Electronic Storybooks: A Constructivist Approach to Reading Motivation in Primary-Grade Students

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Abstract

This study stemmed from a concern of the perceived decline in students' reading motivation after the early years of schooling. This decline 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 investigated the effectiveness of online eBooks and multimedia-based, post-reading activities on eight grade 1 students' reading motivation, word recognition, and reading comprehension abilities. Eight students were given ten 25-minute sessions with the software programs over 15 weeks. Preprogram, interim-program, and postprogram qualitative and quantitative data were collected from students, teachers, and parents through questionnaires, interviews, standardized reading assessment tools, classroom observations, field notes, and student behaviour observation checklists. The results suggest the promise of multimedia and Internet-based reading software programs in supporting students with reading and/or behavioural difficulties.

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 both the essential element for actively engaging young children in the reading process and a strong predictor of later reading skills (Scarborough & Dobrich, 1994), and goes beyond time spent reading. Rather, 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). 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).

A major step in preventing early reading difficulties and reducing this gap, then, is to ensure that early reading interventions that emphasize one of the three main goals for reading instruction, namely, motivation for reading (Ministry of Education of Ontario, 2003). Given the powerful and pervasive influence of the Internet on today's youth, it is not surprising that such online technologies have been touted as effective in increasing academic performance (Shade, 2002). Specifically, a growing body of work on early reading programs demonstrates that the use of reading technologies, such as online children's storybooks (eBooks), can promote children's language and literacy skills in terms of phonological awareness, word recognition, and fluency (Blok, Oostdam, Otter, & Overmaat, 2002; Castek, Bevans-Mangelson, & Goldstone, 2006; Korat & Shamir, 2006; Lefever-Davis & Pearman, 2005; Plowman & Stephen, 2003; Valmont, 2000; Van Kleeck, 2003;Wepner & Ray, 2000). Although there is evidence to suggest that the features embedded within electronic storybooks contribute to children's early reading development, further research documenting students' experiences with, attitudes toward, and their motivation for reading these digital texts in the early primary grades are warranted. The purpose of this qualitative study, then, is to explore eight primary-grade students' experiences with online reading. Specifically, the present study investigates: What are eight grade 1 students' experiences with reading, in general, and more specifically, with online eBook reading?

Theoretical Framework

The following discussion presents two theoretical models that were relevant to the framework of this qualitative study; namely, the theoretical perspectives of constructivism

(Dewey; 1916; Piaget, 1973) and motivation (Ames, 1992; Deci & Ryan, 1985; Dweck & Elliot, 1983; Ryan & Deci, 2000).

Constructivism learning theory is defined as the learner's active construction of new knowledge based on his or her prior knowledge and experiences (Dewey, 1916; Kroll, 2004; Piaget, 1973). The conceptualization of the child as passively responding to his or her environment and learning directly through internalization knowledge given by others is rejected by constructivists such as Piaget (1973). Rather, children are seen as inherently active, self-regulating learners who construct knowledge in response to interactions with environmental stimuli; understanding, therefore, is built up step by step through active participation and involvement (Bruner, 1960; Kroll, 2004; Piaget, 1973). Within Bruner's (1960), Piaget's (1973), and Dewey's (1916) constructivist theories, the basis of learning is child-determined exploration and guided discovery rather than direct teaching: "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).

Constructivism provides a theoretical approach to the use of online resources such as eBooks for teaching reading in primary-grade classrooms, and as such, deserves careful consideration. As abovementioned, constructivism challenges the approach of traditional instructional design. Fundamental shifts in the role of teacher (from a "sage" to a "guide") are needed in order to benefit from the interactive nature of the technology and its capacity to enable learner-centered exploration and discovery (Koc, 2005). Constructivist theory also

emphasizes that learning should be authentic, and that learning needs to meet real-life experiences. Thus, the belief for educators in teaching is that reading instruction should be grounded in contexts that are familiar to students. Students are now immersed in communication technologies such as the Internet (Clark & Foster, 2005). Constructivism focuses on learner's control of learning processes and it narrows the gap between the school world and real-life society. The future of education, then, depends on our ability to integrate technologies that complement students' out-of-school lives (Scheiter & Gerjets, 2007). One of the axioms of the (cognitive) constructivist theory is that learning occurs by building upon previously learned experiences (Piaget, 1973). Teaching in familiar contexts appears to help learners to relate new information to those experiences. Contextualization also appears to have a strong motivational component. Learning in a familiar context may make learning more personally relevant than decontextualized learning (Hooper & Rieber, 1995). The constructivist goals of learner control, autonomy support, choice, active problem-solving, and use of relevant and authentic texts in beginning reading instruction are preferred to explicit, teacher-directed instruction. These goals are also an important-if not critical-factors of reading motivation (Gambrell, Palmer, Codling, & Mazzoni, 1996; Renninger, 2000; Schiefele, 1998).

