Lewis, 2000). It is possible, then, to draw some overall conclusions from the results of Lewis's (2000) study about the potential usefulness of digital children's literature software in classroom reading programs. The most appealing aspect of digital children's literature is the motivational appeal of this body of software. This type of literature that includes realistically speech-enhanced appealing graphics increases students' attention to the reading task; this level of motivational value may increase the probability that reluctant readers will persevere in their interactions with text (Lewis, 2000).

In addition to the previously mentioned difficulties in reading, RD is significantly associated with attention-deficit/hyperactivity disorder (ADHD; Barkley, 1998). ADHD is a developmental disorder comprised of difficulties with inattention, impulsivity, and hyperactivity (American Psychiatric Association, 2000; Barkley, 1998). Reading disability and ADHD are common disorders pervasive across the life span (Felton &

Wood, 1989). The prevalence of RD is significantly higher than would be expected by chance in samples of individuals with ADHD, with the rate of comorbidity typically falling between 25% and 40% (Felton & Wood, 1989). Motivation to succeed is a key factor in reading achievement for all students but may be even more of a factor for students with ADHD who experience difficulty in school (Taylor & Larson, 1998). These academic difficulties suggest that, when at home, these children are less likely to engage in reading or homework and may instead devote greater amounts of time to nonacademic activities such as television viewing (Acevedo-Polakovich, Lorch, & Milich, 2007).

Acevedo-Polakovich et al.'s (2007) study examined the reading and television viewing habits of 77 children with a confirmed diagnosis of ADHD, according to criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR,* American Psychiatric Association, 2000); these children were compared with 111 nonreferred children (age range: 4 to 9 years) (Acevedo-Polakovich et al., 2007). In addition to the children completing tasks pertaining to the story comprehension portion of the study, the children's parents also completed a diagnostic interview which asked them questions pertaining to their child's reading attitudes and habits, including amount of weekly reading, reading enjoyment and involvement, and early literacy experiences (Acevedo-Polakovich et al., 2007). Parents were asked a number of questions about the print media available in their household, including whether they owned specific types of books and whether their family subscribed to parenting magazines or children's magazines (Acevedo-Polakovich et al., 2007). Additionally, a *Media Habits Questionnaire* was administered to parents and included items assessing numerous characteristics of the child's media use and media environments, including weekly television viewing time,

television enjoyment and involvement, and parental attitudes about television (Acevedo-Polakovich et al., 2007).

Compared to their nonreferred peers, children with ADHD were reported to spend more time watching television and to be more involved with television but to enjoy reading less and be less involved with reading (Acevedo-Polakovich et al., 2007). It is well documented that many children with ADHD experience significant reading problems (Barkley, 1998). Thus, it is not surprising that these children are reported to enjoy reading less and be less involved in this activity than their nonreferred peers. A child who has problems decoding, processing, or understanding text is less likely to find reading-related activities engaging or rewarding (Acevedo-Polakovich et al., 2007). For this group of children, greater amounts of television viewing were reported as well as less time spent reading, fewer print media items in the home, more electronic media items in the home, and less negative parental attitudes toward television (Acevedo-Polakovich et al., 2007). As anecdotal reports by parents of television viewing suggested, children with ADHD can sit relatively quietly for extended periods of time when viewing television; this activity may be supported or encouraged by parents of these children (Acevedo-Polakovich et al., 2007). Parents of children with ADHD report that television viewing is one of the few activities that can capture and hold their children's attention for significant periods of time (Sprafkin, Gadow, & Grayson, 1984). Such interactive technologies provide interesting sensory stimuli for these students, which recruit attention and allow them to stay focused on and engaged in the reading task (Acevedo-Polakovich et al., 2007).

In line with this, the purpose of Clarfield and Stoner's (2005) investigation was to evaluate the effectiveness of an Internet-based reading instruction program, *Headsprout*

Reading Basics, with 3 Caucasian males enrolled in kindergarten and first grade classrooms who met the diagnostic criteria for ADHD and were experiencing problems in reading achievement. This highly interactive program was used to assist students in building their phonemic awareness and phonics skills as well as their sight word vocabularies (Clarfield & Stoner, 2005). The students worked sequentially through forty, 20-minute animated, individualized lessons and engaged in over 180 active learner interactions per lesson (Clarfield & Stoner, 2005). A majority of the *Headsprout* activities involved the child completing tasks, which in turn resulted in the moving of an animated character to a desired destination (Clarfield & Stoner, 2005). The students kept track of their progress through the use of a colorful progress map (Clarfield & Stoner, 2005). Feedback was interspersed within the *Headsprout* program, as every student response was acknowledged with feedback, encouragement, and corrections if necessary (Clarfield & Stoner, 2005). Also, the program provided ten, 30-second humorous movies to entertain the students in between activities (Clarfield & Stoner, 2005).

Dependent measures that assessed students' oral reading fluency were used as well as direct observations of their behavior both during the experimental condition and baseline condition to determine the frequency of on- and off-task behavior exhibited by the participants (Clarfield & Stoner, 2005). During the baseline condition, teachers conducted regular classroom activities, and participants were observed during small-group reading instruction and related independent seatwork in their regular classrooms (Clarfield & Stoner, 2005). Further, no computer-based activities were completed by the participants during the baseline condition (Clarfield & Stoner, 2005).

Clarfield and Stoner's (2005) study documented positive effects of computer-assisted instruction, directly on reading skill development and indirectly on classroom

behaviour of students with ADHD. Specifically, the results of Clarfield and Stoner's (2005) study suggest that the Internet-based reading instruction program resulted in increases in oral reading fluency and decreases in off-task behaviour for all three participants relative to small-group and independent reading work. Thus, these results indicate that interactive, internet-based reading programs hold promise as an intervention strategy and a motivational tool for students with ADHD who are experiencing reading difficulties. Such programs provide individualized, highly engaging teaching and reading comprehension strategies with frequent opportunities for students to respond, and high rates of success and reinforcement (Clarfield & Stoner, 1995).

Digital (video and computer) games effectively stimulate the neural reward system by causing the brain to release dopamine, which is associated with learning and positive reinforcement (Koepp et al., 1998). Digital games increase activation and arousal, which may improve task performance (Rieber, 1992). Computer software programs with a game format provide optimal learning conditions for children with ADHD, as they offer immediate feedback, which is highly motivating for children with ADHD (Rieber, 1992). External rewards are almost continuous during game play, but especially just before and contingent to any of the child's responses to the game (Rieber, 1992).

Children with ADHD will need interventions that address both their behavioural problems and their co-occurring academic weaknesses, including reading disorders (Ministry of Education of Ontario, 2005). The Ontario Ministry's Individual Education Plan (IEP; Ministry of Education of Ontario, 2004) is a plan that outlines the assistance provided to exceptional students. Although ADHD is not named as a specific category of exceptionality, students with this disorder may present characteristics that can be

identified in the various categories, such as Learning Disability or Behaviour (Ministry of Education of Ontario, 2005). The Ontario Human Rights Commission (2004) recognized ADHD as a disability and stated in their document, *Guidelines on Accessible Education*, that it was a child's human right to access accommodations in the school system if they were diagnosed with ADHD. The results of the above studies (e.g., Acevedo-Polakovich et al., 2007; Clarfield & Stoner, 2005; Ota & DuPaul, 2002) provide preliminary evidence for educators that constructivist learning environments such as multimedia and online reading programs may be an effective instructional alternative and provide optimal learning conditions for children with ADHD and/or reading difficulties. In support of these findings, one of the most common ADHD instructional accommodations in the Ontario Ministry's IEP (2004) is the use of assistive technology such as computer-aided instruction. However, it is important to note that characteristics of the software packages may affect the attending behaviours of students with ADHD. Software packages that include game formats and animations may be more effective than drill-and-practice or tutorial programs (Ota & DuPaul, 2002).

According to Armstrong (1999), one way to motivate and accommodate children with ADHD is to allow them more freedom to structure their environments. Many students with ADHD believe that their education is done to them rather than with them; thus, an interesting and meaningful curriculum will enhance these students' learning and active participation in class (Armstrong, 1999). Consistent with the constructivist and motivation theories, by actively including students in planning to meet their educational needs, a sense of ownership, responsibility, internal locus of control, intrinsic motivation, and personal satisfaction will be fostered and increase their potential for reading success (Armstrong, 1999). Thus, allowing students to receive computer-assisted reading

instruction may not only result in improvements in work completion and attending behaviours, but may improve their reading motivation and self-efficacy beliefs as well.

Chapter Summary

Teachers need to not only learn to be technologically literate but also learn to embrace the language of their "digital natives" and provide their students with the digital tools that will define the 21st century. The literature presented above provides educators with accumulated research-based evidence for integrating multimedia and online technologies such as "talking storybook" programs into their classroom reading instruction program. Fun, engaging, and meaningful learning experiences such as multimedia programs and digital children's literature programs provide immediate feedback to, individualized instruction for, and can help increase cognitive reading abilities among beginning, struggling readers in preprimary and primary grade classrooms. Although there is evidence to suggest that the instructional and motivational features of these computer programs contribute to children's reading development, research documenting their effectiveness on primary students' intrinsic reading motivation is limited. Thus, the purpose of this study was to investigate the effects of a digital children's literature program and postreading multimedia program on primary students' intrinsic reading motivation, word recognition, and listening comprehension abilities. It is believed that as young students take advantage of these learner-centered reading experiences, increased motivation and engagement in reading may develop.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

This chapter describes the methodological considerations and research design of this study. The procedures detailed in this chapter were used to address the following research questions: (a) What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences? (b) What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward digital reading instruction? (c) How does a digital children's literature program and postreading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills? The participant and site selection, data collection and analysis, as well as the methodological assumptions are also included in this chapter. Following this, the steps that were taken to establish credibility and enhance the quality of the data gathered in this study will be presented. Research limitations and ethical considerations are also explained, as they influence the conduct of educational research. Finally, this chapter will conclude with a restatement of the area of study.

Research Design

This qualitative study looked at the effectiveness of a digital children's literature program and postreading multimedia program on grade 1 children's intrinsic reading motivation, word recognition, and text comprehension abilities. In order to develop the story as it is experienced by participants, and to more fully understand the nature of children's reading experiences, qualitative data were gathered from four perspectives: the investigator as an observer, the grade 1 student participants, their teachers, and their parents. The investigator had four principal data sources: observation, questionnaires, interviews, and artifacts. The investigator used her in-depth verbal descriptions of

informants to discover and create analytical frameworks for understanding and portraying student participants' interactions and experiences with the digital children's literature program and postreading multimedia program. The use of observations as a data collection method (recorded in field notes) enabled the investigator to observe, listen to, and sometimes converse with the participants in a natural an atmosphere and free from the constraints of more conventional research methods (Creswell, 2003). Individual, semistructured interviews, as well as closed- and open-ended questionnaires were administered preprogram, interim-program, and postprogram. These instruments provided information about the participants that could not be obtained through observations, but rather were used to verify the observations (Creswell, 2003). Further, these instruments were used in order to ascertain if, and in what way, the participants' involvement in this study had made any difference in their perceptions, feelings, attitudes, and motivations towards reading print-based texts and reading digital texts, as well as their word recognition and text comprehension abilities.

Pilot Study

A pilot study was conducted on the same day but at different times with a purposive sample of two 6-year-old children named Kevin and Beth (pseudonyms), in July 2008, to evaluate the age and reading level appropriateness of the researcher-developed instruments as well as the online storybooks available on the Childtopia™ (Childtopia SL, 2008) website (see Appendix A for a sample screenshot of an eBook). In addition to receiving written permission to conduct this study, the investigator also received written approval (via email) from the Childtopia™ (Childtopia SL, 2008) website creators to use and modify the Childtopia™ online educational software program. Follow-up reading activities (see Appendix B for a sample screenshot of

Microsoft PowerPoint™ postreading activity slide) were also conducted and included the comprehension and word attack questions used in this research.

Data Collection Instruments

My motivation to read questionnaire #1. The 25-item *My Motivation to Read Questionnaire #1* (see Appendix C) instrument assessed how the dimensions of children's reading motivation and achievement goal orientations related to their reading activity. The first half of the (print-based) questionnaire (Questions 1-13) assessed children's text-type reading preferences, frequency of reading, and prior digital reading experiences. The latter portion of the questionnaire (Questions 14-26) used a 4-point Likert pictorial rating scale (the Garfield character with four different facial expressions ranging from *very happy* to *very upset*), which assessed students' feelings and attitudes towards both digital and print-based reading tasks and activities as well as values placed on social motivation constructs including recognition, reading for grades, competition, and participation in group activities for reading. Kevin and Beth were asked to point to the picture of Garfield that best described how they felt, with the picture of Garfield at the far right of the item representing a more positive response (*very happy*) and the picture of Garfield on the far left of the item representing a more negative response (*very upset*).

The student behavioural observation checklist. The *Student Behavioural Observation Checklist* (see Appendix D) was developed and used by the investigator during the online reading session to record specific behaviours of every child participant during the digital reading sessions, including the frequency of on- and off-task behaviour, area of focus (text vs. illustrations), and level of engagement and/or frustration with the instructional program. Each item on the form was rated on a 5-point Likert-type scale (1 = *Never,* 2 = *Rarely,* 3 = *Sometimes,* 4 = *Usually,* 5 = *Always*). The difficulty in

operationalizing student engagement led the investigator to adopt *time-on-task* as a proxy measure for engagement, using observable behavioural measures. For example, a child's high level of engagement (e.g., 5 = *Always*) during both the read-aloud and postreading activity on the computer was defined as those times when the student was always attending to the computer screen, by reading aloud or along with the story, clicking the mouse to the "next" page in the story or question, making comments to the observer about the story read or questions asked, using other positive, task-/goal-oriented nonverbal behaviours (e.g., smiling when the computer told the child "Well Done!" after answering a question correctly, or eagerly going back to the question and reattempting the question after the computer told the child, "Oops, try again"). A child's low level of engagement (e.g., 1 = *Never*) during both the read-aloud and post-reading activity on the computer was defined as those times when the student was never attending to the computer screen, not reading along with the story or answering the questions; if students had their eyes closed or oriented toward another object in the room rather than the computer screen, then they were also considered off-task. During the postreading activity, a low level of student engagement was defined as those times when the student never changed his/her facial expressions when receiving a correct or incorrect response to a question (e.g., when the computer told the child, "Well Done!" or "Oops, try again" after he/she clicked on his/her answer). A child's high level of frustration (5 = *Always*) during the postreading activity on the computer was defined as the participant's tendency to become upset or distressed when presented with a challenging question to which he/she did not know the answer; this was rated according to their display of such behaviours as negative vocalizations (e.g., moaning or groaning), body language (e.g., clenched fists), and/or facial expressions (frowning or sighing). A child's low level of frustration (1 =

Never) during the postreading activity on the computer was defined as their tendency to persist in the face of difficulties (e.g., challenging question) and remain calm, without using negative vocalizations, body language, and/or facial expressions. At the end of most sessions, the investigator posed and scripted general questions made about the participants' feelings towards the particular story read (e.g. "What do you think will happen?" "Did you like this story?" Why or why not?") in order to gather descriptive information about their level of text comprehension, word recognition, and engagement during these sessions. These comments were recorded on the participant's *Student Behavioural Observation Checklist*. In addition to this, specific comments made by participants on elements of illustrations, features, and functions of print on the page were also noted.

My motivation to read questionnaire #3. The final 34-item *My Motivation to Read Questionnaire #3* (see Appendix G) was administered at the end of the program sessions and contained the same question format as the first questionnaire, with the addition of four items. Four of the added items asked child participants to choose and describe what (features) they enjoyed most and least about the stories read to them on the digital children's literature program and the postreading activities they completed. The final questionnaire also asked students whether or not they would revisit the Childtopia™ (Childtopia SL, 2008) website (at home and/or at school) even after the research study sessions were completed.

The *Student Behavioural Observation Checklist* was used by the investigator during every online reading session with each session lasting approximately 25 minutes (from November, 2008 through April, 2009) to record any extraneous comments, questions, behaviours, and issues related to the child participants' attention, posture, eye

gaze, whereby the investigator responded contingently and succinctly but redirected the participant to the story and/or questions on the computer screen. At the end of most sessions, the investigator posed and scripted general questions made about the participants' feelings towards the particular story read (e.g. "What do you think will happen?" "Did you like this story?" Why or why not?") in order to gather descriptive information about their level of text comprehension, word recognition, and engagement during these sessions. These comments were recorded on the participant's *Student Behavioural Observation Checklist*. In addition to this, specific comments made by participants on elements of illustrations, features, and functions of print on the page were also noted.

Data Collection Procedures

My motivation to read questionnaire #1. Before the start of the first online reading session, each participant completed the researcher-administered *My Motivation to Read Questionnaire #1* at separate times. Before administering the motivation instrument, the two pilot study participants, Kevin and Beth, were told that they would be answering some questions about their reading, assured that there were no right or wrong answers, and that their responses would neither influence their grades nor be seen by anyone but the investigator and her Faculty Advisor. Participants were first given three practice items in order to ensure accurate understanding before beginning the questionnaire. Due to the young age of child participants in this study, the questions from the *Motivation to Read Questionnaire #1* were presented orally and responses were tape-recorded and transcribed for analysis by the investigator. The investigator read each item aloud to the student and recorded student responses directly on the questionnaire. When necessary, the

investigator followed the motivation questions with probes to get more detailed information from the student participants.

Digital reading sessions. Kevin and Beth each participated in one online reading session, which lasted approximately 2 hours in duration, and included three 10-minute breaks. The participants were provided with one brief familiarization session that included the steps involved in working with the digital children's literature program as well as the Microsoft PowerPoint™ computer program. The investigator provided basic navigation and keyboarding instructions, including how to log onto the computer, access the Internet and the Childtopia™ (Childtopia SL, 2008) website, as well as how to use the Microsoft PowerPoint™ program. The digital children's literature program consisted of an online collection of animated *talking picture books* (N=29) from those found on the Childtopia™ (Childtopia SL, 2008) website, which were specifically designed for children between infancy and 10 years old. Childtopia™ (Childtopia SL, 2008) was chosen for this study because it was freely accessible to the investigator and contained digital features that would promote participants' word recognition and listening comprehension, which are two critical elements of a successful beginning reading program (Ministry of Education of Ontario, 2003). For example, each e-book mode contained an oral reading of the printed text spoken by a female voice. Also included were automatic dynamic visuals that dramatized story details and the complete story scene, as well as music and film effects to transform the eBook into an animated book. To stimulate the children's reading orientation and involvement in reading, the e-book included a *next* button (a bird that flaps its right wing) and a *previous* button (a bird that flaps its left wing) on each screen, thereby allowing the children to return to previous screens or to continue onto the next one. The children's attention was also focused on the

relationship between text and oral reading by the highlighting of words as the text was uttered by the female voice, a function that supports exposure to written text and word recognition (de Jong & Bus, 2002). Kevin and Beth each read two storybooks from the *Listening Comprehension* link on the Childtopia™ (Childtopia SL, 2008) website. The storybooks used in the online reading sessions were similar in length (comprising between 10-15 pages of text and ranged from 200-300 words per page), characterization, complexity and illustrations. The average total time it took participants to read one of these storybooks was 10 minutes.

Kevin and Beth also completed the researcher-developed, follow-up reading activities presented to them using a computer software program with multimedia capabilities called Microsoft PowerPoint™ (see Appendix B for a sample screenshot of postreading activity slide), which included the comprehension and word attack questions used in this research. These activities were not used for data collection purposes but were developed to reinforce the participants' understanding of the text read and recognition of sight words found throughout the *talking picture book* during that session. The sight word recognition activities were developed from Crawley and Merritt (2004), and the inferential and literal comprehension questions accompanying the reading passages were fashioned after the first grade levelled listening comprehension questions found in the *Ekwall and Shanker Reading Inventory, Fourth Edition* (ESRI-4; Ekwall & Shanker, 1999). The investigator also incorporated word wall words within these activities in order to give student participants repeated exposure to such high-frequency words as those found in a grade 1 classroom.

Multimedia-based postreading activities. The format of these follow-up questions was consistent across each storybook. For example, every activity began with a set of 10

comprehension (literal and inferential) questions, followed by five word recognition questions which included such activities as "Word Unscramble," "Fill-in-the-Missing-Word," "Which word in the sentence is underlined?" and "Which word was spelled in this sentence?" The voice of the investigator was automatically played when each question slide appeared on the screen. Participants could also click the "speaker icon" on each slide to listen to the response options and words again. Every student response was acknowledged with immediate feedback, encouragement, and corrections if necessary. The investigator created a hyperlinked correct response slide ("Well Done!") and a hyperlinked incorrect response slide ("Oops, try again!") after the participants clicked on their answers. Here, the students also had the option to click on the *Back* or *Forward* arrows on the slide to try the question again or move to the next question.

My motivation to read questionnaire #3. Similar to *My Motivation to Read Questionnaire #1,* the same procedures were used with the participants during the administration of the follow-up *My Motivation to Read Questionnaire #3.*

Findings of Pilot Study

Based on the observational and questionnaire data collected during the pilot study, the investigator was able to identify a high level of engagement of the participants during the experiment sessions. While Kevin exhibited frequent off-task, inattentive behaviours (e.g., excessive fidgeting, failure to remain seated, difficulty following instructions, and inappropriate verbal interruptions) prior to the computer-based reading sessions, Kevin and Beth were both highly engaged, never frustrated, exhibited higher task completion, and on task behaviours (i.e., stable eye fixation and focused attention) during the computer-based reading tasks. While Kevin devoted most of his attention to the moving pictures in the online stories, Beth usually followed the highlighted words as the story

was read aloud to her and rarely looked at the animations. Further, the cited reasons for Kevin's and Beth's perceived enjoyment of the digital children's literature program as well as the postreading multimedia program included the motivating and colourful illustrations, age-appropriate reading material and activities, easy manoeuvring through the programs, and a greater sense of choice and control in self-selecting and navigating through the online storybooks.

Based on the participants' responses on the researcher-developed *My Motivation to Read Questionnaires*, some revisions were made to this instrument; specifically, four question items were omitted, reworded, and simplified. Additionally, the rating scale and assessment criteria from the researcher-designed *Student Behavioural Observation Checklist* were also changed from a 3-point rating scale to a 5-point criteria-specific rating scale, ranging from 1 (Never) to 5 (Always).

Selection of Site and Participants

Upon the ethics clearance received from Brock University (REB #07-304; see Appendix E) and a southern Ontario school board, the Chairperson of the Research Advisory Committee and Director of Education of the school board selected and contacted the principals in the two schools where this study was conducted. These schools differed in terms of socioeconomic level according to the Statistics Canada (2006) *Census Tract (CT) Profiles*. The inclusion of socioeconomic status as a context consideration was used in this study in order to document whether such demographic factors as socioeconomic status impact children's reading achievement and reading motivations. Each principal selected two first-grade teachers on the staff who were willing to participate in this study. All four grade 1 teacher participants from the two schools were then asked to distribute letters of invitation to all of their students. The

sample consisted of the first two student participants in each grade 1 classroom who returned the consent and assent forms with parent signatures of approval allowing their child to participate in the study. The final total sample consisted of eight students (four boys and four girls) aged 5-6 years, drawn from two grade 1 classrooms in one low-to-middle income elementary school (School 1), and two grade 1 classrooms in one middle-to-high income elementary school (School 2). Both elementary schools were situated in suburban areas in southern Ontario.

Description of Participants

Table 1 contains information on the demographic characteristics of the eight student participants in the four grade 1 classrooms. Table 2 also describes the demographic information about the four grade 1 teacher participants in this study.

In order to protect the participants' identities, pseudonyms were used. Debra is a certified female teacher with 15 years of teaching experience, all of which have been at the primary level. Her first grade classroom consisted of 18 students (8 boys, 10 girls). Throughout her teaching career, Debra has sought out opportunities to expand her knowledge of early literacy by participating in many in-school training and professional development workshops as well as used several professional resources to further explore and integrate in her classroom reading instruction program (e.g., Running Records, Guided Reading, Better Answers, etc.). James and Sally were both enrolled in Debra's grade 1 classroom in School 1. James and Sally were "most comfortable reading very simple predictable books" (Debra, Term 1 report card comment). James was "a very capable student but struggled with focus and being attentive to [reading] tasks" (Debra, Term 2 report card comment). Contrary to James, Sally was labelled by her teacher as a "very quiet student [who] only participated in discussion when asked a direct question"

(Debra, Term 1 report card comment). According to her parents, Sally also "enjoyed being read to and sharing books with others," (Parent Questionnaire 1, p. 2) and "liked to play teacher with her peers while reading" (Debra, Interview 1, p. 3).

Table 1

Demographic Characteristics of Grade 1 Student Participants

Student	Teacher	Age (Years)	Gender	Student characteristics
*School 1				
James	Debra	5	M	Capable; struggles to focus
Sally	Debra	6	F	Quiet; enjoys reading
John	Veronica	6	M	Well-behaved; active reader
Christopher	Veronica	6	M	Interested; active reader
*School 2				
Sarah	Jessica	6	F	Confident; strong reader
Christina	Jessica	5	F	Struggles to focus; requires adult assistance with most reading activities
Jaclyn	Tracy	5	F	Enjoys being read to; struggles to focus
Mark	Tracy	6	M	Confident; strong reader

*Note. *School 1 = low-to-middle income elementary school; *School 2= middle-to-high income elementary school*

Table 2

Demographic Characteristics of Grade 1 Teacher Participants

Teacher	Gender	Student participants	Class size		Years of teaching experience	Professional development
			Boys *(n)*	Girls *(n)*		
*School 1						
Debra	F	Sally James	8	10	15	In-school training; workshops
Veronica	F	John Christopher	10	9	34	In-school training; workshops; School Resource Team
*School 2						
Jessica	F	Sarah Christina	9	10	11	Special Education Part I AQ (Additional Qualifications)
Tracy	F	Mark Jaclyn	10	9	18	Writing workshops; Primary Education Part I AQ (Additional Qualifications)

*Note. *School 1 = low-to-middle income elementary school; School 2= middle-to-high income elementary school*

Veronica, a grade 1 teacher employed in School 1, had been teaching for 34 years (18 of which have been within the primary division). Veronica's grade 1 classroom had a total of 19 students (10 boys, 9 girls). Throughout her teaching career, Veronica had also sought out opportunities to expand her knowledge of early literacy by participating in many in-service training and professional development workshops, engaging in professional reading, and attending School Resource Team (SRT) meetings, which provided early intervention strategies particularly to at risk learners from JK to grade 4. John and Christopher were two student participants in Veronica's grade 1 classroom. John was characterized as a "laid back, well-behaved, quiet student" who actively participated in classroom reading activities but was "just not as enthusiastic and keen as Christopher" (Veronica, Interview 1, p. 3). Contrary to John, Christopher seemed "very involved and interested" during reading activities and was "always excited to put his hand up and participate in class discussions" (Veronica, Interview 1, p. 4).

At School 2, the population consists of students from high SES backgrounds. Jessica teaches a grade 1 classroom in this school. Her class consisted of 19 students (10 girls, 9 boys). Jessica has accumulated 11 years of teaching experience, all of which were spent teaching in the primary grades and included the successful completion of the Special Education (Part 1) Additional Qualifications course. Sarah and Christina were two student participants enrolled in School 2 and in Jessica's grade 1 classroom. Sarah was a "highly motivated, confident student" (Jessica, Interview 1, p. 5) who "demonstrated strong independent reading skills," and "was an excellent participant during discussions and reading activities" (Jessica, Term 2 report card comment). Christina was not classified as a *hyperactive* student, but her attention to directions and questions was limited, and "she often required teacher assistance with most reading and

writing activities" (Jessica, Term 1 report card comment). Christina was encouraged by her teacher to "develop more confidence in her independent reading and word recognition skills, as well as in answering comprehension questions" (Jessica, Term 1 report card comment).

Tracy is the final grade 1 teacher participant from School 2 with a class size of 19 students (10 boys, 9 girls) and 18 years of teaching experience, all of which were also spent teaching within the primary division. Throughout her years teaching at the designated high-income elementary school, Tracy had participated in a writing workshop as well as completed a writing course with the Summer Institute for Teachers in order to increase her knowledge base and support early literacy. In addition to this, Tracy successfully completed the Primary Education Part 1 (Additional Qualifications) course, which focused on literacy and numeracy and provided her with a strong foundation and understanding of developmentally appropriate theory and practice in primary education. Jaclyn and Mark attended School 2 and were both grade 1 students in Tracy's classroom. Jaclyn was "most comfortable reading simple pattern books" (Tracy, Term 1 report card comment). Jaclyn also "enjoyed being read to and reading books she has memorized" (Parent Questionnaire 1, p. 3). Like Christina, Jaclyn was also encouraged to read daily to develop more confidence and improve her word attack skills as well as to keep using active listening strategies each day and focus on the [reading] task at hand" (Tracy, Term 1 report card comment). Mark was an "extremely responsible, motivated, hard-working, and well-mannered student" who displayed a "positive attitude and keen interest in [reading]" (Tracy, Term 1 report card comment). Mark was also encouraged by his teacher to "further challenge himself in reading and continue to motivate and guide others" (Tracy, Term 1 report card comment).

Instrumentation

The research questions framing this qualitative study were addressed through the use of such researcher-developed instruments as: (a) individual semistructured interviews; (b) questionnaires; and (c) behavioural observation checklists.

My Motivation to Read Questionnaire (Child Version)

These researcher-developed, self-reported, individually-administered instruments (see Appendixes C, F, G) were administered to the child participants at the beginning (October/print-based), middle (January/computer-based), and end (April/print-based) of this study in order to compare and explore any significant changes in the eight students' reading attitudes, practices, and motivations. The *My Motivation to Read Questionnaire #1* was administered to the eight participants in exactly the same way as it was administered to the two pilot participants.

The researcher-developed, computer-based *My Motivation to Read Questionnaire #2* (see Appendix F) was administered halfway through the school year in January. The investigator was interested in using both forms of electronic and print mediums to assess children's reading motivations and enhance the dependability and credibility of the data quality in student responses. This instrument was individually administered to child participants in an electronic voice-over narration format, using Microsoft PowerPoint™, a multimedia-based software program which child participants were already familiar with and used during their program postreading sessions. In general, children perceive computer-based questionnaires as fun and interactive (Bobula et al., 2004). A number of studies have looked at questionnaire mode preference and found that a majority of children preferred computer-based questionnaires over written questionnaires (Brener et al., 2006; Paperny, Aono, Lehman, Hammar, & Risser, 1990; Vereecken & Maes, 2006).

These preferences can affect youths' level of engagement in questionnaire completion, which could in turn, enhance data quality (Vereecken & Maes, 2006). This mode lent itself to the use of animations and colour - strategies that can help keep children motivated and interested in a questionnaire task (Black & Ponirakis, 2000; Rew, Horner, Riesch, & Cauvin, 2004; Watson et al., 2001). The addition of audio-facilitated questionnaire completion was ideal to accommodate a range of literacy levels (Rew et al., 2004).

This electronic-based questionnaire consisted of questions presented to students on separate slides in a multiple-choice format; most items provided one or more response options whereby student participants could click on their desired response. The investigator recorded the participants' responses on a hard copy version of the questionnaire. This 15-item questionnaire assessed whether or not the child participants and their parents visited the Childtopia™ (Childtopia SL, 2008) website at home, the frequency of use, the types of reading activities they completed on the website (e.g., found under the *Listen and Reading Comprehension* link on the Childtopia™ homepage), the reasons for visiting (or not visiting) the website at home, as well as their likes and dislikes about the digital reading program. Additionally, the latter portion of the questionnaire consisted of similar items to the original *My Motivation to Read Questionnaire #1* that focused on different dimensions of reading motivation including self-efficacy, involvement, control/choice, and recognition, as well as assessed students' relative values placed on and preferences for reading (hardcover and online storybooks). The final question asked students whether or not they would revisit the Childtopia™ (Childtopia SL, 2008) website (at home and/or at school) even after the research study sessions were completed.

Similar to the pilot study, the original (print-based) 34-item researcher-developed *My Motivation to Read Questionnaire #3* (see Appendix G) was also re-administered at the end of this study with the eight participants and contained the same question format as the original (print-based) questionnaire, with the addition of eight items.

Student Behavioural Observation Checklist

Identical to the pilot study, a behavioural observation form (see Appendix D) developed by the researcher was also used to record specific behaviours of every child participant during the main study's digital reading sessions.

My Child's Motivation to Read Questionnaire (Parent Version)

Parents of the eight student participants were asked to complete and return two versions of the *My Child's Motivation to Read Questionnaire* before (fall) and after (spring) the study. This instrument was constructed to parallel the content and format of the student version so that measures between parents and children would be comparable for data analysis. The first section of the 18-item self-report questionnaire (see Appendix H) examined the frequency with which parents read for enjoyment, read with their child, and visit the library as well as their perceptions of their children's reading behaviours and motivation towards reading. The second section consisted of items that elicited information about the participant's text-type reading preferences and previous experiences with reading on the computer and Internet. The final section of the questionnaire asked parents to provide their perception about their child's level of enjoyment derived from participating in various reading activities; such intrinsic and extrinsic motivation constructs as their child's involvement, interest, recognition and competition in such activities were also included. Similar to the participant's version of the questionnaire, the response format was a frequency code (*almost every day, some*

days, never, or hardly ever), a 4-point Likert Scale (1 = *dislikes a lot*, 2 = *dislikes a bit*, 3 = *enjoys a bit*, 4 = *enjoys a lot*), for single- and multiple-choice questions.

