INFORMATION LITERACY INSTRUCTION IN ONTARIO MIDDLE GRADE CLASSROOMS

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Abstract

This research study focused on the integration of information literacy instruction within a middle grade (grades 5-8) school setting based on the analysis and discussion of data gleaned from surveyed information professionals, research literature, and government, school, or library association guidelines. Although there is an abundance of research literature on the necessity of information literacy in a school setting, research and case studies often revolve around US schools and the common core curriculum and do not provide recommendations on the best practices of information literacy instruction based on Ontario or Canadian schools. First, this research examined a variety of literature focusing on information literacy within middle-grade classrooms, specifically looking at the suggestions of the current trends and future needs of information literacy instruction within an Ontario middle school environment (grades 5-8). Second, it analyzed data collected from a questionnaire of information professional's current practices for information literacy instruction, then examined the pros and cons of each institution's digital and information literacy curriculum. Last, it reviewed the recommendations and best practices of individual respondents. The study found that, while librarians felt that most administration and other educators recognized the importance of information literacy, the subject was often glossed over and librarians were not used for their expertise. To better implement information literacy, librarians saw the need for better support from administration, improved collaboration between librarians and teachers, and encouraged board-wide policies promoting information literacy as an essential element within the curriculum.

Keywords: information literacy, Ontario, middle grade school libraries, lifelong learning, information behaviour, information literacy curriculum, librarians, school librarians

General Summary

This research study focused on how librarians taught information literacy into Ontario middle grade (grades 5-8) schools. By examining literature as well as offering a questionnaire and interview to Ontario librarians, this study found recommendations for best practices of information literacy instruction as well as a snapshot of the state of information literacy instruction in Ontario middle grade classrooms. Findings include the recognition of educators of the importance of information literacy, having little time or understanding of how to implement the subject into classrooms. Librarians saw the need for better support from administration, improved collaboration between librarians and teachers, and encouraged board-wide policies promoting information literacy as an essential element within the curriculum.

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Lists of Abbreviations

IL	Information Literacy
ALA	American Library Association
OLA	Ontario Library Association
CLA	Canadian Library Association
AASL	American Association of School Librarians
ACRL	Association of College and Research Libraries
ASCD	Association for Supervision and Curriculum Development
ISTE	International Society for Technology in Education

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Chapter 1: Introduction

The generation of people born after 1984 are often dubbed with the term "digital native." The term was coined when researchers made the assumption that young people, who were surrounded by digital tools since birth, "have sophisticated technical digital skills and learning preferences for which traditional education is unprepared and unfit (Kirschner & De Bruyckere, 2017, p. 136). The digital native, however, is a myth. Rowlands et al. (2008) said, "much professional commentary, popular writing and PowerPoint presentations overestimates the impact of ICTs on the young, and that the ubiquitous presence of technology in their lives has not resulted in improved information retrieval, information seeking or evaluation skills." (p. 308). Kirschner and De Bruyckere (2017) concurred, discovering that, while young people do use technology more so than older people, their use of technology is basic and limited to entertainment, social media, mass produced content, and passive consumption of information. While it has been consistently proven the youth are not technology specialists, this group of students do have unique traits related to their use of technology. They were born into a world of immersive digital technologies, have a culture of global connectivity, and a second life accessing immediate entertainment and interactions through social networks (Ng, 2012; Geck, 2006). Since they are so reliant on technology and accustomed to immediate gratification of their entertainment needs, this generation has made things quite difficult for educators with feet firmly planted in tradition, lectures, and standardized testing as our Edwardian-style education system seemingly no longer harmonizes with this group of students. Ken Robinson noted in his 2006 Ted Talk *Do Schools Kill Creativity* that our current educational system still revolves around

industrialization, placing the subjects deemed most useful at the top (e.g. STEM) and dissuading students from "lesser" skills like music, art, and literature (Robinson, 2006). Robinson argued that the world has changed since industrialization and the education system needs to change the values they place on intelligence. Instead of one-size-fits-all education, we need to focus on an intelligence that is both distinct and dynamic; further, he argued,

> Our education system has mined our minds in the way that we strip-mine the earth: for a particular commodity. And for the future, it won't serve us. We have to rethink the fundamental principles on which we're educating our children (Robinson, 2006).