The present paper also drew on the central constructs of motivation in relation to grade 1 students' reading experiences, including (a) intrinsic and extrinsic motivation (Deci & Ryan, 1985); (b) self-efficacy and competence beliefs for reading (Eccles, 1983); and (c) achievement goal orientations for reading (Ames, 1992). From an educational point of view,

motivation refers to “the likelihood of choosing one activity over another, as well as the persistence and effort exerted when participating in the chosen activity” (Malloy, Marinak, & Gambrell, 2010, p.2). Motivation has also been recognized as an important aspect and requirement of constructivism and the building of new knowledge (Piaget, 1973; Vygotsky, 1978). Since the constructivist theory claims that 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. Thus, 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. When making a case for reading online eBooks in particular, 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).Applying the two theoretical stances of constructivism and motivation to this study provided a way of exploring the connections between online constructivist learning tools such as eBooks and grade 1 students’ reading motivation.

Review of the Literature

Foundations of Reading Motivation

Intrinsic and Extrinsic Motivation. 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 or tangible rewards such as stickers (extrinsic motivation). Although there is a fundamental distinction in the motivation literature

between intrinsic motivation and extrinsic motivation, and students may be sufficiently motivated for either intrinsic or extrinsic reasons to participate in reading tasks, there is a growing consensus that these two constructs should not be treated as polar opposites (Brophy, 2004). Rather, they often both operate in different situations, and may even form a continuum (Brophy, 2004).

Self-Efficacy for Reading. Students may choose to participate in one learning activity over another on the basis of how well they expect to do, or their expectancy. According to Eccles (1983), perceptions of expectancy are influenced by the students' sense of competence in completing a specific task successfully. Based on Bandura's (1977, 1982) construct of self-efficacy, students tend to engage more readily in activities where they feel they are competent than in tasks where they perceive they are lacking in skill. With regard to reading, a review of studies related to self-concept (Chapman & Tunmer, 2003) found that students' self-concepts develop in response to their early experiences with reading- whether these are perceived as being pleasant and successful, or uncomfortable and difficult. Students who experience early and repeated difficulties with reading may develop a self-concept as a "bad reader," which then influences their expectancy for engaging in other reading tasks. Thus, they may participate, but without a positive expectancy for success, they may not persist in the task or give much effort (Linnenbrink & Pintrich, 2003; Wigfield, Guthrie, Tonks, & Perencevich, 2004). For this reason, it is important that educators scaffold reading instruction, and incorporate tasks that: offer autonomy and choice opportunities; are related to their lives and interests in and out of school; promote curiosity, exploration, interaction,

and self-discovery; compare students' achievements to their past achievements rather than those of other students; and provide frequent, immediate, task-specific feedback, including corrective comments and justified praise (Margolis & McCabe, 2004). Thus, students will likely invest in reading activities if their environment is supportive, and if difficulties do not lead to embarrassment or comparisons with more successful peers (Margolis & McCabe, 2004).

Achievement Goal Orientations for Reading. Research designed to understand why students choose to learn has been organized into two broad orientations (Malloy et al., 2010). The first orientation contains mastery or learning goals, which occurs when children focus on improvement and mastery of a skill such as reading (Malloy et al., 2010). The second orientation involves ego or performance goals, which occurs when children focus on how well they feel they perform in relation to others (Malloy et al., 2010). When confronted by difficulty (or failure), mastery-oriented children persist, stay focused on the task, and sometimes even use more sophisticated strategies (Malloy et al., 2010). On the other hand, when students with performance-avoidance orientations experience failure, they attribute their failures to lack of ability rather than effort attributions, may develop maladaptive forms of behaviour, such as learned helplessness, a low level of persistence, and engaging in off-task and disruptive behaviour instead of task-focused behaviour (Covington, 2000; Dweck & Elliott, 1983; Heider, 1958; Nicholls, 1984; Onatsu-Arvilommi, Nurmi, & Aunola, 2002; Weiner, 1986). 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).