Attached to the final letter sent to parents/guardians was an identical version of the original questionnaire (see Appendix I); however, similar to the participants' second questionnaire, items which pertained to their child's experiences with the digital children's literature program were also added to the parents' second questionnaire. The added items were designed to assess whether participants visited the Childtopia™ (Childtopia SL, 2008) website at home (as well as the frequency of visits), what their child enjoyed (and/or did not enjoy) about reading the animated talking storybooks and completing the postreading activities on the computer, and most important, whether the participant has used the Internet more (for reading) since this study began in September. The same question format and ranking procedure from the first questionnaire was used with this instrument; parent respondents were also invited to write comments about their child's involvement in this study, including any changes they may have seen in their child's motivation toward reading (both hardcover and/or online storybooks).

Teacher Questionnaire

The four grade 1 teachers completed a 24-item self-report questionnaire (see Appendix J) at the beginning of this study in September. This instrument was devised by the researcher and verified by two primary grade teachers before this study began. This instrument gathered descriptive information on participating teachers and their current classroom literacy instruction, including the frequency of children's participation in several literacy-related activities in the classroom (e.g., read-aloud sessions). Information such as total number of years teaching (at the primary level), certification, and any professional training/experiences related to early literacy was also collected. Teachers'

perceptions of the percentage of students intrinsically motivated to read, the level of enjoyment derived from their participation in such reading activities, as well as the percentage of children reading at grade level in the classroom were also gathered. Several items which assessed teachers' perceptions of their students' and their own experiences (and frequency of use) with computer-based online learning environments for reading instruction were also gathered in this questionnaire. Specifically, teachers provided a count on the total number of computers (with Internet access) in the school and indicated the frequency with which they and their class used computers and online technologies. The teachers' opinions were gathered about the role and potential benefits of the Internet and other digital technologies in helping first grade students' skills in word recognition, comprehension, and engagement in reading activities. The response format chosen for this instrument was a variation of several multiple-choice questions, frequency codes (ranging from *Never* to *Frequently*) as well as 4-point Likert rating scales (ranging from *Enjoys a lot* to *Dislikes a lot*).

Teacher Interviews

Four researcher-developed semistructured teacher interviews were taped and transcribed verbatim by the investigator (see Appendix K for teacher interview protocol). Each interview was conducted in the school library during recess (approximately 15 minutes in length) at the end of this study in April. The four grade 1 teachers were asked to describe the participants' performance and progress in two dimensions of reading development, namely, word recognition and text comprehension, since the beginning of this study in September. Teachers were asked to describe any changes they informally observed in terms of the participants' reading behaviours and intrinsic motivations, especially towards computer-based online reading; for example, teachers were asked

whether participants had been asking to use the classroom computers to access the Internet (for reading) more frequently. In addition to this, teachers were asked to share their views on the integration and significance of multimedia (e.g., PowerPoint™) programs, the Internet, and digital children's literature programs as a tool to enrich first grade students' classroom reading instruction (compared to print-based reading instruction).

Procedures

The following section will describe preprogram, interim-program and postprogram activities and data collection procedures that occurred across the 2008-2009 school year. A timeline of study procedures is shown in Table 3.

Preprogram Activities

Permission was granted from Brock University Research Ethics board (REB #07-304), the Research Advisory Committee of the Southern Ontario school board, and the principals at the two participating schools.

My child's motivation to read questionnaire #1. In addition to providing written consent for their children to participate in this study, all of the parents completed and returned the *My Child's Motivation to Read Questionnaire #1* to the investigator by late September, 2008.

Teacher questionnaire. In addition to completing their consent forms, all four teacher participants completed and returned to the investigator their self-report *Teacher Questionnaire* in early September, 2008. Throughout the first two terms of the 2008-2009 school year, the reading progress of the participants was also monitored, and standardized reading assessments such as a copy of the participants' provincial report card grades and

Table 3

Timeline of Study Procedures

	2008		2009					
Months	S	O	N	D	J	F	M	A
Consent/Assent forms (students, parents, & teachers)	X							
STUDENTS								
Classroom observations (Field-note taking)	• 4 obs.	• 4 obs.	• 2 obs.	• 1 obs.	• 2 obs.	• 2 obs.	• 1 obs.	• 2 obs.
Behavioural observation checklist (Online reading sessions)			• 1 obs.	• 2 obs.	• 2 obs.	• 2 obs.	• 1 obs.	• 2 obs.
Questionnaire #1		X						
Questionnaire #2					X			
Questionnaire #3								X
Letter of Appreciation								X
TEACHERS								
Questionnaire	X							
Teacher interview								X
Artifacts (e.g., Running Records, Report Cards)	X	X	X	X	X	X	X	X
PARENTS								

(table continues)

Questionnaire #1	X				
Questionnaire #2					X

PM Benchmark/Running Record scores were obtained on a monthly basis from the participants' grade 1 teachers.

Interim-program Activities

Classroom observations. The first observation session in each classroom was held in late September, 2008, after the investigator received written permission to conduct this study. During this time, the investigator also collected all of the consent and assent forms from the eight student participants and 4 teacher participants in all four classrooms in late September, 2008. Eighteen regularly scheduled classroom observation sessions were conducted on a weekly basis during the 120-minute morning literacy blocks beginning in September, 2008 and continuing through April, 2009. During the first observation sessions in each grade 1 classroom, the teachers briefly introduced the investigator to the class and stated the purpose of her observations.

My motivation to read questionnaire #1 (child version). After conducting two observation sessions in each grade 1 classroom, the investigator conducted the researcher-developed *My Motivation to Read Questionnaire #1* with all eight student participants in early October, 2008. This questionnaire was individually administered (on a one-on-one basis) in the school library during the student participant's recess period. The time for each questionnaire varied due to the age and ability levels of the sample, but the average time it took for participants to complete the questionnaire was 25 minutes.

Digital reading sessions. Ten 25-minute online reading sessions over a 15-week period from November, 2008 through April, 2009 (interrupted by several weeks of school vacation, including Christmas and March Break) were held individually in the school library's computer lab during the participant's recess and/or lunch hour so that he or she did not lose any classroom instructional time. During the ten online reading sessions, the

participants worked individually next to the investigator and wore headphones to reduce any auditory distractions. Similar to the pilot study procedures, a familiarization session with the computer was held prior to the participants' first online reading session in mid-November 2008, approximately one week after completing the *My Motivation to Read Questionnaire #1.*

The online reading sessions and classroom observation sessions occurred on the same day for each individual participant in order to limit any confounding maturational factors and to compare participants' behaviour and interactions during reading instruction in these two settings (e.g., digital environment versus print-based classroom environment). The typical interval between each online reading session was one week. The participants generally completed one storybook per session; however, technical difficulties were encountered during some of the sessions, resulting in the student being unable to either read the entire storybook or complete the postreading activities; the observations and data collection was suspended and reconvened either later on that day or the following day. The average total time it took participants to read one of these storybooks was ten minutes.

Multimedia-based postreading activities. Similar to the data collection process in the pilot study, the postreading multimedia activities were conducted after the students finished reading their self-selected storybook on the Childtopia™ (Childtopia SL, 2008) website. The investigator opened up the Microsoft PowerPoint™ presentation file that contained the questions specifically related to the storybook read during that session. The average total time spent answering these questions was 15 minutes, but this varied widely depending on the ability level of the participant. It is important to note that the participants had access to the Internet and the storybooks available on the Childtopia™

(Childtopia SL, 2008) website in their classrooms; however, they could not independently complete the Microsoft PowerPoint™ postreading activities, as these researcher-developed files were saved to a USB stick and kept in the possession of the investigator.

Student behavioural observation checklist. Similar to the pilot study, the *Student Behavioural Observation Checklist* was also used by the investigator in the current study during every online reading session with each session lasting approximately 25 minutes (from November, 2008 through April, 2009).

My motivation to read questionnaire #2 (child version). The same procedures were used when the researcher administered the electronic-based *My Motivation to Read Questionnaire #2* to student participants in the school library in January, 2009 during the participants' recess or lunch hour period. The investigator recorded the participants' responses on a hard-copy version of the questionnaire.

Teacher interviews. Four semi-structured teacher interviews were conducted at the end of this study in April. Each interview was conducted in the school library during recess and lasted approximately 15 minutes in length. After the teacher interview data were transcribed, coded and analyzed, the four grade 1 teacher participants received a hard copy of their interview transcriptions as well as a framework of the themes that emerged across the teacher narratives, in order to validate the investigator's findings and interpretations of the data.

Postprogram Activities

My motivation to read questionnaire #3 (child version). Similar to the administration of the previous two questionnaires, the final student questionnaire was

individually administered in the school library during the participants recess or lunch hour period in April, 2009.

My child's motivation to read questionnaire #2 (parent version). Approximately one week after the classroom-based observations and online reading sessions were complete in mid-April, 2009, the investigator sent home to parents of participants a Letter of Appreciation for allowing their son/daughter to participate in this study as well as the *My Child's Motivation to Read Questionnaire #2.* The parent questionnaires were completed and returned to the classroom teacher in late April, 2009.

Data Collection

Since the investigator spent considerable time in the participants' classroom and digital learning environments, she was able to build rapport with and collect multiple forms of data from the grade 1 teachers, student participants, and their parents. Triangulation (convergence of measures) enhanced the meaningfulness of this study's data. The primary means of data collection consisted of: (a) classroom observations recorded as field notes; (b) questionnaires; (c) transcriptions from teacher interviews; (d) behavioural checklists from the online reading sessions; and (e) artifacts such as standardized reading assessments (i.e., Running Records) and provincial report cards. It is important to note that the monthly classroom observation sessions and online reading sessions represent the total number of observations that occurred with each student participant.

Classroom Observations

Each grade 1 classroom was observed, and detailed observations of the eight target participants were taken by the investigator during eighteen regularly scheduled 120-minute morning literacy blocks across the 2008/09 school year beginning in

September and continuing through April. The investigator arrived in the morning (before school began) and concluded the observation sessions at the beginning of the lunch period. The investigator sat in an unobtrusive spot in the classroom, minimally interacting with either the teacher or participants; the exception was when the investigator walked around to look at participants' seatwork. Every effort was made to record verbatim teacher and student comments and behaviours. In each classroom, the researcher focused on 1 target child at a time for approximately 15 minutes, then turned to the other target child in the classroom. The investigator had a clipboard with lined sheets and attempted to capture verbatim the interactions between the target child participant, his or her peers, and teacher. The teacher's behaviour was coded insofar as she interacted with each focal child, either individually or in a group, with special attention paid to instructional practices for teaching reading, the motivational implications and effects of these attempts on participants. This observational method was rarely threatening to the teachers as they were aware that the observer's focus was on the child's learning.

During classroom observations, participants were actively engaged in the following large- and small-group literacy-related activities and lessons: independent silent reading; buddy reading; guided oral reading; listening center, whole-group read-aloud; phonics/sight word work; and literacy-related computer activities. For the purpose of this study, the specific behaviours that relate to and support the development of the 8 student participants' intrinsic reading motivation, word recognition, and text comprehension abilities formed the nucleus of the field observations. In addition to classroom observations of literacy activities, inventories of literacy-related materials were also completed by the investigator to describe the literacy environment in the four classrooms. The investigator noted recently added literacy materials in each classroom

(e.g., anchor charts, classroom library bins, word wall cards, etc.) at the beginning of the study (September, 2008), and throughout the remaining classroom visits until the final session in the spring (April, 2009).

My Motivation to Read Questionnaires (Child Version)

These researcher-developed, self-reported, individually-administered instruments (see Appendices C-E) were administered to the child participants in order to compare and explore more fully any significant changes in the eight students' reading attitudes, practices, and motivations.

My Child's Motivation to Read Questionnaires (Parent Version)

Parents of the eight student participants were asked to complete and return two *My Child's Motivation to Read* questionnaires before (September) and after (April) the study. Items which pertained to their child's experiences with the digital children's literature program were added to the parent's second questionnaire. The same question format and scoring procedure from the first questionnaire was used with this instrument; parent respondents were also invited to write comments about their child's involvement in this study, including any changes they may have seen in their child's motivation toward reading (both hardcover and/or online storybooks).

Teacher Questionnaire

This instrument gathered descriptive information on participating teachers and their current classroom literacy instruction, including the frequency of children's participation in several literacy-related activities in the classroom weekly (e.g. read-aloud sessions). Teacher's perceptions of the percentage of students intrinsically motivated to read, the level of enjoyment derived from their participation in such reading activities, as well as the percentage of children reading at grade level in the classroom were also

gathered. Teachers' perceptions of their students' and their own experiences (and frequency of use) with computer-based, online learning environments for reading instruction were also gathered in this questionnaire. The teachers' opinions were gathered about the role and potential benefits of the Internet and other digital technologies in helping first-grade students develop literacy skills as their word recognition, comprehension, as well as personal engagement in reading activities. The response format chosen for this instrument was a variation of several multiple-choice questions, frequency codes (ranging from "Never" to "Frequently") as well as 4--point Likert rating scales (ranging from "Enjoys a lot" to "Dislikes a lot").

Teacher Interviews

Four semi-structured teacher interviews were taped and transcribed verbatim by the investigator (see Appendix I for teacher interview protocol). The four grade 1 teacher participants were asked to describe the participants' performance and progress in two dimensions of reading development, namely, word recognition and text comprehension, since the beginning of this study in September. Teachers were also asked to describe any changes they have informally observed in terms of the participants' reading behaviours and intrinsic motivations, especially towards computer-based, online reading; for example, teachers were asked whether participants had been asking to use the classroom computers to access the Internet (for reading) more frequently. In addition to this, teachers were asked to share their views on the integration and significance of multimedia (e.g. PowerPoint™) programs, the Internet, and digital children's literature programs as a tool to enrich first-grade student's classroom reading instruction (compared to print-based reading instruction).

Student Behavioural Observation Checklist

The *Student Behavioural Observation Checklist* was used by the investigator during every online reading session to record any extraneous comments, questions, behaviours, and issues related to the child participants' attention, posture, eye gaze, whereby the investigator responded contingently and succinctly but redirected the participant to the story and/or questions on the computer screen. At the end of most sessions, the investigator posed and scripted general questions made about the participants' feelings towards the particular story read (e.g. "What do you think will happen?" "Did you like this story?" Why or why not?") in order to gather descriptive information about their level of text comprehension, word recognition, and engagement during these sessions. These comments were recorded on the participant's *Student Behavioural Observation Checklist*. In addition to this, specific comments made by participants on elements of illustrations, features, and functions of print on the page were also noted.

Running Records

Child participants' running record scores were provided to the investigator by their grade 1 teachers and used to monitor participants' reading performance (including instructional reading level and reading comprehension) before, during, and after the digital children's literature program implementation. Frequently, the grade 1 teachers took their running records during participants' Independent Reading or Literacy Center time. A running record is a literacy assessment tool that is formative and provides information about a student's reading behaviours, strengths, and needs (Fountas & Pinnell, 1996). Specifically, running records document the student's reading accuracy, number of miscues, and self-correction rates (Fountas & Pinnell, 1996). All grade 1

teachers in the two participating schools used the *PM Benchmark Kit* (Randell, Smith, & Giles, 2001) for their running records to determine their students' reading strengths and needs. Once the students read competently above 95% accuracy, they moved up a reading level and their self-selected, levelled take-home books and independent reading books reflected this new level of ability (Fountas & Pinnell, 1996).

Provincial Report Cards

For the purpose of this study, the student participants' Term 1 and Term 2 grade reports (including letter grades and written reporting comments) in the "Oral Communication" and "Reading" strands of the grade 1 Language curriculum were used for data analysis. This assessment data provided the investigator with detailed information about student participants' progress, strengths, and weaknesses (in reading). Participants' letter grades are based on their achievement of the grade 1 Language curriculum expectations set out in *The Ontario Curriculum, Grades 1-8* (Ministry of Education of Ontario, 2006). Additionally, a record of the participants' "Learning Skills" (including teachers' anecdotal comments about students' demonstration of each skill) in the following areas was analyzed to determine if these skills reflect a student's motivation to read and improve on their reading comprehension and word recognition skills: Initiative; Independent Work; Homework Completion; Use of Information; Class Participation; Problem Solving and Goal Setting. These learning skills were evaluated using a 4-point scale (*E = Excellent, G = Good, S = Satisfactory, and N = Needs Improvement*).

Table 4 presents a summary of the various data sources used to address this study's three research questions.

Data Analysis

The primary aim in this study was to render the social and cultural dynamics and patterns of the reading practices, attitudes, behaviours, and verbal and nonverbal interactions of the eight grade 1 student participants, their teachers, and peers occurring in their multidimensional context of school culture. Observational data was taken during the student participants' computer program sessions in order to capture relatively concrete descriptions of their experiences and interactions with this technological tool. Qualitative data was collected in the *My (Child's) Motivation to Read Questionnaires* and the *Student Behavioural Observation Checklist* in the form of numeric Likert scale responses. For the closed-ended responses, the investigator calculated the frequency with which participants answered each question.

In keeping with qualitative research design, the first step in analysis was to systematically organize and carefully examine the written words from field notes, questionnaires, interview transcripts, and documents (i.e., reading assessment data) in order to increase the investigator's understanding and enable her to present what has been discovered to others. The investigator completed her initial open coding of data by creating tables. During this phase, all of the data collection instruments were kept in separate data files. Since the investigator was interested in examining any socioeconomic commonalities and/or differences in reading motivation and achievement among grade 1 students from two geographic groups, each dataset was organized and coded according to the participants' homeroom teacher (using single-letter identifiers A-D) and school type (School 1 and School 2).

Table 4

The Relationship between Study Research Questions and Data Sources

	Source of Data							
	I	Q			O	C	A	
		S	P	T			RR	RC
Research question								
1. What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences?	X			X	X			X
2. What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward multimedia and digital reading instruction?	X	X	X	X	X	X		X
3. How does a digital children's literature program and postreading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills?	X	X	X		X	X	X	X

Note. I = Interview (Teacher), Q = Questionnaire (S = Student, P = Parent, and T = Teacher) O = Observation (Classroom), C = Checklist (Student Behavioural Observation-Online Reading), A = Artifacts (RR = Running Record; RC = Report Card)

Once the raw data were coded according to the category systems described, data belonging to each category were retrieved, assembled, and viewed. After several readings of the data files, the investigator worked on linking the qualitative data to this study's research questions. Here, the researcher highlighted certain words, phrases, patterns of behaviour, and occurrences that repeated themselves. Commonalities and differences among student, teacher, and parent responses, experiences, and behaviours were then identified and accomplished using *axial coding* (Creswell, 2003). Axial coding is the phase of the analytic process in which the investigator puts the parts of the data identified and separated in open codes back together to make connections between categories (Creswell, 2003). As displayed in Table 5, a sample of the emergent coding process used for textual content analysis is provided to illustrate how unitized data from data sources, such as the child questionnaires, were coded, then organized into key descriptor phrases. These phrases were then grouped into general coding categories for each participant group (see Appendix L for a detailed illustration of the full sample coding process).

Qualitative analysis of the data included coding and collapsing these data into three themes. The first theme looks at *Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences.* Within this theme, the subtheme entitled, *Classroom Components of a Balanced Literacy Program* are the four *Physical Classroom Environments* which were designed to support the whole-group, small-group, and individual *Literacy Centers* experiences, as well as a *Reader's Workshop* model that included such components as *Read-Aloud, Shared Reading*, and *Guided Reading*. The fourth subtheme will look at *Computer Technology within a Balanced Literacy Program.* This section also includes a description of the eight

Table 5

Sample of Data Analysis: Category Generation of Themes and Subthemes

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences	Classroom Components of a Balanced Literacy Program	Physical Classroom Environment	Word wall	A smaller word wall (chart paper size) was used in Jessica's classroom for seasonal words (e.g., Christmas themed word wall words; Field notes, Dec. 4, 2008)
		Literacy Centers	Poetry center	Children pasted a copy of the week's poem "The Snowman" into their noteBooks and created an illustration that reflected the content of the poem (Field notes, Dec. 4, 2008)
		Reader's Workshop	Read-aloud	Tracy read "Go Away, Big Green Monster!" to whole class and modeled Think Aloud reading strategies (Field notes, Oct. 28, 2008)
		Computer Technology within a Balanced Literacy Program	Drill-and-Practice Computer Programs	"The drill-and-practice series Reader Rabbit 1 provides students with practice in alphabetizing, rhyming, identifying long and short vowel

(table continues)

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
				sounds, and creating compound words" (Debra, teacher, Interview 1 p. 2)
	Students' Behaviours During Classroom Reading Instruction and Activities	Students' Off-Task Behaviours during Classroom Reading Instruction and Activities	Off-task behaviour during shared reading activity	While Tracy pointed to the words on the poem "Pop Goes the Groundhog," Jenna reached over and grabbed a shelf toy to play with (Field notes, Feb. 2, 2008)
		Students' On Task Behaviours during Classroom Reading Instruction and Activities	On Task behaviour during independent seatwork activities	Jessica commented on Sarah's fast and accurate completion of Reading Response Journal (Field notes, Mar. 28, 2009)

Students' On Task and Off-Task Behaviours during Reading Instruction and Activities.

The second theme describes *Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes.* This theme closely examines the grade 1 student participants' acquisition of reading behaviours and attitudes through the observations of the reading behaviours of their parents and teachers, in conjunction with the relevant stimulus objects in their home and classroom environments (e.g., reading materials).

The third and last theme examines *Digital Reading and Its Influence on Students' Reading Motivation and Reading Achievement.* The two subthemes within this chapter will address the grade 1 student participants' perceived *Postprogram (Print-based) Reading Behaviours and Attitudes, Interim-program (digital) Reading Behaviours and Attitudes*, and the participants' *Postprogram Reading Experiences with Digital Technologies*. The latter subtheme includes the student participants' achievement levels in word recognition and text comprehension.

Methodological Assumptions

The first major assumption made during the study is that all child participants in grade 1 are typically homogenous in composition and that chronological age is a reliable gauge. Children in the same grade vary in development due to different birth dates; in any one grade, there may be an 11-month spread in ages. However, for the purposes of this study, the researcher assumed that the variability between months of birth in child participants' reading ability and other reading achievement-related variables were random and there were no associations between this natural variation in age and child participants' reading achievement outcomes.

The second and final assumption made about the study's data was that every child participant has already had previous experience with and equitable access to online

learning environments both at home and at school. Thus, it was presumed that all students could use and navigate through the multimedia and digital children's literature software programs and that there were no differences in computer or Internet access between students from the low-income and high-income elementary schools.

Limitations

This study has several limitations that should be acknowledged. Qualitative methods of collecting and interpreting data are limited by lack of precision, clarity, and systematization of quantitative measurement (Creswell, 2003). This study is limited by its small sample size; the participant cohort for this research was comprised of eight grade 1 students and two teachers from two purposively selected elementary schools that were accessible to the researcher. However, the assumption in qualitative research is that human behaviour is not random, and the intended outcome is not the generalization of results but a deeper understanding of the lived experiences and perspectives of participants with the digital children's literature program (Creswell, 2003).

Language comprehension and reading skills are still developing in children under the age of 11 (Borgers, Hox, & Sikkel, 2003). Thus, children's reading levels, developmental stages, and affective relationship with the adult investigator could have affected this study's self-report data quality (Borgers et al., 2003). To help ensure instrument and procedure quality, a pilot test was conducted with two grade 1 children before actual data collection. Based on this pilot test, instruments were revised and validated to be more developmentally and age appropriate. The child participants' *My Motivation to Read Questionnaires* were tape-recorded by the investigator. With the investigator present during the administration of these questionnaires (which may have also threatened the study's internal validity), the participants may have also felt

uncomfortable in the presence of audiotaping equipment (Borgers et al., 2004). However, prior to administering the questionnaires, the investigator spent considerable time in the participants' classrooms and established a good rapport and relationship with the participants. It appeared as though this resulted in the participants feeling relaxed and insightful with the investigator. During the administration of the questionnaires, the investigator also read and repeated each question and participants' responses aloud. In addition to this, a pictorial rating scale using the Garfield cartoon character was used in the latter portion of the *My Motivation to Read Questionnaire* to provide more visual appeal, and increase children's motivation and interest (Borgers et al., 2003). This method of data collection was also used to avoid neutral response patterns from participants, as they may have had difficulty in discriminating among more than five discrete categories (Borgers et al., 2004). Alongside this, questions for child participants were simply stated, positively worded, unambiguous, and relevant to children's experiences (Borgers et al., 2004). Since young children also typically have shorter attention spans and may get distracted more easily than older children (Borgers et al., 2003), participants were given breaks during the administration of the questionnaires and the online reading sessions (e.g., by drawing a picture, having a snack, or getting a drink; Borgers et al., 2003).

As with any study where data are collected through self-report, the information is valid only for these participants in a particular situation and are not always an accurate reflection of people's general behaviour (Creswell, 2003). With any self-reporting attitudinal or perception instrument, it can be difficult to know whether teachers actually feel, believe, or do the things they report; thus, one possible threat to this study's construct validity lies in the social desirability response bias, whereby participants may

have completed this study's self-report measures or acted in such a way to make themselves look good or to please the investigator (Creswell, 2003). Similarly, parents/guardians and teachers may have also written responses they thought were also socially and/or educationally appropriate rather than give accurate indications of their perceptions of their child (Creswell, 2003). The use of several closed-ended questions in the self-report questionnaires may have also made respondents feel compelled to choose the "correct" response, rather than choose an honest personal response (Creswell, 2003).

To avoid the potential of social desirability, children, parents, and teachers were made aware that their questionnaires and interviews would remain in the possession of the investigator and were not available to any other person, group, or organization without their written consent (Creswell, 2003). Personal data were kept strictly confidential, and all information teachers provided was coded so that their names were not revealed (Creswell, 2003). Additionally, and as indicated in their consent forms, any information teachers provided would have no bearing on their job security or future professional development opportunities.

The investigator used a multimethod approach to collect information reflecting differing perspectives (e.g., classroom observations combined with parent questionnaires, teacher questionnaires, and interviews). The results from multiple data sources (teachers, parents, and children) indicated consistent patterns, which permit the verification of this study's qualitative data (Creswell, 2003). The findings further suggest that although social desirability and observer effect may have played a role, the investigator is confident that many of the participants responded to the measures openly and honestly (Creswell, 2003).

The investigator conducted observations in order to triangulate self-reported data collected from grade 1 participants, parents, and teachers as well to capture a realistic snapshot of children's experiences in the classroom and online learning environments (Creswell, 2003). This approach yielded valuable information about the participants' behaviours during classroom and digital reading instruction and activities.

A potential problem with taking field notes in research is the so-called "Hawthorne Effect" (Creswell, 2003). In this qualitative study, the Hawthorne effect may have been a factor during the classroom observations and online reading sessions, since the participants (and their teachers) were aware of the fact that their actions were being recorded by the investigator (Creswell, 2003). Hence, it may be difficult to be sure that the teachers' and participants' actions were the same as they would have been without the observations (Creswell, 2003). Almost all qualitative research is confounded by this problem, as researchers can never eliminate all of their own effects on participants or obtain a perfect correspondence between what they wish to study (the natural setting) and what they actually study (a setting with a researcher present; Creswell, 2003).

However, the possibility of the Hawthorne effect was reduced in this study, as the investigator spent considerable time unobtrusively observing the four classrooms and established a rapport and relationship with the grade 1 teachers and participants which made them feel more comfortable and natural about being observed and interviewed. The questionnaires and interviews were conducted like a conversation between two trusting parties rather than a formal question-and-answer session between a researcher and respondent (Creswell, 2003). It was only in this manner that the investigator could truly capture what was important in the minds of the participants and teachers themselves (Creswell, 2003). With regard to the online reading sessions, although the two computer

programs, the Childtopia™ (Childtopia SL, 2008) website and Microsoft PowerPoint™, used in this study were new to the participants, the Hawthorne effect was minimal, since the children were already accustomed to using a computer (as indicated in their *My Motivation to Read Questionnaires*) and accepted all types of technology as a normal part of their environment (Prensky, 2001). Based on the information collected from the multiple data sources used in this study, the observed changes in participants' behaviours were not just temporary responses to changes in the learning environment (Creswell, 2003).

Technical difficulties experienced during the online reading sessions should be taken into serious consideration when conducting future Internet-mediated research, as they presented the greatest challenge in this study. On numerous occasions, observations and data collection were either suspended and reconvened at a later time or the programs were restarted during that session (depending on whether the participant wished to continue the session) when there were technical problems. Some of these problems included glitches in the Childtopia™ (Childtopia SL, 2008) website, reduced Internet connection speed, computer freezing, hyperlinks, sound, and animations, all of which were a hindrance to and stalled participants' learning. Consequently, this may have affected the participants' level of engagement and curtailed their enthusiasm for this type of learning environment. With any computer- and Internet-mediated research, it is virtually impossible to eliminate all technical difficulties (Vereecken & Maes, 2006).

Establishing Credibility

The most important criterion for judging a qualitative study is its credibility or dependability (Creswell, 2003). To assess credibility, one would consider the data, its analysis, and resultant conclusions; any weak link here would threaten the usefulness of

the study (Creswell, 2003). In accordance with Miles and Huberman (1994), this study's qualitative analysis included three streams of activity: data reduction (simplifying complex data by, for example, extracting recurring themes via coding), data display, and finally, drawing conclusions and verifying them as a means of establishing trustworthiness of the findings. The investigator relied on the use of triangulation to enhance the credibility of the study by utilizing multiple sources of data and collection strategies over an extensive period of time (Creswell, 2003). The use of several self-report instruments such as the *My (Child's) Motivation to Read Questionnaires* individually administered to the eight child participants and their parents as well as the *Teacher Questionnaires* and semistructured interviews with the four grade 1 teachers all provided evidence for thematic development. Informal classroom observations, field notes, behavioural observation checklists, and standardized reading assessments including report card grades and running record scores were also collected simultaneously throughout the study. The same data collection techniques were also used before, during, and after the study in order to check whether the same patterns were consistent over time. These multiple sources of data were in agreement, and hence the findings in this study are believed to be credible and accurate, and the corroborating evidence supports the major themes and descriptions that are pertinent to this study (Creswell, 2003).

Member checking is a necessary procedure whereby the researcher requests that the participants of the study check the accuracy of the account (Creswell, 2003). In this study, the interview data with the four grade 1 teacher participants were verified through the process of member checking. All of the teachers received a hard copy of their interview transcriptions as well as a framework of the themes that emerged across the

teacher narratives, in order to validate the investigator's findings and interpretations of the data (Creswell, 2003).

In order to establish the credibility of the conclusions and findings, peer debriefing was used. The peer debriefer, the researcher's Faculty Advisor, reviewed data samples, tested samples of data analysis against emerging themes, and generally provided a sounding board for the researcher's ideas, questions, and conclusions in order to confirm or disconfirm emergent themes and working hypotheses as logical and proper.

Ethical Considerations

Qualitative data were collected from eight grade 1 students, four teachers, and eight parents/guardians. Consequently, the investigator was morally obligated to adhere strictly to the code of ethics for the implementation of this qualitative study (Creswell, 2003). Participating grade 1 students, teachers, and parents/guardians were fully informed about what was required of them in this study. Data were gathered, collected, and stored in a locked cabinet to maintain participant privacy and confidentiality.

Participation Consent

The Brock University Research Ethics Board (REB #07-304) and the school board's Research Advisory Committee provided formal ethical clearance in September 2008 after reviewing a detailed outline of and modifications requested for the proposed research study. Then the principals of the two schools individually met with the investigator to discuss the implementation of the study.

Respect for human dignity entails high ethical obligations towards vulnerable persons, which includes those whose diminished competence and/or decision-making capacity make them vulnerable (Creswell, 2003). This study involved children under 18

years of age. In addition to obtaining consent for the children's participation from their parents/guardians, the children themselves provided assent to their involvement.

As indicated in their consent and assent forms, parents, teacher, and child participants were made fully aware that participation in this study was voluntary, that students and teachers may have withdrawn from the study at any time without justification or penalty. To ensure that they did not feel demeaned in any way, the child participants were informed that they would still have free computer time in the computer laboratory for the remainder of the online reading sessions.

Confidentiality

Another ethical consideration is participants' confidentiality (Creswell, 2003). Students' names were required in this study's measures to enable their responses to be matched with data collected from their parents/guardians and teachers for analysis. Each data source was allocated a separate research code to ensure anonymity of responses at the data analysis stage using the participants' first initials of their first and last names, followed by an assigned letter of the alphabet representing their school and teacher (e.g., C.R.-A.A.) Findings were reported using coded, nonidentifiable data (Creswell, 2003). The names of teacher participants, child participants, and their parents/guardians as well as the names of the participating schools were replaced with pseudonyms before the data were available for publication or presentation.

Restatement of the Area of Study

The decrease in motivation to read across the elementary school years has stimulated concern about how students might be motivated to read and engage in literacy activities. Over the years, interactive multimedia and online learning environments have received increasing attention as educational tools for increasing the accuracy of word

wall/sight word recognition and enhancing reading comprehension, particularly for students who experience motivational difficulties in learning to read and reading to learn. The purpose of this study, then, was to examine the effectiveness of a digital children's literature program and a postreading multimedia program designed to enhance intrinsic reading motivation, word recognition, and listening comprehension abilities in grade 1 students. This qualitative inquiry was conducted to answer the following research questions:

1. What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences?
2. What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward digital reading instruction?
3. How does a digital children's literature program and postreading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills?

The findings that emerged from this study are presented in the next chapter.

CHAPTER FOUR: PRESENTATION OF RESULTS

The purpose of this study was to examine the effectiveness of a digital children's literature program and postreading multimedia activities designed to enhance grade 1 students' intrinsic reading motivation, word recognition, and listening comprehension abilities. The following research questions guided this study: (a) What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences? (b) What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward digital reading instruction? (c) How does a digital children's literature program and postreading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills?