The Ontario (2015) competencies foundation document created for managing the future of Ontario schools and student 21st century competencies entitled *Towards defining 21st century competencies for Ontario: 21st century competencies foundation document for discussion* (henceforth, the Ontario document) also believed that modern education needs to be re-imagined. The Ontario document (2015) noted that it is essential for students to learn skills not just to get jobs in their future, but also skills that enhance their knowledge, improve their relationships, allow for diverse employment, and promote a holistic physical, mental, and emotional well-being. Grit, tenacity, and social skills, the Ontario document (2015) argued, *can* affect future employment and general happiness more than education and these "soft skills" should not be ignored. The Ontario document (2015) recommended a focus on "employability" skills, such as the ability to problem solve, demonstrate responsibility, continuous learning, active participation, the ability to work in teams, as well as other collaborative and personal skills. November (2012, 2015) concurred, believing that we need to redesign education to facilitate critical thinking, develop inquiry, promote visible thinking, create meaningful work, producing factual information, and the when, why, and how of finding information. Jacobson and Mackey (2013)

urged educators to think beyond skill development and embed information literacy lessons "in dynamic and collaborative learning activities" (p. 90). Robinson (2015), November (2012), and Jacobson and Mackey (2013) all agreed that we must consider new ways of teaching information literacy by reflecting the differences in how students learn and, as educators, we must encourage creativity, expression, collaboration, and sharing of information that is important to the student's classroom, school, or larger communities. Further, Milton (2015) argued for a whole-system reform within the Canadian education landscape, urging an upheaval of the traditional view of education where teachers lead and students follow and move towards a transformative view of education, where learning is promoted as a social process with learners and teachers working together to reach learning goals. Collaboration, creativity, and information literacy are key pieces to the transformative view of education with students as co-designers of their learning process (Milton, 2015).

Modern students are forcing educators to re-think the way they teach, unknowingly leading a revolution in traditional education. Technology is a large catalyst for this revolution, allowing students to realize a more dynamic role in their own education as well as redefining the roles of teacher and student, where learners become more engaged as co-creators of their education experiences (Yáñez et. al., 2015). Technology opens so many educational doors it seems as if there would be a seamless integration within education, but it also brings new challenges never before faced by educators. While many assume modern students are computer gurus and expert information gatherers because they are constantly plugged into the web, most students are, unfortunately, very information illiterate and unable to assess or properly manipulate the abundance of information available at their fingertips (November, 2012). Ng (2012) noted that the group who is stereotypically defined as digital natives "need to be taught

about these technologies, just like people born into a community need to be taught how to speak the language or use tools that are available to the community" (p. 1066). Just as students need to be taught how to use numbers and letters, modern students also need to be trained on how to properly use technologies by incorporating information and digital literacy instruction into the curriculum (November, 2012). Training students to properly use technologies is also difficult as Kirschner and De Bruyckere (2017) noted that teachers who are part of the digital generation are also not adept at information technology tools and are consistently limited in their technology use. Studies have found young teachers are unable to transfer technology skills as they mainly used social media "as a passive source of information reception and not as a tool for actively creating content, interacting with others, and sharing resources" (Kirschner & De Bruyckere, 2017, p. 137). If both student and teachers need significant support in technology skills, how will either group get the skills needed for proper media literacy that encourages lifelong learning that enhances 21st century skills?

Statement of problem

Students, in general, have never really been good at evaluating information. Pickard, Shenton, and Johnson (2014) noted that even in the 1970s, professors reported students accepting information on trust rather than on critical evaluation despite most information access at the library or in the classroom. Modern students are bombarded with unevaluated, unintelligent, and uninformed information, often provided by "infotainment sites such as Buzzfeed and Huffington Post" (Stephens, 2016, p. 2). As the majority of students do their research away from the classroom or library, information evaluation instruction and redirection to legitimate sites is a great challenge for educators, especially if the students have no prior information literacy knowledge.

