MEMORIAL UNIVERSITY

Using Community Outreach to Build Children's Resiliency and Critical Literacy through Digital Tools

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Principal Researcher: Dr. Anne Burke
Co-Researcher: Beth Maddigan
Research Assistants: Olu Familusi, Jessica Stuckless, Renee Sanson, Kimberley Clarke

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Executive Summary

Grade three students used tablet computers with a pre-selected series of applications over a seven-month period at school and through a community afterschool program. The study determined that these students benefited from differentiated learning in the school environment and online collaborative play in the afterschool centre. Benefits of the exposure to digital tools included:
1) intergenerational learning as children assisted both parents and teachers with digital applications;
2) problem-solving; and
3) enhanced collaborative play for students across environments.
One of the aims of the study was to build a collaborative environment for teachers in the school and after school community centre. At the completion of data-gathering for this study, evidence of a shift in participants' attitudes towards the importance of collaboration was acknowledged, but more time and continued joint projects work would need to be explored to move this example of community building beyond the participation stage. Although this study makes a contribution to the field of digital literacy and young learners, the researchers conclude further investigation is warranted, in regards to the inter-relationships between home, school and community as spaces for the learning and teaching of digital technologies.

Introduction

In the past few years, there has been a massive proliferation of mobile electronic devices and handheld computing tools (smartphones, tablet computers, iPods, iPads). Use of these tools has extended even to some of the very youngest children (Geist 2014). While technological tools and engagements grow in their ubiquity, use by children is often limited to gaming and other types of play. Handheld electronic devices are not always seen as educationally beneficial, despite the fact that the fastest growing area in digital applications for mobility is in reading and mathematics (Burke, 2014). Nor are these devices equally available to all students. Many of these tools are expensive, and their educational possibilities are either ignored or misunderstood by parents, teachers, and community after school program instructors. In all cases, "innovative practice challenges educators to find a delicate balance between the digital and concrete worlds of play, to take account of issues in relation to the digital consumerist context, to ensure equity in the classroom, and provide contextually situated learning experiences that foster the participation of all children" (Burke & Marsh, 2013, p.3).

This project focused on building and enhancing these digital skills by examining specific aspects of digital literacy and learning. The study investigated how the use of mobile tablet computers supported the pedagogical goals of the curriculum through guided usage by students in both a grade three classroom and a community afterschool program. The project capitalized on children's digital literacy skills and classroom-based knowledge-building in a little-researched area. Children were observed constructing independent interactions with technology and playing in virtual worlds. These behaviours had a positive impact on the classroom environment and other learning situations.

The focus and intent of our research was to create and explore bridges between the students' existing knowledge of digital tools and the needs and expectations of their educational experiences. Specifically, the focus included:

- building students' literacy skills through their current knowledge and use of digital devices,
- providing explicit instruction of educational applications (apps) specific to content areas (i.e. language arts and mathematics) through guided play and learning,
- enhancing children's creative outlets and knowledge using digital apps related to broadcast, and
- fostering a deeper relationship between school and community.

This project also addressed some of the chief concerns educators and parents express about learner engagement and equity with digital tools, such as:

- whether or not mobile devices in the classroom would be disruptive to learning,
- if students would be wasting time by playing with video games,
- if a classroom could offer all students opportunities for learning and access to technology, or
- if it would be possible to overcome some socioeconomic disparity through equitable access to digital devices.

The goals of this study were broad, but the realities of its limited timeframe and funding exposed the need for further development in three key areas:

- opportunities for parents to become engaged in this conversation and further develop their own skills,
- greater development of the partnership between the school and afterschool program, and
- skills training for teachers and parents to enhance the functional literacy observed in the use of tablet computers and the selection and use of educational apps.

Environmental Scan

The principal researcher chose an inner-city school with close proximal ties to a neighborhood afterschool program (Boys and Girls Club). The population density of the city of St. John's is increasing, according to the 2011 Census profile (Statistics Canada, 2011). The study's neighborhood has a higher than average number of families living in dwellings other than single detached homes (Statistics Canada, 2011). More families live in apartment complexes and row houses. Anecdotally, school administrators report a higher than average number of students' per capita learning English as a Second Language. Additionally, teachers report that many students come from family and living situations of socio-economic disparity and transience.

Project Sites

Prior to the introduction of the project activities, the researchers and research assistants met with the director of the Boys and Girls Club (B&GC) and the technology teacher and vice principal of the school to:

- discuss and clarify the research project's goals and methods, and
- participate in collaborative planning of the proposed activities.

The research team also met with the classroom teacher and afterschool teacher to:

- review the possibility of digital text production by the students,
- discuss how current students are using different types of technologies for reading, writing and spelling, and
- reflect on the activities and apps best suited for use with the children (see Appendix C).

Boys and Girls Clubs of St. John's

The B&GC of St. John's is a non-profit organization geared towards serving the young people of the local community. The Club was established in 1946 and seeks to provide diverse, quality programming for the youth of today. The organization supports the educational, emotional, physical and social growth and development of children and adolescents. There are two locations in St. John's. This research study took place during the after school program in the centre of the city.

The B&GC is open to all members of the community. The services and supports provided to children and their families are contingent upon the expressed needs of the community. Fees for membership are provided on a sliding scale, and no child is ever refused membership because of a parent's inability to pay. This "open-door policy" allows the B&GC to serve children and adolescents in neighborhoods with socio-economic backgrounds that are scarcely serviced by other community organizations.

The B&GC maintains both part and full time professionals to aid in the development of youth members. These development professionals offer guidance, leadership and supervision to children, while presenting themselves as positive role models and mentors to members of the community.

Bishop Abraham School

Bishop Abraham is a two-stream (French and English) school. Students attend from Kindergarten through Grade Six. The current school population of 252 students has access to multiple facilities inside and outside of school, including a small park with play equipment, a gym, and a computer lab with twenty-one computers. Parents and guardians drop children off in the morning then come into the school at dismissal to pick them up. This connection allows time for the teacher to interact briefly with the adults who are significant in the students' lives.

Each classroom at Bishop Abraham is equipped with a SmartBoard and/or Team Board, and the Grade Three classroom itself is equipped with five desktop computers. The Grade Three class that participated in this study had between seventeen and twenty students enrolled at different points during the school year. For the duration of the study, the Grade Three classroom had access to twenty Samsung Galaxy Next

Tab 2 handheld computers preloaded with a variety of apps (see Appendix C). Bishop Abraham also has a reading and literacy development program that encourages online participation for families in and out of school (Raz Kids), and wireless hotspot access is excellent throughout the school.

Literature Review

The nature of children's play has changed drastically over the past decade, and its definition has expanded to include digital media. Lauwaert (2009) assesses what it means to 'play' in today's terms. She notes that in recent years there has been a "transformation from a one-to-many to many-to-many geography of play," which "largely coincides with a shift from non-digital to digital, or digitalized, geographies of play" (p. 67). Lauwaert observes that, "the many-to-many model has gained in force and importance due to technological innovations that facilitate easy contact and exchange between users" (p. 67).

Media and digital toys have infiltrated the homes of both developed and less developed nations. As cited by Blanchard and Moore (2010), "young children are 'gadgeted,' and opportunities to learn from digital media abound" (p. 2). Blanchard and Moore also note that the effects of changes in the digital world bear indeterminate consequences for children from different languages and cultures: "since cultural and language norms in many developing and least-developed nations differ markedly from Western norms, it is possible that digital media may affect emergent literacy skills in these nations in ways that cannot be foreseen" (p. 3). Consequently, a new and explicit focus for digital toys is the development of literacy skills.

In recent years, technology has skyrocketed as the primary tool for children learning in schools and at home. Children experience digital interactions on a daily basis, and their experiences with technology may vary according to their age, family background, and socio-economic status (Plowman, Stephen & McParke, 2010; Stephen, Stevenson & Adey, 2013). Stephen et al. (2013) have determined that "the experiences of 3- to 5-year-olds are mediated by each family's distinct sociocultural context and each child's

preferences" (p. 162). There are many advantages for young children using technology, and these include acquiring skills for problem-solving and an increase in motivation, concentration, resilience and perseverance in their learning (Roberts-Holmes, 2014). It also facilitates dialogue and collaboration between peers, children and educators, as well as children, their siblings, and parents.