Eight student participants were drawn from four grade 1 classrooms in one low-income and one high-income elementary school. To gain insight into the above questions, qualitative methods were employed, involving selected students, their grade 1 teachers, and parents. There was triangulation of data collection techniques used, including preprogram, interim-program, and postprogram questionnaires, interviews, standardized reading assessment tools, classroom observations, field notes, and student behaviour observation checklists. Table 6 displays a summary of findings according to the three research questions and key themes that emerged from the data sources used in this study. As highlighted in Table 6, qualitative analysis of the data included coding and collapsing these data into three key themes. In regard to the first research question, student and teacher questionnaires, teacher interviews and report card comments, as well as extensive detailed classroom observations of grade 1 teachers, students, and instructional material

Table 6

Summary of Research Findings According to Research Questions, Themes, Subthemes, and Data Sources

Research question	Themes	Subthemes	Source of data							
			I	Q			O	C	A	
				S	P	T			RR	RC
1. What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences?	Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences	Classroom Components of a Balanced Literacy Program	X	X		X	X			
		Students' On Task and Off-Task Behaviours During Classroom Reading Instruction and Activities	X				X			X
2. What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward multimedia-based and online reading instruction?	Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes		X	X	X	X	X	X		X
3. How does a digital children's literature program and postreading	Digital Reading and its Influence on Students'	Reading Motivation	X	X			X	X		X

(table continues)

Research question	Themes	Subthemes	Source of data						
			I	Q			O	C	A	
				S	P	T			RR	RC
multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills?	Reading Motivation and Reading Achievement	Reading Achievement	X		X		X	X	X	X

Note. I = Interview (Teacher), Q = Questionnaire (S = Student, P = Parent, and T = Teacher) O = Observation (Classroom), C = Checklist (Student Behavioural Observation-Online Reading), A = Artifacts (RR = Running Record; RC = Report Card)

revealed the *Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences*. All four grade 1 teachers employed a Balanced Literacy approach to reading instruction. Within this theme, the subtheme entitled *Classroom Components of a Balanced Literacy Program* describes the four *Physical Classroom Environments* which were designed to support the whole-group, small-group, and individual *Literacy Centers* experiences, as well as a *Reader's Workshop* model that included such components as *Read-Aloud, Shared Reading,* and *Guided Reading.* The fourth subtheme highlights grade 1 teachers' attempts to integrate *Computer Technology within a Balanced Literacy Program.* To answer the second half of the first research question, this section will conclude with a description of the eight *Students' On Task and Off-Task Behaviours During Classroom Reading Instruction and Activities.*

Based on student, parent, and teacher responses in the questionnaires, teacher interviews, standardized and performance-based reading assessment data, classroom observations, and student behavioural observation checklists, the second theme answers this study's second research question and describes *Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes*. This theme examines the contextual and innate influences on reading development and illuminate the participants' perceived *Preprogram (Print-based) Reading Behaviours and Attitudes, Preprogram (digital) Reading Behaviours and Attitudes,* as well as the participants' *Interim-program (digital) Reading Behaviours and Attitudes*. This theme closely examines the grade 1 student participants' acquisition of reading behaviours and attitudes through the observations of the reading behaviours of their parents and teachers, in conjunction with the relevant stimulus objects in their home and classroom environments (e.g., reading materials).

To answer the third research question, the last theme looks at *Digital Reading and its Influence on Students' Reading Motivation and Reading Achievement.* Based on student and parent questionnaires, teacher interviews, classroom observations, student behavioural observation checklists, standardized and performance-based reading assessment data, the subthemes within this chapter will address the grade 1 student participants' *Reading Motivation* and *Reading Achievement.* The former subtheme will include participants' perceived *Postprogram (Print-based) Reading Behaviours and Attitudes, Interim-program (digital) Reading Behaviours and Attitudes,* and the participants' *Postprogram Reading Experiences with Digital Technologies.* The latter subtheme includes the student participants' participants' achievement levels in word recognition and text comprehension.

Components of Balanced Reading Instruction and Students' On task and Off-task Behaviours during Classroom Reading Experiences

This section answers the first research question in this study: What components constitute reading instruction in a grade 1 classroom, and what are the behaviours of grade 1 students during these classroom reading experiences? Student and teacher questionnaires, teacher interviews, as well as extensive detailed classroom observations of grade 1 teachers and students revealed how four grade 1 classroom teachers employed a Balanced Literacy approach to reading instruction, and attempted to create a balance between teacher-directed and student-centered activities, as well as skills-based and meaning-based approaches to reading instruction. Classroom observational data also revealed the *Students Off-Task During Classroom Reading Instruction and Activities* as well as *Students On Task During Classroom Reading Instruction and Activities.*

Classroom Components of a Balanced Literacy Program.

As evident in the observed classrooms, the Balanced Literacy program incorporated and required opportunities for reading and writing *to* students, reading and writing *with* students, and reading and writing *by* students. Data collected through classroom observations indicated that whole-group, teacher-led reading instruction was often provided first to students, and then the grade 1 students completed independent seatwork exercises or literacy center activities. The first subtheme is the "Physical Classroom Environment" of the Balanced Literacy classrooms and a description of how this context enhanced grade 1 students' literacy learning in reading, writing, speaking, and listening as well as supported whole-group, small-group and individual learning experiences. The role of *Literacy Centers* in three grade 1 classrooms provided opportunities for students to practice reading and writing skills and strategies modeled and taught within the Balanced Literacy framework. In addition to using traditional text, the 8 grade 1 students used computer technology in their Balanced Literacy classrooms. The last subtheme in this section *Computer Technology within a Balanced Literacy Program* will describe digital literacy as it relates to classroom contexts, and outline current classroom applications of digital technologies in the content area of reading, with a specific focus on two components, namely word recognition and comprehension.

Physical classroom environments. Reflecting Fountas and Pinnell's (1996) ideas for a literacy-rich environment, seven distinct working areas were observed in the four observed grade 1 classrooms: (a) a large-group area, (b) small-group areas, (c) independent work areas, (d) guided reading area, (e) a classroom library, (f) a print-rich classroom, and (g) literacy centers. Generally, the large-group area was located at the front of the classroom and designated by a carpet large enough for every student to sit

comfortably. The students gathered at this meeting space for their morning and afternoon dismissal routine rituals (e.g. calendar, weather, announcements), as well as for minilessons, activities (e.g. Independent and Buddy Reading), read-aloud, and book talks.

Based on classroom observational data, the students' desks were arranged in clusters of four, which made it easy for them to temporarily transform each cluster into a small-group work area (during literacy center time). The physical arrangement of desks provided a space where students could read, write, think, talk, and create together while still having enough space to work independently. Students worked at desks that had an open space for storing their work and their supplies that could be easily accessible to them.

The Guided Reading area allowed the grade 1 teachers to provide literacy instruction to small groups of children. The blue guided reading tables were all positioned so that the teachers had a clear view of all students, particularly those not at the guided reading area. In general, the teachers were instructing one small group of students, the rest of the class was either working on independent literacy activities, on small-group projects, or at their designated literacy centers.

The first grade classrooms included a small library or *book bin*, which featured a variety of levelled reading materials that spanned a wide range of reading abilities. These texts were organized in small bins by reading level (ranging from Levels A-O) so that students could easily locate and select their texts to read during independent and buddy reading time as well as to take home daily (as part of the "Bag-a-Book" home reading program).

Fountas and Pinnell (1996) suggest that the physical environment be filled with a wide variety of printed work. Aside from static materials such as helper charts and

birthday charts, the observed classrooms had several word wall displays with high-frequency (sight) words, math terms, seasonal/holiday words (e.g., Thanksgiving, Christmas, Groundhog Day, Earth Hour), and word families wall. The word wall is a quick and effective way of teaching and reinforcing high-frequency words as well as letter patterns (Brown et al., 1996; Fountas & Pinnell). A pocket chart or work board displaying literacy center rotations, child-authored writing, message boards, and other print materials were also placed around the classroom to help foster authentic uses for reading and writing.

Fountas and Pinnell (1996) define a center as "a physical area set aside for specific learning purposes" (p. 49). Literacy centers in the four grade 1 classrooms were located in designated areas (or stations) and contained the requisite materials to enable students to discover, create, and work independently, with a partner, or with a small group. Management tools such as work boards, directions, and choice literacy center materials (e.g., flashcards, poems, charts, worksheets, etc.) were readily available, and pocket charts were used in several locations. There were also designated places (with clearly labelled bins) for students to store their works in progress and their finished work at the end of every center rotation.

Literacy centers. With the exception of one classroom at School 1, classroom observational data, teacher questionnaires, and teacher interviews revealed that the three remaining grade 1 teachers used literacy centers during their daily 120-minute morning literacy block. Interestingly, although there were several consistent components of a Balanced Literacy program, there was much variation on how it was implemented in the four observed grade 1 classrooms. For example, literacy centers were not implemented in

Veronica's grade 1 classroom, as she perceived that her students did not possess the required literacy skills for such independent, task-based learning activities:

> Especially with a group like mine this year, they need a lot of direction, a lot of instruction, they are not yet capable to work independently even this late [May] in the school year. . .three quarters of them cannot read or are at a very low level of reading, and some have not even progressed at all. (Veronica, Interview 1, p. 3)

In replacement of literacy centers, a majority of the 120-minute literacy block in Veronica's classroom was devoted to teacher-directed, whole-class activities. While these activities were being completed by her students at their desks, Veronica worked with her guided reading groups.

Within the other grade 1 classrooms, students engaged in literacy center activities while their teachers also focused on the individual needs of students at various levels during their facilitation of guided reading lessons. Students in Debra's, Tracy's, and Jessica's classes were grouped by colour, according to the PM Benchmark scores of student reading levels. Students in these three grade 2 classrooms rotated and completed their literacy center activities in sequential order (as displayed on the work board) and engaged in meaningful curriculum-driven literacy activities that fostered their motivation, word recognition, reading, and listening comprehension skills.

By its nature, use of a literacy center in the three grade 1 classrooms also incorporated many motivational and constructivist features, including opportunities for choice, self-direction, self-pacing, social collaboration, and independent practice. Students self-selected the books they would like to read during independent reading and buddy reading time, and chose from a set of *free choice* (literacy-related) activities in which they would like to engage when they were finished all the required tasks. In

addition to these open-ended activities, Tracy also stated that "she was going to let her students choose their own journal topics" (Tracy, teacher, Field notes, January 5, 2009). Such open-ended, self-selected tasks where students must take responsibility and control over their work are examples of how these centers were used to foster motivation for literacy by encouraging students to become actively involved in their literacy learning.

Another motivational tool that was frequently encouraged by all four of the teachers during independent literacy activities was students' personal word books (called *Try It Books*). When students did not know how to spell a word, they were expected to try it for themselves before the teacher would write the correct version in their books. According to Debra, this new method was "a stark contrast to practice in previous years" whereby teachers simply wrote the word out for their students (Debra, teacher, Field notes, September 24, 2008). This tool was used for teachers to gauge their students' progress in their correct spelling of (high-frequency) words, and was an attempt to increase their students' confidence in their own ability to spell.

Literacy center activities in these classrooms were also used to promote students' word recognition skills through activities that focused on letter-sound relationships and building students' (sight-word) vocabulary. The four classroom teachers used various word wall activities in their literacy centers where students needed to utilize the classroom word wall to support their spelling of these (sight) words. For example, in the *Word Study* center, Jessica frequently had her students choose a set of (no more than ten) words with different starting letters from their word wall, and write a sentence using several (Jessica, teacher, Field notes, October 30, 2008). Word study centers also included activities for word families, which students were first taught during whole-class, teacher-directed instruction. In Jessica's and Debra's grade 1 classrooms, students

participated in a weekly *Expand-a-Word* activity, where the teachers chose a new rime for the week (e.g. "-ill"), and directed students to look around the room and utilize the word wall for possible words or beginning letters (onset) preceding or containing the rime (e.g. "hill"). This kinaesthetic activity allowed students to physically explore word patterns, and expand the number of words using letter cards. Unlike the other grade 1 classrooms, Veronica's students had a weekly spelling test on the family words they came up with as a class, and always began her morning routine with an oral spelling quiz where students were asked to spell out loud the words of the week. An interesting observation made in Tracy's classroom was that she also included phonics activities for her students to complete in their *Nelson Phonics Workbooks*. These activities were not used by students in the other observed classrooms. She believed that such activities addressed essential skills including phonological awareness, letter-sound (phonics) relationships, visual processing, and spelling (Tracy, teacher, Field notes, September 30, 2008).

In order to familiarize themselves with and improve their sight word recognition skills, the grade 1 students in Debra's class were presented with a *Sight Word of the Day* every morning before their literacy center rotations. In their *Word Study* booklets, students were required to copy the high-frequency word (three times), the given sentence that included the underlined high-frequency word, and draw a picture to illustrate the given sentence [e.g. "Say"- It is time to say good night."] (Debra, teacher, Field notes, January 14, 2009). Similarly, a *Word of the Day* was also part of Tracy's morning routine, where an unfamiliar, challenging word that was read during reader's workshop was written down and posted at the front of the classroom. Tracy's students had the rest of the day to use the word in a sentence (Tracy, teacher, Field notes, March 5, 2009). It is

important to note that all classrooms using literacy centers also had a writing center as one of the literacy centers. The writing center included activities that related to shared reading or independent reading (such as journal writing and reading responses) and utilized word study, high-frequency (sight) word recognition and vocabulary-building.

Students in the four grade 1 classrooms were also responsible for practicing a rich supply of seasonal poems and nursery rhymes ("Baa, Baa, Black Sheep") introduced during shared reading time and displayed on anchor charts around the classroom (Debra, teacher, Field notes, October 16, 2008; Field notes, Jessica, January 21, 2009; Tracy, teacher, Field notes, March 5, 2009). The poetry center supported their exploration of word recognition, reading, and listening comprehension skills as they listened to, read, and dissected poetry. Through their weekly poems, students collaboratively located, circled, and/or underlined rhyming words, compound words, long and short vowels, silent letters, familiar sight words, and any new vocabulary.

Classroom libraries or reading centers were also evident in the four observed classrooms, which focused on sight word/high-frequency word recognition, word study, and vocabulary building, as well as building students' reading and listening comprehension. Since emergent-level texts were not readily available in the school library, teachers ensured that their students had opportunities to borrow texts at the appropriate level from their classroom library. Aside from Veronica's classroom, the classroom library was used by students during independent and buddy reading time. Each day, students arrived in Veronica's classroom engaged in independent reading while she took attendance and checked agendas. This allowed students to become familiar with and self-select from a wide variety of reading materials by book levels or by genre/themes, including picture books, nonfiction books, magazines, and chapter books. By allowing

children to choose their own books, their motivation to read increases, as the self-selection of books is linked to enjoyment and sustained reading experiences (Deci & Ryan, 1985).

Three of the grade 1 classroom teachers also included the computer center as part of their literacy center rotations and used computer programs to further their students' understanding of specific reading skills, including letter and sight word recognition and phonics instruction. The drill-and-practice series *Reader Rabbit 1* and *Reader Rabbit 2* provided students with practice in alphabetizing, rhyming, identifying long and short vowel sounds, creating compound words, word recognition, memory skills, spelling, and vocabulary. *Super Phonics* was also used to reinforce short and long vowels, beginning sounds, word endings, and consonant blends.

After students listened to audio versions of picture books (on tape or CD with headphones) at the listening center, they responded to the reading by illustrating and writing about their favourite scene or part from the story on their activity sheet. One way the three grade 1 teachers increased student involvement in this literacy activity, was by designating "Listening Center" jobs; teachers selected students who had the job of pressing play, holding the book and turning the pages (usually assigned to one of the higher- levelled readers in the group), and pressing stop, and rotated these jobs each time the groups went to this center. During observations of listening center rotations, the investigator found it challenging for students like Christina and Jaclyn to keep up with the story, as most of the audio books were at a higher level than the students' reading levels. As well, these students had difficulty following along as the pace was often too fast, the passages were very long, and there was not always a beeping cue to turn the page.

Reader's workshop. Observational data from the four grade 1 classrooms revealed that the Readers' Workshop was the organizational structure for the instructional components for reading instruction. Reader's workshop was an extended time for students to read, think, and converse about books on a daily basis. Three instructional aspects to the Reader's Workshop include: Read-Aloud, Shared Reading, and Guided Reading. These instructional contexts all represent decreasing levels of teacher support and increasing levels of student independence.

Reading aloud to the entire class enabled teachers to build and assess students` oral vocabulary development and listening comprehension skills, while students listened to texts that were beyond their current reading level but at their listening level. Unlike shared reading, students were released from the responsibility of concentrating on the mechanics of reading and they simply enjoy the text. Evident in the comments below, the grade 1 teacher participants were firm believers in reading aloud in their primary classrooms:

> I think it's [reading aloud] extremely important for developing literacy . . . that is one of the principles used in listening. (Tracy, teacher, Interview 1, p. 4).
>
> I do it every day. . . I am reading something aloud with the whole class . . . whether it`s poetry, chapter books, or theme books. (Debra, teacher, Interview 1, p. 3)
>
> It is [reading aloud] is important, especially with the group that I`ve got, where three quarters of them can't read or are at a very low level of reading. We try to read aloud every day. (Veronica, teacher, Interview 1, p. 1)

The grade 1 teachers' read-aloud program included a selection of fiction (e.g., picture books, novels, poems) and nonfiction informational texts, all of which extended their students' knowledge of story structure, literature, language, and the world.

As the teachers read, they moved the book around so that each student could see the illustrations. As highlighted in the following comments, students were often found "reading" and relying on the pictures rather than the words for constructing meaning:

> When I'm reading a story to them, I don't know if they're following . . . usually they're just looking at the pictures. I don't read something that they can usually see. (Debra, teacher, Interview 1, p. 4)

The researcher observed student participants' eye gaze and noted that they rarely attended to print in the text, but rather attended to and fixated on the teacher and the pictures.

Focused observations of the grade 1 classrooms revealed that the interactive read-aloud was an opportunity for teachers to model fluent and expressive reading, while simultaneously focusing on the same reading strategies utilized during guided reading and shared reading. Teachers encouraged interaction before, during, and after the read-aloud by inviting discussion; this "give and take" conversation around a shared text engaged students in making predictions, activating prior knowledge, thinking aloud, responding to and reflecting on what was read through the use of literal and inferential questions, and summarizing story elements (Jacobs & Paris, 1987; Pressley et al., 1989). For example, during a read-aloud of the story *The Very Hungry Caterpillar*, Jessica used a think-aloud strategy where students had to activate their prior knowledge of proper nutrition and food groups to categorize the healthy and nonhealthy foods the caterpillar ate throughout the story into the appropriate food groups (e.g., "What food group do apples belong to?"; Jessica, teacher, Field notes, January 28, 2009). Jessica also modeled

and used a think-aloud reading strategy of asking and answering questions to understand new information in a nonfiction text, and she used this opportunity to assess her students' listening comprehension during and after the read-aloud. These verbal self-reports about students' thinking processes helped Jessica's students increase their metacognitive awareness of the reading process, as they verbalized their thoughts and enabled them to assess their level of listening comprehension. Debra also employed these strategies. For example, after her read-aloud of a poem, Debra also had her students make a prediction and draw a picture of what they thought the dog in the poem looked like before showing them the illustration of it (Debra, teacher, Field notes, April 2, 2009).

In the four grade 1 classrooms during read-aloud, several teaching practices were used to nurture grade 1 students' motivation to read. Aside from the illustrations in the stories, the teachers' prosodies engaged *all* of the student participants in a motivating and compelling way and provided opportunities for inclusion. Observations of and interview comments made by Tracy reflect her efforts to promote student involvement and engagement in the reading process. For example, Tracy said that she offered her students some choices with respect to her read-aloud book selections:

> Normally, I pick them, sometimes for specific purposes. But I have given them sometimes the choice of two or three books, and then I might give them the background on each one, and they will very readily choose one, usually by vote. (Tracy, teacher, Interview 1, p. 4)

Tracy allowed students like Jaclyn to point to certain features in the book to sustain their attention and keep them involved. Further, Tracy always praised Jaclyn, who had difficulty maintaining attention for a sustained period of time, with specific feedback for

listening and appropriate behaviour, such as "You've been doing a great job listening, keep it up!" (Tracy, teacher, Field notes, March 23, 2009).

Students' interest levels significantly affected their level of engagement and thus their efforts and outcomes. When the teachers read aloud to their students, the book may not represent the interests of their students. As a way of getting her students more involved and engaged during her read-aloud, Debra had her students choose from a collection of thought-provoking, humorous poems found in *Where the Sidewalk Ends* (Debra, teacher, Field notes, April 2, 2009). Coincidentally, a poem title was "James," one of this study's participants. Obviously, this was one of the class's favourite poems.

As a part of shared reading the grade 1 teachers read large-print texts that were visible to all (e.g., anchor charts, overhead transparencies, etc.), while focusing the students' attention on the text and the reading strategies that were being modeled (Ministry of Education of Ontario, 2003). As described by Flood (2003), repeated readings of the same familiar text served several purposes in the four grade 1 classrooms. The first reading (done by the teacher) was for enjoyment, as students listened and observed their teachers reading aloud. The second reading focused on building and extending comprehension of the selection; the third focused students' attention on the interesting language and vocabulary; a fourth focused on decoding, using the words in the selection as a starting point for teaching word identification skills. Teachers attempted to highlight short and long vowels, long vowel phonemes, silent letters, text vocabulary, and high-frequency sight words, word families, and rhyming words, compound words, synonyms, and antonyms during shared reading. After multiple readings of the same text over several days, students were then able to chorally read with fluency, automaticity, and respond to the reading strategies that were modeled and practiced. Students' fast,

accurate, and effortless word recognition tended to grow out of repetition and repetitive readings during shared reading, which is an essential step in moving from word recognition to reading comprehension.

Tracy spiced up her shared reading lessons by choosing students to come up, select a pointer, put on their imaginary "special reading glasses," and lead their classmates in a shared reading of the texts (Tracy, teacher, Field notes, September 30, 2008). Alongside Tracy, the other teachers used and strongly encouraged finger-pointing reading (voice-to-print match) during their shared reading of texts, which enabled struggling readers like Jaclyn and Christina to follow along and actively participate in reading the texts and highlight the conventions of print, story structure, or text features including predictable patterns such as repetition, rhyming, and rhythms as well as spelling patterns (Flood, 2003). Tracy also engaged her students with an activity in which she wrote lines of the poems and songs on sentence strips which were placed out of order for students to place in correct order during their literacy center activities; this activity in particular appealed to kinaesthetic learners, such as Jaclyn and James.

Holdaway's (1979) model of shared reading was used as an interactive, whole-group approach that bridged the four grade 1 teachers' read-aloud and guided reading components of their Balanced Literacy program. A sense of community was also developed when the four teachers arranged for the whole class to gather on the carpet near a chart/easel so that all students could easily see the enlarged text. Through repeated readings and the use of such items as a pointer stick and a highlighter marker, the grade 1 student participants became familiar with repetitive, rhyming, and high-frequency words. Shared reading with strong teacher support was also a way the teachers gave students practice and immediate feedback as they developed the reading skills and strategies

necessary for successful decoding and comprehension. Because of this high level of teacher support and the use of repeated reading methods, students such as Jaclyn, James, and Christina, who were more slowly acquiring reading skills, followed along and experienced success during these shared reading experiences.

Guided reading is an instructional approach that the four grade 1 teacher participants used to work with a small, ability-based reading group (with no more than four to six students) on specific skills such as phonemic awareness, comprehension, word attack skills, or sight word recognition. The guided reading groups of students were set up based on their *PM Benchmark* scores as administered in September. Typically, small groups of students rotated through a 20-minute guided reading session, while others participated in independent or small-group literacy centers or seatwork activities. Guided reading was also an opportunity for the teachers to spend more time with the weak readers in their classrooms and offer more individualized attention and guidance to pupils, especially Christina and Jaclyn:

> Sarah's reading group is working from [reading level] L to M, at a grade 2 level. I definitely don't need to worry about seeing them two to three times a week, whereas with Christina, I have to make more of a point to see her independently and in her guided reading group moreso than Sarah's group (Jessica, teacher, Interview 1, p. 4).
>
> I would like to read more with Jaclyn, but there are a lot of needs in this class, and it is difficult to find the time . . . Jaclyn requires a lot of one-on-one time (Tracy, teacher, Field notes, January 15, 2009).

During guided reading, after carefully selecting a book that was supportive, predictable, and closely matched to the students' needs and abilities, the grade 1 teachers

introduced the book and discussed the cover, including the title, author, and illustrator. Following this, the teachers took students on a *picture walk* of the book, as they discussed each picture with them. Then the teachers read the entire book to the group. Finally, students independently and softly (whisper) read the text to themselves at the same time, while the teachers *tapped in* to observe, listen, and prompt each student as needed.

In contrast to the three other grade 1 classrooms, a *Round Robin Reading* approach was used during Veronica's Guided Reading lessons, whereby individual students in the groups took turns reading aloud from the text. The majority of Veronica's students were "still at *PM Benchmark* Level 0 and Level 1, and their ability to read was fairly low" (Veronica, teacher, Interview 1, p.1). By using a round robin reading approach, Veronica believed that she was able to ensure that every student was in fact reading, and if there were some difficult words or concepts, she was available to provide direct instruction and support to each student.

While the students read quietly to themselves at the same time, the teachers also judged when to draw the whole group in to discuss a particular challenge, especially when word difficulties arose. For example, when one of her students had difficulty with a word that had the "-an" sound in it, Tracy used this opportunity to reinforce sight-word recognition and highlight text features, as she directed everyone's attention to the "chunking wall" in the classroom, asked them, "Are there any words that we know that have the chunk "-an" in it?" Tracy had students read over the "-an" word family list (Tracy, teacher, Field notes, March 2, 2009).

Pictures played a large role in activating grade 1 students' semantic and graphophonic cueing systems (Goodman, 1996). Focused observations of James, Jaclyn, and Christina during guided reading revealed that they used picture clues to guess at

words and had an impressive ability to quickly memorize predictable texts. They had difficulty developing a bank of automatic words they knew out of context and also had trouble discussing and demonstrating comprehension of stories they read. For beginning, struggling readers like James, Jaclyn, and Christina, supporting pictures provided a concrete representation of what the text was stating in words, and aided in the identification and decoding of unfamiliar words (Fountas & Pinnell, 1996). For example, during another guided reading lesson on the story *What Goes Fast*? Jaclyn relied on her background knowledge (schema) and nonvisual information when she misread the word "cheetah" for "tiger" (Tracy, teacher, Field notes, November 7, 2008). This illustrates how beginning readers like Jaclyn make predictions from context since they have not developed proficiency in word recognition.

Additionally, predictable one-sentence patterns in text such as, "I see the ____" enabled Jaclyn to read with confidence as she continued to rely on picture cues (Tracy, teacher, Field notes, November 7, 2008). However, the last page, "Now you can see all of me," posed a break in the pattern, and rather than reading the words on the page, Jaclyn relied on her memory and automatically said "I see the. . ." as she had previously read (Tracy, teacher, Field notes, November 7, 2008). The written report card comments for Jaclyn, Christina, Sally, and James confirmed these observations.

In order to prevent the overreliance on visual cues and memory, finger-pointing was strongly enforced by the grade 1 teacher participants, especially with their struggling readers:

> When it's guided reading, they are told to use their finger as they read, because I want to make sure they've got the one-to-one correspondence down and they're following along. (Jessica, teacher, Interview 1, p. 6)

After students finished (silent) reading, the teachers usually reconvened the group and collectively discussed the story in order to check the students' comprehension through questioning and require retelling of the text. Literal questions, or closed questions, were often used in order to explore the literal meaning of the story so that the students could cross-check meaning and visual information and teachers could get a big picture of the students' comprehension. Retelling was an opportunity for the grade 1 teachers to find out what the students knew about story structure, vocabulary, sequencing, and the relative importance of information from the story.

Tracy used what she called "Reading Comprehension Spinners," which was a fun and creative method (not observed in the other grade 1 classrooms) to get her young readers thinking and evaluating their reading material (Tracy, teacher, Field notes, March 2, 2009). The spinners provided students with an interactive and non-disruptive way to feel a sense of ownership for their learning and practising their comprehension skills such as retelling important story elements. Students interacted by spinning to determine which questions which they would discuss. Examples of such questions were "How did the story end?" "Where does this take place?" "Who are the main characters?" "What is the problem in the story?" (Tracy, teacher, Field notes, March 2, 2009). Similarly, kinaesthetic learning was used to reinforce Debra's students' word-picture recognition skills during a Guided Reading lesson. Her memory game excited and interested struggling, tactile learners such as James, as they matched pairs of rhyming words found in the story *Rain, Rain*. Through the use of kinaesthetic methods, struggling readers like Jenna and James actively participated more, shared their thoughts and feelings about the story read and seemed to enjoy the reading task at hand.

Computer Technology within a Balanced Literacy Program

In addition to the physical classroom environment, the structure of the reading activities within the four classrooms (including Reader's Workshop and various forms of reading group activities), computer technology within a Balanced Literacy Program emerged as a subtheme. This subtheme describes how the four grade 1 teachers' applications of digital technologies were used in their reading instruction (particularly word recognition and comprehension), which was revealed through teacher and student questionnaire responses and teacher interview transcriptions.

All of the teachers indicated that their students had both computer and Internet access in their classrooms and in their school library/computer lab (Teacher Questionnaire 1, p.1). However, the school board recently implemented a change with their removal of all computer labs, which left three grade 1 teachers feeling frustrated as they were unable to effectively integrate computers into their Balanced Literacy program:

> Our labs have been taken away from us this year; we used to have full periods, two to three times a week, in the lab last year. [Now] I only have these two [computers], and it's on a rotation basis. So, I'm lucky if one language activity a week would get done, because by the time everyone gets through it, I probably wouldn't even get through everybody in a day. (Jessica, teacher, Interview 1, p. 3)
>
> The ones [computers] they gave us aren't any good. They gave the good ones to the intermediates. The ones I have in my classroom don't run a lot of the programs we need for the primary students. The primary students need the colours, the actions, the higher sound card, and they gave it to the older kids. My students go to the [classroom] computer once a week, for 40 minutes. I have

> everyone fighting over the [one good] computer, because everyone wants to use the computer. (Debra, teacher, Interview 1, p. 2)
>
> As you could see, the two computers never work in my room. (Veronica, teacher, Interview 1, p.1)

The school board replaced the two schools' computer labs with 10 portable laptops; however, these laptops were located upstairs for the intermediate classes to access (Debra, teacher, Teacher Interview 1, p. 1; Veronica, teacher, Interview 1, p. 5; Jessica, teacher, Interview 1, p. 3). A small number of computers, typically two or three, were in all of the classrooms. On average, three of the four teachers reported that their students were permitted 40 minutes (one period) of classroom computer access per week, typically during literacy center rotations and *free choice* time:

> Computers have been an option if the children are finished in general, so they often haven't had that opportunity, because it usually takes them some time to finish their work. (Tracy, teacher, Questionnaire 1, p.3)

When asked which computer programs were typically used by students during their Balanced Literacy program, teachers reported the following, which mostly focused on developing word recognition and phonics skills:

> There's *Reader Rabbit 1* and *Reader Rabbit 2*, which is all word attack. There are a couple websites for picture books on the computer but I have not used them, for the same reason I mentioned before . . . the computer crashes, it freezes, whereas I know the computer programs I use with them won't. Then I have a sight words program that includes a word match, auditory match, typing, flash cards, spelling bees, and word games. (Debra, teacher, Interview 1, p. 2)

> They haven't used the Internet. They mostly use *Super Phonics,* which has sight words, alphabet blends, consonant blends, and grammar . . . I've not used a lot of programs as far as listening to text and answering. (Jessica, teacher, Interview 1, p. 4)

As indicated in the teacher and student questionnaires, the grade 1 students *never or hardly ever* used the Internet, online learning games, electronic storybooks, or multimedia presentation tools in their classroom reading instruction. Teachers also shared their own experiences (or lack thereof) in integrating computers, multimedia, and online technologies such as the Internet in their grade 1 reading instruction:

> No, I haven't [used the Internet in my classroom]. The computer is now an integrated part of Media Literacy in the grade 1 Language curriculum; it's something I still want to do and find out more about; I find what children are doing now with the computer, I never had the opportunity when I was younger . . . perhaps I would be a lot more computer literate than I am now, and also more willing and comfortable to use the computer more. (Tracy, teacher, Interview 1, p. 2)

> I haven't [used the Internet or PowerPoint program] in my classroom and am not familiar with it. I would need an in-service on that. I'm not great with computers. I'm familiar with what I know, [which are] the programs that are already on the school computers that I have learned over the years. (Jessica, teacher, Interview 1, p. 3)

Out of the four teacher participants, only one of them was found using the Internet to locate information and word study activities to supplement her classroom literacy instruction.

By the end of the study, the grade 1 teachers had only partially included digital reading programs into their Balanced Literacy classrooms. Even though the Ministry of Education of Ontario (2006) has attempted to increase computer/Internet use in the public schools to help students acquire the skills they need to manage in a media-saturated environment, the teachers in this study self-reported very limited computer availability, lack of time, training, and proficiency in their own computer skills, and consequently have struggled to integrate technology into their grade 1 Language curriculum.

This section answered the study's first research question and described how four grade 1 classrooms implemented a balanced literacy program that addressed the following areas: oral language/vocabulary, phonemic awareness, word identification strategies (including phonics instruction), comprehension, and fluency instruction. In three classrooms, the physical environment included literacy centers that provided an inviting area for students to read, write, and appreciate children's literature. In these centers, students also had an opportunity to have and make choices in some of their classroom reading and writing experiences as well as engage in social collaboration.