Students' knowledge of information literacy competencies is lacking across all levels of education and beyond (November, 2012). With proper information literacy instruction, people easily adapt to new technologies and understand the need to critically evaluate both technologies and found information (Ng, 2012). Teachers, however, have time constraints, lack information literacy knowledge, and many still partially assume students already know how to find information (Hutchison & Reinking, 2011). Many educators, especially ones that prefer more traditional teaching and learning methods, fail to incorporate information literacy in their pedagogy (Manzoor, 2018; Mallon & Gilstrap, 2018). Despite ample research on the importance of information literacy instruction, many elementary and secondary schools fall short on giving their students proper and fully integrated information literacy instruction (Manzoor, 2018). In summary, the main problem educators face revolves around the increased amount of digital information available to youth combined with decreased instruction and abilities to critically evaluate online resources.

Purpose of Study

The purpose of this research was to investigate information literacy instruction within Ontario middle schools and to seek clarification on the integration of information literacy into the general curriculum. This study investigated information literacy instruction within middle grades (5-8), specifically seeking to understand how school librarians integrate information literacy into the Ontario curriculum. Though many case studies feature the pros and cons of specific elements within information literacy instruction and may include recommendations on improvements to the curriculum, they fail to go into how these lessons should be taught, best practices of information literacy instruction, and who, where, and when students should be taught these competencies. Further, many schools (though certainly not all), already have an

information literacy curriculum in place; however, the curriculum and how it is taught may not be ideal (November, 2012). As this research investigated information literacy instruction within Ontario middle schools and sought clarification on the integration of information literacy into the general curriculum, understanding the perceptions of information literacy teachers was critical. To glean an idea of what information literacy instruction looks like in Ontario schools, I asked a variety of Ontario school librarians. My research looked into discovering how school librarians instructed students in information literacy, how they assessed information literacy, if the curriculum was co-taught with classroom teachers, and what an ideal information literacy curriculum looked like. My study looked to formulate evidence-based recommendations towards information literacy instruction in an Ontario school setting. Specifically, I sought to understand how information literacy skills are integrated at the middle school level within a Canadian context.

Key Terms

There are several terms that are synonymous with information literacy. Otterbein University Library (2020) noted that synonyms include information competency, information fluency, information management, information skills, inquiry-based learning, knowledge management, problem-based learning (PBL), resource-based learning. Common Sense Media (2019) also noted the terms digital literacy and media literacy, as both terms are included in the broader scope of information literacy, but the terms are used to apply to different types of information sources. Commons Sense Media (2019) stated that digital literacy "specifically applies to media from the internet, smartphones, video games, and other nontraditional sources. Just as media literacy includes the ability to identify media and its messages and create media responsibly, digital literacy includes both nuts-and-bolts skills and ethical obligations" (para 1).

That being said, all of the terms are often undifferentiated. The most common terms in K-12 education are digital and media literacy and, while they have slightly separate definitions, they are often used interchangeably depending on the context and the instructor. For this study, I used the term information literacy through my research to encompass both ideas. Information literacy is, in essence, the "ability to search, assess, and synthesize . . . resources" (Ng, 2012, p. 1067). For my purposes, information literacy is a set of key abilities needed for finding and using information through any type of media, including digital, TV, radio, newspapers, magazines, books, academic articles, and etc. (Common Sense Media, 2019). Information literacy also includes the skills necessary for learners to apply higher-order thinking skills to assess information, use information in ethical and creative ways, and promote respect and empathy in online environments. These skills also include "multiple literacies, including digital, visual, textual, and technological, that are crucial for all learners to acquire to be successful in our information-rich society" (AASL & Proquest, 2009; NFIL, 2015; ALA, 1989).

Conclusion

Research indicates learners need information literacy to succeed in the modern world. In fact, as digital learning grows and learners find questionable sources of information online, information literacy is more essential than ever. With increasing demands on both educators and learners, providing a holistic information literacy curriculum that will carry learners throughout their school careers and adulthood may be less of a reality and more of a pipe dream for most schools. To investigate information literacy instruction and provide evidence-based recommendations, I interviewed and surveyed a variety of middle school librarians located across Ontario. To guide my research, I anchored my study on the existing literature revolving around teaching information literacy in an educational setting.