In line with the constructivist and motivation theories, 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). That is, involving learners in the decisions regarding their reading activities should increase their intrinsic motivation to learn and read (Randi & Corno, 2000). According to 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, Vallerand, Pelletier, & Ryan, 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. 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.

The New Literacy of the Digital Age: the Use of eBooks as a Motivational Tool for Reading

In the 21st century, 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). 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). For students in the beginning reading stages, it is even recommended that they use "developmentally appropriate information and communication technologies such as the Internet to support and communicate their learning in language" (Ministry of Education of Ontario, 2003; p. 30). Online children's storybooks are one example of how teachers of beginning readers can use such communication technologies to advance the goals of their reading program (Alexander & Jetton, 2003;Blok et al., 2002; Castek et al., 2006; de Jong & Bus, 2002; Korat & Shamir, 2006; Labbo & Kuhn, 2000; Lefever-Davis & Pearman, 2005; Wepner & Ray, 2000). One of the more compelling findings from the research literature on is that children are highly motivated and interested in the new literacies of the Internet (Reinking & Watkins, 2000). Scheiter and Gerjets (2007) further suggest that readers are more engaged with these new literacies 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.

Online children's storybooks have taken traditional oral or print stories, and added multimedia and multisensory features such as animated illustrations, sound effects, and fully digitized audio narration accompanied by highlighting of the text, all of which offer young children and struggling readers interactive storybook choices that they can enjoy reading

independently (Alexander & Jetton, 2003; Castek et al., 2006). To stimulate the children's reading orientation and involvement in reading, electronic storybooks 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 computer's pronunciation of text also reduces the burden of decoding for the reader, so more energy and attention can be applied toward processing meaning for comprehension (Grimshaw, Dungworth, McKnight, & Morris, 2007).

As illustrated in this review, there is accumulated research-based evidence for the integration of online eBooks in primary classrooms, as they can impact the potential success of struggling and unmotivated students by providing individual attention, immediate and specific feedback, as well as guided practice and scaffolding during reading instruction (Lefever-Davis & Pearman, 2005; Sandholtz, Ringstaff, & Dwyer, 1997).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). It has been suggested in the literature presented above that the Internet permits greater control by students as they navigate media-rich information resources such as online eBooks and construct meanings appropriate to their learning needs (Pearman, 2008). The interactive features embedded within these digital storytelling tools result in an increased sense of users' control of the direction they take within these information contexts, as well as higher levels of intrinsic motivation (Becker & Dwyer, 1994; Leu, 2000). Although there is evidence to suggest that the features embedded within electronic storybooks contribute to children's early reading development, further research documenting students' experiences with, attitudes toward, and their motivation for reading these digital texts in the early primary grades are warranted.

Methods

Site Selection Criteria

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. 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 elementary school (School 1), and two

grade 1 classrooms in the other elementary school (School 2). All participants were English-speaking and of Caucasian descent. Both elementary schools were situated in the same school district in southern Ontario, Canada. In order to protect the participants' identities, pseudonyms were used.

Participants

The first teacher participant, Debra, was a certified female teacher with 15 years of teaching experience, all of which had 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).

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).

Jessica taught a grade 1 classroom in School 2. 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 was 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).

It should be emphasized that although three of the eight student participants were identified by their teachers as “struggling low-achievers with attention-deficit/hyperactivity problems” based on standardized assessment scores and classroom observations (Debra, teacher, Field notes, January 13, 2009; Jessica, teacher, Field notes, January 28, 2009; Tracy, teacher, Field notes, March 10, 2009), they were not formally identified as having learning difficulties or behaviour disorders within their school system. However, all three participants received additional support from the Reading Recovery school team.

Research Design

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 researcher as an observer, the grade 1 student participants, their teachers, and their parents. Triangulation (convergence of measures) enhanced the meaningfulness of this study’s data. The primary means of data collection consisted of: (a) participant observations during regular classroom reading instruction and online eBook reading sessions (recorded as field notes); (b) questionnaires; (c) transcriptions from individual, semi-structured teacher interviews; and (d) reading assessments such as running records and provincial report card data. 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.

The Online eBook

The online eBooks (see Figure 1 for a sample screenshot) used in this study were found on the *Listening and Reading Comprehension* link on the Childtopia™ (Childtopia SL, 2008) website, which was specifically designed for children between infancy and 10 years old. 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. Childtopia™ (Childtopia SL, 2008) was chosen for this study because it was freely accessible to the researcher and contained the digital features mentioned above 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). 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. 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.