Children learn through play, and acts of play build creative instinct in them. Access to digital texts enhances creativity in children and especially through literacy applications on a touch screen mobile device (Neumann & Neumann, 2013). Tablets have unique features that differ from desktop computers, which use a keyboard and mouse as input devices. Arguably, tablets that are "light, mobile, handheld devices with a user interface based on a touch screen" (Neumann & Neumann, 2013 p. 1) are easier to use and help young children to develop literacy skills. Children find handheld tablets easier and more convenient to use whether they are sitting, standing, or lying down on the floor or bed.

Neumann and Neumann (2013) also observed how "young children quickly become competent users of tablets, being able to successfully navigate through the interface by touching and interpreting printed words, letters, icons and symbols" (p. 7). Not only does a child's knowledge of letters, words, print concepts, and emergent writing improve by the printed interfaces of the mobile device, but the use of tablets enhances collaboration both within the family and in the school. It creates a unique and important opportunity for parents and teachers to share and support a child's learning through digital play (Verenikina & Kervin, 2011). Development of emergent literacy skills will depend on the "parent and teacher scaffolded interactions with both traditional and digital tools" (Neumann & Neumann, 2013 p. 7).

Real play has been seen as crucial to the development of young children as it helps their cognitive and socio-emotional development. It is normally a reflection of what is happening around them, especially what they see adults doing. Verenikina and Kervin (2011) assert that during pretend play, "children acquire the foundations of self-reflection and abstract thinking,

develop complex communication and meta-communication skills, learn to manage their emotions and explore the roles and rules of functioning in adult society" (p. 2). With the current and pervasive phenomenon of virtual or digital play, which often depends on the software being used, researchers are concerned with how this type of play impacts a child's development. Verenikina and Kervin (2011) argue that digital play is different from traditional or real play. These authors have used the criteria for real play to examine the impacts of digital play on the psychological development of young children. Their results show that all children begin with digital play and end with real play, thereby demonstrating digitally mediated imaginative play.

It has been widely accepted that parents are the first teacher of their child. It is important, then, that school practitioners work in collaboration with parents to make the best use of technology in their classroom or day care center (Plowman & Stevenson, 2012; Stephen, Stevenson & Adey, 2013). Roberts-Holmes (2014), citing the works of Marsh (2005, 2010), asserts that such collaborations have "positive effects on children's motivation and engagement with learning" and "provide young children with a source of success and satisfaction" (p. 2). Parents, however, were not always aware of the extent of their contribution to their child's learning. They sometimes thought that their children became technologically competent through trial and error, copying and incidental learning (Stephen et al., 2013).

Children's experiences with digital devices vary according to parents' different perspectives. Potential learning is impacted by how digital play and learning is supported in the home, the different ways parents interact with their children and digital technology, and the types of digital choices offered to their children (Stephen et al., 2013). These authors concluded that "children's experiences are shaped by the sociocultural context in which they live and the individual contributions that they bring to this context" (p. 161).

Overview of the Study

Throughout the implementation of each research phase, teaching methodologies were tracked and reflected upon to help determine best practices in teaching using digital texts. We also outlined activities that were undertaken by students in the classroom and outside of school when they were given the choice, and determined how these choices were made through applications on the computer as well as in the form of digital texts. The culminating project for the children in the study was to create their own movie based on their poetry unit celebrating cultural self.

Methodology

This project used purposive and convenience-sampling techniques, whereby we selected particular settings in which to conduct the research and recruited volunteers within those settings to participate in the research. Purposive sampling was appropriate for this research since the research focused on a narrow segment of learners (Teddlie & Tashakkori, 2009). We used a sequential, mixed methods strategy, combining both quantitative and qualitative methodologies. The quantitative research component was designed to capture demographic and attitudinal data, using survey research methodology. We were interested in the types of technology interaction that children had access to at the afterschool club and at home. In the pre-project interview of children's skills and access to technology, questions were asked in order to determine how students were currently using digital tools in their out-of-school lives and to gauge the extent of their experience with web-based tools such as social networking sites, e.g.

- What types of technology do you personally own or have regular access to?
- How much time do you spend on the Internet on a typical day?

As well, we wanted to establish which types of applications were being used, e.g.

- Do you use a mathematics application for learning times tables?
- What reading application do you like to use?

The guiding questions are provided in Appendix A. We used these as a springboard to engage in discussions referenced in this report.

In addition, we tried to determine how much the technology explored during the afterschool program crossed over into the school lives of children. The final surveys were designed to allow for comparisons across cases for triangulation using the data from the surveys along with observations, field notes, individual interviews, and visual and content analyses of the digital texts created by the participants to track the development of students' digital literacy skills and attitudes towards technology use as well as how this type of literacy is seen in their community.

Analysis of the data required several different layers of coding and interpretation. In the first stage, the bulk of the data was coded for various themes that emerged. The interview transcripts were coded following traditional coding procedures (Strauss & Corbin, 1990), and themes were compared across the different research settings in order to identify recurring and overlapping thematic and structural patterns (Black, 2007). The digital texts created by the students were analysed within a framework of semiotic meta-functions (Kress & Van Leeuwen, 2001; Jewitt, 2008; Burn, 2008), which considered design and production as representational, interactive, and textual. In other words, we analysed how the production choices of the students helped us to understand their conceptualizations of mathematics or research on a particular animal. Further to this, researchers also analysed how the app on the digital tablet further engaged their interests through reading and writing. Because of the complex blending of multimodal data elements, we also used the digital visual literacy analysis method of developing a "pictorial and textual representation of those elements" (Hull & Katz, 2006, p.41). This approach, allowed the researchers to analyze how children made critical reading and writing choices through the apps.

At the Boys & Girls Club

The B&GC Computer Centre was the main site within the B&GC where students engaged with the tablet computers and received explicit instruction. The Computer Centre is a popular destination within

the B&GC. The afterschool program teacher notes that it is important that the computer sessions meet the interest and needs of the B&GC youth. For example, there have been lessons taught in the computer centre that focus on how to use YouTube as a research tool. This includes how to find authoritative tutorials to answer their own questions and concerns. The afterschool program teacher shared that this lesson was particularly successful, and that many students gained greater understanding and a sense of empowerment from it. Students were engaged with multiple types of technology on their tablets.

Critical teaching of the social aspects of the online environment was overtly taught to students. Students voiced their interests in learning how to easily communicate with their friends online by sending messages or collaborative invitations to participate in an online activity they enjoy. Younger students wanted to be able to access the same sorts of sites that the older students are accessing (i.e. social media sites). However, because of age restrictions this isn't always possible. The afterschool program teacher recommended to the B&GC that they implement Edmodo in the computer room, providing each child with their own safe version of a social media website. This is still pending approval.

This study focused on tablet computer use. The B&GC received eighteen Samsung Galaxy Next Tab 2 handheld computers, identical to those used in school, preloaded with a variety of apps (see Appendix C). The study participants, plus other computer centre users, engaged with the tablets for a minimum of 20 minutes daily during their afterschool time at the B&GC. This engagement included explicit instruction, guided play, collaborative project development, and time for free play. The group dubbed themselves the B&GC Tablet Crew.

At Bishop Abraham

The Grade Three classroom was set-up for differentiated, individualized instruction. The classroom was a place for learning and the students developed strategies on how to be respectful and cooperate while engaged in individual learning activities. The classroom was equipped with a wide mix of learning media, including math manipulatives (i.e. sets of base ten blocks), print books, art supplies, and digital tools (i.e. tablets, desktop computers, and an interactive white board and projector). The classroom teacher acknowledged that the digital media in the classroom engaged the students and was a draw for many to be in attendance every day.

For the duration of the study, the Grade Three classroom had access to twenty Samsung Galaxy Next Tab 2 handheld computers preloaded with a variety of apps (see Appendix C). The apps were chosen for their potential to help children reach the learning outcomes defined in the authorized Grade 3 curriculum; however, all of the apps have potential uses beyond this narrow focus. Students explored the applications and tools they found most engaging beyond the limits defined in the curriculum.