Consistent with previous findings (e.g., Blatchford et al., 1989; Gibson & Dembo, 1984; Graham et al., 2001), there appeared to be differences in the instructional practices, beliefs, and characteristics of the four grade 1 teachers, which may have had an effect on students' reading achievement and reading motivation. In Veronica's grade 1 classroom there was an unequal distribution of balanced literacy components, with more emphasis on teacher-directed instruction and seatwork than student-centered activities.

The above findings were consistent with those found in McNabb et al. (2000) and Lynch (2002)'s study, regarding the relationship teachers' efficacy beliefs and their instruction practices. The grade 1 teacher participants viewed computer technology as

positive; however, they neither acquired nor attempted to integrate their knowledge and skills of the computer and online technologies in their grade 1 reading instruction. These teachers appeared to have low computer self-efficacy in integrating multimedia and online software programs such as Microsoft PowerPoint™ and the Internet in their Balanced Literacy instruction. Further, one teacher, Veronica, had reservations about the use of technology in her grade 1 classroom, as she believed her learners were not yet independent or linguistically competent enough to use these technological tools.

Students' behaviours during classroom reading instruction and activities. The following section addresses the second part of this study's first research question, and describes the eight student participants' interactions, off-task and on-task behaviours during reading instruction and teacher-assigned reading tasks. Classroom observations, teacher interviews, and teacher comments from student participants' report cards were the main sources of data used to present these findings.

Students off-task during classroom reading instruction and activities. Jaclyn and James, who were otherwise easily distracted and inattentive during sustained reading periods, were highly involved in their teacher's read-aloud sessions. All of the students diligently used active listening strategies, including Jaclyn, who was often provided with positive verbal reinforcement for her appropriate behaviour. Although they were still fidgety and needed sensory input, Jaclyn and James still attended to the read-aloud. Observations by the investigator showed that while Jaclyn, and James were often fidgety, playing with objects in their hands, and engaging in off-topic conversations during class discussions after the read-aloud, they were always attentive, focused, and intensely concentrated on the teacher and the book she was reading, especially when it was relevant and interesting to them.

During his teacher's read-alouds, James was very engaged and often imitated the teacher's voice with expression. Although James was often found being disruptive, engaging in off-task behaviours, and needed constant reminders to stay focused and participate properly during class discussions, Debra confirmed that he always listened and was willing to share his answers with the class:

> Oh, he does 100%. He's not sitting still to focus, but I'll ask him, "James what did I just say?" and he correctly gives the right answers, so I stopped worrying about him. (Debra, teacher, Interview 1, p. 5)

After the read-aloud and during whole-group discussions, Jaclyn and James could not control their urge to physically touch, poke, or irritate others during carpet time. While the other students remained acutely attentive and participatory, Jaclyn and Christina participated minimally and were inattentive (e.g., roaming around the classroom, daydreaming). On many occasions, Jaclyn would frequently stand up and walk over to her desk to grab certain objects to play with during class discussions and required frequent comments from the teacher to return to the carpet and the task at hand.

Similarly, Christina often engaged in off-task behaviours during her teacher's read-alouds, which consisted of brief periods of passive nonattending (e.g., chatting with her neighbours, drawing on her friends' backs, playing with her shoelaces or playing with her headbands; Jessica, teacher, Field notes, January 28, 2009). When Jessica invited Christina to share her thoughts with the class, she remained quiet and did not respond. For example, during a shared reading of the poem when she was asked to come up and point to the rhyming words "all" and "fall" on the poem chart, she was hesitant to do so (Jessica, teacher, Field notes, September 23, 2008).

Unlike the other five participants, Jaclyn, James, and Christina frequently engaged in off-task, learned helplessness behaviour during reading-related tasks. Despite being given choices in their reading materials during independent and buddy reading times, these three student participants appeared less motivated than the other five participants, who all displayed high levels of cognitive engagement and intrinsic motivation. During independent reading times, Jaclyn, James, and Christina all self-selected books that were either too challenging for them, as they quickly flipped through the pages and focused mainly on the pictures rather than the words on the page, or selected the same easy, low-level books (Level A) that were below their actual reading level. These participants gave up easily, especially when they were challenged with an unfamiliar word. During one observation session, Jaclyn attempted to read a new fiction picture book that was at her reading level, but stopped reading after the first page and flatly stated, "I don't want to read anymore, it's too hard," and went to get another (Level A) book which she said she "always reads in class and at home with my mother" (Tracy, teacher, Field notes, October 21, 2008). As a result of repeatedly rereading the same book, Jaclyn read the sentences fluently, neither looking at the words while she was reading them nor using her pointer finger as she read; instead, her eyes gazed at the pictures, and she would point to or comment on the pictures on the page (Tracy, teacher, Field notes, October 21, 2008). Christina chose to read the same Level A book she read during previous independent reading times and as part of her home reading program. When Christina was stuck on a word, she did not try to pronounce the word, but quickly closed the book and mumbled "Whatever" (Jessica, teacher, Field notes, October 1, 2008). Similar comments were written in the Term 1 report cards for James, Christina, and Jaclyn, confirming the observations made by the investigator during independent reading time.

Jaclyn, James, and Christina displayed similar off-task behaviours during buddy reading times, as they often became easily distracted, acted silly, and fooled around with their buddies, especially when they had difficulty pronouncing a word. On two separate occasions, Jaclyn frequently asked her buddy for the pronunciation of several high-frequency words (that she had previously already learned). Halfway through reading the book, and after several failed attempts to independently sound out a word, Jaclyn stopped reading and returned to her desk to colour (Tracy, teacher, Field notes, February 2, 2009). When it was their turn to read, Jaclyn, James, and Christina often read in a soft, less fluent, mumbled, monotone voice; reading for them was often a word-by-word struggle.

Similarly, James, Jaclyn and Christina had difficulty focusing independently on printed material for a sustained period of time, and often resorted to fidgety, off-task or disruptive behaviours (i.e., disrupting their neighbours) during their Guided Reading sessions to avoid looking incompetent or to hide their uncertainty about a word. Unlike the independent reading behaviours of the other four participants, James, Jaclyn, Sally, and Christina often stopped reading, did not attempt to independently sound out or guess the word, exhibited behaviours of learned helplessness, and instead waited for their teachers' assistance. Consistent with previous findings (e.g., Burns, 2006), guided reading was extremely helpful to these students only when the teachers provided undivided attention and one-on-one instruction. The "levels of attention, reading productivity, and accuracy improved dramatically" for James', Jaclyn, and Christina when their teachers provided undivided attention and on-one-on instruction (Debra, teacher, notes, September 22, 2008; Tracy, teacher, Field notes, September 30, 2008; Jessica, teacher, Field notes, October 17, 2008).

In regard to completing independent reading-related seatwork, Tracy shared with the researcher that her student, Jaclyn, had difficulty focusing on the task at hand, needed constant reminders to stay seated, especially during sustained reading and writing periods (Tracy, teacher, Field notes, January 15, 2009). It was noted that during one 120-minute classroom observation session, Jaclyn got out of her seat and engaged in off-task behaviours a total of ten times (Tracy, teacher, Field notes, January 15, 2009). Jaclyn's Term 1 report card comments reflected this, as she "did not manage her time effectively, and got distracted easily," and "needed frequent reminders to persist with tasks and adhere to timelines" (Tracy, teacher, Term 1 report card comment). Although Jaclyn could read, Tracy was worried that she could not grasp what was being read. Jaclyn often flipped through the books, focusing solely on the pictures (Tracy, teacher, Field notes, October 28, 2008). However, Jaclyn had shown improvement in her work productivity at the end of Term 2, as she was "taking less time to get started with her work," "with some direction or assistance, stayed more focused on oral/written task at hand," and "showed greater persistence in following instructions and completing tasks" (Tracy, teacher, Term 2 report card comment).

Similar to Jaclyn, James also had difficulty staying on task during literacy center seatwork. In one observation session, James engaged in off-task behaviours and was reminded by his teacher approximately ten times to stay focused on the task at hand (Debra, teacher, Field notes, October 9, 2008). As a result of his off-task behaviours during literacy center time, James usually stayed in for recess to finish his incomplete work. James's inability to complete work in a given amount of time was confirmed in one of his Term 1 report card comments, which stated: "Although James is capable of doing work, he gets easily distracted by others, struggles with focus and being attentive to the

task, and has difficulty completing simple tasks independently" (Debra, teacher, Term 1 report card comment). One of Debra's strategies for helping James stay focused, included giving him an eraser to use as a reading marker to help keep his place while printing; every time he was finished copying the word, Debra would move the eraser to the next word (Debra, teacher, Field notes, March 10, 2009). Interestingly, the teacher later told the investigator that this strategy "helped my son with ADHD stay on task and focused" (Debra, teacher, Field notes, March 10, 2009).

Although Christina was less disruptive in class, she "experienced some difficulty following directions [and] working independently" (Jessica, teacher, Term 1 report card comment). For example, while completing a *Reader's Response* activity, it was noted that Christina spent a total of 15 minutes writing the title of the book, even though the information was already provided to her on an anchor chart and she only had to copy it down. Typically, Christina engaged in several off-task behaviours including listening to and engaging in her neighbours' conversations, taking frequent washroom breaks, looking through her pencil case, and playing with objects in her desk (Jessica, teacher, Field Notes, January 28, 2009). Jessica confirmed, "Christina has been asking to go to the washroom before any transition or seatwork activity, especially if the work was too challenging for her" (Jessica, teacher, Field notes, October 1, 2008). As indicated in one of her Term 1 report card comments, Christina "required repetition of instructions and teacher assistance to complete language activities." In Term 2, however, Christina's work productivity improved, as "[she] was learning to begin work promptly and use [her] time efficiently to finish independent work with care" (Jessica, teacher, Term 2 report card comment).

Students on task during classroom reading instruction and activities. During Terms 1 and 2, Mark, Sarah, Sally, Christopher, and John all exhibited similar consistent on task behaviours during reading instruction and independent, reading-related seatwork.

For example, John, Christopher, and Mark all participated actively and enthusiastically during these discussions. While reading the book *House for Sale*, and without being prompted by Veronica, Christopher was able to successfully relate to what he read by making a connection to his own life: "On my street, there is a house for sale" (Veronica, teacher, Field notes, January 13, 2009). Mark silent read effortlessly, had a very high word recognition, and, as confirmed by Tracy in her interview, "he can recognize many high-frequency words that are perhaps more challenging for grade 1" (Tracy, teacher, Interview 1, p. 5).

Unlike Jaclyn, James, and Christina, Sarah, Mark, John, and Christopher "effectively communicated their thoughts when responding to questions or sharing information with the class and continued to be excellent participants during group discussions and reading activities" (Jessica, teacher, Term 2 report card comment; Tracy, Term 2 report card comment; Veronica, teacher, Term 2 report card comment). Although John paid attention during read-alouds, his head would be down and his focus would not be on the teacher or the book; every so often when Veronica looked at him, his eyes, gazed back up at the book. Christopher, on the other hand, was very involved during the read-aloud, as he would often position himself on the carpet. If he could not see the book or picture, he would stand up and move to a spot where he could see the pictures in the book. Veronica's comment attests to these observations, as she said that "Christopher is very excited and very keen to put his hand up and answer questions, whereas John is

more reluctant to express his thoughts and feelings" (Veronica, teacher, Interview 1, p. 3).

Sarah, Mark, Christopher, and John always tended to appear more confident in their reading abilities, as they often read aloud more fluently and naturally, with expression and excitement. During independent and buddy reading, when Mark, Sarah, Sally, Christopher, and John were stuck on a word, they relied less on their buddy and utilized more effective word attack strategies, including the use of picture cues, sounding out the word, and reread the sentence. While Christina, James, and Jaclyn struggled to finish reading one book in its entirety, Mark and Sarah would completely read as many as five books during this 20-minute rotation. According to the teacher comments on the Term 2 report cards for Sarah, Mark, Christopher, and John, they have all "made good use of the 'Book in a Bag' program" and "demonstrated strong independent reading skills" (Tracy, teacher, Term 2 report card comment; Jessica, Term 2 report card comment; Veronica, teacher, Term 2 report card comment).

In addition, focused observations of these students also revealed that they assumed leadership roles in which they provided direction, mentoring and support to other students in their literacy center groups. Specifically, Mark and Sarah provided their buddies with encouragement and direction and often assumed the role of a teacher during these reading center activities. During one classroom observation, the investigator heard Mark encouraging his partner, who was struggling with some of the words saying, "You can do it!" (Tracy, teacher, Field notes, September 30, 2008). When it was her partner's turn to read, Sarah quickly informed him before he jumped to the first page of the book, "You have to start with the title!" (Jessica, teacher, Field notes, October 8, 2008).

Sally, Mark, Sarah, Christopher, and John always worked diligently, were on task, used their time efficiently, and rarely asked for teacher assistance, as confirmed by their Term 1 report card comments. These report card comments indicated that Sally also "began her work promptly, took her time to organize and it showed in the quality she produced" (Debra, teacher, Term 2 report card comment). Comparable to Sally, Mark and Sarah were observed self-correcting and editing their finished work before submitting it to their teacher. Consistent with Deci and Ryan's (1985) achievement motivation theories on social comparison and competition processes, Sarah was often found looking over her shoulders at her classmate's work, curiously trying to ascertain that she had the right answers, and at times changed her original answers to match those of her neighbour's (Jessica, teacher, Field notes, October 17, 2008). Sarah frequently employed performance goals and sought recognition from her classroom teacher. Moreover, both Mark and Sarah "worked well without supervision, obtained information independently and persisted with tasks" (Jessica, teacher, Term 2 report card comment; Tracy, teacher, Term 2 report card comment).

In sum, and as will be later discussed, the student participants' patterns of reading engagement (or lack thereof) are consistent with the "Matthew Effect" (Stanovich, 1986), in which the good readers and high achievers like Sarah, Mark, and Christopher improved more rapidly than low achievers like James, Jaclyn, and Christina. The latter group of participants exhibited learned helplessness, task-avoidant behaviours during reading activities that appear to be predictive of their reading motivation and reading achievement (e.g., Onatsu-Arvilommi et al., 2002; Unrau & Schlackman, 2006; Weiner, 1986).

Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes

According to Bandura's (1965) social learning theory, behaviours and attitudes develop not only out of direct experience with stimulus objects but also through the observations of other persons' reactions to the relevant stimuli. Reading is a socio-cultural practice rooted within the interactions among parents/guardians, teachers, and young children (Morrow & Young, 1997). The social context within which reading occurs also influences the way students perceive themselves as readers and the degree to which they are motivated to engage in reading (Taylor & Adelman, 1995). This subtheme elaborates on this notion of contextual and innate influences on reading development, and answers the study's second research question: What are grade 1 students' behaviours and attitudes towards reading in general and, more specifically, toward multimedia and digital reading instruction? Based on student, teacher and parent questionnaire responses, teacher interviews, classroom observations, student behavioural checklists, and teachers' report card comments, this section will examine participants' preprogram (print-based) reading behaviours and attitudes, preprogram (digital) reading behaviours and attitudes, as well as participants' interim-program reading behaviours and attitudes.

Preprogram (Print-based) Reading Behaviours and Attitudes

In general, with respect to preprogram (print-based) reading behaviours and attitudes, there were no significant gender or socioeconomic differences in terms of student participants' reading preferences, habits, and motivation. The first questionnaires (student, teacher, and parent versions) measured perceptions of student participants' book-borrowing practices, their willingness to read books in free time, the variety of texts that children read, the frequency of shared book reading, and the parents' reading

frequencies. Additionally, this first questionnaire queried several aspects of motivation, including importance of reading and recognition for reading.

The first question posed to both students and parents on their questionnaires related to the importance they attached to (their child) reading well (measured on a 3-point Likert scale ranging from *very important* to *not at all important*). The findings revealed that, with the exception of James and Jaclyn, the remaining six student participants and all of the parents felt it was *very important* (for their child) to read well. The responses of Jaclyn and James on the Importance of Reading subscales pointed to the fact that reading was not viewed as an activity of high priority for them.

The students' and parents' preprogram *Motivation to Read Questionnaire* as well as the *Teacher Questionnaire* instrument contained one question that gathered data on text type preferences. The results from these questionnaires indicated that parents' and teachers' perceptions aligned closely with students' selected reading materials. Within their classrooms, the overwhelming majority of female and male student participants showed an equitable level of interest in reading fiction picture books and magazines. Based on classroom observations, although James, Jaclyn, John, Sally, and Christina indicated they frequently read comics at home, these were not available in their classroom or school libraries.

Unlike their reading preferences in the classroom, John, James, Sally, and Christina indicated that they frequently read comic books and magazines at home; only John and his parents had identical responses to this question and listed magazines as one of John's favourite reading materials. Unlike their children's reported reading practices, the parents of Christopher, Jaclyn, and Mark claimed that they read magazines at home (e.g., *Chickadee, Highlights, National Geographic for Kids, and Star Wars*; Parent

Questionnaire 1, p. 2). Audio books were not reported by any of the parents in terms of their children's home reading materials, but they were selected by Christopher, Sally, Christina, Sarah and Jaclyn. However, unlike their children's responses, the parents of John, Christopher, and Mark stated that their children read eBooks at home, such as *Leap Frog,* which was dissimilar to the children's responses (Parent Questionnaire 1, p. 3). Thus, it seemed as though parents were unaware of their children's home reading habits and preferences, as their responses to these subscales often conflicted with those provided by their children.

It is important to note that students' questionnaire responses may have been influenced by their interpretation of whether the question referred to reading materials of personal interest or those provided by their teacher or parents. Further, students' responses to the text type preferences question also may have been influenced by their interpretation. For example, John reported that he read information books and further added "books with words and no pictures"; however, after clarifying with him, the researcher discovered that John had meant to say chapter books (Child Questionnaire 1, p. 2).

Parents and students were asked how often they took books out of the school or public library for recreational reading purposes, which was measured on a 3-point Likert scale (ranging from 1, *Never or hardly ever* to 3, *Almost every day*). The parents of John, Christopher, Sarah, and Mark said their children take books out of the public library *some days,* whereas the parents of Sally, Jaclyn, James, and Christina admitted that they *never* visit the public library. According to John's parents, their son visits the school library *once a week* while the rest of the participants' parents indicated that they take books out of the school library on *some days*. However, based on classroom observations that took

place, each grade 1 classroom had a scheduled library book exchange period only once a week, where students could select materials for home and classroom reading. Thus, book access for the student participants in this study was primarily through borrowing from their classroom and school libraries, pointing to the importance of providing literature-rich classrooms.

Parents were asked how often they read to their child at home. Interestingly, all of the parents indicated that they read to their child *almost every day*, except for James's parents, who read to him *some days*. With the exception of James and Sally, the remaining student participants provided responses identical to those of their parents. Unlike what was provided in their parents' questionnaire responses, James indicated that his parents read to him *almost every day* while Sally's parents read to her only *some days*. When they were asked how often their child asked to be read to, the parents of Jaclyn and James responded *some days*, whereas five parent participants reported *almost every day* (Parent Questionnaire 1, p. 2).

In order to elaborate on Bandura's (1997) research on self-efficacy and determine whether a relationship existed among the reading practices of the parents and their children, the researcher asked parents how often they read for enjoyment. The parents of Christopher, John, James, Mark, and Christina parents reported that they engaged in reading for enjoyment purposes *almost every day*. The parents of Sally, Jaclyn, and Sarah parents reportedly engaged in leisure reading *some days*.

Similar to their parents' questionnaire, student participants were also asked, "How often do you read for fun on your own time?" Interestingly, student participants' responses did not align closely with those of their parents. Like his parents, Christopher also reportedly engaged in nonacademic, leisurely reading *every day*. Sarah and Sally

also spent the same amount of time reading for enjoyment as their parents reported, whereas Mark and Christina stated that they read for fun *some days*. Similarly, Jaclyn, James, John, and Christina did not view reading as a positive activity and preferred engaging in other leisure activities than reading. Surprisingly, despite his high level of reading ability and his parents' frequency of leisure reading experiences, John *never or hardly ever* read for fun on his own time. John's answers were quite surprising, as he demonstrated a high level of proficiency with reading. As opposed to their parents' reading practices, Jaclyn and James also indicated that they *never or hardly* ever engaged in reading for nonacademic purposes and would rather partake in other leisure activities.

When they were asked to report on their students' enjoyment of reading print books (e.g., hardcover or paperback), all of the teacher participants were in agreement that their grade 1 students enjoyed reading hardcover books in class *a lot*. With the exception of John, the majority of student respondents strongly agreed with their teachers and were *very happy* about reading hardcover books. Yet, when teachers were asked to rank order the activities which students chose to do during "free choice" time, *going to the library* was the least preferred activity (Teacher Questionnaire 1, p. 4).

Although these findings revealed that reading was student participants' least preferred activity in the classroom and at home, the student and parent responses from a similar 4-point Likert item revealed otherwise. Respondents were asked to rate their (perceived) feelings toward spending their free time reading. John's parents thought he was *a bit upset* about reading during his free time; yet John reported that he was *very happy* about spending free time reading. Christopher's parents were correct in their perceptions of their son's positive feelings toward spending his free time reading. Although Sally's parents thought she was *very happy* about spending her free time

reading, Sally rated her feelings toward this question on the lower end of the Likert scale. James's parents made an accurate assessment of his feelings toward leisure reading during free time, as James reportedly felt *a bit happy* about this activity. The parents of Jaclyn, Christina, and Sarah believed that their children were *a bit happy* about reading during their free time; however, Jaclyn, for example, was *very upset* about reading during her free time. Similar to Sally's parents, Mark's parents also perceived their son to feel *very happy* when he spent his free time reading; Mark felt *very upset.* Like Christopher's parents, the parents of Sarah and Christina underestimated the feelings of their daughters about reading during their free time, as they rated their feelings on the highest end of the 4-point Likert scale.

The four grade 1 teachers were also asked how much time they devote to reading aloud to their students as part of their Balanced Literacy program. Jessica and Debra spent 60 minutes per week; Tracy allocated approximately 300 minutes per week; whereas Veronica allocated 480 minutes per week to read-aloud sessions in her classroom (Teacher Questionnaire 1, p. 2). It is not surprising that Veronica allocated significantly more time to her Balanced Literacy program, as she previously noted that her class was reading significantly below grade level and thus required such intensive reading instruction (Veronica, Interview 1, p. 2). Student participants in Jessica's, Tracy's, and Debra's grade 1 classrooms confirmed that they were read to by their teachers *almost every day*. However, contrary to their teacher's response, John and Christopher indicated that Veronica *never or hardly ever* read aloud to them in class; in fact, Christopher stated, "We have to read to her!" (Child Questionnaire 1, p. 5). Thus, a question to consider is: what was Veronica's interpretation of a read-aloud: reading storybooks aloud for pleasure or providing drill-based reading instruction?

In their questionnaires, teachers and parents were asked to rate their perceptions of how much the student participants enjoyed being read to. All four grade 1 teachers were in agreement that their grade 1 students enjoyed being read to *a lot*. With the exception of John's parents, who said their son was *a bit happy* during read-alouds, the remaining parents of student participants believed that their children were *very happy* when read to. Students were asked the same question regarding their feelings toward being read to and surprisingly, the majority of student participants in this study did not appear to enjoy being read to by an adult. Jaclyn, Christopher, and John were the only three student participants who were *very happy* when they were read to by an adult. A possible explanation for this finding is that the adult-led read-alouds they have previously experienced may not have offered them any choice, control or autonomy, which is something that appeals to and motivates both children and adults alike (Deci & Ryan, 1985).

In response to the questionnaire item, "This is how much I enjoy it when I do worksheets after reading a story," only John, Christopher, and Jaclyn felt *very happy*. Parents of the student participants tended to inaccurately estimate their children's positive attitudes toward postreading activities (Parent and Child Questionnaires 1).

For various reasons, and in support of Kulhavy's (1977) findings, grade 1 students did not receive immediate feedback from their teachers on their completed print-based worksheets, and often waited a few days or even weeks to find out whether their responses were correct. In favour of the view and assumption that extrinsic motives such as reading recognition and immediate feedback from parents and teachers may serve to enhance children's intrinsic motivation (e.g., Das et al., 1985; Deci & Ryan, 1985; Wigfield & Guthrie, 1997), the following question was posed to student respondents on

the questionnaire: "This is how much I enjoy it when I hear my teacher and family say I read well." Similarly, the statement, "This is how much my child enjoys being praised for reading well" was also included in parents' first questionnaires. All of the respondents rated their feelings toward (their child) receiving praise for reading well on the highest end of the Likert scale.

Further, in order to examine the effects of choice on students' intrinsic motivation for reading, the following Likert-scale question was asked to students and parents: "This is how much I enjoy it when I get to choose the kind of reading material I read." With the exception of Christina's parents and Sally, all of the student participants and their parents were in agreement that they were very highly appreciative when given free choice reading. Similarly, the investigator wanted to investigate how much control and independence their students had in choosing the type of reading material they read in class. Three teachers indicated that their students had *some control*, whereas Veronica reportedly allowed her students *a lot of control*, over their reading material selections.

The investigator posed the following questions to students and parents before (and after) the use of the digital children's literature program and a multimedia program (Microsoft PowerPoint™): "If you (or your child) had to choose between reading a hardcover book or an eBook on the computer, which would you (he/she) choose?" The parents of Mark, Jaclyn, Christina, Sarah, and John all indicated that their child would prefer to read electronically because of its high level of interactivity. The other three parents cited several reasons for their child preferring to read hardcover books, including the fact that it was an opportunity for them to spend quality time together.

Preprogram (digital) reading behaviours and attitudes. The following section highlights and compares student, parent and teacher responses to the questions posed in

their first questionnaires, which pertained to the (perceived) participation patterns of student participants in terms of computer and Internet usage.

The parents of student participants described their children's frequency and specific types of computer use. Six of the eight parent participants reported that their child spent *some days* on the computer at home; most of the students' responses replicated those found in their parents' questionnaires. The types of computer usage reported by student participants and their parents could be categorized in two ways: reading oriented and recreational activities; however, there was little use of computers for reading instruction by student participants. For example, seven of the eight student participants used their home computers for playing (CD-ROM) games such as *Jumpstart, Princess, Buzz Light Year, My Little Pony, Dora the Explorer, Freddie the Fish,* and various computer-sports games (e.g., golf, bowling and racing; Child Questionnaire 1). Only 1 student participant, Sally, pursued reading-oriented activities such as using word processing software to "pretend to write letters to her friends" (Child Questionnaire 1, p. 3).

Teachers speculated on how much time they thought their students spent on the computer and online programs. Two of the four teachers were unsure, Debra estimated her grade 1 students' overall frequency of computer use to be about two hours per week, while Veronica assumed her students spent an average of five to eight hours per week on the computer (Teacher Questionnaire 1, p. 2). Veronica believed that the common uses for the home computer by her students included recreational activities and access to the Internet:

> I think they use a lot of Internet at home, but I don't think they it is for appropriate educational use . . . they mostly likely play games that are rare to none on an educational level basis. (Field Notes, Veronica, October 23, 2008)

Teachers were asked to describe how much they thought their students enjoyed reading electronically on the computer, three of the four teacher participants indicated that their students *enjoyed it a lot* (Teacher Questionnaire 1, p. 4).

The student participants reported their frequency of Internet use at home and at school. Interestingly, while all of the child participants reported in their first questionnaire that they *never or hardly ever* used the computer and Internet at school, they tended to spend more time on Internet-related activities at home. This might be attributed to the fact that the grade 1 students were allowed to use the computer only during *computer center* time or *free choice* center time. With regard to the students' frequency of Internet usage at home, two of the eight child participants (Sally and Sarah) were reported by their parents to spend little or no time on Internet-related activities, whereas parents of the other participants claimed that their children spent *some days* playing online children's games including those found on the *Webkinz* and *TreeHouse TV* websites (Parent Questionnaire 1, p. 3). According to the student questionnaire results, three of the parents (parents of John, Sally, and Sarah) underestimated their children's Internet usage, and Mark's parents overestimated the time he spent on the Internet.

A further striking result concerned the students' lack of knowledge about the Internet, as many of them frequently used this online tool but were unaware of it. When the student participants were asked about their frequency and types of Internet usage, the children`s responses indicated that all of the student participants were confused about and unfamiliar with the technical term, "Internet," as they immediately asked the investigator,

"What is that?" (Child Questionnaire 1, p. 3).The investigator had to clarify this term. Consequently, the researcher found that many of the students underestimated their Internet usage. For example, all of the students said they played computer games such as *Dora the Explorer, Tree House TV,* and *Webkinz* at home when they were asked the question, "What do you do on the computer?"(Child Questionnaire 1, p. 3). These computer games are actually online gaming websites, and the student participants were probably unaware of this so they did not provide the same answers when they were asked what they did on the Internet.

There were no apparent differences in home and school computer/Internet access and usage contingent upon the students' gender and socioeconomic status. Every student participant's household and classroom featured a computer with Internet access, and, for the most part, the student participants used their home computer for playing games. At school, the participants mostly used the computer for drill-and-practice phonics instruction.

Parent, teacher, and student respondents were also asked to rate their feelings about reading books online. Three of the student participants (Christina, Sarah, Christopher) were positive about reading online storybooks; others (Sally, Mark, John, James) were not positive. Most parents accurately perceived their child's feelings toward online reading.

Christina, Mark, Christopher, and James reported that they really enjoy engaging in computer-based reading activities because these are "easier to read" than print-based materials and such activities entail a higher level of student involvement during the reading and writing process (e.g., "I like to turn the pages myself," "I really like to draw

and print"; Child Questionnaire 1, p. 4). Sally, Sarah, Jaclyn and John were ambivalent or less positive about completing reading activities on the computer.

Teachers were also asked to discuss their own attitudes toward computers, multimedia, and, more specifically, the online reading programs available on the Childtopia™ (Childtopia SL, 2008) website:

> I love the computer, and I love the idea of integrating [digital reading] more, especially for Language, because for a lot of them, the paper and the pencil activities are very overwhelming...Christina would be a perfect example of that. (Jessica, teacher, Interview 1, p. 3)

> With beginning readers, I don't think it's too early to use the computer and Internet; I think it's perfect because someone's reading to them, there's no pencil and paper, they're just pushing a mouse...I know kids in JK who can go in, turn on a computer, log on to the Internet themselves, and go. They've grown up with it, so it's nothing to them. I don't think grade 1's too young at all . . . it's something that I have to do, taking a little bit more of a chance if I could. (Debra, teacher, Interview 1, p. 6)

Due to the wide range of learners in her multilevel classroom, Veronica was more sceptical about the use of computers and the Internet in her reading instruction:

> Especially with a group like mine this year, because they need a lot of direction, a lot of instruction, they are not yet really capable of working independently; the simplest task is a challenge for a lot of them . . . one body can't get to them all. (Veronica, Interview 1, p. 2)

The 4 grade 1 teachers agreed that the use of computers and, more specifically, online learning environments for reading instruction played a significant role in helping

students achieve the following literacy skills: the ability to read and spell (un)familiar sight words, listening and reading comprehension, metacognitive learning and personal engagement in learning. (Teacher Questionnaire 1, p. 5)

Three grade 1 teachers held favourable views regarding technology; however, these teachers appeared to have low computer self-efficacy in integrating multimedia and online software programs such as Microsoft PowerPoint™ and the Internet in their Balanced Literacy instruction. Further, one teacher, Veronica, had reservations about the use of technology in her grade 1 classroom, as she believed her learners were not yet independent or linguistically competent enough to use these technological tools. Despite their teachers' beliefs, the initial reluctance of John, James, and Jaclyn to engage in online storybook reading and/or computer-based reading activities was not surprising, given their previous self-reports and apparent lack of motivation to engage in any reading activities.

Interim-program (digital) reading behaviours and attitudes. During the online reading sessions, the student behavioural checklist was used by the researcher to record the eight student participants' attitudes toward and the effects of the digital children's literature program and the postreading multimedia program on their reading motivation, word recognition, and listening comprehension. This was measured by student participants' average time on task, level of engagement, and area of focus (e.g., illustration vs. text) using a 5-point Likert scale.

The observations made during the participants' online storybook selections supported broad generalizations about gendered choices of reading material, namely, that the male and female students generally preferred different kinds of books (Wigfield & Guthrie, 1997). Both gender groups also chose their books on the basis of visual features,

such as the book cover's appearance, rather than the title. During the first online reading session, the same storybook selection was made by all the female participants as they chose a book portraying a female (waitress) dancing on the cover, called *The Little Waitress*, and generally selected animal-related stories in the following sessions (e.g. *Hello Dog, The Pet Kidnapper,* and *Katy the Stressed Fly;* Field Notes, Student Behavioural Observation Checklist, pp. 1-13). Conversely, all of the boys shared similar interests in fantasy characters, super heroes, sports-related stories, and chose storybooks entitled, *The Power of My Robot* and *Magic Trees near the Football Pitch* during their first online reading sessions (Field Notes, Student Behavioural Observation Checklist, pp. 1-13). Similar to the girls, the male participants also frequently chose animal-related stories in the following sessions. Thus, it was evident that the reading choices between the two gender groups were considerably different, and the online storybook selections made by student participants support previous observations made during their school library visits, whereby they selected the same genres, only with hardcover books.

During their computer sessions, Christopher, Mark, John, and Sarah all displayed similar behaviours as observed during traditional classroom read-aloud and reading instruction. Specifically, these students were never distracted by surrounding noises and their eyes were always oriented toward the computer screen. Further, Sarah and Mark often made text-to-self connections while reading.