Each story was also accompanied by a set of 10 follow-up comprehension questions that were mainly factual and read aloud using the same female narrator's voice (see Figure 2 for a sample screenshot). Independent readers, however, had the option of turning off the audio narration and read the stories and questions to themselves.

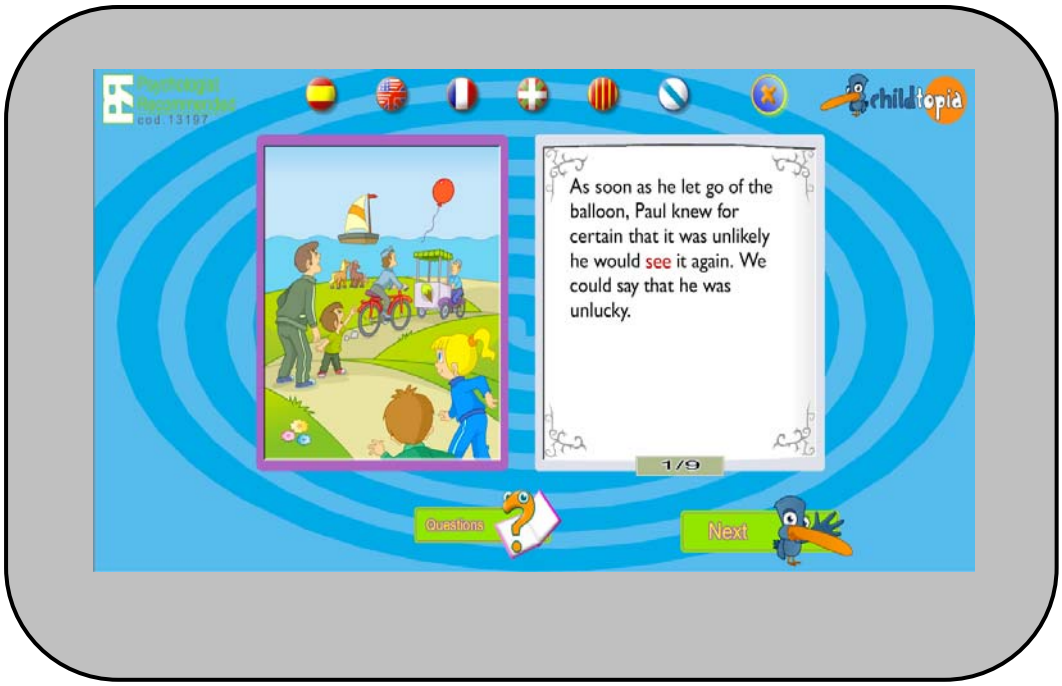

Figure 1: Example of online eBook from ChildTopia™

Figure 2: Example of post-reading comprehension question from ChildTopia™

Data Collection Materials

Classroom observations. Each grade 1 classroom was observed, and detailed observations of the eight target participants were taken by the researcher during regularly scheduled literacy blocks. The researcher sat in an unobtrusive spot in the classroom, minimally interacting with either the teacher or participants; the exception was when the researcher walked around to look at participants' seatwork. 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 researcher 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.

Sociocultural studies of reading engagement in classroom contexts often focus on time-on-task behaviours which are observable manifestations of motivation. In fact, some researchers have successfully captured some behavioural and active features of reading engagement (on-task and off-task) in classroom through direct observation (Marks, 2000). Thus, the researcher decided to use direct observations of participants during classroom-based reading instruction and activities to confirm students', parents', and teachers' reported levels of engagement in reading tasks. On-task behaviours were operationalized in classroom settings as visual orientation to a required stimulus (e.g., book or worksheet). Conversely, inattention or off-task behaviour is inferred by frequent shifts in activity and behaviour that is not task-related (Marks, 2000). This observational method was rarely threatening to the teachers as they were aware that the observer's focus was on the child's learning.

Online eBook reading observations. The computer sessions 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 online reading sessions, the participants worked individually next to the researcher and wore headphones to reduce any auditory distractions. Field notes were used to record specific behaviours and level of engagement of every child participant during the digital reading sessions, including any comments made by participants on elements of illustrations, features, and functions of print on the page, as well as any extraneous comments, questions, and issues related to the child participants' attention, posture, and eye gaze. A child's high level of engagement during both the read-aloud and post-reading 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"). Conversely, a child's low level of engagement 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).