Chapter 2: Literature Review

Information literacy is a broad term that has evolved as technology has expanded. The American Association of School Librarians (AASL) released new information literacy standards in 2017 based on analysis of previous standards and AASL position statements combined with school librarian feedback. With that in mind, AASL developed a set of six interconnected foundations and four competencies that define information literate learners, effective school librarians, and enterprising school libraries. The foundations revolve around inquiry, inclusion, collaboration, curation, exploration, and engagement (AASL, 2017). The four entwined competencies anchoring modern information literacy instruction include thinking, sharing, creating, and growing (AASL, 2017). These new standards reflect "a comprehensive approach to teaching and learning by demonstrating the connection between learner, librarian, and library standards" (AASL, 2017, p. 2). Each competency and foundation connects with each other and aims to not only fuse information literacy skills within the curriculum, but also communicate the core values of both education and the school library to the community (Keeling, 2017). Information literacy is a crucial skill for modern life. An earlier document produced by AASL's (2009) noted,

> To succeed in our rapid-paced, global society, our learners must develop a high level of skills, attitudes and responsibilities. All learners must be able to access high-quality information from diverse perspectives, make sense of it to draw their own conclusions or create new knowledge, and share their knowledge with others (p. 5).

Further, The Government of Ontario (hereafter, the Ontario document) created a document defining 21st-century competencies imperative for Ontario students that noted the "primary goal of the province's education system is to enable students to develop the knowledge,

skills, and characteristics that will lead them to become personally successful, economically productive, and actively engaged citizens" (p. 3). High-level learning skills and active engagement with the world are difficult tasks to teach, especially in the busy, modern world, and contemporary information literacy instruction should fit the needs of modern students. That being said, while organizations around the world may recognize the need for better information literacy instruction, there is also a large research gap towards understanding Canadian information literacy instruction that serves as a foundation for this study's theoretical framework.

Information Literacy Standards Frameworks

There are several key organizations who have developed information literacy standards frameworks. The most prominent include the *International Society for Technology in Education (ISTE) Standards Framework for Innovation in Education*, the *American Association of School Librarians (AASL) National School Library Standards for Learners, School Librarians, and School Libraries*, and the *Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education*. The ISTE (2016) standards focused mostly on the digital aspects of information literacy whereas the AASL (2018a) standards covered both high-tech and no-tech, deeper learning for K-12 education. The ACRL (2016) standards brought the AASL (2018a) and ISTE (2016) frameworks to the realm of higher education and supported ethical and critical thinking for the learner, as well as the mission and goals of the institution. While the ISTE (2016) and AASL (2018a) frameworks were the most applicable for K-12 education, the ACRL (2016) standards are important to keep in mind so educators can understand what information literacy goals to strive towards for the learners' lifelong education. Figure 1 provides a visual representation of the main components from the ISTE (2016)

Standards for Students and the common beliefs from the AASL (2018a) Standards Framework for Learners as they apply to the idea of information literacy investigated within this study. The three sets of standards revolve around finding and using information, applying higher-order thinking skills to assess information, using information in ethical and creative ways, and promoting respect and empathy in online environments. In essence, these frameworks provide guidelines on how people should interact with and use information. The standards posited several questions related to 21st-century learners. How do learners find information? How do learners evaluate what they find? How do learners ethically create something new out of what they found? How can learners connect and share with others safely and responsibly? How can learners respect others' social-emotional health and intellectual property? How do learners keep themselves and others safe in an information heavy environment?