Sarah and Mark were very confident when answering questions. It seemed as though Sarah was also competing against someone and trying to quickly sail through the questions in record-breaking time. Interestingly, the use of competition between students to outdo each other and the theory of extrinsic motivation were further supported when Sarah asked the investigator at the end of a session, "Does it take Christina a long time to

answer the questions?" and "Did Christina answer the questions as quickly as me?" (Field notes, Sarah, Student Behavioural Observation Checklist, April 6, 2009). It can be suggested that the more Sarah perceived her reading in comparison to her peers to be positive, the higher her performance goal orientation was, and the more successful she appeared to be in her reading abilities (Covington, 2000; Dweck & Elliott, 1983; Nicholls, 1984).

Christina, Jaclyn, and James appeared to be paying attention most of the time as the story was read to them. In particular, Christina's enthusiasm for online storybook reading was evident when she found a story that sparked her interest: "I want to read this one!" (Field Notes, Christina, Student Behavioural Observation Checklist, January 21, 2009). When her eyes were oriented toward the computer screen, Christina did appear very focused and engaged at the beginning of the story (Field Notes, Christina, Student Behavioural Observation Checklist, January 21, 2009). Yet, similar to her behaviours during classroom reading instruction, Christina would start to lose her ability to focus after reading on the computer for an extended period of time. Christina's enthusiasm often turned to frustration when her listening comprehension ability was assessed during the first part of the postreading activities. Generally, the literal and inferential questions proved too difficult for Christina, and she seemed to lose interest in the program. During most sessions, Christina was found to click the forward button and skip to the "Well Done" slide when she incorrectly answered a comprehension question and the investigator was not looking. Of particular interest, however, was that Christina seemed more excited, motivated, and confident in answering questions that focused on her basic word-attack skills rather than her listening comprehension abilities. For example, when the first word-attack question appeared on the screen, Christina immediately sat up

straighter, closer to the edge of her seat, and moved her head closer to the computer screen so as not to miss anything. After she correctly answered the first "Word Scramble" question, Christina excitedly yelled, "I like this part!" with a huge smile on her face (Field Notes, Christina, Student Behavioural Observation Checklist, January 21, 2009). Although Christina's listening comprehension was rather low, she succeeded in answering the second portion of questions, which demonstrated her strong sight vocabulary and word attack skills. Christina's behaviours indicated that, although there were parts of the program that were too difficult for her, the differentiated activities provided her with opportunities to engage in the learning process.

Dissimilar to observations of Jaclyn's off-task behaviours during regular classroom reading instruction and paper and pencil activities, Jaclyn displayed on-task behaviours and blossomed when she worked with this technological tool. During Jaclyn's participation in the online storybook reading and postreading activities, it was evident that the digital children's literature program and computer-based reading activities sparked Jaclyn's interest and tapped a hidden skill. Jaclyn always took initiative and wanted to log into the computer, plug in her headphones, start the programs, and access the Childtopia™ (Childtopia SL, 2008) website without any assistance. During the read-aloud, Jaclyn was intently focused on the computer screen, particularly the animations, and always eagerly anticipated the forward button to "pop-up" and chime when she had to turn the page. Jaclyn was never fidgety, getting out of her seat, or playing with small objects while she was reading or answering questions, which occurred relatively frequently in class. Unlike her classroom behaviours during reading activities, Jaclyn successfully demonstrated her listening comprehension and word-attack skills during the computer-based postreading activities. She would often yell out, "This one!" when she

was confident in her answers. When she received immediate praise from the computer, Jaclyn always smiled proudly and exclaimed in a singing voice "I got it right! "Yay!" (Field Notes, Jaclyn, Student Behavioural Observation Checklist, pp. 12-13). In accordance with the attribution theory (Heider, 1958), Jaclyn occasionally attributed her success to external, unstable causes of luck (Weiner, 1986). For example, Jaclyn would admit to guessing a response when she did not know the answer. Jaclyn began to attribute her success to internal factors (Weiner), which was evident when she stated, "I'm really good at this!" (Field Notes, Jaclyn, Student Behavioural Observation Checklist, February 2, 2009). When she provided an incorrect response, Jaclyn was determined to go back and reattempt the question and would insist on clicking the sound icons to have the words and questions read aloud to her again.

While James exhibited very similar off-task behaviours as Jaclyn during his regular classroom reading instruction and seatwork activities, he was also found to be highly involved *during* the online storybook reading and computer-based reading activities without any assistance. When the collection of storybooks available on the Childtopia™ website appeared on the computer screen, James would always rapidly move his mouse over each storybook icon to hear the tapping sounds that played simultaneously. The introduction of the digital children's literature program was followed by an immediate decrease in the rate of James's off-task behaviour and led to an increased level of engagement in the online storybook read-aloud. Similar to Jaclyn, James also made several comments, text-to-self connections, and interpretive observations relevant to the characters or objects in the story (e.g., "Look at his arm!" "Did you notice that fly was sleeping?" and "Hey, that's my name too . . . James!"; Field Notes, James, Student Behavioural Observation Checklist, pp. 5-8). In contrast to his

behaviours during regular reading instruction or seatwork activities in his classroom, James was highly engaged during his participation in the postreading activities and rarely needed reminders to stay on task. Interestingly, though, even when James received immediate praise from the computer, he often skipped the "Well Done" slide because he "did not like hearing it," and clicked the forward button to hear the next question (Child Questionnaire 2, p. 7). Of particular importance here is that although James was highly focused throughout and succeeding in his computer-based postreading tasks, James did not respond to encouragement or praise. To further support this observation, the investigator was later informed by Debra that "James is more than capable and intelligent but does not give himself enough credit . . . unfortunately he gets more negative than positive attention" (Debra, teacher, Field notes, April 8, 2009).

In sum, and similar to their reading behaviours with print-based texts, Jaclyn, Sally, Christina, and James devoted most of their attention to the moving pictures in the story, while Christopher, John, Sarah, and Mark *usually* or *always* followed the highlighted words as the story was read aloud to them and *rarely* looked at the animations. Observations of John, Christopher, Mark, Sarah and Jaclyn also indicated that they were *always* on task, highly engaged, and *never* frustrated during the program session, while James, Sally, and Christina were *usually* on task, engaged and *rarely* frustrated during the online reading sessions and postreading activities.

The purpose of the interim (electronic-based) *My Motivation to Read Questionnaire #2 (Child Version)* was to answer the second research question and determine whether student participants' feelings toward reading print-based texts and electronic-based texts changed or remained the same once their involvement while the digital children's literature program was underway. These data provided insights as to

why the participants liked or disliked using the digital children's literature program for reading and multimedia program for completing follow-up reading activities. With the exception of Christina and Mark, the five other student participants would rather engage in online storybook read-aloud than teacher-directed read-aloud. John chose the *Other* response option and indicated that he preferred being read to by his mother.

In relation to the motivational aspect of reading curiosity, the investigator asked student participants whether or not they visited the Childtopia™ (Childtopia SL, 2008) website at home. Jaclyn, John, and Christopher all visited the website on more than one occasion and independently read the online storybooks at home. This is notable, as Jaclyn and James originally preferred hardcover books to reading storybooks on the Internet. Interestingly, although Mark stated that he preferred reading hardcover books, he reportedly visited the Childtopia™ (Childtopia SL, 2008) website by himself during his free time.

With the exception of Mark, Christina, and Sally, the remaining student participants believed that web-based eBook reading environments were easier to read and listen to in comparison with print-based texts. Seven student respondents claimed that reading online storybooks helped them learn more word wall words as compared to traditional hardcover books. For example, Mark cited the following reason for selecting the former type of reading material, "The words were highlighted in red, so it was easy to read along by myself and learn new words" (Child Questionnaire 2, p. 6). Conversely, Christopher argued that the digital children's literature program did not help him learn new words, as "the highlighted words moved too fast" (Child Questionnaire 2, p. 6).

In line with this, Sarah still preferred to read electronically because "it was easier and faster to read" than reading hardcover books and she "could have a book read to her

without any help" (Child Questionnaire 2, p. 7). This finding coincides with Sarah's first questionnaire responses when she and her parents reported that independent book reading was a common practice for her and was more preferred than shared book reading. Students' cited reasons for their perceived enjoyment of the online reading program were similar to those found in Lewis' (2000) study. For example, consistent with his previous reports, Christopher explained that reading storybooks on the Internet was "like watching a movie" and was more fun than having a print-based book read to him (Child Questionnaire 2, p. 8). Christopher also noted that he had a lack of autonomy and choice during reading instruction and stated: "My teacher [Veronica] doesn't let me choose which book she reads to me, but I get to pick the book I read on the Childtopia™ (Childtopia SL, 2008) website" (Child Questionnaire 2, p. 5). In addition to Christopher, six other student respondents felt that online storybook reading provided them with more control and choice relative to traditional reading materials.

Interestingly, John, James, and Jaclyn reported that they would "not read any book" (Child Questionnaire 2, p. 5). This was not shocking in the case of James and Jaclyn, as they had previously reported negative feelings toward reading. However, John's answer was surprising, since he appeared highly engaged and interested in online storybook reading during his program sessions and reportedly visited the Childtopia™ (Childtopia SL, 2008) website at home on more than one occasion.

Using data collection sources such as parent, student, and teacher questionnaires, teacher interviews, and student behavioural checklists, this section answered the study's second research question and described grade 1 student participants' preprogram and interim-program behaviours and attitudes towards print-based reading and toward digital reading instruction. Reading appeared to be an enjoyable activity for most grade 1 student

participants. Although James, John, Jaclyn, and Christina were frequently read to by their parents, these students did not have a greater intrinsic motivation to read compared to those who read less frequently and had a higher reading achievement, such as Sarah, Mark, and Christopher. The questionnaire responses of James, Jaclyn, and Christina reflected their low reading achievement and off-task, unmotivated behaviours during classroom reading times. Nonetheless, it can be assumed that the one-on-one attention provided to Jaclyn and James during shared book reading likely contributed to their positive feelings toward this reading activity than other reading-related activities.

In regard to the eight student participants' preprogram behaviours and attitudes toward multimedia-based and online reading instruction, and despite their teachers' beliefs, the reluctance of John, James, and Jaclyn to engage in online storybook reading and/or computer-based reading activities was not surprising, given their previous self-reports and apparent lack of motivation to engage in any reading activities. However, given these students' perceived enjoyment of computers, it was strongly believed that their attitudes would shift after repeated exposure to this novel form of reading.

Digital Reading and Its Influence on Students' Reading Motivation and Reading Achievement

This theme will address the third research question: How does a digital children's literature program and post-reading multimedia activities influence grade 1 students' reading motivation, word recognition, and listening comprehension skills? The first subtheme in this section examines whether the eight grade 1 participants' involvement in this study influenced their motivation to read. Since the researcher was interested in examining any observable shifts in students' attitudes toward reading print-based text and digital text on the computer before and after their involvement in this study, the section

Reading Motivation, reports on the postprogram perceptions of students' behaviours and attitudes towards multimedia and online technologies. The second subtheme entitled *Reading Achievement* looks at the documented changes in student participants' word recognition and listening comprehension skills after the study's multimedia-based and digital reading program implementation. These findings are based on data collected from parent and student questionnaires, teacher interviews, student behavioural observation checklists, running record scores and teacher report card comments.

Reading Motivation

Postprogram (print-based) reading behaviours and attitudes. The final questionnaires examined the same items related to the perceptions of participants' attitudes toward reading including reading efficacy, importance of reading, reading for grades, recognition for reading, competition in reading, social reasons for reading, and compliance. With the exception of Jaclyn, student participants' responses to the question, "How important is it for you to read well?" were identical to those provided in their first questionnaire; Jaclyn provided a more positive response in her final questionnaire, and now believed that it was *very important* to read well.

Picture books were still the most frequently cited type of reading material read by student participants at home and in the classroom. Further, all of the student participants also selected audio books as the next type of reading material they read in class. Interestingly, only Jaclyn selected information books during her classroom reading time, and Sarah read chapter books in the classroom (and at home). Sarah commented, "Christina doesn't read chapter books, she is not in a high level and has to be a better reader like me" (Child Questionnaire 3, p. 9). This comment reflects the fact that Sarah uses social comparison to evaluate her capabilities (Bandura, 1997). According to

Christopher's parents, he now reads magazines, newspapers, and information books. John's parents noted that John added information books to his list of home reading materials. Interestingly, Christopher, Mark, Christina, Jaclyn, and their parents also reported that they read eBooks at home, such as *Leap Frog, Club Penguin*, and the online storybooks they read on the Childtopia™ (Childtopia SL, 2008) website at school (Parent Questionnaire 2, p. 3).

The parents and their remaining student participants provided the same responses to the question, "How often do you take books out of the public library to read for fun?" According to Jaclyn and James, they more frequently visit the public library compared to before this study began in September. In fact, during the administration of his final questionnaire, James mentioned to the investigator, "There is a library near my house and I can take out as many kids' books as I want . . . once, I took out 10 books!" (Child Questionnaire 3, p. 1). Interestingly, Christina and Christopher stated that they took books out of their school library *every day*; however, they may have misinterpreted the question as they take home books and read *every day* as part of their nightly *Bag-a-Book* home reading program.

When it came to library book exchanges, the investigator noted that most of the students (except for Sally and Sarah) gravitated towards non-fiction books about sports or animals (Debra, teacher, Field notes, March 10, 2009; Veronica, teacher, Field Notes, November 27, 2008; Jessica, teacher, Field Notes, April 1, 2009). When the investigator asked these participants if they liked animals, they smiled and nodded their heads vigorously.

Despite the frequency of their parents' leisure reading practices, John, James, Jaclyn, and Christina did not change their original answers to the question "How often do

you read for fun on your own time?" in their final questionnaire. Although his parents spend less time reading for enjoyment, Christopher continued to read for fun *every day*. Unlike their parents' time spent reading for enjoyment, Sally, Sarah, and Mark elicited a more positive response in their final questionnaire and reported that they spend more time reading for fun (than their initial questionnaire). It is important to note that there seemed to be no relationship between parents' beliefs and the frequency of student participants' leisure reading practices and library visits. As well, there was no difference between the two socioeconomic groups in terms of the frequency of shared book reading-all four student participants from the low-income elementary school indicated that their parents read to them on a daily basis.

In contrast to the findings on the teachers' questionnaires administered in September, the most frequently requested *free choice* activities that student participants selected were reading based. Mark answered this question, "I love reading!" (Child Questionnaire 3, p. 3). Christopher explained, "I like reading with other people because when I am stuck on a word they can help me" (Child Questionnaire 3, p. 9). Not surprisingly, Christina's preference to engage in nonreading activities as well as frequent visits John and Jaclyn made to the computer center during *free choice* time match their observed reading behaviours and attitudes. Jessica confirmed that the students enjoyed reading with others in her questionnaire.

In their final questionnaires, the parents of Christopher, Christina, Mark, and James made very accurate assessments of their children's attitudes toward how often their children read for fun, as they all reported that their children felt *very happy* about spending their free time reading. The students' favourable responses to this question were not surprising and were consistent with their previous responses to a similar question that

asked them to state their preferred free-choice activity. For James in particular, his teacher, Debra, stated, "He [James] has more confidence now because he knows he can open a book and read it" (Debra, teacher, Interview 1, p. 6). The parents of Sally and Sarah shifted their perceptions and were now very accurate in their estimations of the positive attitudes of their daughters toward spending their free time reading. Similar to James, Jaclyn's change in attitude was also noted by her teacher, Tracy, who mentioned during her interview that "Jaclyn is more motivated and confident in her reading abilities; she was already fascinated by the computer to begin with, so her involvement with the digital children's literature program only added to her reading improvement and increased self-confidence" (Tracy, teacher, Interview 1, p. 7).

The different aspects of reading motivation emerged in the analysis of questionnaire responses from students and parents as the effects of extrinsic rewards, such as grades, praise, recognition, and competition on student participants' reading attitudes were assessed. All of the student participants responded *Yes* to the question, "Do you look forward to finding out your reading grade?" Social aspects such as compliance, or reading to meet the expectations of others, had an important impact on Sally's reading motivation, as she indicated, "I enjoy finding out my reading grade because my mother wants to know" (Child Questionnaire 3, p. 9). Whereas Sally's comment illustrated performance goal characteristics, Sarah had a high learning goal orientation, as she focused on mastery and improvement for wanting to find out about her reading performance: "The higher the reading level I get, the better reader I am, and the more words I will know when I am older" (Child Questionnaire 3, p. 9). Similarly, Christopher explained, "I want to be the best reader in my class" (Child Questionnaire 3,

p. 9). As shown in their assessment results, Sarah's and Christopher's intrinsic motives for reading were also positively related to their reading grades.

Interestingly, although Christina and Jaclyn reportedly enjoyed finding out about their reading grades, participant observation and their parents' responses to this item revealed otherwise. Focused observations of Christina revealed that hidden behind her smiling facade was a student with low self-efficacy beliefs and performance-avoidant orientations, who often struggled and hesitated to read aloud and complete various reading-related activities in class. As will be further discussed in the following section, Christina often smiled and engaged in off-task talk to avoid answering an unknown question or reattempt certain questions during her computer reading sessions and classroom reading instruction. This may have been a defence mechanism for Christina to avoid embarrassment and conceal her weaknesses in reading and answering comprehension questions. On the contrary, Jaclyn never tried to conceal her reading difficulties in front of the investigator, "I would not read any book," and "I'm not the best at reading; I am bad at reading." Based on recorded observation notes, Jaclyn often exhibited learned helplessness in situations where she did not know the pronunciation of a word or a response to a question and would often rely on others for the answer. Overall, the positive self-reports about obtaining their reading grades from Christina and Jaclyn did not match their actual reading behaviours and efforts expended in reading.

It is likely that the value of feedback and praise for intrinsically motivated behaviour most likely influenced the student participants' frequency and amount of reading and consequently their reading attitudes (Das et al., 1985). Not surprisingly, all of the student respondents reported very positive feelings toward receiving praise for reading well. Christina even added, "She [Jessica, her teacher] told my dad, and I was

really happy because he hugged me after" (Child Questionnaire 3, p.9). This comment captures her construct of recognition, as Christina enjoyed receiving a tangible form of recognition for her success in reading (Hidi & Harackiewicz, 2000; Miller & Meece, 1997). Similarly, Jaclyn was also extrinsically motivated to read well in order to receive tangible rewards from her parents: "If I work hard at school, my mom said she would buy me a violin" (Child Questionnaire 3, p. 9). Clearly, Jaclyn, Christina, and Sally endorsed a performance goal orientation, as they worked primarily to read well in the eyes of their parents.

The dimension of competition (Unrau & Schlackman, 2006), which reflects the constructs of extrinsic motivation and performance goal orientation, was evident in seven student participants' responses and during classroom observations. Interestingly, Sarah also showed the extrinsic motivation aspect of competition in reading during her online reading sessions. The parents of James, Sally, Christina, and Christopher did not believe that their child had such goal orientations.

Consistent with the reinforcement theory (Skinner, 1969; Thorndike, 1932), students need to receive immediate feedback in order to make corrective modifications and guide subsequent responses. The computer-based reading activities incorporated an immediate feedback strategy (Epstein & Brosvic, 2002; Epstein et al., 2002). Christopher's comment highlights this: "If I get a wrong answer [on the Childtopia website], then I fix my answers right away and do better" (Child Questionnaire 3, p.9). Similarly, students were asked, "Do you like knowing if you got a right or wrong answer quickly?" and all of the participants answered *yes* in response to this question.

As a function of the research methods, students were given the choice of which online storybook they would have read to them, and they made their own decisions as to

which page of text they would read or have read to them again. Veronica held beliefs about reading on the Internet, as she stated that students need choice and control to develop independence and "the more they use [the Internet for reading], the more independence they will have" (Veronica, teacher, Interview 1, p. 5). Debra and Jessica also stated, "They do have more choice and freedom on a computer" (Debra, teacher, Interview 1, p. 5); "read-alouds in the classroom are more teacher directed, because the teachers are picking the book" (Jessica, teacher, Interview 1, p. 7).

In regard to the question, "How much does your child enjoy being read to by an adult?" the same responses were provided by the parents of Sarah, Sally, Christopher, James, and Jaclyn parents in their final questionnaires as compared with those provided in their first questionnaires. But the parents of James and Sarah did not make accurate estimates of their child's enjoyment of being read to; in fact, James and Sarah were still *a bit upset*, and did not change their feelings about being read to by an adult. James's response to this question contradicts his previous comment about how he enjoyed reading hardcover books with his parents because it meant having some "one-on-one time with his mother" (Child Questionnaire 3, p. 6). Sarah's feelings toward being read to by an adult are not surprising, given that she frequently prefers "reading by herself" at home (Child Questionnaire 3, p. 7). Contrary to their original beliefs, John's parents now believed John was *very happy*, while Mark's parents indicated he was *a bit upset,* and Christina was *a bit happy.*

Similar to their first questionnaires, student participants and their parents were asked to rate their feelings toward completing worksheets after reading a story. Jaclyn, John, and Christopher were still *very happy* during their participation in postreading activities and all of their parents confirmed these feelings. Other students such as James,

Sarah, and Christina, indicated that they still felt *a bit upset* about completing worksheets, while Mark and Sally developed a more positive attitude toward this activity. Parents' estimations of their students' perceptions were not always accurate.

When teachers, parents, and student participants were asked about the frequency of Internet usage at home, four student participants (John, Christopher, Jaclyn, and Sally) went from *never or hardly ever* using the Internet to accessing the online tool *some days*. Students' final self-report questionnaires indicated that their Internet usage patterns at school remained the same. However, students still had limited access to their classroom computers and were unable to access the Internet (during indoor recess or lunch) without teacher supervision, which may have made it difficult for them to use this online tool to visit the Childtopia™ (Childtopia SL, 2008) website in their classrooms.

According to all four teachers, when provided with free-choice center time, most of the student participants gravitated to the computer center and asked to use the computer more since their involvement in this study:

> Given an option of various activities, it is the computer they [Christopher and John] now opt to go to more than the other activities; they usually go into the Primary programs . . . they like the *Phonics* program, *Math Trek*, *Sammy Science,* and *Reader Rabbit.* (Veronica, teacher, Interview 1, p. 2)

With the exception of Sarah, James, Christina, and Sally, the remaining participants claimed to have visited the Childtopia™ (Childtopia SL, 2008) website at home and participated in the same storybook read-alouds and similar follow-up comprehension activities (available on the website after reading) as they had been doing at school with the investigator during their online reading sessions. In fact, although Mark previously reported that he did not really enjoy the *talking storybook* experience, he later

indicated that he visited and "read the storybooks and answered the questions on the website four times" (Child Questionnaire 3, p. 4). Christopher's enthusiasm and interest in online reading was also evident when he stated at the end of one session, "I am going to go home tonight and read this story again!" (Field notes, Christopher, Student Behavioural Observation Checklist, March 4, 2009). Jaclyn and John also claimed to have visited the Childtopia™ (Childtopia SL, 2008) website and engaged in storybook reading and answered the site's postreading comprehension questions between 5 and 10 times (Child Questionnaire 3, p. 4). The "lack of time" was cited as the reason for Sarah's and Sally's parents not visiting the website at home (Parent Questionnaire 2, p. 3). Unfortunately, for unknown reasons, James's parents did not allow their son to visit the Childtopia™ (Childtopia SL, 2008) website.

With respect to their preference for completing reading online storybooks, the same group of participants still really enjoyed this type of reading material. In addition to these students, and contrary to their first questionnaire responses, John, James, and Jaclyn no longer chose to read conventional texts, and were now *very happy* and preferred to read electronic online texts instead. Tracy reflects her perception of Jaclyn's positive attitude toward online learning experiences:

> I know that Jaclyn has used it at home and has enjoyed it immensely. Anything she does on the computer she finds stimulating. It doesn't dull her, it actually helps her focus and sharpen her skills and her train of thoughts. (Tracy, teacher, Interview 1, p. 3)

In their final questionnaire, Jaclyn's parents also reported that Jaclyn liked the digital children's literature program, because it had "visuals, sounds, the interactive nature of the online environment provided her with choice and control" (Parent Questionnaire 2, p. 2).

Five of the eight parent participants did not change their responses to this question and still believed that their child felt *a little happy* about reading on the computer. Debra, James's teacher added that she believed James would definitely enjoy the computer more for reading than traditional print-based reading:

> It's faster paced, it's action packed, it'll keep his attention more so than just reading to him; if he [James] had a choice to read a [hardcover] book here or read a book there [on the computer], he'll be there and he'll be reading, so reading online storybooks would be really good for him. (Debra, teacher, Interview 1, p. 6)

During classroom observations, and on more than one occasion, James would ask Debra when he would be able to work with the investigator, to which Debra replied, "When you are finished all of your seatwork" (Debra, teacher, Field Notes, January 8, 2009). Debra used this incentive effectively to keep James's behaviour under control while simultaneously increasing his motivation level through his computer usage. James successfully completed all of his seatwork tasks in a very short time period (which was seldom observed).

In their first questionnaires, Christopher, Sally, John, James, Jaclyn, and Sarah rated their feelings toward completing computer-based reading activities less than positively; however, they all reported increased positive feelings about engaging in such activities at the end of this study. Christina was particularly responsive to the immediate praise and positive reinforcement that she received during the word-attack activities on the computer. These features may have contributed to Christina's increased positive feelings toward computer-based reading activities. In support of this, and as indicated in her parent's final questionnaire, "Christina is now very interested in exploring online

media" (Parent Questionnaire 2, p. 2). In agreement with Christina's parents, Jessica also commented, "They [Christina and Sarah] were always eager to get to the computer whereas a lot of the kids would rather go on the carpet and play with blocks" (Jessica, teacher, Interview 1, p. 6).

Teachers were also asked to comment on any observable changes in the student participants' reading motivation since their participation in this study:

> Christina's independence has improved; she was very dependent on me at the beginning of the year for everything; even one-step directions were difficult for her, she didn't want to attempt things without assistance. . .Christina's sight word recognition and reading level has improved as well. . .I find her more engaged on the carpet too during read-alouds, whereas before she used to be a little more fidgety and lost and just not really paying attention. (Jessica, Interview 1, p. 6)
>
> Jaclyn is most definitely not only more motivated but she's more confident, which I think increases her motivation . . . she was already very fascinated by the computer to begin with, so this only added and greatly helped her to improve in her reading. (Tracy, teacher, Interview 1, p.4)
>
> I do think this [program] has motivated Mark . . .he has improved, he's at a very high reading level right now . . . I would of course assume that it's also from his training on the computer that he has been able to word-attack in the different ways so that he can make meaningful substitutions. (Tracy, teacher, Interview 1, p. 7)

It appeared that the digital children's literature program motivated and catered to the different learning and reading abilities of student participants in this study, especially Jaclyn, James, and Christina. All of the teacher participants held a common

understanding about the benefits and motivational aspects of using the computer and Internet for grade 1 (online) reading instruction:

> I don't think grade 1 students are too young at all . . . I really think we cannot underestimate the willingness of their minds to be challenged and to be enriched by this information. It's like anything you learn in life, like a sport, a craft, a trade, a skill . . . you can learn a lot of these things early and get better with practice (Tracy, teacher, Interview 1, p. 2).
>
> With online software, students have more control and choice than if I were reading to them because they can do one page at a time, they can go back a few pages if they want to, they can hear something over again, "Oh, that was funny, look at this!". . . they definitely have more freedom on a computer. (Debra, teacher, Interview 1, p. 5)
>
> I think it is highly motivating, students are seeing it [storybook illustrations] moving on the screen, then the motivation starts . . . it's interactive, more interesting and stimulating for them than looking at a [hardcover] book...especially for those that are unmotivated . . .this would definitely help them. (Jessica, teacher, Interview 1, p. 1)
>
> Getting them to use [the online reading program] creates that independence, and the more they use it, the more independence they have. (Veronica, teacher, Interview 1, p. 5)

Teachers were enthusiastic about the digital children's literature program and the postreading activities on the multimedia-based Microsoft PowerPoint™ program, where the text was highlighted word by word as it was read aloud. According to Jessica and

Tracy, the use of such computer-based activities could supplement their conventional reading instruction while still assessing their first graders' comprehension skills:

> I think it [online, follow-up comprehension activities] would be a great way to help improve listening comprehension . . . I liked how the answers were read to you, so when the mouse goes overtop the answer, it is read to them, and they don't have to guess what it says. (Jessica, teacher, Interview 1, p. 1)
>
> I think that the PowerPoint activities also give teachers and students a definite indication of how well they understood the story; if I were to introduce it in my classroom, I might be able to do a worksheet PowerPoint follow-up or a [post-reading] activity like the ones they do at the listening center. (Tracy, teacher, Interview 1, p. 7)

According to the grade 1 teachers, "read-alouds [are] extremely important for developing students' literacy and listening comprehension skills." (Tracy, teacher, Interview 1, p. 3); Since "[individualization is not always possible] given the constraints on time in most classrooms" (Debra, teacher, Interview 1, p. 3), teachers believed that online talking storybooks such as the ones available on the Childtopia™ (Childtopia SL, 2008) website could be effectively used as an adjunct to traditional read-aloud, especially in the grade 1 classroom for struggling, beginning readers who require one-on-one attention:

> Especially with the group that I've got, where three quarters of them cannot read or are at a very low level of reading, having these online storybooks read aloud to them is super important; if I ran through it a couple of times with the weaker ones, I'm sure they'd be able to pick up on it because they love going to the computer... I would have them go on it every day. (Veronica, teacher, Interview 1, p. 5)

> I really, truly believe that something like this is 100% beneficial. (Debra, teacher, Interview 1, p. 3)

All of the student and teacher participants enjoyed the talking storybook program and were very enthusiastic about the potential of such digital children's literature programs for their reading instruction. Christopher confirmed this when he said, "I think all teachers should use this website in their classrooms!" (Child Questionnaire 3, p. 9). The grade 1 teacher participants also noted the potential use and effectiveness of the multimedia and online reading programs for students with low motivation, reading and attention difficulties, including Christina, Jaclyn, and James. When asked what they liked best, participants also identified features related to the interactivity of the program such as: (a) moving, colourful words and pictures, (b) students choose which book to read, (c) easy and quick to read on the computer, and (d) students have a book read independently.

Students also talked about text interactivity: "I liked it because you only have to click a button so you can go to the next page and it reads to you," "With the highlighted words, I can read the story by myself" (Child Questionnaire 3, p. 4). Similarly, the reasons for liking the postreading activities with a multimedia program included the immediate feedback and the moving, colourful slides. Student comments about completing the reading activities online included, "You don't have to write, it's faster than writing with your hand," "You can go back and try to answer the question again" (Child Questionnaire 3, p. 5). Most students felt that these programs would improve their reading skills because the story is read aloud: "It shows the words and you can read along with it," and "you can click on a word and it will say it" (Child Questionnaire 3, p. 5).

In most cases, students and teachers held similar concerns about some of the digital children's literature program features. For example, several students said they

were frustrated when the program stopped working and had to start the story all over again, which took them a longer time to get through the read-aloud (Child Questionnaire 3, p. 6). Similarly, teachers' discussions also centered around the technical problems that may arise during student participants' involvement in online storybook reading, in addition to their classrooms' limited computer accessibility, lack of up-to-date computers, and time constraints:

> The problem is the computers in my classroom are never functioning. (Veronica, teacher, Interview 1, p. 1)
>
> The only thing is in a centre in a day, realistically, because we only have two computers, we wouldn't be able to get all the children. (Tracy, Interview 1, p. 7)
>
> The biggest thing with the computers is because of the quality that they give us and how high resolution and everything else, it freezes. It causes problems. But, if it's on a PowerPoint where I know it would run, I would probably use it much more; they are allowed to use the Internet, but then again, I would have to set it up every morning and hope that it doesn't crash on them. (Debra, teacher, Interview 1, p. 1)
>
> I would like it to work a little smoother without any glitches . . . if it was working properly without any technical problems, they [my students] would be very independent and I could definitely use it at my computer centre . . . I could have the kids come and pick a book and have the story read to them. (Jessica, teacher, Interview 1, p. 6)

In this program, the text on the screen was read aloud. A few students voiced some concerns about the pace of the moving text ("moving, highlighted words") in the talking storybooks. One common complaint was that the narrator read too quickly and

consequently, students had difficulty following along and would become lost. (Child Questionnaire 3, p. 6)

In answer to the third research questions in this study, all of the student participants, including previously unmotivated students such as Jaclyn and James, placed a higher value and importance on learning to read well by the end of their computer program involvement. This positive attitude change also seemed to evoke positive changes in their frequency of visits to the public library as well as their reading achievement. For the majority of student participants, their parents seemed to hold rather inaccurate perceptions of and more commonly overestimated their child's reading attitudes, interests and motivations. These dissimilar responses may have also been attributed to several item content- or administration-related factors such as interviewer bias; the participants may have altered their answers in order to impress the investigator; this tended to be common practice for Christina during classroom observations and program sessions. Interestingly, Christina and Jaclyn's parents had negative perceptions of their children's self efficacy beliefs in terms of their reading grade performance. As Bandura (1993) and Lynch (2002) noted, this relationship between their parents' self-efficacy beliefs and children's self-concept as reader may have negatively affected Jaclyn and Christina's beliefs in their own reading efficacy and consequently, their reading achievement. An interesting finding was that aside from the other five participants, intrinsically motivated students such as Mark, Christopher, and Sarah also had extrinsic motives and performance goal orientations for reading, such as reading for recognition and competing with peers for higher reading grades. In comparison to the other participants, such extrinsic reading motives did not positively relate to the reading behaviours of Jaclyn and Christina, practices and actual reading achievement. Overall,

the eight students and four teacher participants' favourable responses regarding reading included increased levels of independence, immediacy of feedback and provision of choice. This study encompassed all of these motivational aspects of reading in the multimedia-based and online reading programs.