My motivation to read questionnaire-child version (pre-program and post-program). An adapted version of the Motivation to Read Profile (Gambrell et al., 1996) was utilized at the beginning (September) and end of this study (April) in order to develop a more in-depth understanding of and authentic insights on grade 1 students' experiences and attitudes toward digital reading (see Figure 2). The following questions that pertained to students' experiences with and attitudes toward online computing technologies, and more specifically, online eBooks were added: "(1) Do you use the Internet at home? At school? (2) How much

time do you spend on the Internet at home? At school? (3) What do you do on the Internet at home? At school? (4) Have you ever used the Internet for reading? If yes, what do you read on the Internet? (5) If you had to choose between reading a hardcover book, reading an electronic book, or not reading at all, which would you choose? Why?" In addition, the following questions were added on the Post-Program Motivation to Read Questionnaire: "(1) Have you visited the website we used to read and answer questions since you started this project with me? (2) If yes, how many times did you visit the website? Why did you visit the website? If no, why didn't you visit the website? (3) What did you enjoy most/least about reading the stories on the computer? (4) What did you enjoy most/least about the reading activities you did after reading the stories on the computer?"

A pilot study was conducted on the same day but at different times with a purposive sample of two grade 1 children (6 years of age) approximately three months before the formal study was undertaken to evaluate the accuracy and credibility of the adapted instrument. Content validity was enhanced by having this instrument independently assessed by two grade 1 teachers as well as the researcher's Faculty Advisor who teaches courses in educational psychology, literacy assessment and evaluation.

My child's motivation to read questionnaire- parent version (pre-program and post-program). Parents of the eight student participants were asked to complete and return two versions of the *My Child's Motivation to Read Questionnaire* before (September) and after (April) 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 questionnaires asked parents to provide their perception about their child's level of enjoyment derived from participating in various reading activities. The questionnaire consisted of items that elicited information about their child's text-type reading preferences and previous experiences with reading on the Internet. Attached to the final letter sent to parents/guardians was an identical version of the original questionnaire; however, similar to the participants' second questionnaire, items which pertained to their child's experiences with the online storybooks 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 eBooks and completing the post-reading activities, and most important, whether the participant has used the Internet more (for reading) since this study began. 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 online eBooks.

Teacher interviews (post-program) and report cards. Each teacher was interviewed individually by the researcher in the school library during recess (approximately 15 minutes in length) at the end of this study (April). These semi-structured interviews were audio taped, transcribed, and member checked. 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 the Internet, and more specifically, online eBooks, as a tool to enrich first grade students' classroom reading instruction (compared to print-based reading instruction). Throughout the first two terms of the school year, copies of the participants' provincial report cards were obtained from the grade 1 teachers. For the purpose of this study, only the letter grades and written reporting comments in the "Reading" strands of the grade 1 Language curriculum were used for data analysis.

Procedure

The following section will describe preprogram, interim-program and postprogram activities and data collection procedures that occurred across the school year.

Pre-program Activities

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 researcher by late September.

Throughout the first two terms of the school year, a copy of the participants' provincial report card grades were obtained from the participants' grade 1 teachers.

Interim-program Activities

Classroom observations. The first observation session in each classroom was held in late September, after the researcher received written permission to conduct this study. During this time, the researcher 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. Eighteen regularly scheduled classroom observation sessions were conducted on a weekly basis during the 120-minute morning literacy blocks beginning in September and continuing through April. During the first observation sessions in each grade 1 classroom, the teachers briefly introduced the researcher 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 researcher conducted the researcher-developed *My Motivation to Read Questionnaire #1* with all eight student participants in late September. 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 through April (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 researcher 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.

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. Student participants generally completed two storybooks per session. The average total time it took participants to read one of these storybooks and complete the post-reading activity was ten minutes.

The post-reading comprehension questions were completed after the students finished reading their self-selected storybook on the Childtopia™ (Childtopia SL, 2008) website. The average total time spent answering these questions was 15 minutes, but this varied widely depending on the ability level of the participant.

Online eBook reading observations. Observational data from every online eBook reading session was recorded in field notes, with each session lasting approximately 25 minutes (from November through April).

Postprogram Activities

My motivation to read questionnaire #2 (child version). Similar to the administration of the previous questionnaire, the final student questionnaire was individually administered in the school library during the participants recess or lunch hour period in April.