The classroom teacher used the tablets during the regular school day in three main content areas, which provided a natural fit: math, language arts, and social studies. Students were encouraged to use the tablet computers at other times including free play, guided play, and for inter-class activities such as buddy reading (Grade Threes are each paired with a Grade One student for reading practice). The classroom teacher used the tablets to reinforce learning major concepts and to demonstrate learning in collaborative ways. For example, while learning long division each student solved a math problem using physical blocks; replicated this activity using an app on the tablet computer; and posted the results, using visuals and typed sentences, on the classroom blog. Using a multimodal approach, students showed a diversified learning experience.

The tablet computers were also used for special activities and events. For example, on Math Fun Day parents were invited to school and, guided by their children, learned how to use the tablet to scan a QR code linked to a student-created video riddle about a math concept. More examples of intergenerational learning and community literacy were observed throughout the year.

Project Timeline

	SEPT. 2012	NOV. 2012	JAN. 2013	JULY 2013	SEPT. 2013
PHASE 1	-Assessment of community site -Assessment of school site -Design a program plan matching needs of both sites	-Interviews with cooperating personnel			
PHASE 2		-Participant invitation session -Workshops for instructional staff	-Data collection and observational study		
PHASE 3				-Data analysis -Follow-up interviews -Interventions and outreach	
PHASE 4			-Celebration of children's learning -Performance of digital text for parents and community partners	-Study discussion and reporting of early result analysis -Recommendations for improvements moving forward in co-operating environments	-Detailed data analysis -Compilation of report -Dissemination of results to the appropriate academic communities

FIGURE 1: FOUR-PHASE PROJECT TIMELINE

Grade 3 Tablet Survey

During the week of June 17-21, 2013 the Grade Three students were interviewed and asked a series of closed and open-ended questions related to their use of the tablet computers and associated technology in their lives (see Appendix B). Students printed their own responses to questions, if possible, or a researcher scribed for them if they were unable to complete the writing themselves. Children were prompted to elaborate on attitudinal responses and indicate, in their own words, how the tablets helped or detracted from their studies. They were also asked about how they used the tablets for recreational purposes. The overlap between academic and recreational use was readily apparent as 64% of the children indicated that a collaborative game they played for fun helped them with schoolwork, or an academic program was actually one of the most fun programs on the tablet.

"Minecraft [was the program/app on the tablet that was the most fun] because it helps you build structures."

-Steven

"Read Me Stories – Kids Books [was the program/app on the tablet that was the most fun] because it helps you read AND it helps my buddy reader read too."

-Mary

Every student indicated they had access to a computer at home, though it is difficult to assess if all students had internet access on their home computer, or if the digital devices used at home were up to date. 86% of students indicated they used a computer at home for schoolwork; 93% reported playing games at home on a digital device; and 64% used a device for some other purpose (taking photos, writing stories, playing Barbie, watching TV/movies, listening to music, writing songs).

When asked if the tablets helped them learn at school, 100% of students indicated that it did. When asked if they thought that students should have tablets in school *all the time*, 64% of students indicated that they should.

"Yes [students should have tablet computers to use in school all the time] because they can colaberate [sic] with other people and have fun while learning things."

-Brittany

"Yes, because [it] will help kids read and help kids [with] math and spelling."

-Mary

"Yes, because you would have very fun learning [sic] and be excited for school."

-Karen

"Yes, because if you are having troble [sic] with spelling there is auto croet [sic: auto correct] to help you."

-Betty

Of the 36% of respondents that didn't think students should have tablet computers to use in school all the time, one student indicated s/he was not sure if it was a good idea or not, and others pointed out that the tablets can sometimes prove to be a distraction.

"We should not have [that] stuff all the time because [we] would be more consintrated [sic] on that than other stuff."

-Norah

"No [students should not have tablet computers to use in school all the time] because we won't concentrate if we have our tablet and computer around us [all the time]."

-Lisa

Digital Literacy Projects

Students engaged in several creative digital literacy projects over the course of the study. Two specific examples, one from each environment completed by the students, are detailed below to exemplify the use of the tablet computers in intentional, guided, creative manifestations. These examples represent activities undertaken after the tablet computers were familiar to the students and the children reported confidence in their use. Examples of projects completed at earlier stages of the study include:

- Classroom KidBlog – Technology in Our Lives (B&GC and Bishop Abraham)
- Geometric shape riddle videos & associated QR codes (Bishop Abraham)
- Reader Response Activity – Rosa Parks (Bishop Abraham)
- Buddy Reading with Grade One students (Bishop Abraham)
- Superhero Storyboard (B&GC)
- My Life Timeline (B&GC)

Best Part of Me – Reader Response Video
The entire Grade Three class created a movie using their tablet computers featuring their own poetry, photography and voiceovers. Using the book *The Best Part of Me: Children Talk about their Bodies in Pictures and in Words* by Wendy Ewald[1] the classroom teacher designed a reader response activity for the students that emulated the style of the book. *The Best Part of Me* features Grade Six student poetry in celebration of the students' favourite body parts. The book was read aloud in class multiple times and students discussed the text, specific poems, and how they related personally to the words and the images. The classroom copy of the book was available to the students for reference throughout the project. The classroom teacher asked the students to consider their own bodies and which "part" they would like to feature in a poem. Writing poetry in its various forms was a lesson in language arts and students considered the type of poem they would like to write to highlight their featured body part. The students worked on

their poems, submitting several versions to the classroom teacher for feedback and revising and editing each version. Here are four sample poems in their final version:

My Legs
by Mary

My legs help me walk
When you walk, you move
Your leg moves too
The leg is like a stick
If you did not have a leg
You would not have a foot
My legs are important to me

My Ear
by Karen

My ear looks like a seashell
With a broken heart inside
It hears lots of sad and bad things
But my ear can be good too
It can tuck my hair behind it
And it helps you hear happy and joyful things
My ear looks like a seashell
With a broken heart inside

Munch Crunch
by Andy

Munch, crunch
I love my mouth
I chew and chew and chew
Nom, nom, nom
The mouth has the most strong muscle in the body
I love my mouth
Munch, crunch, crunch
It's not nice when you have a toothache – owww

My Eye
by Steven

I love my eye
It helps me see
Oh my, you don't buy an eye
It helps you see,
So you don't bump into a tree

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[1] Ewald, Wendy. (2002). *The Best Part of Me: Children Talk about their Bodies in Pictures and in Words.* Boston: Little Brown.

The children used the tablet computers to complete their poems and take multiple photographs of their chosen body part. The composition of the photographs was discussed in class. Then, the children and the classroom teacher worked together to crop the pictures that would be featured in the final version of the movie. The poems were finalized and students practiced reading them aloud for the voiceover that would accompany their featured photograph. Students also used the tablet computers to record their poems, listen to each other's work, re-record as needed, and create final versions for the classroom teacher to compile into a movie. Using Animoto, a video slideshow app, the classroom teacher compiled the students' work and took an opening shot of the entire class holding *The Best Part of Me* book. The movie was featured in the final assembly of the year and presented to the entire school, parents, and invited guests.

What the B&GC Means to Me – Digital Display
The Tablet Crew created a virtual collaboration board to demonstrate how they felt about the B&GC, including their favourite spaces and types of activities. The afterschool program teacher designed the activity as a group project for the children. His intention was to build on their developing tablet skills, and to highlight the sense of community developing among many of the students involved in the afterschool program. He chose the web tool Stixty, which was reviewed as a top site for schools in 2012 but ceased functioning in December 2013 (after this project was complete).