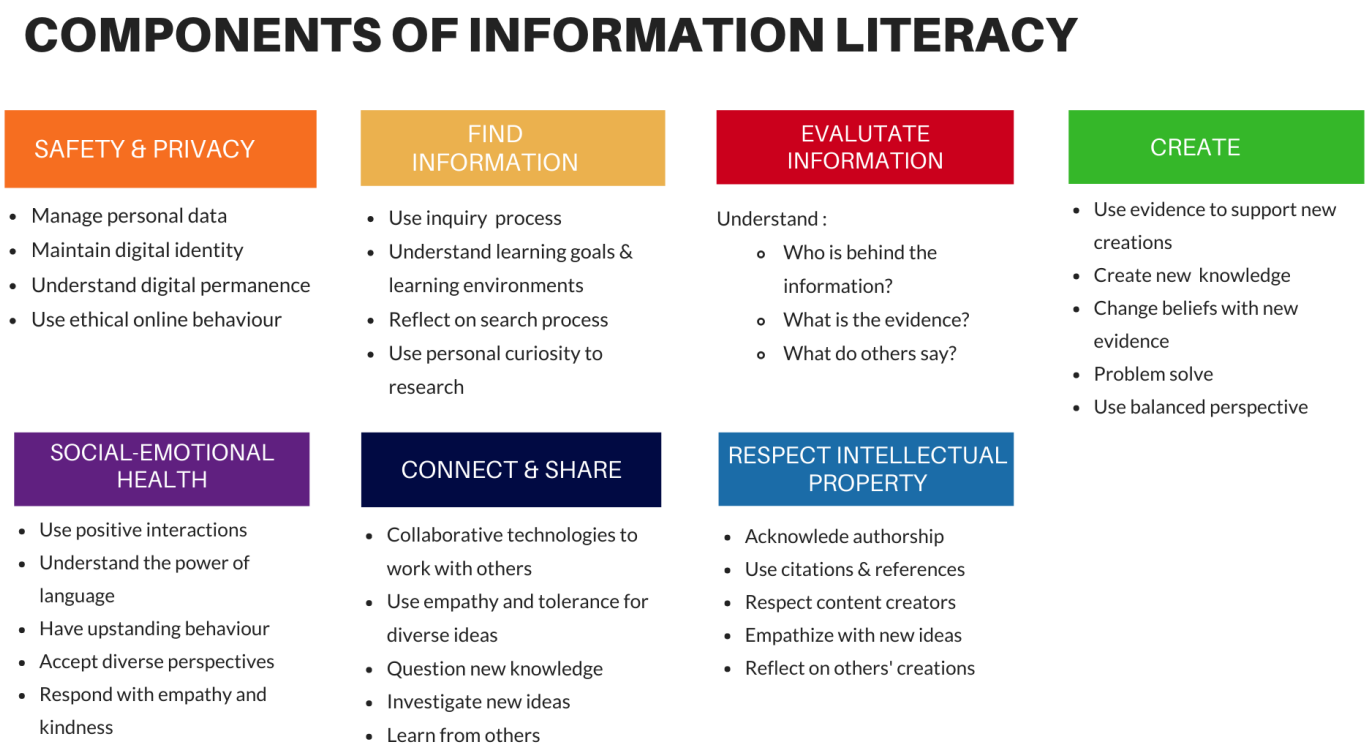


Figure 1: Components of Information Literacy from AASL (2018a) and ISTE (2016).

The standards deal in some way with different facets of 21st-century literacy, including critical thinking, creativity, media literacy, digital or technology literacy, collaboration, social literacy, and more. Stauffer (2020) broke 21st-century skills into the categories of learning skills, literacy skills, and life skills, all of which are necessary for learners to become information literate and successful members of the modern world. Stauffer (2020) noted, "These skills all double back to one key focus. Someone's ability to enact and / or adapt to change. This is because any industry is capable of changing at a moment's notice. Industries are now regularly disrupted with new ideas and methodologies" and it is the learner's responsibility to acclimatize themselves to these changes or they face the great possibility of getting left behind in the constantly evolving world (p. 13). Further, among their core beliefs, AASL (2018b) noted that the standards should universally prepare learners for "college, career, and life," stating,

> Committed to inclusion and equity, effective school librarians use evidence to determine what works, for whom and under what conditions for each learner; complemented by community engagement and innovative leadership, school librarians improve all learners' opportunities for success. This success empowers learners to persist in inquiry, advanced study, enriching profes-sional work, and community participation through continuous improvement within and beyond the school building and school day (p. 2).

The standards focused on the relationship between learner engagement, growth of the learner, and provided "a clear expression of the qualities of well-prepared learners" while using 21st century literacies to become successful, information literate members of society (AASL, 2018b, p. 2).