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, the researcher 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.

Teacher interviews and report cards. Individual 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. A copy of the participants' provincial report card grades and comments in the "Reading" strand were obtained from the participants' grade 1 teachers.

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. By employing a qualitative methodology, this study uses an exploratory, emergent, inductive approach to create and give meaning to the online eBook reading experiences of grade 1 children (Creswell, 2010). Findings are co-

constructed in a dialogue between the researcher, the participant and the audience interpreting the study (Creswell, 2010).

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 *Teacher Interviews.* For the closed-ended responses, the researcher calculated the frequency with which participants answered each question. Interviews, fieldnotes, and questionnaires were transcribed and coded using a word-processing program (*Microsoft Word*). 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).

In an attempt to gain a sense of the whole, the researcher listened to the recorded interviews and questionnaires, as well as read and reread the field notes and transcripts a few times, which increased the researcher's understanding and enabled her to present what has been discovered to others. After several readings of the data files, the researcher worked on linking the data to this study's research question. Here, the researcher highlighted interesting sections, certain words, phrases, patterns of behaviour, and occurrences that repeated themselves, thus segmenting pieces that stood by themselves. This process of categorizing and subcategorizing information is referred to as open coding (Creswell, 2010). The researcher completed her initial open coding of data by creating tables. Once the raw data were coded according to the category systems described, data belonging to each category

were retrieved, assembled, and viewed. Commonalities and differences among student, teacher, and parent responses, experiences, and behaviours were then identified and accomplished using axial coding (Creswell, 2010).

Verification and authenticity (Creswell, 2010) were established by utilizing multiple sources of data and collection strategies over an extensive period of time (Creswell, 2010). 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 researcher's findings and interpretations of the data (Creswell, 2010). Informal classroom observations, field notes, and reading assessments including report card grades and running record scores were also collected simultaneously throughout 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, 2010). In order to establish the credibility of the conclusions and findings, peer debriefing was also used. The peer debriefer, the researcher's Faculty Advisor, reviewed data samples, and generally provided a sounding board for the researcher's ideas, questions, and conclusions in order to confirm or disconfirm emergent themes as logical and proper.

Summary of Findings

What follows are the results of the parent, child, and teacher questionnaires, teacher interviews, provincial report cards, as well as the observations, all of which are presented together because of their interpretive dependence on one another.

Theme 1: Students' Pre-Program Classroom and Home Reading Experiences

As evidenced by classroom observations and reading levels, the responses of Jaclyn, James, and Christina reflected their low reading achievement and off-task, unmotivated behaviours during classroom reading times. Unlike the other five participants, these three participants frequently engaged in off-task, learned helplessness behaviour during reading-related tasks. 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, small-group reading sessions with their peers 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).

Again, classroom observations revealed that 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” (Tracy, teacher, Field notes, October 21, 2008). Similarly, 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). 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. 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. On the contrary, the remaining five participants 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. 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 "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). 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, "they work well without supervision, obtain information independently and persist with challenging tasks" (Jessica, teacher, Term 2 report card comment; Tracy, teacher, Term 2 report card comment).

It appeared as though the student participants' patterns of reading engagement (or lack thereof) is consistent with the "Matthew Effect" (Stanovich, 1986), in which the good readers and high achievers like Sarah, Mark, John, 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 (e.g., Onatsu-Arvilommi et al., 2002; Unrau & Schlackman, 2006).

The classroom observation data showed evidence of James's, Jaclyn's, and Christina's passive engagement and negative attitudes toward reading, which were also reflected in their first questionnaire responses. For example, the first question posed to both students and parents on their questionnaires related to the importance they attached to (their

child) reading well. The findings revealed that, with the exception of James, Christina, and Jaclyn, the remaining fivestudent participants and all of the parents felt it was *very important* (for their child) to read well. The responses of Jaclyn, Christina, 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. Similarly, when they were asked, "How often do you read for fun on your own time?" these same three participants indicated that they never or hardly ever engaged in reading for non-academic purposes and would rather partake in other leisure activities.

Interestingly though, when asked to rate the participants' feelings about reading books online, James, Christina, John, Christopher, and Jaclyn were positive about reading online storybooks. The researcher posed the following questions to students and parents before (and after) the use of the online eBooks: "If you (your child) had to choose between reading a hardcover book or an eBook on the computer, which would you (he/she) choose?" While three participants were less positive about completing reading activities on the computer, the remaining five participants all indicated that they preferred to read electronically because of its high level of interactivity. These same participants preferred reading eBooks on the computer because they were "easier to read" than print-based materials.