The students and the afterschool program teacher started by taking some pictures of the B&GC spaces. The afterschool program teacher demonstrated the online tool and assisted each student to create a free, anonymous account. Working together, they created a main template for the board, chose key photos, and locked them in place. Then, using the tablet computers, individual students were instructed to take pictures of the space that were most meaningful to them as well as pictures of themselves, if desired, to accompany a brief line of text about their favourite space. Finally, students could choose to use the tablet to access the Stixty Board and upload their photos and insert their text, or they could use a desktop computer to complete the final stage of the activity. Students reported a sense of pride in creating this overview of the B&GC program (see Figure 2).
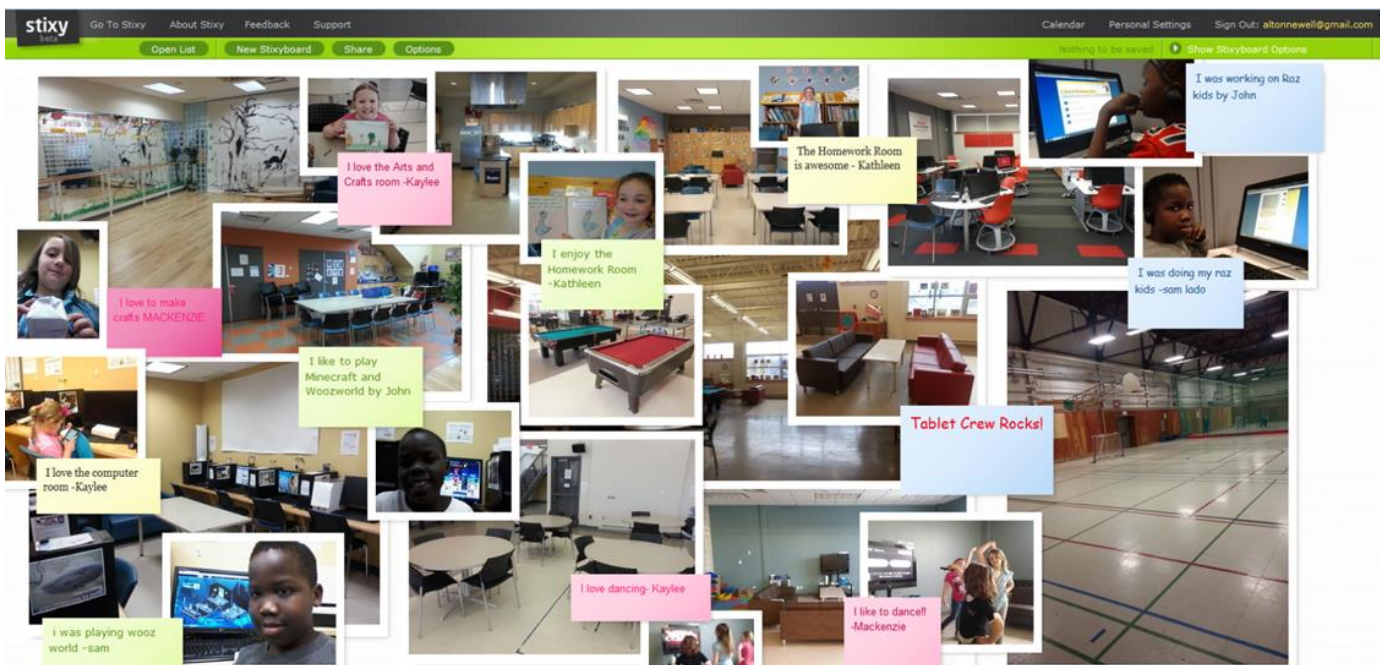

FIGURE 2: STIXTY COLLABORATION BOARD CREATED BY THE TABLET CREW

Outcomes & Themes

The data analysis revealed several key themes that emerged across both environments. The tablet computers were a natural fit for the Grade Three students because the size was proportional for their hands and they were able to use them appropriately and to their greatest advantage with little instruction or direction. However, guidance was needed in all content areas and students required direction as they used their tablets to reinforce new skills, such as long division. Having access to a set of valuable applications pre-loaded on the tablets proved beneficial for the students in the study. Additionally, having access to identical and/or collaborative apps allowed for interaction and collaborative play which, over time, evolved into joint or group problem solving. Specifics themes were identified by the teachers across sites and these are detailed below.

Intergenerational teaching and learning

At The Boys and Girls Club
One of the most significant findings of this research study demonstrated the presence of intergenerational teaching and learning in the use of tablet technology. These findings suggest that children not only learn through teaching themselves and one another, but in an important turn, they also learn through instructing their parents and teachers. One instance of the student and teacher dynamic is the opportunity for both to troubleshoot together to solve a problem. The afterschool program teacher describes his experience with a student, Steven. Steven was having difficulty using the YouTube app on his tablet. When Steven attempted to use the search panel to find another video it would not load properly. While the afterschool program teacher and Steven tried to work through the problem together, Steven suggested that they start over and guided their efforts trying to solve the problem. It was determined that it was likely an error with the app causing the trouble, but this nonetheless provided an important learning opportunity for both student and teacher.

An especially pronounced element of the 21st century is the changing nature of communication. While a majority of contemporary communication takes place via email and other digital mediums, the afterschool program teacher indicated that the main source of contact that parents maintain with the B&GC is through telephone. Despite this, the B&GC maintains a Facebook page that is used to relay different messages (i.e. closures, upcoming events, etc.) to parents and guardians. The afterschool teacher was well aware that many of the parents were engaged in social networking and had access to Facebook. In addition, he commented many had viewed the B&GC Facebook page, but had not made comment or responded to various things. He argued that the students involved in this research study would be far more competent in accessing this type of information remotely through a tablet or other mobile device than their parents. Furthermore, the afterschool program teacher believed that these students would be able to teach their parents how to use the technology and how to use the technology more effectively.

Many important 21st century skills are learned outside the classroom. It is important that students be able to share the knowledge gained through this type of learning with their teachers. The afterschool program teacher specifically referenced a scrolling feature that could be found on the tablet. If you dragged your finger up and down on the right side of the tablet screen, the page or site on the screen scrolls up and down accordingly. This was a feature that both the afterschool program teacher and the researcher were completely unaware of, but have used regularly since being introduced to it by students.

At Bishop Abraham
The importance of intergenerational learning cannot be overstated. The benefit of learning through the use of tablets in this study is demonstrated by its natural occurrence. However, it is important to consider this teaching and learning model through more formal types of design. While the afterschool program teacher's discussion focused on the intergenerational learning that takes place as a result of the casual daily use of digital technologies, the classroom teacher related efforts made by the school to provide structured support for parent learning through student teaching projects. One such example is the school-sponsored community days designed to allow students to show parents, and other significant adults in their lives, this developing critical expertise and

applications of technology they have experienced in the classroom. Parents were invited to the Grade Three classroom for a Math Fun Day that focused on the tablet computers as a learning medium. Students chose apps and created QR codes for videos they had recorded. They placed QR codes throughout the classroom with instructions for their use. Children were then responsible for:

- showing their parents how to follow the instructions for the use of QR codes,
- demonstrating how to use the scan app, and
- reviewing the application of various math apps on the tablet.

Parents clearly demonstrated pride in their children. Despite the fact that parents were not as proficient in using the technology as their children, they showed a marked interest in not only what their children were learning but how they were learning.

As an aside, the classroom teacher shared an important personal insight regarding the role that digital/online instruction can play for parents, in addition to students. The teacher felt that the use of technology in the classroom could provide an important bridge for the use of technology at home, specifically as it related to parents that were less familiar with the use of digital technologies. In an ideal world, an open exchange of information between the school and home would be facilitated by technology. For example, teachers would be able to upload videos made for a specific math concept that students are working on. Parents, then, would have a place to access these resources online and watch the video with their children. In this manner, both are learning the concept that can be applied in completing student assignments together.

Collaborative learning, play and teamwork

At The Boys and Girls Club

Collaboration is a group learning strategy that has become increasingly emphasized by educators in recent years. It is of interest, then, to consider the effect that technology has on promoting both collaborative learning and competition of skills in the classroom. The afterschool program teacher found that the amount of student digital activity was affected by the presence of their peers and popularity of the activity in the digital space. For example, when playing a game called Minecraft, students would assist each other to master the game. In other digital activities, the afterschool program teacher detailed the experience of Kendra to show how a competition of digital skills would ensure attentiveness when given a specific challenge. He noted that Kendra was generally fairly competitive and enjoyed outperforming her friends when they played. One assignment included the use of a photography app on their tablets. Kendra often took deliberate notice of the photographs taken by her peers, and sought out pictures that had yet to be taken by her classmates, thereby improving the design of a collaborative project. It is important to note, however, that this single example cannot be considered representative of the potential of technology to promote healthy competition, or collaboration.