With these frameworks in mind, information literacy instruction is a seemingly essential piece of 21st-century education; however, the subject is often taught poorly, overlooked, or

simply ignored by most schools. One of the main reasons information literacy is not taught, or not taught comprehensively, is due to the soft nature of the subject. Information literacy is not a hard skill that fits into a standardized curriculum without tremendous overhaul. Eisenberg, Murray, and Bartow (2016) noted, "the ICT [Information and Communication Technology] literacy program is not viewed in most schools as a vital part of the school's curriculum program; information literacy is not treated as essential for every student in the same way as reading, writing, science, math, or social sciences . . . In the 21st century, reading and writing are no longer sufficient for success in school or work" (p. 2). Despite significant research, information literacy instruction is still seen as elective material taught regularly, with skills taught as one-off lessons applicable to a singular unit of study rather than comprehensive lessons that guide learners to grasp concepts and reapply them in other subjects (Hassman, 2011; CLA, 2003; November, 2015; Milton, 2015).

Professional organizations have laid tremendous foundations for instructing students in information literacy skills. Though the importance of information literacy instruction in all levels of education is a well-studied topic in education, studies show there is a significant lack of follow-through and support within education. Understanding both the research and the themes behind information literacy in education is only the first step to lifelong learning and enabling learners to become more informed within society. In the next section, I define these themes in relation to both my theoretical framework as well as to the literature reviewed.

Theoretical Framework

While information literacy (also known as digital or media literacy in other contexts) research is abundant, there are significant research gaps that need to be addressed. First, there is limited research that addresses the information professionals' perceptions on the information

literacy instruction performed within their schools. Second, the majority of research available on information literacy instruction is heavily centered on American schools and the instruction itself must combat both common core curriculum and the now defunct No Child Left Behind Act and the current Every Student Succeeds Act governing education in the United States. The purpose of this study aimed to investigate information literacy instruction in a Canadian context, specifically investigating how school librarians integrate information literacy into the Ontario middle school curriculum.

With this in mind, there are several themes I focused on throughout the literature. The first theme I focused on is the importance of school librarians, the physical space of the school library, and information literacy instruction. Second, technology integration is a key element in providing engagement and connecting learners to both the concept and the practice of information literacy. Third, guided inquiry creates meaningful connections between information literacy activities and knowledge absorption by allowing students to think creatively and abstractly as their knowledge of information literacy skills expand. Lastly, much research is focused on using information literacy instruction to develop higher order thinking skills, which includes deeper learning that can be applied from one subject to the next throughout a student's career.

School Librarians, Libraries, and Information Literacy Instruction

Though many schools are doing away with formally trained librarians as well as greatly shrinking the physical library space, librarians are generally considered the primary purveyors of information literacy. This section reviewed literature that addressed the importance of both the librarian as a trained information professional, as well as the importance of the physical space of the library as a hub for information literacy instruction and support. The studies examined

emphasize the changing roles of school librarians and the school library, noting the necessity of collaboration and supporting classroom teachers to facilitate information literacy instruction into a learner's daily studies. Finally, this section examined librarians' impact on student achievement, highlighting the importance of the partnership between all members of the education team to support the learning experience.

Studies have shown that librarians are key players in a learner's ability to absorb information and an educator's ability to teach. Loertscher and Wools (2012) interviewed 22 learners in elementary, middle, and high school and argued that librarians are essential elements in the learning space, as they help facilitate learning and knowledge building. The authors promoted the idea of a learning commons over a library, where learners and teachers throughout the school come to access a variety of resources, collaborate with peers, gain knowledge from other teachers, and communicate with each other both virtually and face-to-face (Loertscher & Wools, 2012). In this setting, the librarian, "steps beyond being a supplier of information to the position of co-teacher alongside the classroom instructor. Together, the content expert and the 'learning how to learn' expert use their skills to promote deep understanding" (Loertscher & Wools, 2012, p. 250). Finally, this study suggested that, instead of just teaching the finding and retrieval of information, librarians should collaborate with the classroom teacher to help learners apply the skills of information literacy to use, evaluate, and create directly in conjunction with curricular units. This would ensure the concept of information literacy is not taught and forgotten, but used proactively with learners (Loertscher & Wools, 2012). As learners and teachers rely heavily on digital resources during the school day, Loertscher and Wools (2012) believed it was essential that librarians are allowed to natively integrate their information literacy instruction into the classroom units. While this is not easy, and may take some strategic

reorganization, one way to allow increased librarian input is through incorporating a flipped classroom experience.