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. The majority of 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). At school, the participants mostly used the computer for drill-and-practice phonics instruction.

Theme 2: Students' Interim-Program Online eBook Reading Experiences

Observational field notes were written by the author during the online eBook reading sessions with each student participant to capture their experiences with this technological tool. The author's observations of the eight student participants during the eBook reading sessions indicated that they were always on task and highly engaged. Interestingly, during their eBook reading sessions, Christopher, Sally, 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, the author noted that Sarah and Mark were very confident when answering questions, and often made text-to-self connections while reading. 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 author 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?" 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).

Contrary to the author's classroom observational data, Christina, Jaclyn, and James appeared to be paying attention most of the time as the story was read to them by the computer. 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!" When her eyes were oriented toward the computer screen, Christina appeared very focused and engaged at the beginning of the story. 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 question that assessed her word recognition skills, Christina excitedly yelled, "I like this part!" with a huge smile on her face. The author noted that Christina's enthusiasm often turned to frustration when her listening comprehension ability was assessed during the first part of the postreading activities. Of particular interest 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; generally, the comprehension questions proved too difficult for Christina as she answered the majority of them incorrectly, 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 author was not looking. 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, which was not typically seen by the author in the regular classroom.

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. 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. 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, pp. 12-13). In accordance with the attribution theory (Heider, 1958), Jaclyn occasionally attributed her success to external, unstable causes of luck (Weiner, 1986). Over time, Jaclyn slowly began to attribute her success to internal factors

(Weiner), which was evident when she stated, “I’m really good at this!” (Field Notes, Jaclyn, 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, 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 post reading activities and rarely needed reminders to stay on task.

Theme 3: Students’ Post-Program Classroom and Home Reading Experiences

In particular, three students (Christina, Jaclyn, and James) did not appear intrinsically motivated to read or interested in improving their reading skills prior to their involvement in

this study. It was a different scenario for them after their involvement in this program, as they always looked forward to working on the computer during the reading sessions. On a positive note, according to the students' and their parents' final questionnaire responses, Jaclyn, James, and Christina, in addition to three other student participants, reportedly visited the Childtopia™ (Childtopia SL, 2008) website at home, with two of them engaging in online storybook reading on more than five occasions (Child Questionnaire 2, p. 4). In fact, although Mark previously reported that he did not really enjoy the eBook reading experience, he later indicated that he visited and "read the storybooks and answered the questions on the website four times" (Child Questionnaire 2, 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, March 4, 2009). Jaclyn and James 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, John's parents did not allow their son to visit the Childtopia™ (Childtopia SL, 2008) website. According to all four teachers, when provided with free-choice center time, six of the student participants also gravitated to the computer center and asked to use the computer more since their involvement in this study.

According to their final questionnaire responses, 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). Five student participants believed that web-based eBook reading environments were easier to read and listen to in comparison with print-based texts. Students also talked about text interactivity. For example, Mark, one of the student participants, 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). These same respondents claimed that reading online storybooks helped them learn more word wall words as compared to traditional hardcover books. In line with this, Sarah preferred to read electronically because she "could have a book read to her without any help" (Child Questionnaire 2, p. 7).

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. Jaclyn's positive attitude toward online reading experiences was noted by her teacher, Tracy, who mentioned during her interview with the researcher that,

> Jaclyn is more motivated and confident in her reading abilities. I know that Jaclyn has used it at home and has enjoyed it immensely…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)

Similarly, James's teacher, Debra, 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 reading on the computer, so reading online storybooks would be really good for him. (Debra, teacher, Interview 1, p. 6)

Interestingly, during classroom observations, and on more than one occasion, James would ask Debra when he would be able to work with the researcher, 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).

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. On the contrary, the computer-based reading activities in this study 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.

Christopher 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). On the contrary, students were also 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. 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 support of this, seven student respondents felt that online storybook reading provided them with more control and choice relative to traditional reading materials.

Based on their final questionnaire responses to the question, "How important is it for you to read well?" all of the student participants, including previously unmotivated students such as Christina, Jaclyn, and James, placed a higher value and importance on learning to read well by the end of their computer program involvement. 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.