The assumption that participants' involvement in this study may have positively influenced their reading attitudes toward reading, in general, and toward digital reading, more specifically, was confirmed by student, parent, and teacher questionnaire responses, student behavioural checklists, and teacher interviews. The majority of student participants, especially Jaclyn, John, James, and Christina, generally enjoyed online storybook reading and postreading, computer-based activities, as they increased their computer and Internet usage and visited the Childtopia™ (Childtopia SL, 2008) website on more than one occasion. Overall, the four teacher participants still viewed computer technology as positive; however, they neither acquired nor attempted to integrate their knowledge and skills of the computer and online technologies in their grade 1 reading instruction. Based on these findings, addressing this study's third research question, it can also be construed that involvement in the digital children's literature program piqued student participants' interest, curiosity, and motivation to use these technological tools (for reading) on a more frequent basis.

Reading achievement. According to Jessica, "the most frequently used Balanced Literacy (informal) assessment tools in grade 1 include observation checklists, anecdotal notes, and running records" (Field notes, Jessica, September 23, 2008). The following describes each student participant's progress in reading levels from Term 1 to Term 2, with a specific focus on their word recognition and text comprehension, as these aspects were emphasized in the digital reading program. The student participants' standardized

and performance-based reading assessment data were determined by the analysis of running records, teacher comments, and letter grades on their report cards in the *Reading* strands of the grade 1 Language curriculum as well as in the *Learning Skills* section of their report card.

Reading. Jaclyn showed remarkable progress in her reading since her involvement in this study (D to C-). In Term 1, Jaclyn was classified as a nonreader (level 0), and by the end of Term 2 she was able to read at a level 9. According to her teacher's written report card comments, Jaclyn had come to read and understand more high-frequency words: "When she has recently read to me, she paid more attention to the text than she has before, she made more self-corrections, and on average, she made some meaningful substitutions, too" (Interview 1, Tracy, p. 5). Jaclyn's parents also indicated this observation in their final questionnaire; they saw "big improvement in her phonics and reading level, [and an] increase [in] her sight vocabulary and ability to sound out words" (Parent Questionnaire 2, p. 6). According to Jaclyn's teacher, by the end of Term 2, "Jaclyn was starting to more readily use visual and language structure cues to read [on the computer]" (Tracy, Term 2 report card comment).

In terms of their report card grades, Sarah, Mark, Christopher, and John demonstrated the highest and most consistent *Reading* performance across the two school terms. John and Christopher also showed remarkable growth in their reading skills from Term 1 to Term 2 of the school year. According to his running record scores, John jumped 10 reading levels (level 3 to level 13), and Christopher jumped 9 reading levels (level 3 to level 12). In Term 1, Sarah and Mark were identified as reading at levels 14 and 15 and jumped to levels 17 and 19 by the end of Term 2. According to Veronica, John and Christopher fluently and confidently read a variety of written material above

grade level, self-corrected, and demonstrated excellent progress in reading (Veronica, Interview 1, p. 2). Comparable to Christopher and John, Sarah was also able to self-correct her errors and use familiar word patterns to aid in her reading fluency and expression. In terms of their reading comprehension, Sarah and Mark were able to "accurately answer reading comprehension questions and retell stories with high accuracy and great detail" (Jessica; Tracy, Term 1 report card comment). Christopher and John could "effectively predict what may happen next in a story and could revise or confirm their predictions" (Veronica; Jessica, Term 2 report card comment).

Like Jaclyn, Christina, Sally, and James had also shown improvement in their sight word recognition and reading rates by the end of Term 2. James and Sally scored a reading level of 4 at the beginning of Term 1 and were identified as reading at levels 6 and 7 at the end of the second term. James showed the slightest improvement in Reading (C- to C) from Term 1 to Term 2. Sally improved her reading abilities and jumped up a whole letter grade (C- to B-). In Term 1 of the school year, Christina was reading at an instructional level 2, but at the beginning of Term 2, she showed a modest improvement and was reading a level 6 text. Also comparable to Jaclyn's report card grade, Christina showed little growth in her Reading performance (D+ to C). In Term 1, Christina, Sally, James and Jaclyn "had difficulty predicting what may happen next in a story and could not revise or confirm their predictions," but in Term 2, and "with some prompting, were then able to demonstrate an understanding of what they have read" (Jessica, Tracy, & Debra, Term 1 & 2 report card comments).

Learning skills. Teachers' comments also reflected the student participants' achievement of skills and abilities (*Learning Skills*) that are important for success in literacy-based learning activities. Although Sarah and Mark acquired good work habits,

they did not improve their performance in this area from Term 1 to Term 2. By the end of term 2, Christopher, Sally, and John improved their work productivity and now demonstrated excellent work habits. In terms of their class participation, Sarah, Mark, Christopher, and John continued to be excellent participants in group discussions. James and Sally were still encouraged to participate (properly) during class discussions. At the end of Term 2, Sarah, Mark, Christopher, and John responded to their teachers' suggestions from Term 1 and began to "take more risks, seek new challenges in their work and set lofty goals as they could successfully achieve them" (Tracy, Veronica, & Jessica, Term 2 report card comment).

Similarly, Jaclyn and Christina both jumped a letter grade and showed some improvement in their independent work; conversely, James demonstrated a lower level of performance in his work productivity at the end of the second term. With the exception of Jaclyn and Sally, who both went up a letter grade from the first term, the remaining six participants did not show any further initiative when approaching new learning opportunities in the classroom. Six out of the eight student participants did not use their information skills any more effectively since Term 1, whereas Christina and Jaclyn showed slight improvement in this area. By the end of Term 2 and "with encouragement, Christina and Jaclyn began to participate more willingly during discussions [and] learned to effectively communicate their thoughts when responding to questions or sharing information with classmates" (Jessica, teacher, Term 2 report card comment; Tracy, teacher, Term 2 report card comment).

In answer to this study's third research question, it seemed as though all of the student participants improved in their reading fluency rate and word recognition skills by the end of their involvement in this study; interestingly, however the text comprehension

skills, class participation, and work productivity of James, Jaclyn, Sally, and Christina were developing at a slower, lower rate in comparison to the other four student participants. It might be that the word-by-word matching features on the digital children's literature program and the multimedia-based reading activities contributed to these participants' improved word recognition skills. Based on these findings, it is possible that contextual factors such as inappropriate classroom book selections did not suit their reading interests and ultimately contributed to the participants' lower comprehension skills, work productivity, and class participation in comparison to the other participants.

Chapter Summary

The findings have been summarized into three themes which included *Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences*, *Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes*, as well as *Digital Reading and Its Influence on Students' Reading Motivation and Reading Achievement.* The first theme answered this study's first research question and revealed that all four grade 1 teachers employed a Balanced Literacy approach to reading instruction that had effects on students' behaviour. Classroom observations revealed that Christina, James, and Jaclyn frequently engaged in off-task, learned helplessness behaviours during reading instruction and reading-related activities. To answer the second and third research questions in this study, the motivational aspects of the multimedia-based and online reading programs (i.e., immediacy of feedback/praise, control/choice, challenge, and curiosity/interest) may have contributed to 5 student participants' increased frequencies of computer use, and more specifically, their participation in online storybook reading at home. In fact, James's and Jaclyn's fascination with this technological tool was also evident as they frequently

asked to use and/or chose the computer center rather than print-based reading activities in which the other 5 participants engaged during their classroom free time. Parent and teacher comments revealed that the digital children's literature program and multimedia postreading activities seemed to have a positive influence on the majority of grade 1 student participants' reading motivation, word recognition, and listening comprehension skills.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

The decline in reading motivation across the elementary school years has been attributed to the disconnect between the type of media students are accustomed to using outside the classroom and the media they predominantly use within the classroom (Doty et al., 2001). Although students spend a substantial amount of their free time on online learning environments such as the Internet, they often have to conform to a more restrictive media environment within school and spend most of their time in the classroom reading and listening to print-based, teacher-directed materials (Doty et al., 2001). Only a few Canadian studies have explored the link between early reading experiences and technological advances, especially with younger children in the beginning stages of reading (e.g., Chuang & Chen, 2007; Shade, Porter, & Sanchez, 2005). Using a qualitative research approach, this study examined the effectiveness of a digital children's literature program and a postreading multimedia program designed to enhance intrinsic reading motivation, word recognition, and listening comprehension abilities in young children. The investigator also focused on the pre-, interim, and postprogram perceptions of grade 1 student participants, their parents, and teachers regarding their experiences with and attitudes toward digital reading.

Summary of the Study

With the goal to understand grade 1 students' patterns of behaviours, motivations, and attitudes toward reading print-based texts and reading digital texts in a sociocultural context, this investigation was undertaken as a general qualitative study (Creswell, 2003). Piaget's (1973) and Vygotsky's (1978) constructivist models of learning as well as the social-cognitive theories of achievement motivation (Deci & Ryan, 1985) provided the theoretical framework for this study in order to more closely examine how grade 1

students' intrinsic motivation to read may be enhanced through such constructivist learning environments as an online children's literature program.

Qualitative data were gathered from four perspectives: (a) the researcher, (b) the grade 1 student participants, (c) their teachers, and (d) parents. Data sources include: (a) student, (b) parent, and (c) teacher questionnaires, (d) teacher interviews, (e) various reading assessment tools, (f) student behavioural observation checklists, (g) classroom observations, and (h) field notes regarding the perceptions of student participants' reading motivation, attitudes, and practices. Additionally, student participants' listening comprehension skills and word recognition abilities were assessed using these data collection methods. A researcher-developed, self-reported instrument was administered to the student participants at the beginning (September), middle (January), and end (April) of this study in order to compare and explore any significant differences in the eight students' attitudes toward and experiences with print-based reading and digital reading. A behavioural observation checklist was developed by the researcher and used to record specific behaviours of every child participant during the digital reading sessions. Multiple reading assessment tools were collected and analyzed before, during, and after the digital children's literature program implementation in order to monitor student participants' reading performance, including running record scores and provincial report cards. The investigator observed the eight participants in the four designated grade 1 classrooms during 18 regularly scheduled 120-minute morning literacy blocks from September 2008 to April 2009. Observation field notes generated data related to student participants' engagement in reading practices and activities. The four grade 1 teachers also completed a self-report questionnaire in September 2008 to provide descriptive information on their current classroom literacy instruction as well as their perceptions of student participants'

reading motivations, attitudes toward, and experiences with print-based reading and computer-based reading instruction. Last, semistructured teacher interviews were conducted at the end of this study in April. Questions posed to teachers related to their attitudes toward the digital children's literature program, their perceptions of the student participants' performance in word recognition and listening comprehension, as well as any observed changes in the participants' reading behaviours and intrinsic motivations, especially towards computer-based online reading.

From these data collection instruments, three themes were identified and provided a framework for understanding the grade 1 students' reading motivation, attitudes, behaviours, and practices. The first theme answered this study's first research question and revealed the *Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences.* Within this theme, the subtheme entitled *Classroom Components of a Balanced Literacy Program* described the four *Physical Classroom Environments* which were designed to support the whole-group, small-group, and individual *Literacy Centers* experiences, as well as a *Reader's Workshop* model that included such components as *Read-Aloud, Shared Reading,* and *Guided Reading*. The fourth subtheme highlighted grade 1 teachers' attempts to integrate *Computer Technology within a Balanced Literacy Program.* A description of the eight *Students' Behaviours during Classroom Reading Experiences* was also included in this theme, with a focus on *Students Off-Task during Classroom Reading Instruction and Activities* as well as *Students On Task during Classroom Reading Instruction and Activities*. Student participants' attitudes and motivation to read all developed in a rich sociocultural context influenced by interactions with their peers, parents, and teachers. These interactions were tied to the second theme that described *Students' Print-based and*

Digital Reading Experiences, Behaviours and Attitudes. This theme answered the second research question, examined the contextual and innate influences on reading development, and illuminated the participants' perceived *Preprogram (Print-based) Reading Behaviours and Attitudes, Preprogram (digital) Reading Behaviours and Attitudes,* as well as the participants' *Interim-program (digital) Reading Behaviours and Attitudes.* The third theme answered the third research question and looked at *Digital Reading and Its Influence on Students' Reading Motivation and Reading Achievement.* The subthemes within this chapter addressed the grade 1 student participants' *Reading Motivation* and *Reading Achievement.* The former subtheme included participants' perceived *Postprogram (Print-based) Reading Behaviours and Attitudes, Interim-program (digital) Reading Behaviours and Attitudes, and the participants' Postprogram Reading Experiences with Digital Technologies.* The latter subtheme discussed the student participants' postprogram achievement levels in word recognition and text comprehension.

Summary of the Findings

To address this study's first research question, the characteristics of Chall's (1983) proposed stages of reading development as well as Ontario's Early Reading Strategy (Ministry of Education of Ontario, 2003) were cited. Based on these sources, the components of effective reading instruction and the framework necessary for supporting it were evident in the four grade 1 classrooms' Balanced Literacy programs. The interactive read-alouds and the post-reading activities in which student participants engaged during both the traditional classroom program and the computer-based programs addressed the three main goals of *The Report of the Expert Panel on Early Reading in*

Ontario (Ministry of Education of Ontario, 2003), including word recognition (fluency), text comprehension, and motivation to read.

The Balanced Literacy program observed in all four grade 1 classrooms provided an informal assessment of and cultivated the reading, writing, thinking, speaking, and listening skills and behaviours for all grade 1 students. The components of Balanced Literacy entailed a whole-class, small-group, and individual approach to reading development that supported a literacy-rich classroom environment. The classroom set-up also enabled students to participate in small-group and independent literacy center activities that enhanced and extended the literacy experiences in which they were modeled, taught, and engaged during such components as daily read-alouds, guided reading, and shared reading. Despite a number of factors that limited its widespread use, the four grade 1 teachers attempted to integrate technology and (digital) media literacy in their Balanced Literacy classrooms.

Consistent with Brabham and Lynch-Brown's (2002) findings, daily read-alouds in grade 1 were one strategy that appeared to be woven into the fabric of reading instruction in the four classrooms. The notion that teacher-directed read-aloud consists primarily of picture storybooks was still dominant; however, contrary to previous findings on class reading activities in the early years (e.g., Davies & Brember, 1993; Duke, 2000; Teale, 2003), informational texts and chapter books were also included in the grade 1 teachers' read-aloud curriculum. Consistent with Davies and Brember's (1993) findings, both female and male student participants showed an equitable level of interest in reading fiction picture books as part of their recreational reading material, followed by children's magazines and comics. By the end of this study, five student participants still rated their feelings toward hardcover book reading as positive and

reported that reading hardcover books with their parents was an opportunity for them to spend quality time together. Conversely, three student participants claimed to enjoy hardcover book reading much less than before their involvement in this study.

In accordance with Morrow and Smith (1990) and Segers et al.'s (2004) findings, despite the benefits and preference of student participants being read to individually, lack of time was the key reason for the grade 1 teachers' inability to provide individual attention to students during read-aloud instruction. This finding prompted the investigator to ask the parents of student participants how often their child asked to be read to. According to the parents of five student participants, since their child's involvement in this study, they were asked by their child to read to them on a more frequent, daily basis. In line with the achievement motivation theory (Deci & Ryan, 1985), two student participants who excelled in reading and were intrinsically motivated to read reported that they preferred reading by themselves. Although the majority of the student participants looked forward to their teachers' and parents' read-aloud, their reported perceived enjoyment of working individually with the program and learning new words without any adult assistance is noteworthy.

All of the students were actively involved in their selecting online storybook read-alouds during their program sessions. According to the parent and student questionnaire responses, all of the participants were happier when they were able to choose the kind of reading material they read rather than have it chosen for them. Reflecting on their digital reading, the motivational qualities of self-determination, choice, and stimulation were some of the student participants' cited reasons for enjoying this program. This also supports Flowerday and Schraw's (2000) findings and answers this study's second research question in that student participants' greater perceived control in their online

book reading choices may have contributed to their increased interest in the content domain, intrinsic motivation to read, and improved reading performance.

In accordance with *The Report of the Expert Panel on Early Reading in Ontario* (Ministry of Education of Ontario, 2003), the shared experience of a read-aloud also enables teachers to informally assess their students' listening comprehension and provide immediate feedback. However, contrary to the immediate oral feedback of their responses during the read-aloud, student participants experienced delayed feedback when they completed postreading comprehension print-based activity worksheets and often waited a few days or even weeks to find out whether their responses were correct. The investigator wondered whether such factors as the lack of immediate feedback from their teachers or the response format (e.g., print-based vs. electronically-based) may have contributed to all of the student participants' reported negative feelings toward completing worksheets after reading a story (Kulhavy, 1977). By contrast, the multimedia-based postreading activities enabled student participants to receive instantaneous feedback. The rapidity of feedback was one of the program's strongest advantages (Clarfield & Stoner, 2005) and perhaps part of the reason for the student participants' perceived enjoyment of this activity. In regards to student participants' behaviours during their completion of these independent seatwork activities, five participants exhibited diligent, motivated, on-task behaviours, while the exact opposite behaviour patterns were observed in the other three student participants. These student participants' behaviours matched their attitudes toward completing such print-based worksheets after reading a story but not toward completing computer-based reading activities.

The findings of this study suggest that computer-based reading instruction also resulted in increased sustained attention and decreased off-task behaviour for the three

"struggling" student participants who were hyperactive and inattentive during the components of their classroom's Balanced Literacy program. The present results were similar to those of Rieber (1992), Ota and DuPaul (2002), and Clarfield and Stoner (2005), as these student participants' involvement in this program appeared to provide them with individualized, highly engaging instruction with high rates of success and reinforcement. Consistent with the attribution theory (Heider, 1958), these three participants, who had a maladaptive attribution style and usually attributed their computer program successes to unstable, external factors such as luck ("I guessed that answer"), later began to use more adaptive attribution styles with positive self-talk ("I am really good at this!" and "I remembered this part of the story") towards the end of this study.

The response data from the student participants regarding their recreational reading attitudes at home yielded mixed and inconsistent results. Their voluntary reading-related behaviours in class did not transfer to their out-of-school reading behaviours. Despite their parents' positive perceptions of their child's recreational reading attitudes, six of the eight student participants who reportedly engaged in reading-related activities during *free choice* time at school admittingly spent their recreational time engaged in activities other than reading (e.g., playing) at home. Further, only four participants claimed to take books out of the public library to read for nonacademic purposes.

It is worthy noting that five student participants (three boys and two girls) reportedly increased the frequency of computer and Internet usage at home. Aside from online game playing, the student participants claimed to read more eBooks at home and visited the same Internet website used in this study's program sessions for online storybook reading as well as for completing the site's postreading comprehension activities. This supports Deci and Ryan's (1985) motivation theory as these participants

were intrinsically motivated to actively engage in these technological tools during their free time at home (McCarrick & Xiaoming, 2007). In fact, since their involvement in this study, seven of the eight participants rated more positive feelings toward digital reading instruction (than before the program), and three student participants (John, Jaclyn, and James) who originally preferred print-based worksheets, now preferred online storybook reading and completing reading activities on the computer. The three student participants who still preferred print-based worksheets over computer-based activities (Christina, Mark, and Sally) found it difficult to work from a screen and instead enjoyed practicing their printing skills. Although student participants did not increase their computer and Internet usage patterns at school, six student participants (Jaclyn, James, John, Christina, Sarah, and Christopher) asked their teachers to use this technological tool more since their involvement in this study.

In relation to the second research question, the present study demonstrated that there are different dimensions of reading motivation and that these dimensions impact student participants' reported attitudes towards conventional reading and digital reading and the frequency with which they read these two types of text. It may be the case that involvement in this study prompted the participants to more frequently use computers and the Internet. Additionally, two student participants' amount of leisure reading activity increased, and four students now made use of the online tool for leisure reading purposes (e.g., visiting the Childtopia™ (Childtopia SL, 2008) website, checking news/weather, and e-mailing). Basically, this study's findings were consistent with those of Gottfried (1990) and support the notion that a variety of reading motives were related positively to the student participants' and teachers' ratings of their reading achievement.

In general, all of the participants appeared more confident in their reading abilities and used active listening strategies during both teacher-directed and digital read-alouds. All of the participants, including Jaclyn, James, and Christina, who previously used maladaptive strategies such as task avoidance when they were confronted with such challenging reading tasks, increased in their reading levels, sight vocabulary, and ability to sound out unfamiliar words. However, it is important to note that reading achievement gains cannot be solely attributed to involvement in this study. In sum, these findings indicate the overall contribution of the digital children's literature program and postreading multimedia program on student participants' intrinsic motivation to read and general reading achievement.

Discussion

To become lifelong readers, children must be motivated to engage in reading activities (e.g., Guthrie, 2000; McKenna et al., 1995; Ministry of Education of Ontario, 2003). The decrease in motivation to read across the elementary school years has stimulated concern about how students might be motivated to read and engage in reading activities (Eccles et al., 1998; Stipek, 1993). One motivational construct assessed during this study was the students' attitudes and feelings toward reading different types of texts, including print-based and electronically-based reading sources. Wigfield (1997) stated that feelings about reading influence how much individuals involved themselves in reading; thus attitudes about reading relate to individuals' motivation for reading.

With respect to the characteristics and attributes of achievement motivation, the investigator focused on students' internal motivations including: (a) curiosity, (b) perceived control, (c) self-efficacy, (d) involvement, and (e) preference for challenge. Student participants' external motivations for reading also included: (a) competition and

(b) performance feedback. In line with this, attribution theory (Heider, 1958) and achievement goal theory (Nicholls, 1984) were social cognitive theoretical frameworks used in this study. These constructs were chosen because of their centrality to the engagement model of reading development (Guthrie & Wigfield, 2000). The findings from this study highlighted that the strength of parent, peer, and teacher influences was related to the students' reading attitudes and motivation. This is an important point, since motivation is often considered a characteristic of the individual, when in fact it is greatly influenced by students' learning environments (Wigfield & Guthrie, 1997).

In support of Bandura's (1993) work, the value that parents placed on reading somewhat related to children's self-perceptions and attitudes toward reading. It was found that all of the student participants and their parents shared the same belief that learning to read well was very important. Indeed, such parents who had strong reading beliefs were more likely to promote reading activities conducive to learning and foster their children's motivation to read by providing them with extrinsic, tangible rewards. In particular, Jaclyn, Christina, and James, who appeared less intrinsically motivated to read, looked forward to finding out their reading grades only in hopes of receiving some recognition or reward from their parents.

The limited findings from this study do not align with the notion that students in low-SES schools come from home environments poor in literacy experiences (Snow et al., 1998). The frequency of shared book reading and public library visits neither correlated with SES nor greatly influenced the participants' motivation to read, which contradicts previous findings (e.g., Baker & Wigfield, 1999; Bus et al., 1995; Gottfried, 1990; Guthrie, Anderson, Alao, & Rinehart, 1999; Purcell-Gates, 1996). The low-SES student participants' reading experiences in the home were as frequent as the student

participants' from the high-SES school. For example, although James and John attended the low-income elementary school and Jaclyn and Christina attended the high-income elementary school, all 4 participants spent an equal amount of time being read to by their parents, and their parents frequently read for enjoyment purposes. Additionally, one of the cited reasons for 3 student participants' (James, Sally, and Christopher) perceived enjoyment of shared book reading with their parents was that it gave them the opportunity to spend quality time together; all of these participants also came from low-SES backgrounds. It is integral to note that this participant sample is small and therefore creates limitations on drawing conclusions based on comparing groups.

According to the constructs of self-efficacy (Bandura, 1997), achievement motivation theory (Deci & Ryan, 1985), and the *Matthew Effect* (Stanovich, 1986), a common assumption is that student participants who believe they are capable of reading well and are intrinsically motivated to read, read more frequently and are higher achievers than students who relied more heavily on extrinsic rewards. Results from this study showed that recognition for reading was very important for all grade 1 student participants, especially for those who showed characteristics of intrinsically motivated readers. Consistent with previous findings (e.g., Blatchford et al., 1989; Gibson & Dembo, 1984; Graham et al., 2001), it seemed as though the classroom context, including teachers' expectations and behaviours toward these participants, indirectly affected their reading self-efficacy and achievement. Mark, Sarah, and Christopher showed enhanced levels of intrinsic motivation, demonstrated positive self-efficacy beliefs, persisted longer, and sustained their efforts when confronted with an unfamiliar, difficult word or question. Sarah and Mark had already entered Chall's (1983) second and third stages of reading development, as they transitioned from *learning to read* to *reading to learn* at a

much faster pace compared to their same-age peers. These intrinsically motivated student participants also received high grades and recognition for their reading performance from their teachers and parents.

This study's findings draw on Bandura's (1997) belief that young children use social comparison information in the evaluation of their capabilities. For example, Sarah and Mark demonstrated how they were extrinsically motivated by competition and compared their reading abilities to their peers. Other student participants were observed sharing and comparing their levelled books with those of their peers during independent and buddy reading as well as during library book exchanges. Students also liked hearing their parents and teachers affirm that they read well and looked forward to finding out their reading grades.

By contrast, Jaclyn's, James's, and Christina's reading competence beliefs were deflated, and they frequently used maladaptive coping strategies such as task avoidance and learned helplessness (Covington, 2000; Dweck & Elliott, 1983; Miller & Meece, 1999; Nicholls, 1984; Onatsu-Arvilommi et al., 2002; Salonen et al., 1998; Westen, 1996; Wigfield & Guthrie, 1997; Woolfolk-Hoy, 2005). In Jaclyn's and Christina's cases, extrinsic motivators negatively affected their reading self-efficacy beliefs and subsequent reading achievement as they perceived their reading capabilities in comparison to their peers.

The off-task, learned helplessness behaviours typically displayed by Jaclyn, James, and Christina during sustained classroom reading instruction were not observed during their computer sessions. These three students were highly engaged, attentive, and involved during the online storybook reading and the multimedia-based reading activities. Further, these students also showed remarkable progress in their reading skills, moved up

several reading levels, and appeared more confident in their reading abilities at the end of this study. In fact, Jaclyn and Christina also improved their work productivity and time on task, which is not surprising given their notable interest in computers. For some grade 1 student participants, such extrinsic motivators as individual immediate feedback (in the form of positive reinforcement) and decreased rates of social comparison with peers may have a positive influence on their perceived self-efficacy, intrinsic motivation, and contribute to their improved reading performance.

Four student participants who exhibited hyperactive and inattentive behaviours compared their engagement in the digital children's literature program to "watching a movie" and the multimedia-based reading activities to "playing a video game." This comparison supports Ota and DuPaul's (2002), Rieber's (1992), and Koepp et al.'s (1998) findings of the positive effects of computerized reading instruction on the reading performance of students identified with ADHD. Such multimedia and online technologies may provide optimal learning conditions for students who have difficulty sustaining their attention during reading tasks.

The motivational qualities of choice, control, interest, and involvement were apparent with the student participants' visual eye gaze patterns during their interactions with hardcover books as well as with the computer programs. Observational data showed that the majority of student participants focused on the animated moving pictures first but then drew their attention to the highlighted text. Although James, Jaclyn, and Christina frequently focused on the animations embedded in the eBooks, there was no evidence that the animations distracted them from listening to the text presented by electronic books or that the animations interfered with their story understanding. It appeared that the word-by-word matching and 3-D animated features helped to capture all of the

participants' attention (including the struggling readers), assist in the learning of new words, and sustain attentive listening during the entire read-aloud without being distracted or influenced by their peers or external stimuli. These findings suggest that the interactive features found in the multimedia-based and online reading programs may contribute to some of the learning gains in these participants' word recognition and comprehension skills (e.g., Chera & Wood, 2003; Korat & Shamir, 2006; Segers et al., 2004). The participants' cited reasons for enjoying the digital children's literature program (e.g., "the moving pictures," "the big red words that helped me learn new words and read along," "I could choose which book I want to read," and "I can have a book read to me without any help") highlight that the program's features engaged student participants in learning to read (Clarfield & Stoner, 2005; Ota & DuPaul, 2002).

Three students, John, Jaclyn, and James, were all not intrinsically motivated to read or interested in improving their reading skills. It was a different scenario for John, James, and Jaclyn after their involvement in this program, as they always looked forward to working on the computer during the reading sessions. On a positive note, these participants, in addition to three others, reportedly visited the Childtopia™ (Childtopia SL, 2008) website at home, with two of them engaging in online storybook reading on more than five occasions. These findings contribute to the growing evidence base (e.g., Clarfield & Stoner, 2005; Lewis, 2000; Ota & DuPaul, 2002) on the positive motivational effects of computer-assisted reading instruction on students, especially those who had reading and behavioural difficulties during their classroom reading instruction, such as Jaclyn, James, and Christina. Their perceived enjoyment and fascination with online storybook reading might continue to be used as incentive to foster these students' reading motivation.

Similar to the findings in McNabb et al.'s (2000) study, the four grade 1 teachers also expressed great interest in learning how to increase and integrate digital storybook reading into their Balanced Literacy programs. Further, similar to the findings in Lewis's (2000) study, all of the teachers were in agreement that such online animated storybooks as those available on the Childtopia™ (Childtopia SL, 2008) website and multimedia programs such as Microsoft Powerpoint™ could be effectively used as an adjunct to their traditional classroom read-aloud, especially for struggling beginning readers who require one-on-one attention. This is unfortunate, given that such interactive multimedia and online technologies create various opportunities for beginning readers to take control of their learning, benefit from the authentic content, vocabulary, and various language practice opportunities (e.g., de Jong & Bus, 2002; Huang et al., 2004; Scheiter & Gerjets, 2007). Most notably, multisensory, game-like reading activities such as the ones used in this study can be part of the accommodation plan for student participants who have difficulty paying attention during sustained reading and postreading tasks (Acevedo-Polakovich et al., 2007). Yet, after the completion of the study, they neither acquired nor attempted to integrate such on-screen reading activities in their grade 1 reading instruction.

Despite the teachers' beliefs about the motivational benefits of computer and Internet use, the student participants who preferred using these tools over print-based texts were not able to engage in online storybook reading as often as they would have liked. Consistent with Bronfenbrenner's (1979) ecological systems theory, the influence of the exosystem on teaching practices (i.e., the schools' limited availability of computers, time constraints, lack of adult supervision, and the technical difficulties

associated with using this online technology) posed a challenge and hindrance for teachers to integrate these on-screen reading activities in their grade 1 classrooms.

In relation to Graham et al.'s (2001) study, there might have been other underlying, unmentioned factors such as parents' and teachers' low computer self-efficacy and lack of knowledge about how to use the Internet, the teachers' reluctance to learn how to use these new technologies in their daily classroom practice, or their concerns about the online content to which their students may be exposed.

Similar to Graham et al.'s (2001) findings, the school environment had an influence on the nature of experiences that students had. For example, the social composition of the students in Veronica's classroom highly influenced her practices. In her interview, Veronica stated that she was overwhelmed in trying to serve a large concentration of ESL students who required considerable attention and resources. For this reason, Veronica believed her students were "not yet capable or independent enough" to explore this online tool. Contrary to Veronica's reported daily practice of read-aloud, John and Christopher reported that Veronica, "never or hardly ever" read aloud to them in class. Since reading storybooks aloud to children has been found to increase their motivation to read (Ministry of Education of Ontario, 2003), it calls to question whether these differences in teacher characteristics may have contributed to John`s decreased amount of time spent reading for pleasure, and Christopher's higher frequency of shared book reading with his parents. In accordance with Blatchford et al.'s (1989) findings, Veronica's beliefs and low expectations of her students' capabilities influenced the decisions she made about her reading-related instruction, which may have also consequently affected her students' reading motivation and self-efficacy.

It is important to recall that there were no significant gender and socioeconomic differences in reading motivation across the two elementary schools; however, it is also important to note that the low number of participants in this study may be responsible for these findings and limit the generalizability to other samples (Creswell, 2003). Further, as noted by Borgers et al. (2003, 2004), the grade 1 student participants' language comprehension, developmental stage, and relationship with the investigator may have affected data quality. Yet, the findings of this study shed some light on the changing patterns of student participants' reading attitudes and motivation, as well as their growth in word recognition and listening comprehension skills that were witnessed after their involvement in the digital children's literature program and the postreading multimedia program.

Implications for Practice

Individuals within each classroom create a unique learning community. The role of the teacher is critical in ensuring that all students are successful readers. Since this study has brought to light how attitudes permeate instruction, believing that *all* students *can* become successful readers is the first step in creating an effective literacy program and developing a community that respects the unique qualities of each student.

The teaching of reading is a complicated instructional art. Theories, methods, and strategies leave educators in a quandary as to the best teaching path to follow. Despite the multitude of methods, there is little doubt that young readers benefit from being read to in their early years (e.g., Clay, 1991; Dreher, 2003; Feitelson et al., 1993; Flood, 2003; Lesesne, 2001; Lundberg & Linnakyla, 1993; Ministry of Education of Ontario, 2003; Morrow & Smith, 1990). Goodman (1996) stated this simply: "Teach reading by reading" (p. 12). This study has revealed that alongside conventional reading, multimedia and

online storybook reading may have positive motivational and cognitive effects, particularly with those student participants who have not experienced success in reading. The digital children's literature program and postreading multimedia program exposed the 8 grade 1 student participants to diverse and interactive versions of a read-aloud with follow-up reading activities. In support of previous empirical findings (e.g., Alexander & Jetton, 2003; Blum et al., 2008; de Jong & Bus, 2002; Labbo & Kuhn, 2000; Lefever-Davis & Pearman, 2005), such multimedia and online tools further promoted students' listening comprehension, active use of language, and decoding skills that transcended conventional reading activities and their typical responses to them. These findings have some implications for curricular practice.