A flipped classroom is a type of blended learning that takes much of a subject's core concepts and delivers the learning at home while practice, discussion, and support activities take place at school (Arnold-Garza, 2014). Arnold-Garza (2014) advocated for a flipped classroom design to implement information literacy instruction, especially in conjunction with faculty and/or classroom teachers. In a flipped classroom, the lecture is moved outside the classroom, which allows more time for the teacher to interact with learners, more time for learners to interact with each other to create a classroom community, more in-class time to explore complex concepts, and more time for active learning (Arnold-Garza, 2014). Further, a flipped classroom shifts the responsibility of learning to the student, allowing the student to actively engage with class materials and, hopefully, carry what they learned to other classes (Arnold-Garza, 2014). Arnold-Garza (2014) noted that information literacy instruction is an ideal subject to use within a flipped classroom environment, as the Association of College and Research Libraries (ACRL) information literacy guidelines focus on the diversity of learners by using interactive technologies and activities to connect learned skills to real-world needs, as well as highly encouraging librarian and faculty collaboration.

Arnold-Garza (2014) conducted an extensive literature review investigating librarians utilizing the flipped classroom. Researchers noted that the flipped classroom was extremely helpful for one-shot library instruction so all students could eventually come to a shared level of understanding related to information literacy (Arnold-Garza, 2014). Librarians are often at the forefront of education innovation, utilizing tools like podcasting, online learning modules, web tutorials, and more (Arnold-Garza, 2014). One researcher noted that, when librarians are directly

included in the flipping of traditional classrooms, they can organically integrate information literacy into the learning, consequently influencing teachers to integrate technology and new teaching strategies (Arnold-Garza, 2014). Further, researchers found collaborating with faculty helped ensure learners complete tasks and ensure learners came prepared to class to engage with the content (Arnold-Garza, 2014). This relationship between teacher and librarian, researchers found, allowed librarians to aid learners with complex information literacy concepts (Arnold-Garza, 2014). Other researchers found that customization of online materials were most effective, as these established a bond between the school, teacher, and student (Arnold-Garza, 2014). After reviewing the literature, Arnold-Garza (2014) concluded that the flipped classroom is ideal for information literacy instruction, as it allowed for easier transfer of skills; however, classroom teachers must be engaged and see the librarian and the library as a physical space as a partner in learning.

The library as a physical space and the librarian as a contributor to academic success are interesting concepts. It may seem as though the physical location of learning should not matter, nor does it seem like who is teaching different concepts should matter, either; however, many studies suggest otherwise. Dozens of school library and librarian impact studies have been created by different organizations throughout the world and a detailed list of US-based impact studies can be found through the Library Research Service of Colorado State Library. This review looked at Williams et al.'s (2013) study that looked to refine the policies of the Scottish Library and Information Council. Scotland has a unique relationship with school libraries, as it has engaged in national school library impact studies since 2001. The 2013 study by Williams et al. was a meta-analysis that assessed the previous research and reviewed international school library impact studies that occurred between the years 2001-2013 and used new data from

librarian self-evaluation portfolios. The original 2001 study involved a questionnaire to School Library Service heads located in Scotland, which informed a series of case studies looking at 10 Scottish secondary schools. The case studies involved interviews, observations, self-reporting, and examinations of learner work, focusing on learning as a whole rather than on specific learning outcomes. This study led to the development of self-evaluation portfolios for all Scottish librarians, which were useful to inform the 2013 study's assessments and recommendations. Williams et. al. (2013) noted,

> Self-evaluation is now part of work practice and for a number of years professional guidance has encouraged self-awareness and enabled school librarians to identify areas of good practice and priorities for improvement within their own libraries . . .This is especially true as school libraries can now expect to be part of the HMIE [Her Majesty's Inspectorate of Education] inspection process (p. 4).