At Bishop Abraham

Interactive and cooperative lessons can promote positive peer-to-peer interactions and learning, but this research study has also demonstrated increased student engagement during the collaborative learning process through the use of tablet technology. Students participating in this study especially enjoyed the opportunities to collaborate offered by the use of the tablets. In one example, the classroom teacher discussed a lesson where students looked for number expression that equaled 274. Using a SmartBoard add-on tool called Extreme Collaboration, teachers used NoteBook software to create a QR code for a specific online room. Students used the tablets to read the QR code and visit the online room where they received their instructions and were given the parameters of the assignment. Completed assignments and questions were displayed on the classroom SmartBoard with the student's names attached to their work. In addition to the enjoyment that students experienced seeing their work displayed, the children were then able to use the calculator on the tablet to check their work and the work of their peers to demonstrate their learning. This sort of add-on digital tool is multifunctional. It can be used across a variety of content areas to promote collaboration and student engagement to achieve learning gains.

Bridging the digital divide with access to technology in *and* out of school

At The Boys and Girls Club
Equitable access to digital technologies may be one of the greatest sources of the digital divide. Put another way, lack of access to various digital technologies may place students and their parents at a significant disadvantage when compared to their more technologically sophisticated peers. This study has considered how to bridge this digital divide by providing students with access to comparable technologies at school, after school, and/or at home. The afterschool program teacher found that for members of the B&GC, this pervasive access allowed students to further develop friendships and significant digital skills. The afterschool program teacher offered this conclusion by considering students on an individual basis. He also offered an important observation regarding the tablet's learning curve in this regard. While the tablet offers a relatively shallow learning curve to become familiar with basic skills, the more advanced skills involve a much steeper learning curve. The Foundation's donation of a tablet to each study participant gave continued access to the tablets and would provide students with the necessary exposure to the technology to increase their proficiency and eventual mastery. To emphasize our discussion of the importance of continued access for building skills, it is important to note that the study participants did not previously have access to tablets at home, and likely had only access to a family member's cell phone. All participants benefitted from the Foundation's tablet donation.

At Bishop Abraham
The classroom teacher indicated many students found the tablet learning curve to be a shallow one. The classroom teacher's Grade Three class had no problem navigating the tablets and even participated in buddy reading on the tablets with a Grade One class. The classroom teacher attributed this quick proficiency to the use of technology in the home. She noted that most students type on the tablets using their thumbs, reflecting their experience with the practice of texting on a cell phone. Students are growing up in a world of digital media, and this is the format that engages them. In addition to home use, the classroom teacher also attributed the presentation format of the tablet as having a more engaging nature than paper and pencil, increasing student attention and learning.

Responsible use/digital citizenship

At The Boys and Girls Club
In an increasingly digital world, parents, teachers, and students are all tasked with negotiating the boundaries surrounding the responsible use of digital technologies. These issues include what content is and is not appropriate for students to access, as well as for students to share, among others. During his time at the B&GC the afterschool program instructor found there was a need for teacher guidance while the students were online. Most students had a fairly good understanding of how to use the tablets, generally as a result of previous experience using cell phones. Despite this prior knowledge, their proficiency increased throughout the research study. The main type of guidance most students required was in relation to expanding their ability to effectively use the tablet for access to online applications (i.e. "Where's the Play store?"). However, this type of access often required either monitoring by a teacher or was prohibited by the B&GC because of potential risks, such as virus infection, to the institutional network. The afterschool program teacher would have to remind students that they did not have permission to download programs from the Internet, and he noted that as technological skills expanded, students often found alternate methods to access or download applications that were prohibited. The afterschool instructor indicated that awareness of the necessity of these types of restrictions was an important realization for students as they learned that their own actions on the Internet could cause unintentional problems or harm.

At Bishop Abraham
Beyond the more basic and practical function of teachers as monitors of responsible digital use, the researchers asked the classroom teacher what she felt the school's role is in defining "responsible use" and how best to promote it. The classroom teacher began by noting that she had not observed her students to be critical users of digital technologies. She argued this stemmed largely from the reality that their parents

were not critical users. The classroom teacher contended that most families live their lives online, and that opened both parents and students to dangers that may not necessarily be recognized at home. The classroom teacher argued that the school must play a role in promoting responsible use because a majority of parents have had limited exposure. If parents don't possess the knowledge or skills necessary to be responsible users of digital technologies, they may be unwittingly putting themselves at risk. Additionally, many of the parents of students in this research study demonstrated low literacy levels, diminishing access to reading material or online blogs designed to make parents aware of these issues. It becomes important, then, for the school and other community organizations to be active in teaching parents and students how to responsibly use these digital technologies.

The research findings in this study have also supported a relationship between responsible use and digital citizenship. Namely, it has been found that teaching parents about responsible use reinforces both positive digital citizenship and safe use. The classroom teacher shared that one of the school goals for this year was to host a technology curriculum fair. The school was able to organize a half-day where students at the primary level invited their parents into the classroom to participate in activities using an iPad station. The activity essentially invited children to show their parents what different types of things could be done on the iPad. The classroom teacher noted that perhaps the most important aspect of the event was providing parents with different examples of the types of applications that were safe to be downloaded on their tablets at home to promote student learning. Following from this, the classroom teacher went on to note that these opportunities are especially productive given her belief that in order for students to be responsible users, parents must also be.

An emphasis on external guidelines and monitoring has the potential to diminish the ability of students to develop an individual awareness of which online behaviors might be potentially harmful or dangerous, and which ones constitute responsible use. Teaching students about the safe use of technology provides them with the ability to self-monitor their online activity. The classroom teacher related a few tips that

students are often taught to ensure that they are viewing appropriate online content. In a school setting, URLs are no longer typed. Instead, the teachers first test all URLs to ensure that they are accurate. YouTube videos are processed through a content filter to ensure that access to inappropriate content is minimized. In addition to exposing students to these practices, parents should also have access to this information to encourage self-monitoring and responsible use at home.

Incorporating traditional literacies in the digital space

At The Boys and Girls Club
Many educators have expressed concerns that the increasing emphasis on digital literacies may be at the expense of traditional literacy practices. These traditional literacy practices are often understood as learning through direct instruction with the use of a textbook, as well as paper and pencil tests, as the primary method of assessment. This study, however, considered how traditional literacies are incorporated in the digital space. The afterschool program teacher offered researchers the example of autocomplete to reassure a student in her experience with writing. One student in particular had an exceptionally difficult time with spelling. She learned that the autocomplete function on her tablet was easy to use. Specifically, the tablet will focus on what you are typing and offer possible word selections in addition to what has been typed. This provided the student with the opportunity to identify the word that she may have misspelled in the process of typing on her tablet. It also inspired confidence as it provided her with the positive reinforcement necessary to support her efforts. Other examples include the use of various apps such as Diary Notes Multimedia and PicSay Pro, which allowed students to show multiple forms of writing and expressions of knowledge.

At Bishop Abraham
The classroom teacher provided an additional perspective on the potential loss of traditional literacy skills in response to the new wave of technology in the classroom. She found that struggling students were able to use the tablets relatively effortlessly. She found that many parents of students in her class

didn't have multiple sources of traditional print media (books, magazines, newspapers) in their home, so digital media was the predominant source of literacy transactions for the family. In this manner, students were certainly falling behind with regards to traditional literacy, which she did find to be a concern. However, they were still gaining important literacy skills through access to forms of *digital* media and technologies. The classroom teacher indicated that it is imperative that students be exposed to both traditional and digital literacy practices at home and at school for the most comprehensive learning gains to be made.

Much of this study has emphasized the importance and ways in which students attain digital proficiency in the use of their tablets. To add depth to our understanding of digital literacies, researchers asked the classroom teacher to discuss her personal teaching philosophy. She emphasized the need for digital literacy to move beyond digital proficiency and encompass personal learning. The classroom teacher is a proponent of traditional pencil and paper literacy, as well as digital literacy. Educators will never be able to completely move away from traditional literacy, as there are certain skills that will remain necessary (i.e. the ability to sign your name, read a job application, etc.). However, it is also important for students to be literate in the digital sense as exposure to this type of media has become commonplace. It is similarly important to possess the skills necessary to comprehend what is read on a digital device, as it is to read and understand the text of a book or newspaper article. The classroom teacher suggested that in some classrooms where digital literacy is practiced, traditional literacy practices have simply been replaced by a piece of technology (i.e. a digital quiz as opposed to a pencil and paper quiz). Instead, this classroom teacher advocated for digital literacy that engages students in process and design, enhancing their understanding of both content and technology, and motivating children to participate in their own learning.