An implication of these results is that educators and parents must think about children's reading motivation as multifaceted. That is, children should not be characterized as either motivated or not motivated to read. Instead (much like adults), they are motivated to read for different reasons or purposes, and it is important to distinguish among them. Teachers can assess these different aspects of reading motivation by questioning students with an instrument like the researcher-developed *My Motivation for Reading Questionnaire*. This questionnaire may increase teachers' awareness of their students' reading attitudes, challenges, and interests. The information derived may help teachers become more knowledgeable about effective and motivational reading instruction practices that meet the diverse needs of their students and take into account the prior knowledge and experiences each child brings to the classroom.

The questionnaire could be administered at the beginning of the school year and several times throughout the school year, so that changes in the child's reading motivations, attitudes, and interests can be documented over time. Administering the

questionnaire at each grade level would be conducive to tracking students' progress from grade to grade. All in all, careful scrutiny of the responses, coupled with teacher observations of student behaviours in various classroom reading contexts, can help teachers plan for meaningful, individualized reading instruction that will support students in becoming highly motivated readers.

Another consideration for practice is to capitalize on immediate feedback student participants received from their computer program sessions. Activities that offer the greatest potential for student enjoyment are those that allow students not only to respond actively but also to get immediate feedback that they can use to guide subsequent responses (Brophy, 2004; Skinner, 1969; Thorndike, 1932). Automatic feedback features are also built into many educational games and computerized learning systems (Malone & Lepper, 1987). Similar to the findings in Ota and DuPaul (2002) as well as Acevedo-Polakovich et al.'s (2007) study, this feedback feature was an important reason for the student participants' perceived enjoyment of the researcher-developed multimedia-based reading activities. Unlike classroom practices after a reading lesson, within seconds the student participants quickly discovered and corrected their misunderstandings after they listened to the computer repeat the question and possible answers again.

Of particular importance, the computerized reading activities in a game format increased active engagement and performance but decreased James's, Jaclyn's, and Christina's off-task behaviours. These students had difficulties beginning and following through on print-based reading tasks and typically displayed attentional difficulties during their regular classroom reading instruction. It was observed that these students were eager to receive and respond to immediate feedback when learning something for the first time; whereas in their classrooms, they were much less enthused about the

prospect of going back to try to relearn something that "they did already" (Brophy, 2004). In sum, for reading competence to occur, "students need to be provided with immediate feedback about their gains in knowledge and general reading progress" (Gaskins, 2005, p.118). Aside from using computer-assisted reading instruction such as the digital children's literature program and postreading multimedia program, teachers could also use strategies to maximize positive interaction with their students like Jaclyn, James, and Christina and minimize opportunities for disruptive behaviour.

The results from this study are consistent with those of de Jong and Bus (2002) as well as Blum et al. (2008), who found that animations and 3D features further enhanced the student participants' engagement and motivation to listen to and understand online stories as well as successfully complete reading activities. Based on observations and participant questionnaire responses, the animated, 3D features of the multimedia-based Microsoft PowerPoint™ program also captured the grade 1 students' attention, which may have motivated them to increase their effort and participation during the program sessions. In addition to getting students' attention, instructional Microsoft PowerPoint™ presentations, for example, that incorporate colourful, moving words and objects and sound effects may potentially increase students' word recognition, conceptual understanding, retention, and overall reading achievement (Elder-Hinshaw, Manset-Williamson, Nelson, & Dunn, 2006). It is also important to note that most of these game-like features involve presenting intellectual challenges and are more effective in promoting student motivation to learn than are competitive games that emphasize speed in supplying memorized facts rather than integration or application of learning (Brophy, 2004).

Meyer, Wardrop, Stahl, and Linn (1994) suggest that it is the quality of the interaction that occurs during reading that results in positive effects, rather than just the storybook reading itself. This was suggested by three student participants, as they expressed their preference for having hardcover books read to them. Alongside digital children's literature, the use of Big Books during teachers' conventional read-aloud instruction should still be used. Similar to the word-by-word matching features in digital reading, when reading a Big Book aloud to students, teachers can point to each word as it is read. Finger-pointing illustrates that the text proceeds from the top to bottom and left to right as well as indicates that it is the print rather than the picture that carries the story message and that spoken language corresponds with written language (Ehri, 1991). Further, the initial reading of the text should be followed by several shared readings in which children chime in and say any repeated words or dialogue (Ehri, 1991).

Although the Ontario Ministry of Education (2003) recommends a minimum of 90 minutes of uninterrupted in-school reading per day, and despite the documented benefits of reading aloud to students individually or in small groups (Morrow & Smith, 1990), it was impossible for these grade 1 teachers to meet these requirements. To address the teachers' "lack of time" for reading aloud, a cross-age digital literature program might be a way of helping beginning readers in the primary grades and the struggling readers in the upper elementary grades to improve their reading (Teale & Martinez, 1986).

The student participants in this study were still working in a text-saturated school culture, and it became obvious that access to computers and teacher computer skills were barriers for the use of multimedia-based and online reading technologies. Consequently, the teachers directed their students to more traditional reading sources for the components

of their Balanced Literacy program; students' use of the computer center was exclusively for drill and practice phonics. Despite the efforts of the Ministry of Education of Ontario (2006) to integrate media literacy into the Language curriculum, the four teachers indicated that they were not provided with and were previously unaware of the potential for (online) storybook reading programs and unfamiliar with the multimedia-based Microsoft PowerPoint™ program for creating dynamic reading instruction presentations or follow-up reading activities. These primary teachers reported minimal levels of technical competency and called for an increased need for school boards to provide more formal computer training for primary teachers, especially in multimedia tools such as Microsoft PowerPoint™ and online tools such as the Internet. Once primary teachers are provided with this technical support and training by the school board, they might become more confident and have a higher sense of self-efficacy in their ability to effectively integrate these programs into their Balanced Literacy instruction (Graham et al., 2001; Lynch, 2002). Teachers must then be prepared to provide parents with a variety of reading resources that are available on the Internet, including animated talking storybooks. For example, the investigator sent home a letter to student participants' parents that included the Childtopia™ (Childtopia SL, 2008) website address and invited them to visit this website at home with their children. This proved to be an effective means of communicating with and involving parents in their child's reading development, as four student participants frequently read the online storybooks and completed the follow-up reading activities with their parents.

If "lack of time" is an issue for teachers and parents using these online storybooks, they can create links to these online storybooks and follow-up reading activities on their school intranet homepage or copy the website shortcut to the desktop of

their (school or home) computer. Families can also increase digital read-aloud opportunities by asking older siblings, babysitters, or other family members to sit next to their young readers during online reading experiences. Similarly, if teachers are fortunate enough to have extra assistance in their classrooms (e.g., co-op students, parent volunteers, or teaching assistants), they should also ask them to assist students during their interactions with online learning environments.

Especially in primary classrooms (like Veronica's) that serve a socioeconomically and culturally diverse student population, the Internet offers a wide variety of free animated talking storybooks in various languages for students who are acquiring English. For example, the storybooks and activities available on the Childtopia™ (Childtopia SL, 2008) website could be translated into five different languages. Further, students have access to a digital collection of multicultural materials that they may otherwise not be exposed to or have readily available in their classrooms. In combination with children's literature, the Internet enables young students to develop a rich understanding of the many different cultural experiences in the world, preparing them to take advantage of the important benefits that exposure to diversity provides (Castek et al., 2006; Leu, 2000).

Online storybook reading also provides students with the option of either listening to stories read to them with the text's electronic voice or reading it by themselves without the "talking voice" feature. The latter option fosters strategies for decoding, fluency, and comprehension, as students can practice proper phrasing and fluency. Additionally, some online storybooks cater to individual developmental needs, as they allow students to adjust the reading speed (e.g., the spoken, highlighted words per minute). In the online storybooks available on the Childtopia™ (Childtopia SL, 2008) website, for example, the size and font of the text was enlarged to accommodate individual learners; with other

online storybooks, students can also have the option of adjusting the reading rate speed. In addition to assisting struggling readers with their reading (e.g., with the word-by-word matching feature and read-aloud option), these unique features will also help students like Mark, Sarah, and Christopher, who need to be challenged in their reading and reading-related tasks. In accordance to Lepper and Cordova (1992), the provision of choice, challenge, and personalization in online storybook reading will produce dramatic increases, not only in students' intrinsic motivation but also their depth of engagement in learning, the amount they learn in a fixed time period, and their perceived competence and levels of inspiration.

Overall, the findings from this study have shown that the digital children's literature program, although perhaps not an entirely satisfactory replacement for adults reading printed books to children, may nonetheless be a beneficial supplement to oral and print literacies for grade 1 students. Of course, parents and teachers should not rely on using only these reading software programs for developing children's reading skills and motivation. Instead, they should use these technological reading tools with other material resources that cover a diverse range of student interests and allow them to self-select and explore different types of literature both inside and outside the classroom.

Implications for Theory

In this study, grade 1 students' reading achievement was examined through a constructivist lens with a focus on intrinsic and extrinsic motivation, goal orientation, task persistence, self-efficacy, and attributional styles. It was therefore considered appropriate to assess the degree to which Vygotsky's (1978) and Piaget's (1978) constructivist principles were implemented within the four grade 1 classrooms. Aspects of the participants' Balanced Literacy classrooms, digital read-aloud, and multimedia-

based reading activities gave the grade 1 student participants an authentic constructivist reading experience. Several recommendations are warranted for teachers to incorporate this constructivist model of learning within their Balanced Literacy programs.

Despite the fact that the teachers' Balanced Literacy program demonstrated some important tenets of both constructivist and motivation theory, teachers applied these tenets in a mixed fashion. Literacy centers provided an opportunity to engage grade 1 students in both open-ended and closed-ended tasks. Three grade 1 teachers made efforts to create a constructivist learning environment by integrating computer technology in their literacy centers. However, the computers were used only for passive drill and practice in phonics and provided little opportunity for students to explore digital literacies such as online animated storybook read-aloud. The reading centers allowed students to self-select books for independent and buddy reading, and make their own decisions about the texts they wanted to read. Yet, contrary to the students' self-selection of books during independent reading and buddy reading, all of the grade 1 teachers chose the books to read during the components of their Readers' Workshop. Of the 4 grade 1 teachers, only 1 acknowledged the power of weaving student choice and voice into their read-aloud on one or two occasions. Although student participants seemed to enjoy all of their teachers' read-aloud, all of the student questionnaire responses indicated that they prefer engaging in reading activities that provide them with more choice and control. This central quality in intrinsic motivation was the cited reason why five student participants highly enjoyed and preferred digital read-aloud over teacher-led read-aloud.

Data based on student observations and questionnaires showed that book self-selection practices increased the frequency of students' time spent reading both at home and during free choice time in class. Students stated in their questionnaires that they

enjoyed taking ownership of their own learning, a finding similar to the results of research by Gambrell et al. (1996) and Worthy (2002), which showed that when students chose literature that interested them and fit their own reading needs, they became more engaged and motivated to read. The digital read-aloud program gave student participants the power to make decisions, regulate their own learning, and self-select their storybooks. In short, students had the opportunity to exercise self-determination (Bandura, 1986).

From the social constructivist perspective, it is important to take into account the background of the learners throughout the learning process, as this background also helps to shape their reading development and motivation (Wertsch, 1997). In accordance with Vygotsky's *zone of proximal development* (Vygotsky, 1978) learners should be challenged within close proximity to, yet slightly above, their current level of development. Student participants' interactions with multimedia-based and online technology can boost them to new levels of independent achievement within their zone of proximal development (Vygotsky, 1978).

In addition to the follow-up activities in which students engaged after their teachers' read-aloud session, the multimedia-based reading activities were also avenues for grade 1 students to use critical thinking and problem-solving strategies and to transform information into knowledge (Vygotsky, 1978). According to von Glasersfeld (1989), sustaining motivation to read is strongly dependent on the reader's confidence in his or her potential for reading. These feelings of competence and belief in potential to solve new problems are derived from firsthand experience of mastery of problems and are much more powerful than any external acknowledgment and motivation (Prawat & Floden, 1994). Dewey (1938) reiterated the importance of the learner in the formation of the purposes which direct his/her activities in the learning process.

Constructivism is a theory that attempts to describe how learning happens and is often associated with pedagogic approaches that promote active learning, or learning by doing (von Glasersfeld, 1995). Formalization of this theory is generally attributed to Piaget (1973), who articulated mechanisms by which knowledge is internalized by learners and, through processes of *accommodation* and *assimilation*, individuals construct new knowledge from their experiences. These mechanisms of learning provide a framework for thinking about how multimedia and online technologies came to be used (albeit not used) in the grade 1 student participants' traditional reading instruction. Exosystems such as the Ministry of Education of Ontario (2006) have acknowledged (Digital) Media Literacy as an integral part of the grade 1 Language curriculum, and the 4 grade 1 teachers made minimal attempts to assimilate these new technologies into their literacy instruction. However, the student participants in this study had positive reactions to the multimedia-based reading activities and digital children's literature program; these results suggest that teachers can enhance the conventional goals of grade 1 Balanced Literacy by integrating such multimedia presentation software as Microsoft PowerPoint™ and online storybooks to further engage and motivate their students during their reading instruction. As technology becomes increasingly inseparable from literacy in the real world, primary educators must make greater efforts to remain open and receptive to these new forms of multimedia and online information and accommodate such constructivist learning environments in their traditional reading instruction.

Implications for Further Research

The present qualitative study was designed to gain a deeper understanding of the nature of and attitudes toward conventional and digital reading experiences among grade 1 students, their parents, and teachers. Although the current results are promising, several

implications for further research in this area are recommended, and avenues for extending this study will be articulated.

The outcomes reported in this study rely heavily on the perceptions of the investigator, the grade 1 student participants, their parents, and teachers rather than evidence that has been verified independently. While perceptions are important, they may be coloured by enthusiasm and vested interest and may not reflect actual conditions as they exist (Creswell, 2003). To complement the current study, an alternative research design might be used to garner empirically valid conclusions.

For example, a mixed method design could be used, with quantitative methods that are enhanced with qualitative measures of key processes and outcomes. By itself, a quantitative method can identify *what* works but has limited explanatory power; there is little information about how students learned and *how well* instruction was supported (Creswell, 2003). For example, the qualitative methods used for this study's design provided data that have explanatory power; that is, the findings give the reader insights into how the computer programs worked and how they can be translated to reading instruction practice in a grade 1 Balanced Literacy classroom. However, although this qualitative design provides rich information about beginning readers and Balanced Literacy instruction, evidence about what worked is more subjective and cannot be generalized to other grade 1 classrooms. By combining the two methods, a richer understanding can be obtained. In other words, quantitative methods can tell us what works for instructing grade 1 students in the beginning stages of their reading development, while the qualitative methods can tell us how it works, through measures of reading instructional content and students' reading practices, behaviours attitudes, and motivations.

To control for any bias and threats to internal validity, future work should strive to keep observers "blind" with respect to knowledge of the assigned groups as well as the purpose of the study (Creswell, 2003). Further, in order to address the effects of the two modes of reading instruction (conventional reading vs. digital reading) on grade 1 students' reading motivation and overall reading performance, objective and quantifiable measures should be devised and statistical norm- and criterion-referenced tests incorporated that provide for carefully controlled, randomly assigned conditions.

All of the grade 1 classrooms in this study used the same reading curriculum, which was based on a similar Balanced Literacy approach. Still, many contextual factors other than curriculum are also related to grade 1 students' reading development, attitudes, and motivation within home and school reading experiences. One promising way to explore the causal nature of these relationships would be to isolate the potentially independent effects of the participants' socioeconomic status, gender, age, learner characteristics, reading level, reading self-efficacy, and motivational orientation. These variables should also be considered when examining data from the participants' parents and teachers.

The results of this investigation suggest that the computerized reading program was effective in improving task engagement for three student participants with behavioural and reading difficulties. Thus, an investigation of the effectiveness of this digital children's literature program on reading skill acquisition and reading motivation with other early elementary school-age students who present with attentional difficulties as well as English language learners experiencing academic and/or motivational problems in reading is warranted.

Future studies could also increase the degree of internal consistency by including only those teacher participants identified as "effective primary reading teachers." These exemplary teachers could serve as a model for best practices in primary literacy instruction that includes digital children's literature. Beyond the school board that hosted this research, examining effective primary teachers in different boards would also afford researchers the opportunity to highlight effective reading instruction practices and resources between different school boards.

The outcomes that are reported here depend on a few informants rather than a representative sample of grade 1 students, teachers, and parents. A large-scale, nationally representative sample of grade 1 student participants, parents, and teachers would provide data at a system level and temper the confounding variables affecting children's reading attitudes toward and the effects of conventional and digital reading on their reading development and motivation. By broadening this study to include grade 1 students from a wider cross-section of Ontario elementary schools, provincial curriculum consultants could more effectively plan for and implement in-servicing for primary teachers on motivating types of reading activities, innovative teaching strategies, reading assessment practices, and how to use technological texts in the classroom.

A longitudinal study that followed the same group of participants into the later grades would offer greater insight into the relationship between and the long-term effects of the two types of book reading instruction (digital reading versus print-based reading) on grade 1 students' reading motivation and reading achievement. It would also be interesting to build on the current research and conduct a cross-section study with older children in the later stages of their reading development, especially where read-alouds are less common in the classroom (Ivey & Broaddus, 2001) to capture more fully the

relationship between the different types of reading instruction, reading motivation, and reading achievement.

Conclusion

The decrease in motivation to read across the elementary school years has stimulated concern about how students might be motivated to read and engage in literacy activities (Eccles et al., 1998; Stipek, 1993; Stipek & Hoffman, 1980). Moreover, only a few Canadian studies have explored the possibilities of using computer-based multimedia and online formats to increase motivation to read, especially with younger children in the beginning stages of reading (e.g., Shade, Porter, & Sanchez, 2005).

This study has shown that reading software with multimedia enhancements, motivational aspects, and constructivist methods of instruction can promote reading motivation, word recognition, and listening comprehension among beginning readers. Of particular importance was the effectiveness of these programs in decreasing off-task behaviours and increasing sustained levels of attention, competence and engagement for 3 students who had reading and attentional difficulties during the components of their classroom's Balanced Literacy program. In light of the "Matthew Effect," the multimedia and digital reading programs can help to address the gap in achievement and motivation between good and poor readers. Educators and parents are instrumental in helping their students to develop the new skills and strategies that are important in today's technological age. Although they were not currently integrated in these grade 1 Media Literacy and Language programs, the increased use of multimedia and online reading programs in the early grades would enable teachers to have ready a backpack of reading tools from which to help *all* students become fully literate. Multimedia and digital children's literature programs alone will not teach children to read, but rather may

provide an opportunity for practice of skills that beginning readers learn from direct, systematic instruction in their Balanced Literacy classrooms, in a highly appealing and constructivist manner. As students take advantage of these online opportunities, positive dispositions will develop toward the use of these new digital literacies for reading, fostering motivation, engagement, and a lifelong love of reading.

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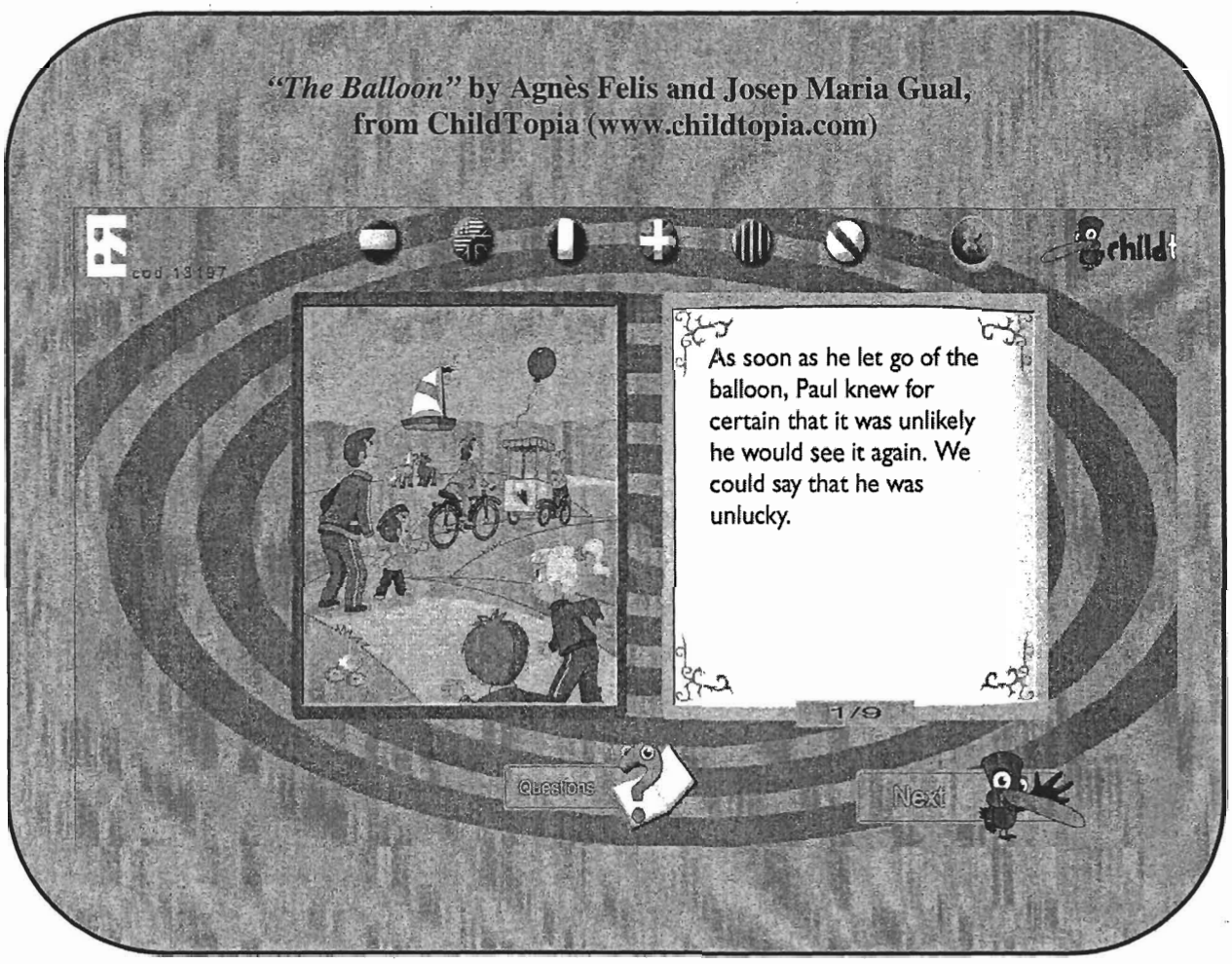
Appendix A

Screenshot of Digital Children's Literature Program



Appendix B

Screenshot of Postreading (Microsoft PowerPoint) Activity

Appendix C

My Motivation to Read Questionnaire #1 (Print-Based/Child Version)

Hi, _____. My name is Katia and I am interested in what students your age read and how they feel about what they read. I would like to talk with you about the reading you do in and out of school. I'll be tape-recording some of what you say today (*turn on recorder*).

1. Do you think that knowing how to read well is:

☐ Not important

☐ Important

☐ Very important

2. Which of the following do you read in class?

☐ Newspapers

☐ Magazines (please specify)

_____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

3. Which of the following do you read at home?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

4. How often do you take books out of the school library or public library to read for fun?

almost every day some days never or hardly ever

5. How often do you read for fun on your own time?

almost every day some days never or hardly ever

6. Which of the following do you *enjoy* reading most?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from the computer/Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

7. Which of the following do you *enjoy* reading less?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from the computer/Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

8. How much time do you spend on a computer?

almost every day some days never or hardly ever

a) What do you do on the computer?

_____

_____

9. Have you used the Internet before? YES
NO

a) If yes, what do you do on the Internet (games, read, research information, etc.)?

_____

_____

10. How much time do you spend on the Internet:

a) At home?

almost every day some days never or hardly ever

b) At school?

almost every day some days never or hardly ever

11. Have you ever used the computer/Internet for reading? YES NO

a) If yes, what did you read (a story, online magazine, etc.)?

_____

_____

b) Where did you get it from (website)?

_____

c) What was it called?

_____

12. If you had to choose between reading a hardcover book or an electronic book on the computer, which would you choose? Why?

_____

_____

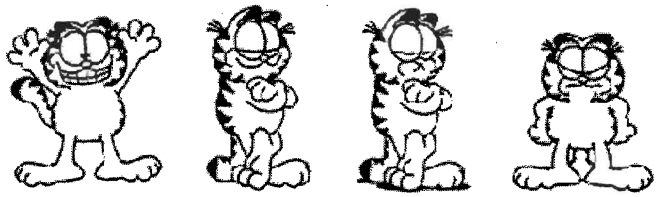
13. If you had to choose between doing reading activities on paper (worksheets) or on the computer, which would you choose? Why?

_____

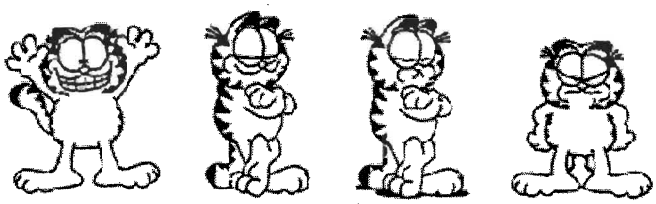
_____

The pictures of Garfield show different moods. Point to the first picture at the top. We call this mood "very happy." Move your finger to the next picture. Look closely at his mouth. How does it look different from the first picture? We call this picture "a little happy." Look at the third picture of Garfield. His mouth has changed. He is "a little upset." Point to the last picture of Garfield. Look at his mouth. He looks "very upset." *[Wait for response. Point out the differences, if student does not seem to follow.]* I will read some statements about reading, and I want you to think about how you feel about each sentence. Then circle the one picture of Garfield that is closest to YOUR feelings. Remember: There are no right or wrong answers. I only want to know how you feel about reading, not how Garfield feels!

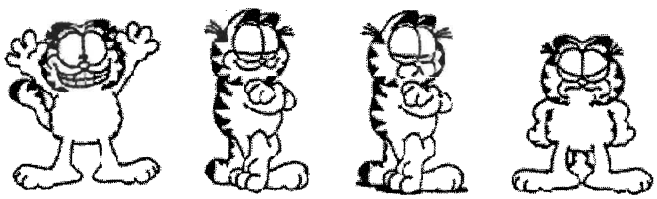
14. This is how much I enjoy it when I get a book for a present.



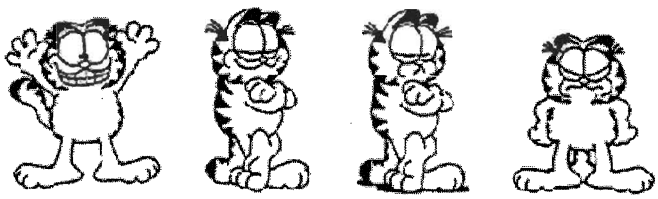
15. This is how much I enjoy it when I spend my free time reading.



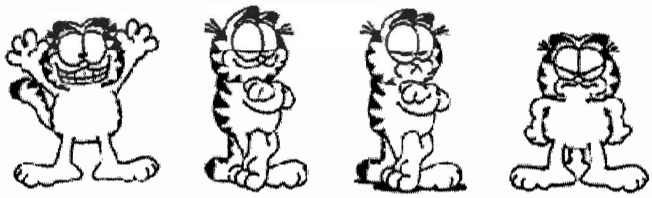
16. This is how much I enjoy it when I read instead of play.



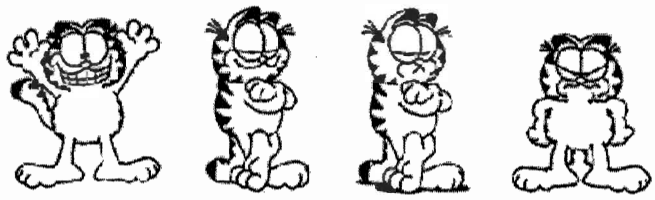
17. This is how much I enjoy it when I do worksheets after reading a story.



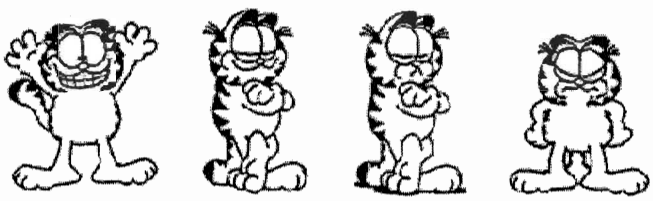
18. This is how much I enjoy it when I read a (hardcover) book.



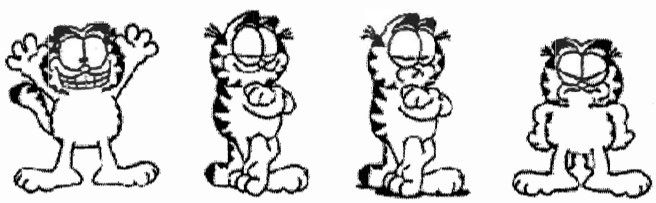
19. This is how much I enjoy it when I read books on the computer (Internet)?



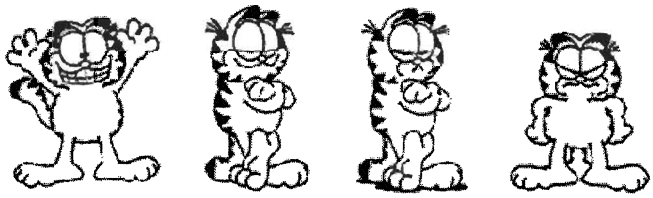
20. This is how much I enjoy it when I do reading activities on the computer (Internet).



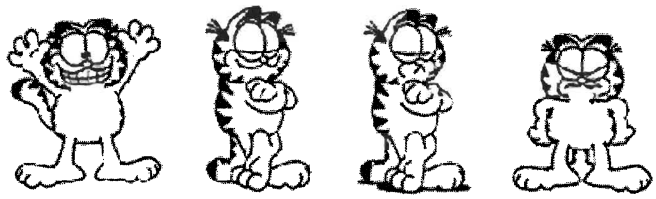
21. This is how much I enjoy it when an adult reads to me alone.



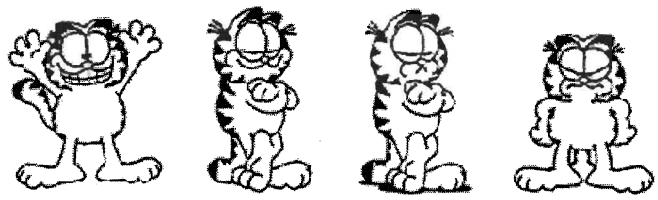
22. This is how much I enjoy it when an adult reads to me with a group.



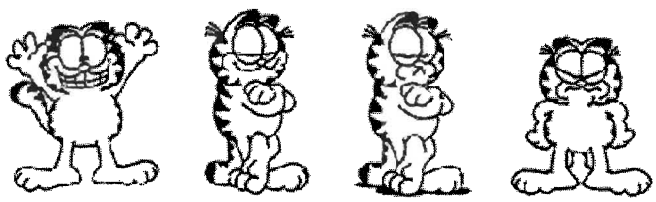
23. This is how much I enjoy it when I work on reading activities alone.



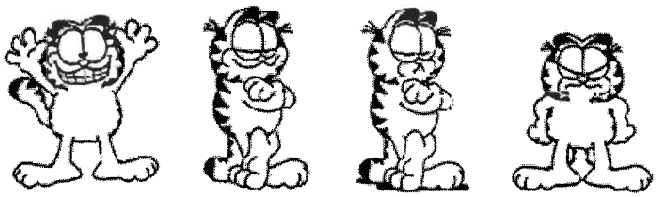
24. This is how much I enjoy it when I work on reading activities with a group.



25. This is how much I enjoy it when I hear my teacher and family say I read well.



26. This is how much I enjoy it when I get to choose the kind of reading material I read.



The Garfield character is incorporated in this questionnaire with the permission of Paws, Inc. (www.professorgarfield.org)

Appendix D

Student Behavioural Observation Checklist (Online Reading Session)

Date: _____

Student Code: _____ Group: _____

1 = Never 2 = Rarely 3 = Sometimes 4 = Usually 5 = Always

	1	2	3	4	5	Observer Comments
Time On-Task While Reading						
Level of Engagement While Reading						
Area of Focus						
Illustrations						
Text						
Reader						
	1	**2**	**3**	**4**	**5**	**Observer Comments**
Time On-Task During Postreading Activity						
Level of Engagement During PostrReading						
Level of Frustration During Postreading Activity						

Appendix E

Research Ethics Board Clearance

Brock University
Office of Research Services
Research Ethics Office
St. Catharines, Ontario, Canada L2S 3A1
T: 905-688-5550, Ext. 3035/4876 F: 905-688-0748
www.brocku.ca

DATE: June 4, 2008

FROM: Michelle McGinn, Chair
Research Ethics Board (REB)

Michelle K. McG

TO: Tiffany Gallagher, Education
Katia Ciampa

FILE: 07-304 GALLAGHER/CIAMPA

TITLE: The impact of a hypermedia-based children's literature program on primary students' reading motivation

---

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: Accepted as Clarified.

This project has received ethics clearance for the period of June 4, 2008 to February 1, 2009 subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The clearance period may be extended upon request. ***The study may now proceed.***

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and cleared by the REB. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to http://www.brocku.ca/researchservices/forms to complete the appropriate form Revision or Modification to an Ongoing Application.

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final Report is required for all projects upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form *Continuing Review/Final Report* is required.