Since "[individualization is not always possible] given the constraints on time in most classrooms" (Debra, teacher, Interview 1, p. 3), the teachers in this study 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 (e.g., Veronica, teacher, Interview 1, p. 5).

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

> 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).

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. 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).

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).

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. The text comprehension skills of James, Jaclyn, 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.

Discussion and Implications

With the goal to understand grade 1 students' experiences with and attitudes toward reading digital texts in a sociocultural context, this investigation was undertaken as a general qualitative study (Creswell, 2003). Classroom observations revealed that five student participants exhibited diligent, motivated, on-task behaviours during reading, while the exact opposite behaviour patterns were observed in the other three student participants. Classroom observations revealed that 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). 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 contribute to the growing evidence base 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. suggest that computer-based reading instruction 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 beginning reading instruction. 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. The present results were similar to those of 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. These three students were highly engaged, attentive, and involved during the online storybook reading and the multimedia-based reading activities. 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 and motivation. 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.

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.

It is also worth noting that these three participants, in addition to two other participants, reportedly increased the frequency of computer and Internet usage at home. Aside from online game playing, these 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 post reading 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. Six student participants (Jaclyn, James, John, Christina, Sarah, and Christopher) also asked their teachers to use this technological tool more since their involvement in this study.

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. That is, student participants' greater perceived control in their online book reading choices may have contributed to their increased interest in the content domain and motivation to read.

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. 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.

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. 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. 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). 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 made by the participants during the online reading sessions was that the "girl (female narrator) read too quickly, and the highlighted words moved too fast," and consequently, students had difficulty following along and would become lost.

In sum, these findings indicate the overall contribution of the digital children's literature program and post reading multimedia program on student participants' motivation to read and general reading achievement.

They may have found it easier because they were listening to the eBooks and not reading them.

Implications for Practice

This study has revealed that alongside conventional reading, multimedia and online storybook reading may have positive motivational effects, particularly with those student participants who have not experienced success in reading. The digital children's literature

program and post reading multimedia program exposed the eight grade 1 student participants to diverse and interactive versions of a read-aloud with follow-up reading activities. These findings have some implications for curricular practice.

Teachers can assess these different aspects of reading motivation by questioning students with an instrument like the researcher-developed *My Motivation for Reading Questionnaire* 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. 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. Administering the questionnaire at each grade level would also 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.

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.

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.

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 embedded into the online reading program also captured the grade 1 students' attention, which may have motivated them to increase their effort and participation during the program sessions. 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).

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.

The aforementioned complaints made by the participants about the eBooks should be taken into consideration. When deciding which eBooks to use, then, one should look for programs with adjustable features in order to best suit diverse reading preferences and abilities.

Limitations and Future 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 limitations and implications for further research in this area are recommended.

First, it is important to note that observational data depict the observer's viewing of the eight students; consequently, a potential for observer bias exists because the same observer conducted all of the observations and documented those observations through field notes.

The author conceded that there may have just been a "novelty effect" (Song & Keller, 2001) with the self-selected students using the online reading program. The implication of this criticism is that the positive outcomes- learning from the new medium, having more positive attitudes about eBook reading- will tend to decline as the technology becomes more familiar and its novelty wears off. This has important implications for individuals in that they

must continue to update and make their online eBook websites relevant and tailored to the needs and interests of Internet users. Another suggestion emerging from these critiques of research on computer and Internet usage is to use longitudinal data from a large, representative sample to study the effects over a long period of time.

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 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.

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).

The study's small sample size, lack of control measures to manage extraneous or intervening variables among program participants, and the method of recruitment such as voluntary self-selection also need to be taken into consideration. Clearly a self-selected sample of eight cannot be generalized and so additional cautions must be exercised both in what the study is proposed to do and also what it has accomplished.

Second, many contextual factors other than the reading curriculum were not examined in this study are also related to and can influence 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 students' socioeconomic status, gender, age, teacher characteristics, and reading levels on reading motivation and self-efficacy.

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 skills and reading motivation with other early elementary school-age students who are formally identified as having learning difficulties or behaviour

disorders, as well as English language learners experiencing academic and/or motivational problems in reading is warranted.

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. A longitudinal study that followed the same group of participants into the later grades would also 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 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. This study has shown that reading software with multimedia enhancements, motivational aspects, and constructivist methods of instruction can promote reading motivation 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 three students who had reading and attentional difficulties during the components of their classroom's reading 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. Digital reading 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 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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