Building Friendships

At The Boys and Girls Club

Most research in the field of digital technologies emphasizes the educational benefits of their incorporation in the classroom. It is important, however, to consider the additional social benefits that students experience. For example, the afterschool program teacher has observed friends sharing activities in digital spaces. He expounds on the previous mention of Kendra's experience with her tablet. Though initially reluctant and fearful of failure, Kendra began to enjoy using her tablet and playing games with her friends. She had the freedom to choose whatever she wanted to play, but would often choose the same programs as her friend, Melody. She led groups of friends in their digital play, and promoted open discussion of the applications they decided to use (i.e. what clothes to dress Barbie in). These kinds of interpersonal relationships negotiated through the use of technology facilitate students in building and strengthening friendships.

Technology can also be a shared experience that incorporates physical interaction with the digital interaction mentioned above. The afterschool program teacher recalled an afternoon that was especially busy at the B&GC afterschool program. The afterschool program teacher had to step away and asked Dixon, an older student, to supervise the students involved in the tablet study. When he returned, students were using the camera and video recording functions on their tablet to go around the room and capture images of each other. He recalled them laughing and sharing their recordings in a natural way that demonstrated the potential recreational and social benefits of this type of digital engagement.

At Bishop Abraham

The classroom teacher also found similar types of collaborative learning, which manifested into new friendships and developed others. One in particular occurred between a new student from Ghana who learned to speak English much faster through her friendship with a girl in the class, developed through the use of a tablet. Each day the children would work through recess on their tablet playing various apps and games, which were focused on the basics of language such as directions and picture word banks. During the interview with students the young

Canadian student described how the tablet aided in their communication and friendship. Other observations the classroom teacher made were on how new technology gave opportunity for novel learning and experiences. She was also pleased with how the new-found friendships transferred to the afterschool program in their tablet play through games such as Minecraft.
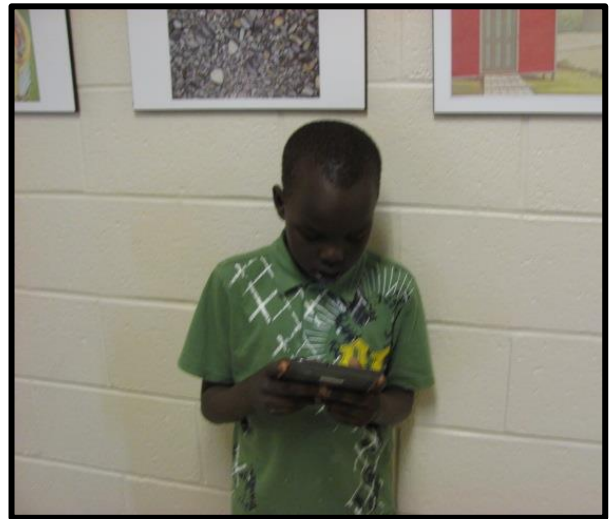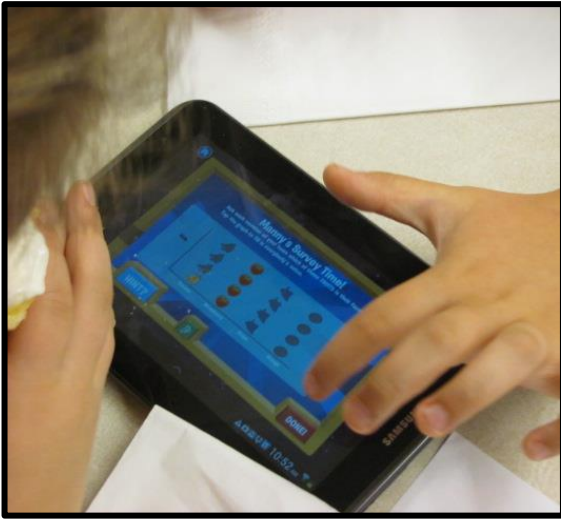
Next Steps

Moving forward in the local environment was the focus of this study. The researchers believe the connections made between the school and after-school program at the B&GC may provide opportunities, not only for digital literacy collaboration with the tablets, but also other projects. The initial connection and interplay between these agencies was critical for setting the stage to allow both institutions to grow beyond participative community engagement and move into empowerment and leadership roles – an evolution described in current literature and detailed by the Tamarack Institute. While this evolution may not be immediately apparent, as is frequently the case in complex community interactions, the participative foundational layers provided through this study are key to any potential for growth.

Recommendations

1. **Further research exploring digital literacy as a community practice** through intentional use of tablets by qualified professionals in a variety of locally-accessible environments. Specifically, a multi-year study designed to foster a level of community engagement beyond level 3 (participation). A review of the Tamarack Institute's Community Engagement Continuum Chart demonstrates that the highest levels of community engagement (empowerment and leadership) are only achieved with participants working collaboratively over extended periods of time.

2. **Opportunities for teachers, parents, and community leaders to learn how to use mobile devices intentionally** to foster learning. The educational value and power of tablet devices is not inherent in the devices themselves. However, the potential for tablets to be used to facilitate skills practice, creative engagement, collaborative learning,

and digital literacy is evident. Community organizations must be supported to develop needs-based community programming, workshops, and just-in-time instruction.

3. **Equitable access for children to mobile technologies and places to use them collaboratively**. Public libraries, schools, and community centres are encouraged to mobilize grants and future funding to make these devices accessible and offer programs that give children, and their families, opportunities to use mobile technologies creatively in a group setting.

Conclusion

Given the increasing access children have to mobile devices, and the ubiquitous use of the Internet in their out-of-school lives, it is necessary for educators and school districts to redefine or reconsider students' school literacy and learning practices. This reframing needs to include current pedagogical approaches to teaching reading, viewing, and composing using solely print-oriented texts. The inclusion of digital media in the classroom, and in out-of-school community programs, is an obvious evolution necessary to mirror social conventions and to give students authentic, valuable interactions that will promote responsible, intentional uses of technology. Teachers, parents, and educators will benefit from continued research that explores the social implications that tablet technologies provide, in addition to positive potential learning experiences for families through the intentional use of these technologies. Studies such as this one, replicated in new communities with appropriate local agencies providing free or subsidized afterschool, evening, and weekend programming, will provide opportunities not only to further the research agenda outlined in this report but, more importantly, to build communities of local leaders that understand the value of developing healthy digital literacy for their children and families.

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Appendix A: Interview Questions
Completed before tablet integration

Digital Literacy Pretest

1. What type of phone does your family use?
    Do you go on the web with it? What websites do you usually go on when you're using the internet on your parent's phone?
    Do you have any apps on the phone you use at home? Which ones?
    What games do you play on the phone?

2. Do you have an iPod/ipad/tablet? What kind?
    Do you have any apps on your iPod/ipad/tablet? How many? What kinds of apps? Do you have any apps on your iPod/ipad/tablet for reading or writing?
    Do you use your iPod/ipad/tablet mainly for listening to music or to use apps?
    What is your favorite app? Why?
    Do you usually buy apps or download the free ones?
    What do you look for in an app before you download it? Do you look at how other people have rated it? Why or why not?

3. Do you like using the computer?
    How many computers are in your house?
    Who showed you how to use a computer?
    What do you use the computer for?
    What are your favourite websites? Why? How did you find them?
    Do you think there are more positive things than negative things on the internet? What characterizes a "bad" site? What characterizes a "good" site?

4. Do you like to read?
    Do you like books and why?
    Do you have a favourite author?
    How often do you read? What was the last book you read?
    Where do you get your books? Do you buy them (if so, where? Chapters, Coles, second hand store?) Or, borrow them? (if so, where? from the school library, public library, friends?)
    Do you do like magazines? Which magazines do you read?
    Can you read maps?
    What other types of reading do you do?

5. Do you read any blogs online?
    Which ones? Why?
    Do you keep your own blog? What types of things do you blog about?
    Do you post or tweet things on facebook or twitter? If so, how often?

    Do you like writing?
    Would you consider typing on a computer like writing in a scribbler or diary? Why or why not?
    Do you keep a diary, write poetry or short stories at home? What types of things do you write about?