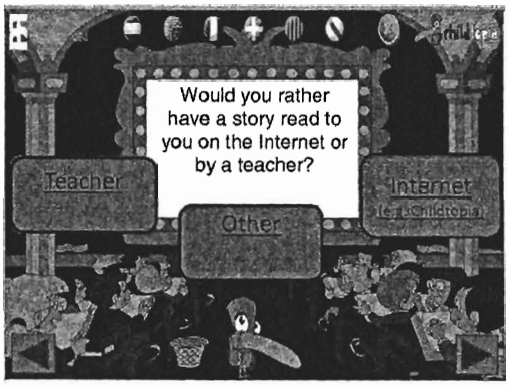
Please quote your REB file number on all future correspondence.

MM/kw

Appendix F

My Motivation to Read Questionnaire #2 (Electronic-Based/Child Version)

1.



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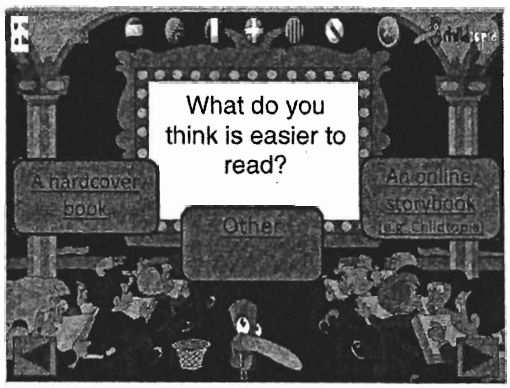
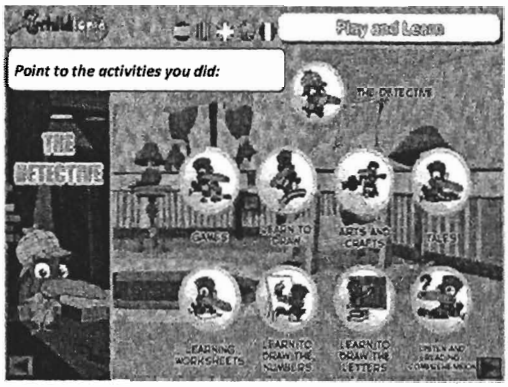


3.

4.



5.


If you **did not** visit the website, why?
I do not know how to use the computer
I was not allowed to look at it
I do not like to read stories on the computer
I like to read hardcover books instead
I do not like this website

6.


How many times did you visit the *Childtopia* website at home?
One time
More than one time
Never

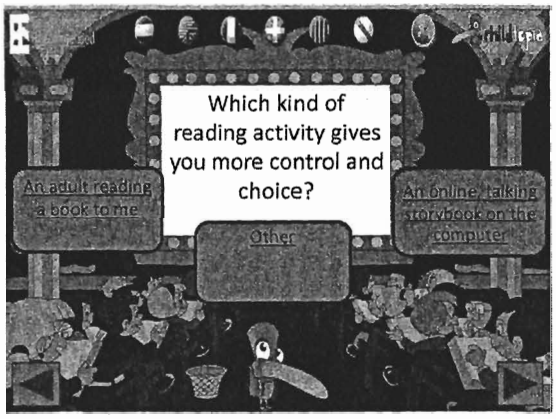
7.


Why did you visit the *Childtopia* website at home?
I wanted to read the stories by myself
My parents wanted me to read the stories
Other

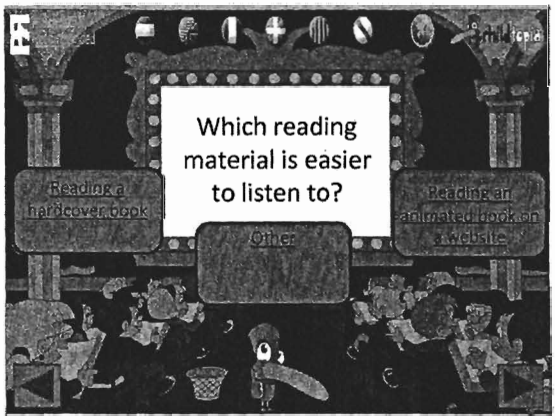
8.


What would make you really happy?
Reading a hardcover book
Reading an animated book on a website
I would not read any book

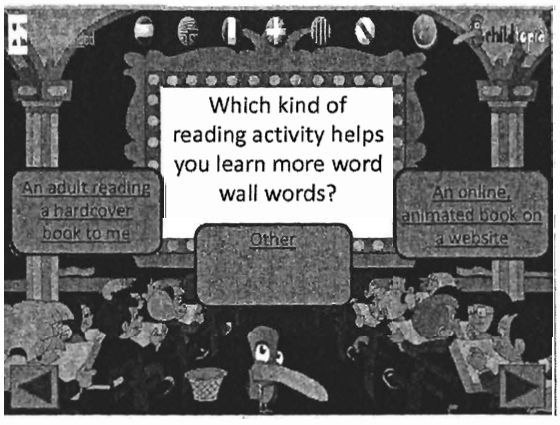
9.


Which kind of reading activity gives you more control and choice?
An adult reading a book to me
An online, talking storybook on the computer
Other

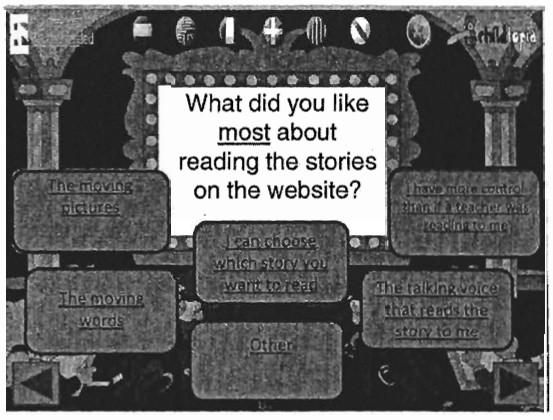
10.


Which reading material is easier to listen to?
Reading a hardcover book
Reading an animated book on a website
Other

11.


Which kind of reading activity helps you learn more word wall words?
An adult reading a hardcover book to me
An online, animated book on a website
Other

12.


What did you like most about reading the stories on the website?
The moving pictures
I have more control since I'm reading to me
I can choose which story you want to read
The moving words
The talking voice that reads the story to me
Other

Appendix G

My Motivation to Read Questionnaire #3 (Print-Based/Child Version)

Hi, _____. I'm glad we have another chance to talk about reading. Just like last time, I'll be tape-recording some of what you say today (*turn on recorder*).

1. Do you think that knowing how to read well is:

☐ Not important

☐ Important

☐ Very important

2. Which of the following do you read in class?

☐ Newspapers

☐ Magazines (please specify) _____+_____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

3. Which of the following do you read at home?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

4. How many times do you take books out of the school or public library to read for fun?

almost every day some days never or hardly ever

5. How many times do you read (for fun) on your own time?

almost every day some days never or hardly ever

6. How many times does your mom or dad read to you?

almost every day some days never or hardly ever

7. How many times does your teacher read to you?

almost every day some days never or hardly ever

8. Which of the following do you *enjoy* reading most?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from the computer/Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

9. Which of the following do you *enjoy* reading less?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from the computer/Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

10. If you could choose which literacy centre/free choice you like most, which would it be?

☐ Listening Centre

☐ Computer Centre

☐ Independent Reading

☐ Buddy Reading

☐ ABCs/Phonics

☐ 1,2,3/Math

☐ Poetry

☐ Journal

☐ Other (please specify) _____

11. How many times do you use the Internet:

a) At home?

almost every day | some days | never or hardly ever

b) At school?

almost every day | some days | never or hardly ever

12. Have you used the computer/Internet (for reading) more since we have been working together?

YES NO

a) If yes, what have you been doing on the computer/Internet?

_____

_____

b) If no, why have you not been using the computer/Internet?

_____

_____

13. a) What kinds of things did you enjoy <u>most</u> from the stories you read on the computer? Why? You can tick more than one box.

☐ moving, highlighted words

☐ moving, colourful pictures

☐ can read by yourself without any help

☐ talking voice

☐ takes a shorter time to read on the computer (than in a hardcover book)

☐ it is easier to read on the computer (than a hardcover book)

☐ can move back and forth and read parts of the story again on your own

☐ can choose which book you like to read

_____

_____

b) What kinds of things did you enjoy <u>less</u> from the stories you read on the computer? Why? You can tick more than one box.

☐ moving, highlighted words

☐ moving, colourful pictures

☐ can read a book by yourself

☐ talking voice

☐ takes a longer time to read on the computer (than a hardcover book)

☐ it is harder to read on the computer (than a hardcover book)

☐ can move back and forth and read parts of the story again on your own

☐ can choose which book you like to read

_____

_____

15. a) What kinds of things did you enjoy <u>most</u> from the reading activities you did on the computer? You can tick more than one box.

☐ knowing if you were right or wrong right away

☐ the moving words

☐ the colourful slides

☐ sounds/music

☐ talking voice

☐ can move back and forth

☐ hear questions and words spelled out loud again (if you didn't hear it the first time)

☐ can choose the right answer (multiple choice)

☐ read questions and hear words/sentences spelled out loud again

☐ you can move back and forth by yourself without help from adult

b) What kinds of things did you enjoy <u>less</u> from the reading activities you did on the computer? Why? You can tick more than one box.

☐ knowing if you were right or wrong right away

☐ the moving words

☐ the colourful slides

☐ sounds/music

☐ talking voice

☐ can move back and forth

☐ hear questions and words spelled out loud again (if you didn't hear it the first time)

☐ can choose the right answer (multiple choice)

☐ read questions and hear words/sentences spelled out loud again

☐ you can move back and forth by yourself without help from adult

_____

_____

16. If you had to choose between reading a hardcover book or an electronic book on the computer, which would you choose? Why?

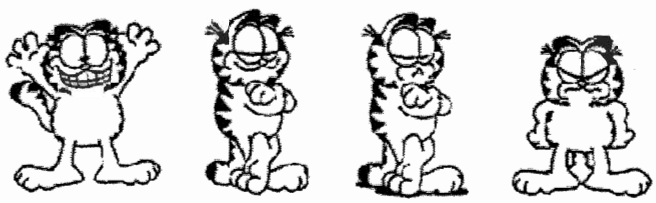
_____

_____

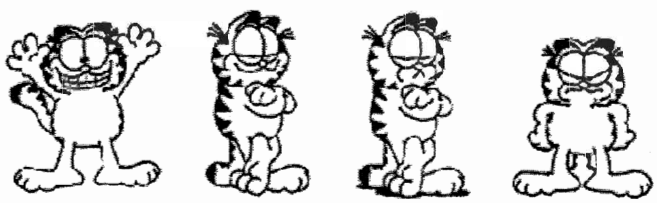
17. If you had to choose between doing reading activities on paper (worksheets) or on the computer, which would you choose? Why?

The pictures of Garfield show different moods. Point to the first picture at the top. We call this mood "very happy." Move your finger to the next picture. Look closely at his mouth. How does it look different from the first picture? We call this picture "a little happy." Look at the third picture of Garfield. His mouth has changed. He is "a little upset." Point to the last picture of Garfield. Look at his mouth. He looks "very upset." *[Wait for response. Point out the differences, if student does not seem to follow.]* I will read some statements about reading, and I want you to think about how you feel about each sentence. Then circle the one picture of Garfield that is closest to YOUR feelings. Remember: There are no right or wrong answers. I only want to know how you feel about reading, not how Garfield feels!

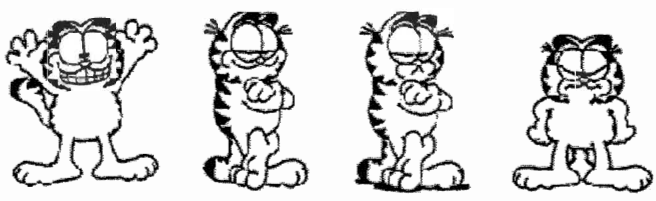
18. This is how much I enjoy it when I read a (hardcover) book.



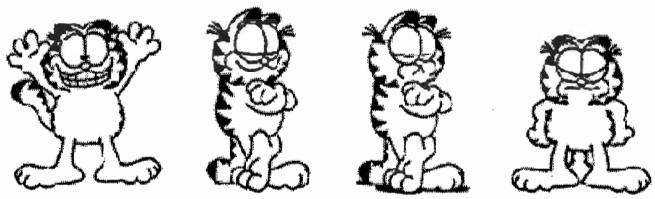
19. This is how much I enjoy it when I read a book on the computer (Internet).



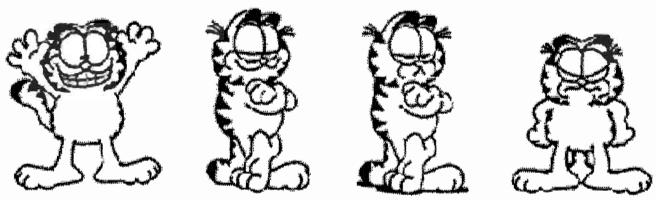
20. This is how much I enjoy it when an adult (my teacher or parents) reads to me.



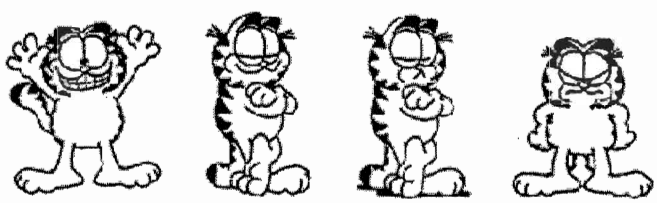
21. This is how much I enjoy it when the computer reads to me.



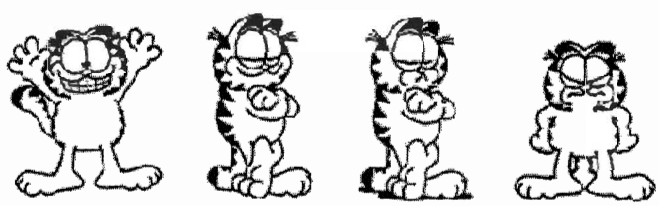
22. This is how much I enjoy it when I get a book for a present.



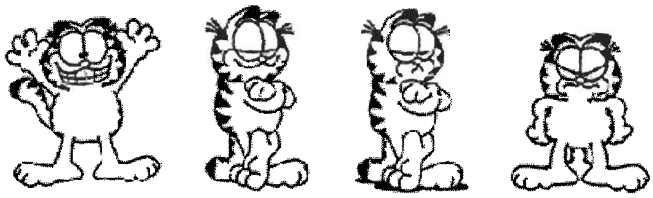
23. This is how much I enjoy it when I spend my free time reading.



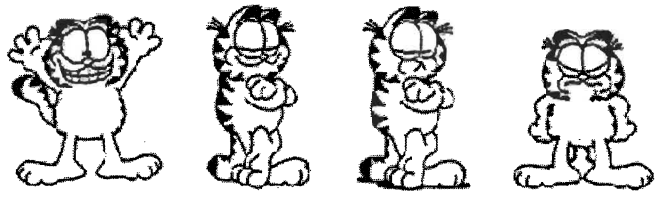
24. This is how much I enjoy it when I read instead of play.



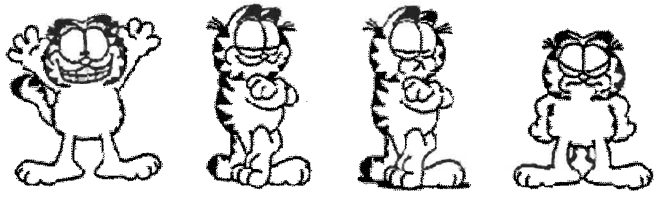
25. This is how much I enjoy it when I do worksheets after reading a story.



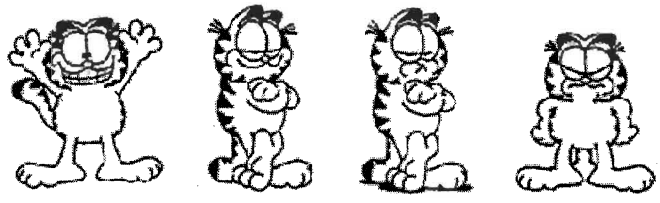
26. This is how much I enjoy it when an adult reads to me alone.



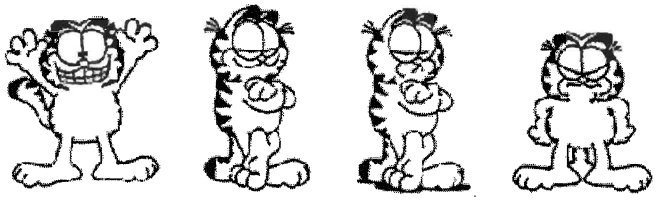
27. This is how much I enjoy it when an adult reads to me with a group.



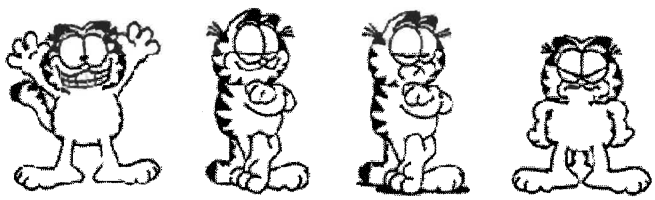
28. This is how much I enjoy it when I do reading activities on the computer (Internet).



29. This is how much I enjoy it when I hear my teacher and family say I read well.



30. This is how much I enjoy it when I get to choose the kind of reading material I read.



31. Do you look forward to finding out your reading grade? Why or why not?

_____

_____

32. Do you like knowing if you got a right/wrong answer quickly? Why or why not?

_____

_____

33. Do you like being the best at reading? Why or why not?

_____

_____

34. Do you try to get more answers right than your friends? Why or why not?

_____

_____

Appendix H

My Child's Motivation to Read Questionnaire #1 (Parent Version)

I am interested in what your child reads and how he or she feels about reading. Please provide responses to the questions below by checking the most applicable answer, or provide a short statement.

1. How important is it to you that your child knows how to read well:

☐ Not important

☐ Important

☐ Very important

2. Which of the following does your child read at home?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

3. How often does your child take books out of the public library to read for fun?

almost every day some days never or hardly ever

4. How often does your child bring home books from the school library?

almost every day some days never or hardly ever

5. How often do *YOU* read for enjoyment?

almost every day some days never or hardly ever

6. If you have a computer in your home, how much time does your child spend on a computer?

almost every day some days never or hardly ever n/a (no computer)

a) What does your child do on the computer?

_____

_____

7. Has your child used the Internet before? YES NO

a) If yes, what does your child do on the Internet (games, read, research information, etc.)?

_____

_____

8. How much time does your child spend on the Internet:

almost every day some days never or hardly ever

9. Has your child ever used the computer/Internet for reading? YES NO

a) If yes, what did your child read (a story, online magazine, etc.)?

_____

_____

b) Where did your child get it from (website)?

_____

10. If your child had to choose between reading a hardcover book or an electronic book on the computer, which one do you think that your child would you choose? Why?

_____

_____

The following are some statements about reading. Please provide your perception or "best guess" about how much you think that your child enjoys each reading activity. Circle a number from 1 to 4.

11. This is how much my child enjoys it when he or she gets a book for a present.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

12. This is how much my child enjoys it when he or she spends free time reading.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

13. This is how much my child enjoys reading instead of playing.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

14. This is how much my child enjoys reading on the computer (Internet).

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

15. This is how much my child enjoys being read to by an adult.

4	3	2	1

enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

16. This is how much my child enjoys doing homework or reading activities from school.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

17. This is how much my child enjoys being praised for reading well.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

18. This is how much my child enjoys choosing the kind of reading material he/she reads.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

THANK YOU SO MUCH FOR COMPLETING THIS SURVEY

The Garfield character is incorporated in this questionnaire with the permission of Paws, Inc. (www.professorgarfield.org)

Appendix I

My Child's Motivation to Read Questionnaire #2 (Parent Version)

Thank you for participating in the survey a few months ago. As you know, your child has been working on some computer-based stories at school. I am interested in how your child feels about what he or she has been reading. Please provide responses to the questions below by checking the most applicable answer, or provide a short statement.

1. Which of the following does your child read at home?

☐ Newspapers

☐ Magazines (please specify) _____

☐ Comics

☐ Picture books (fiction/print)

☐ Information books (nonfiction/print)

☐ Electronic books from Internet websites (please specify) _____

☐ Audio books (at the listening center)

☐ Other (please specify) _____

2. How often does your child take books out of the public library to read for fun?

almost every day some days never or hardly ever

3. How often does your child bring home books from the school library?

almost every day some days never or hardly ever

4. How often do you read to your child?

almost every day some days never or hardly ever

5. How often does your child ask you to read to them?

almost every day Some days never or hardly ever

6. How often do *YOU* read for enjoyment?

almost every day some days never or hardly ever

7. If you have a computer in your home, how much time does your child spend on a computer?

almost every day some days never or hardly ever n/a (no computer)

a) What does your child do on the computer?

_____

_____

8. Has your child used the Internet more since this study began in October 2008?

YES NO

a) If *yes*, how much time does your child use the Internet?

almost every day some days never or hardly ever n/a(no computer)

b) If *yes*, what does/did your child do on the Internet? (please specify)

_____

_____

c) If *yes*, and in your opinion, please cite the reasons why they enjoy/prefer using the computer and/or Internet:

_____

_____

9. Over the course of this study, did your child mention anything about doing reading activities on the computers at school?

YES NO

10. Please provide any additional information you have gathered regarding your child's attitudes (likes/dislikes) toward the digital reading software used in our study sessions:

_____
_____
_____
_____

11. How much time does your child spend on the Internet (if applicable):

almost every day some days never or hardly ever

12. Have you and/or your child visited the *Childtopia* website that was provided to you? YES NO

a) If *no*, please cite the reasons why you and/or your child did not visit the website:

_____
_____

b) If *yes*, how many times has your child visited the website?

_____

c) If *yes*, please specify what activities you did with your child on the website:

_____
_____

13. If *yes*, and in your opinion, do you think your child enjoyed reading the animated talking storybooks available on the "Listen and Reading Comprehension" portion of the website?

YES NO

a) Why or why not?

_____

_____

14. Based on your observations, what kinds of things do you think/know your child enjoyed the <u>most</u> from the online picture storybooks used during our sessions at school and/or at home? (please check all that apply)

☐ moving, highlighted words

☐ moving, colourful pictures

☐ sounds/music

☐ talking voice

☐ can move back and forth and read parts of the story again on your own

☐ can choose which book you like to read

15. Based on your observations, what kinds of things do you think/know your child enjoyed the <u>least</u> from the online picture storybooks used during our sessions at school and/or at home? (please check all that apply)

☐ moving, highlighted words

☐ moving, colourful pictures

☐ sounds/music

☐ talking voice

☐ can move back and forth and read parts of the story again on your own

☐ can choose which book you like to read

16. If your child had to choose between reading a *hardcover book* or an *electronic book* on the Internet, which one do you think your child would choose? Why?

_____

_____

The following are some statements about reading. Please provide your perception or "best guess" about how much you think that your child enjoys each reading activity. Circle a number from 1 to 4.

17. This is how much my child enjoys it when he or she gets a book for a present.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

18. This is how much my child enjoys it when he or she spends free time reading.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

19. This is how much my child enjoys reading instead of playing.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

20. This is how much my child enjoys reading on the computer (Internet).

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

21. This is how much my child enjoys being read to by an adult.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

22. This is how much my child enjoys doing homework or reading activities from school.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

23. This is how much my child enjoys being praised for reading well.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

24. This is how much my child enjoys choosing the kind of reading material he/she reads.

4	3	2	1
enjoys a lot	enjoys a bit	dislikes a bit	dislikes a lot

25. Does your child look forward to finding out his or her report card grades? YES NO

26. Does your child compare his/her reading to other children? YES NO

27. Please provide any additional comments you have regarding your child's involvement in this study, including any changes you may have seen in his/her motivation toward reading (online animated storybooks or hardcover books).

_____

_____

THANK YOU SO MUCH FOR COMPLETING THIS SURVEY

Appendix J

Teacher Questionnaire

Dear Teacher,

Please respond with the appropriate answer for each of the following items:

1. Gender: M F

2. Please indicate the number of students in your class _____

3. What is the ratio of boys to girls in your class? _____

4. How many full years of teaching experience do you have? _____

5. What is the total number of years of teaching experience you have at the primary level? ___

6. Please list and describe any professional training or experiences you have had related to early literacy (e.g., AQ courses, conferences, workshops, etc.):

_____
_____
_____
_____
_____

5. The location of computers that your students have access to are (check all that apply):

Location	Student Access	Internet Access	Average Number of Computers
Your classroom	YES NO	YES NO	
Computer Lab	YES NO	YES NO	
School Library	YES NO	YES NO	
Other (please specify)	YES NO	YES NO	
N/A	YES NO	YES NO	

6. On average, how long (instructional time) do your students spend on the computer at school per week?

_____ hours _____ minutes _____ period(s)

7. What computer applications are commonly used during students' computer time at school?

_____

_____

_____

8. Describe your computer experience (check one):

☐ I never use computer technology

☐ I rarely use computer technology

☐ I sometimes use computer technology

☐ I frequently use computer technology

9. Have you integrated computers into your literacy program (circle one)? YES NO

a) If yes, please describe how you have integrated computers into your literacy program.

_____

_____

b) If no, please cite the reasons why you have not integrated computers into your literacy program.

_____

_____

10. If applicable, please rate and describe how often the following types of computer software are used in your (reading) literacy instruction:

Types of Computer Software	**Rating Scale** Never Rarely Sometimes Often Always					**Description of Computer Program (What Is It Used For?)**
World Wide Web (Internet)	1	2	3	4	5	
Digital Games	1	2	3	4	5	
Electronic Storybooks	1	2	3	4	5	
Multimedia Presentation Tools (e.g., PowerPoint)	1	2	3	4	5	
Other	1	2	3	4	5	

12. On average, what is the total length of time allocated to reading (literacy) instruction per week?

_____ hours _____ minutes _____ period(s)

13. On average, what is the total length of time allocated to read-aloud sessions per week?

_____ hours _____ minutes _____ period(s)

14. Based on your observations, how much do you think your students enjoy being read to by an adult?

☐ enjoys a lot

☐ enjoys a bit

☐ dislikes a bit

☐ dislikes a lot

15. How much control/independence do your students have in their choosing the type of reading material they read in class?

☐ No control

☐ Very little control

☐ Some control

☐ A lot of control

16. Rank order the following from 1-5 (1 = most frequently read through to 5 = least frequently read) according to reading materials you think children engage in and enjoy most outside of class:

____ picture books (print)

____ information books (print)

____ electronic picture books (online, non-print)

____ magazines

____ comic books

____ other (please specify) _____

17. Based on your observations, how much do you think your students enjoy reading (e.g., an electronic book) on the computer?

☐ enjoys a lot

☐ enjoys a bit

☐ dislikes a bit

☐ dislikes a lot

18. Based on your observations, how much do you think your students enjoy reading (e.g., a hardcover book) in class?

☐ enjoys a lot

☐ enjoys a bit

☐ dislikes a bit

☐ dislikes a lot

19. Based on your previous experience, approximately what percentage of your students are able to achieve the core objectives of grade 1 reading?

☐ less than 60 ☐ 61 – 75 ☐ 76 – 90 ☐ more than 90 ☐ unsure

20. The major aspects of intrinsic motivation for reading consist of curiosity (reading to learn about the world), involvement (reading to become absorbed in a text), and preference for challenge (enjoyment in reading complex material).

Approximately what percentage of your students in your current class, do you think are *intrinsically motivated* to read?

☐ less than 60 ☐ 61 – 75 ☐ 76 – 90 ☐ more than 90 ☐ unsure

21. Rank order the following from 1-5 (1 = most frequently asked; 5 = least frequently asked) according to what students ask to do most during free class time:

___ Work on arts/crafts

___ Go to the library

___ Go on the Internet (or computer if no Internet access)

___ Dramatic or pretend play

___ Play with toys

___ Other (please specify) _____

22. Have you observed any behaviours (positive or negative) that indicate how much your students read and how they feel about reading? If so, please describe them (use the back of this questionnaire, if necessary).

_____
_____
_____
_____

23. On average, how long do you think students spend on digital programs (such as the Internet) at home per week?

_____ hours _____ minutes

24. In your opinion, does the use of computers, digital, online learning environments for reading instruction play a significant role in helping your students achieve the following literacy skills (check all that apply)?

☐ reading familiar/unfamiliar (sight) words
☐ spelling familiar/unfamiliar (sight) words
☐ information literacy (research) skills
☐ creative writing
☐ reading fluency
☐ writing fluency
☐ computer/technology skills
☐ listening comprehension
☐ reading comprehension
☐ metacognitive (self-directed) learning
☐ personal engagement in reading activities
☐ none

Thank you very much for completing the questionnaire.

Using the envelope provided, please return this questionnaire to:

Katia Ciampa
c/o Tiffany Gallagher
Faculty of Education
Brock University
500 Glenridge Avenue
St. Catharines, Ontario
L2S 3A1

Appendix K

Semistructured Teacher Interview Protocol

Questions	Fieldnotes
1. What are your and your students' experiences with the computer, Internet, and other digital software programs in your classroom (e.g., frequency of use)?	
2. What place does "read-aloud" have in your reading instruction? How often do you read aloud to your students individually? As a class?	
3. Describe your students' level of engagement during teacher-directed read-aloud (e.g., behaviours, area of focus)?	
4. During your read-aloud, how do you monitor and assess your students' word recognition and listening comprehension skills?	
5. What are your thoughts on the use and integration of a digital children's literature program (e.g., available on the Internet) that reads aloud to students, and other interactive computer software such as *Microsoft Powerpoint* in your grade reading instruction?	
6. In your opinion, how do you think your students would feel about using the computer, Internet, and digital children's software programs in their learning to read in the classroom?	

7. Based on your observations, have the two participants in your class been using the computer and the Internet more in the classroom (for reading purposes) since I have worked with them?	
8. Based on your observations, have you seen any changes in the participants' word recognition and listening comprehension skills?	
9. Based on your observations, have you seen any changes in the participants' attitudes/intrinsic motivations toward reading?	
10. In your opinion, do you think the use of the computer, Internet, and digital software programs would benefit today's generation of beginning readers in their intrinsic motivations to read, word recognition, and listening comprehension skills?	

Appendix L

Data Analysis: Category Generation of Themes and Subthemes

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
Components of Balanced Reading Instruction and Students' On Task and Off-Task Behaviours during Classroom Reading Experiences	Classroom Components of a Balanced Literacy Program	Physical Classroom Environment	Word wall	A smaller word wall (chart paper size) was used in Jessica's classroom for seasonal words (e.g., Christmas themed word wall words; Field notes, Dec. 4, 2008)
		Literacy Centers	Poetry center	Children pasted a copy of the week's poem "The Snowman" into their notebooks and created an illustration that reflected the content of the poem (Field notes, Dec. 4, 2008)
		Reader's Workshop	Read-aloud	Tracy read "Go Away, Big Green Monster!" to whole class and modeled Think Aloud reading strategies (Field notes, Oct. 28, 2008)
		Computer Technology within a Balanced Literacy Program	Drill-and-Practice Computer Programs	"The drill-and-practice series Reader Rabbit 1 provides students with practice in alphabetizing, rhyming,

(table continues)

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
				identifying long and short vowel sounds, and creating compound words" (Debra, teacher, Interview 1 p. 2)
	Students' Behaviours During Classroom Reading Instruction and Activities	Students' Off-Task Behaviours during Classroom Reading Instruction and Activities	Off-task behaviour during shared reading activity	While Tracy pointed to the words on the poem "Pop Goes the Groundhog," Jenna reached over and grabbed a shelf toy to play with (Field notes, Feb. 2, 2008)
		Students' On Task Behaviours during Classroom Reading Instruction and Activities	On Task behaviour during independent seatwork activities	Jessica commented on Sarah's fast and accurate completion of Reading Response Journal (Field notes, Mar. 28, 2009)
Students' Print-based and Digital Reading Experiences, Behaviours and Attitudes		Preprogram (Print-Based) Reading Behaviours and Attitudes	Frequency of leisure reading	John and his parents reported that he "never or hardly ever" reads for fun on his own time (Parent Questionnaire 1, p. 2)

(table continues)

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
		Preprogram (Digital) Reading Experiences, Behaviours, and Attitudes	Types of computer usage (recreational activities)	James used his home computer for playing (CD-ROM) games such as Buzz Light Year and various computer-sports games (e.g., golf, bowling; Child Questionnaire 1, p.3)
		Interim-program (Digital) Reading Behaviours and Attitudes	Reading Curiosity	Jaclyn's self-reported curiosity and fascination with computers prompted her to visit the website and read the online storybooks with her mother (Child Questionnaire 2, p. 2)
Digital Reading and Its Influence on Students' Reading Motivation and Reading Achievement	Reading Motivation	Postprogram (Print-Based) Reading Behaviours and Attitudes	Preferred activities (e.g., free-choice activity time)	The most frequently asked free choice activities student participants selected were reading-based (e.g., Buddy Reading; Child Questionnaire 3, p. 3)
		Interim-program (Digital) Reading Behaviours	Task engagement during multimedia and digital	After she correctly answered the first "Word Scramble" question, Christina excitedly yelled, "I

(table continues)

Themes	Subthemes	General coding categories	Key Descriptor Phrases	Example of units of data
		and Attitudes	reading sessions	like this part!" with a huge smile on her face (Field Notes, Christina, Student Behavioural Observation Checklist, Jan. 21, 2009).
		Postprogram Reading Experiences with Digital Technologies	Frequency of Internet usage at home/school	Sally went from "never or hardly ever" using the Internet, to accessing the online tool "some days" (Child Questionnaire 3, p. 4)
	Reading Achievement	Reading Learning Skills	Word Recognition	"When Jaclyn has recently read to me, she paid more attention to the text than she has before, she made more self-corrections, and on average, she made some meaningful substitutions, too" (Interview 1, Tracy, p. 5)