Appendix B: Grade 3 Tablet Survey
Completed after tablet integration

AT HOME

1. Do you use a computer at home?   ☐ Yes ☐ No

If yes, what do you do on your computer at home? (Check all that apply and fill in the blanks)

☐ Homework. An example of something I have done on my home computer for school homework is:

_____

_____

_____

_____

☐ Play games. My favourite games to play on my home computer are:

_____

_____

_____

_____

☐ Surf the internet. My favourite sites to visit using my home computer are:

_____

_____

_____

_____

☐ Other things I like to do on my home computer are:

_____

_____

_____

_____

2. Do you use a tablet (handheld) computer or cell phone at home (can belong to any member of your family if they let you borrow it)?   ☐ Yes   ☐ No

     If yes, what do you do with your/your family member's tablet or cell phone at home? (Check all that apply and fill in the blanks)

     ☐ Play games. My favourite games to play on our home cell phone or tablet computer are:

     _____

     _____

     _____

     _____

     ☐ Surf the internet. My favourite sites to visit on our home cell phone or tablet computer are:

     _____

     _____

     _____

     _____

     ☐ Take pictures. I use my/my family's cell phone or tablet computer to take pictures of:

     _____

     _____

     _____

     _____

     ☐ Other things I do with my/my family's cell phone or tablet computer are:

     _____

     _____

     _____

     _____

     _____

3. What other technology do you have at home that you like to use? (Check all that apply and fill in the blanks)

☐ Digital camera. I like to take pictures of:

_____

_____

_____

_____

☐ Games system (i.e. X-Box, Playstation, Nintendo). I like to play games like:

_____

_____

_____

_____

☐ Other things I do at home with technology are:

_____

_____

_____

_____

_____

_____

_____

_____

AT SCHOOL

4. Did having a tablet computer help you learn at school? ☐ Yes ☐ No

5. Which program / app on the tablet helped you learn the most? Why?

   _____

   _____

   _____

   _____

6. Which program /app on the tablet was the most fun? Why?

   _____

   _____

   _____

   _____

7. Should students have tablet computers to use in school all the time? ☐ Yes ☐ No

   Why? Or, Why not?

   _____

   _____

   _____

   _____

8. Is there anything else you would like to tell us about using your tablet computer in school?

   _____

   _____

   _____

   _____

   _____

   _____

   _____

Appendix C: Tablet Applications List

Android Apps Installed on Tablets

Cross-curricular concepts & utilities

BrainPOP Featured Movie
BrainPOP
Price: Free
Description: Animated videos covering a variety of topics including science, current events, famous people and holidays. Students can watch the videos, complete a quiz to test their retention and comprehension and also access bonus features.

BrainPOP Jr. Movie of the Week
BrainPOP
Price: Free
Description: Animated videos focused on science, math, health, writing, reading and social studies for students from Kindergarten to Grade 3.

Scan
Scan Inc
Price: Free
Description: Simple QR Code and barcode scanning the way it should be. Open the app, point the camera at the code and you're done! No need to take a photo or press a "scan" button like other apps. No restrictions to use the "lite" version.

Electric Company Party Game
PBS Kids
Price: Free
Description: A fun-filled, multi-user game that incorporates math, drawing, problem-solving and literacy skills.

Minecraft - Pocket Edition
Mojang
Price: $6.99
Description: Place blocks to build things and go on adventures - survival and creative modes for timed or leisurely play. The android pocket edition allows collaborative play for students over a wireless network.

Match Concepts & Practice

Blackboard Math
Edison Gauss Publishing
Price: $3.00 (per student per year)
Description: A virtual blackboard that students use to solve math problems longhand. Blackboard Math creates the problems and grades the answers. Students use the app to track and save their work on the tablet.

Kids Math Pro
Wilson Studio
Price: Free
Description: Designed for children 2 to 10 years, this app helps children learn to count up to twenty, and complete basic addition and subtraction.

Math Evolve: A Fun Math Game
InterAction Education LLC
Price: $1.94
Description: An award-winning game designed to engage students while reinforcing addition, subtraction, multiplication and division skills.

Math Me
SIKK Apps
Price: $1.00
Description: Skills-based application used for practice with addition and subtraction, multiplication and division equations. Choose the number of questions and level of difficulty. Accomplished students can add a level of difficulty by playing against the clock.

Math Practice Boards
Math 17
Price: Free
Description: Touch screen allows children to use their finger as a pencil to practice longhand to solve equations before selecting the typeset answer.

Math to the Rescue Game

Blue Bear Software

Price: $1.98

Description: Students rescue victims by utilizing the math skills they have developed in the classroom. Simple and complex equations are factored into the gameplay using addition, subtraction, multiplication and division.

DragonBox+

WeWantToKnowAS

Price: $5.99

Description: Tested with students in France and Norway, this inventive game reinforces math skills and equations for students in grades 3-6. Fun for all, but especially helpful for students struggling with algebra.

Reading & Writing

Diary Notes Multimedia

Wizard Solutions

Price: Free

Description: A daily journal with enhanced options allowing students to save pictures, video and audio files to accompany their notes and diary entries.

Read Me Stories - Kid's Books

8interactive

Price: Free

Description: Emerging readers can practice skills with read-along books from this popular application. Highlighted text is designed for vocabulary development. Fees are attached to purchase book bundles not available for the free daily download.

Comic Strip It Pro

Roundwood Studios

Price: $0.99

Description: Create storyboards and digital stories using photos, captions, speech bubbles and fun, simple effects.

Kids Reading Comprehension 1

Angela Reed

Price: $0.99

Description: Students read passages that relate to everyday life and answer follow-up questions. Level 1 is aimed at emerging readers, and working with this application will reinforce skills and improve reading comprehension.

Spelling Space Ultimate

Learning Gems

Price: $1.99

Description: Create your own spelling lists and record audio for each word. As students practice their lists, they are scored and can focus on difficult words. Practice is emphasized, but the interface is fun and includes an alien helper and the collection of tokens (asteroids) for progress.

Spenguin Spelling for Kids

Hachiko

Price: $0.99

Description: Emerging readers spell 3- and 4-letter words to help the penguin get to his destination. Young students can practice basic spelling and increase vocabulary.

Creativity, Problem-solving, and Presentation

Magisto - Magical Video Editor

Magisto

Price: Free

Description: Upload videos and add music with this simple video editing tool. Fees are applicable if saving videos to a gallery, or linking multiple clips together.

PicsArt - Photo Studio

PicsArt

Price: $0.99

Description: Photo editor with a simple, intuitive interface. Pay the nominal free to download the ad-free version.

Pic Collage

Cardinal Blue Software
Price: free
Description: Jazz up your photos with frames, captions, stickers and much, much more. A simple app that combines fun with writing and digital literacy skills.

Animoto Videos

Animoto Inc
Price: Free
Description: Combine photos, text and music into a video montage. Students choose from preset styles with music, and add their own words, photos and even short video clips.

PicSay Pro - Photo Editor

Shinycore
Price:$3.99
Description: Students can utilize creative writing and design skills to add elements to photos using this advanced editor. As well as basic features like cropping and red-eye removal, students can add text, word balloons and make virtual photo collages with the advanced version of this application.

Stop-Motion

Sheado.net
Price: $1.99
Description: Creativity is the focus of this app that allows students to create stop-motion, or claymation videos. Software strings all the clips together to create the movie that plays on a tablet device.

Appendix D: Brochure for Parents
Accompanied tablet home distribution
Tri-fold, double-sided brochure

APPS TO BUILD CREATIVITY

Animoto Videos
Animoto Inc
Price: Free
Description: Combine photos, text and music into a video montage. Students choose from preset styles with music, and add their own words, photos and even short video clips.

Comic Strip It Pro
Roundwood Studios
Price: $0.99
Description: Create storyboards and digital stories using photos, captions, speech bubbles and fun, simple effects.

Pic Collage
Cardinal Blue Software
Price: Free
Description: Students can organize photos in frames and add text, stickers and many more creative elements.

PicSay Pro - Photo Editor
Shinycore
Price: $3.99
Description: Students can utilize creative writing and design skills to add elements to photos using this advanced editor. As well as basic features like cropping and red-eye removal, students can add text, word balloons and make virtual photo collages with the advanced version of this application.

Getting Started:
Plug your tablet into a wall electrical socket using the chord provided. Turn the tablet on and follow the directions on the screen to set the time zone, and other basic features. Set-up your Google Play account to purchase apps using the pre-paid credit card provided and your email address.

GENERAL INTEREST APPS

BrainPOP Featured Movie
BrainPOP
Price: Free
Description: Animated videos covering a variety of topics including science, current events, famous people and holidays. Students can watch the videos, complete a quiz to test their retention and comprehension and also access bonus features.

Diary Notes Multimedia
Wizard Solutions
Price: Free
Description: A daily journal with enhanced options allowing students to save pictures, video and audio files to accompany their notes and diary entries.

Electric Company Party Game
PBS Kids
Price: Free
Description: A fun-filled, multi-user game that incorporates math, drawing, problem-solving and literacy skills.

Minecraft - Pocket Edition
Mojang
Price: $6.99
Description: Place blocks to build things and go on adventures - survival and creative modes for timed or leisurely play. The android pocket edition allows collaborative play for students over a wireless network.

Scan
Scan Inc
Price: Free
Description: Simple QR Code and barcode scanning the way it should be. Open the app, point the camera at the code and you're done! No need to take a photo or press a "scan" button like other apps. No restrictions to use the "lite" version.

Grade 3

Digital Apps Helper

Applications used by your child during the digital literacy study

MEMORIAL UNIVERSITY

Panel 5: Inside Flap   Panel 6: Back Cover   Panel 1: Front Cover

MATH & LITERACY APPS

Math Evolve: A Fun Math Game
InterAction Education LLC
Price: $1.94
An award-winning game designed to engage students while reinforcing addition, subtraction, multiplication and division skills.

Math Me
SIKK Apps
Price: $1.00
Skills-based application used for practice with addition and subtraction, multiplication and division equations.

Math to the Rescue Game
Blue Bear Software
Price: $1.98
Students rescue victims by utilizing the math skills they have developed in the classroom.

Spelling Space Ultimate
Learning Gems
Price: $1.99
Create your own spelling lists and record audio for each word. As students practice their lists, they are scored and can focus on difficult words.

Spenguin Spelling for Kids
Hachiko
Price: $0.99
Emerging readers spell 3- and 4-letter words to help the penguin get to his destination. Young students can practice basic spelling and increase vocabulary.

Read Me Stories - Kid's Books
8interactive
Price: Free
Practice skills with read-along books from this popular application. Highlighted text is designed for vocabulary development.

Need help?
Before you go online, ask your child for assistance. All of the Grade 3 students are familiar with the Galaxy tablets.

Selecting Apps

THOUSANDS OF APPS ARE AVAILABLE AT THE GOOGLE PLAY STORE. WE HAVE INCLUDED A LIST OF THE APPS YOUR CHILD USED AT SCHOOL AND AT THE BOYS & GIRLS CLUB AFTERSCHOOL PROGRAM. TO DOWNLOAD APPS YOU WILL NEED A WIRELESS NETWORK. IF YOU DON'T HAVE WIRELESS ACCESS AT HOME, VISIT THE PUBLIC LIBRARY TO TAKE ADVANTAGE OF THE FREE WIRELESS AVAILABLE.

EXPLORE NEW APPS

Check out these websites for recommendations for new apps you might want to explore:

Smart Apps for Android
Listed by age and theme/topic
http://www.smartappsforandroid.com/

Edudemic – 50 Free Android Apps Used in Education Right Now
http://www.edudemic.com/2012/10/50-free-android-apps-being-used-in-education-right-now/

The Guardian – 50 best apps for kids from 2013
http://www.guardian.co.uk/technology/appsblog/2013/jun/19/50-best-apps-kids-iphone-android-ipad
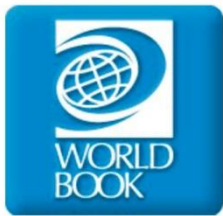
Panels 2 & 3: Inside

Panel 4: Inside

Appendix E: Community Digital Resources
Brochure for Parents & Teachers
Distributed at a B&GC workshop
Tri-fold, double-sided brochure

DIGITAL RESOURCES FOR K-12

HOMEWORK & SCHOOL PROJECTS

WORLD BOOK

TumbleBooks
e-books for e-kids

Panel 1: Front Cover

LEARNING ABOUT DIGITAL RESOURCES

Digital Resources include websites, applications, online tools and e-books. Some web tools require you to have a laptop or desktop computer with Internet access. Others are available for use only on a tablet, phone or mobile device. It can sometimes be difficult to sort out how to use all the tools available to you.

Tablet Apps

Applications used on a tablet or iPad must be downloaded from an online store. If you have an iPad, you will go to the iTunes store. If you have an Android tablet, you will go to the Google Play store.

At the store you can search for the app that you want. Sometimes apps have a "free" version and a "paid" version. The "free" version is great for testing, but it will usually have lots of advertisements that pop up, or will require you to pay for additional content.

It is always good for a parent or teacher to look at the app that you want and help you decide if it is worthwhile for you to pay for the full version.

Web Tools

Many web tools are designed for use on both computers and tablets. For example, Tumble Books are viewable on your tablet with no extra software or special application.

Panel 5: Inside Flap

PARENTS & TEACHERS

Access to the resources featured in this brochure is free for any resident of St. John's. To use the Newfoundland & Labrador Public Libraries (NLPL) resources you will need a library membership. To obtain your free membership:

- Visit http://www.nlpl.ca/
- Click on the *Register Online* button under the "Get a Library Card" heading
- Click on the *New User* button and fill in your information
- Your library membership number will be emailed to the address you provide

Access to the Memorial University Digital Archive Initiative is freely available online:

http://collections.mun.ca/

MEMORIAL UNIVERSITY

Faculty of Education
St. John's, NL   A1B 3X8
(709) 864-3403

Panel 6: Back Cover

## HOMEWORK AND SCHOOL PROJECT RESOURCES

NEWFOUNDLAND & LABRADOR eRESOURCE PORTAL
Visit: http://erp.nlpl.ca/

Login in the upper right hand corner using your NLPL membership and PIN number (see the back of this brochure for instructions to register for a membership and PIN number online). Select "Education Resources" from the subjects listed. Under this heading you will find many great resources for homework and school projects including:

WORLD BOOK ENCYCLOPEDIA ONLINE
Use the *World Book* for school projects and investigation on almost any topic. Students in Kindergarten to Grade 3 use the KIDS interface. Students in Grades 4-6 use INFO FINDER.
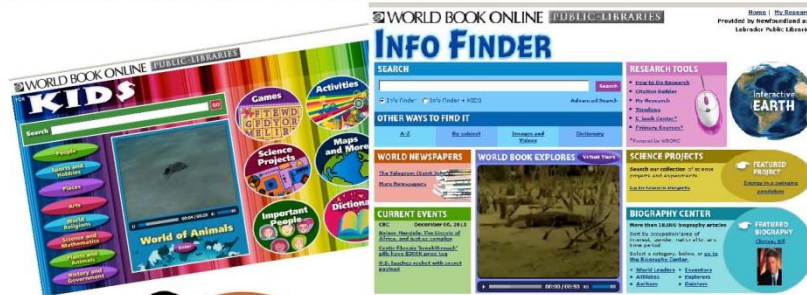
TUMBLEBOOKS
TumbleBooks Story Books are animated picture books. TumbleBooks Cloud Books are chapter books for readers. There are books for beginning readers, chapter books for readers gaining confidence and advanced books for strong readers.
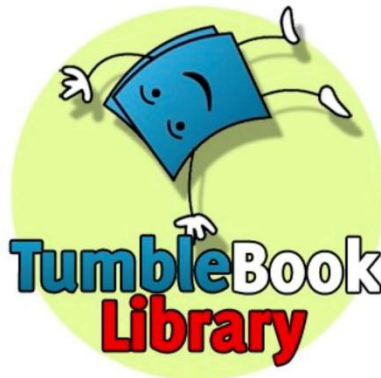
http://collections.mun.ca/u?/ich_avalon,4407

DIGITAL ARCHIVES INITIATIVE MEMORIAL UNIVERSITY
Visit: http://collections.mun.ca/

Learning about Newfoundland & Labrador in school? Memorial's Digital Archive has historical images, videos and lots of great information you can use in your project.

If you are looking for photos or videos, scroll down to **Audio/Video/Images** and start clicking. Many collections have their own search box.

Panels 2 & 3: Inside

Panel 4: Inside