Williams et. al. (2013) used their previous study, librarian self-evaluation, and over 800 studies from international sources to explore the relationships between learning, achievement, and school libraries. The analysis revealed a positive relationship between the presence of school libraries and librarians to learner achievement. Schools with at least one, full-time equivalent librarian saw dramatic increases in test scores across all subjects, including "reading, maths, science, history and writing" (Williams et. al., 2013, p. 16). Williams et. al.'s (2013) analysis also found school libraries and librarians impacted learners' information literacy abilities, which "includes higher quality project work, the development and practice of information literacy, increased knowledge and reading development" (p. i). Multiple studies analyzed found librarians essential to maintaining curriculum content standards and "providing students with the intellectual and technical scaffolds they need to learn and to be ethical and productive users and

consumers of information" (Williams et. al., 2013, p. 22). Lastly, Williams et. al. (2013) found several case studies showing how librarian and library activities provided a "positive impact on the personal development of students, including social inclusion, self-esteem, engagement and appropriate behaviour . . . as well as . . . evidence of resilience and enhanced students' enjoyment and motivation in their learning" (p. 24).

Williams et. al. (2013) also identified elements of a school library that directly impact learners. Qualified librarians who are given managerial status to proactively support access to information had the biggest overall impact on learners; however, almost as important was the availability of support staff to "undertake routine tasks" so the librarian could instruct and support the learners (p. ii). Other factors included support for both physical and virtual access to resources, adequate physical space, updated and diverse collection, improved and networked technology supporting access to information, instruction that supported individual and cross-curricular needs, and collaboration with teaching colleagues. Collaboration with teachers and administrators, Williams et. al. (2013) noted, is one of six essential factors that can improve learner success. The authors remarked,

> In Scotland, a school librarian reports on the process of collaborating with colleagues to develop a whole school information literacy programme (called Future Skills) which not only became embedded across all subject areas but was seen to be owned by all the staff as a result of effective collaboration. The result was greater understanding of a range of skills by students and anecdotal evidence of improved employment prospects upon leaving school (Williams et. al., 2013, p. 34).

While information literacy is, ostensibly, the duty of the school librarian, learner success is the responsibility of the school as a whole. Many school districts, teachers, and administrators

do not recognize the full potential of librarians as information professionals as well as their abilities to promote access to information. One such study by Lo et al. (2014) examined the different roles and expectations of school librarians in relation to information literacy instruction by looking at the librarian's relationship with colleagues, with the curriculum, and with the school community within schools in Hong Kong, Japan (Osaka and Tokyo), South Korea (Seoul and Pusan), Shanghai and Taipei. As inquiry-based learning is replacing traditional teaching in many schools, it was the researchers' intent to examine the growing responsibilities of school librarians (Lo et al., 2014). For their research, school librarians across five regions in East Asia were invited to complete an online questionnaire, resulting in 466 participating librarians (Lo et al., 2014). The researchers specifically looked at how librarians and information literacy fit into the school curriculum, how librarians served their schools as information specialists, how school librarians collaborate with teachers, and what challenges school librarians encountered with implementing information literacy instruction (Lo et al., 2014). Results for all areas except Taipei showed a severe lack of utilization and support of the school librarian in both information literacy and reference services (Lo et al., 2014).

The two most supportive school systems were located in South Korea and Taipei. In South Korea, much of their school library advancement was credited to a large educational network called EDUNET, which assists all school librarians with information literacy instruction and teaching-learning support (Lo et al., 2014). This network connects all school and public libraries, sharing catalogues, databases, and resources throughout the whole country (Lo et al., 2014). The Korean school system emphasizes education policies based on John Dewey's democratic education ideology and progressive school policies and environments (Lo et al., 2014). Similarly, Taipei had centralized access for schools across the country and all schools

could get these e-resources for free (Lo et al., 2014). Further, Taipei school libraries were found to be exceptionally well-staffed, having different people with different skill sets focus on various areas of library service (Lo et al., 2014). Most Taipei school librarians held the position of senior teacher, further giving librarians a more respected position within the school (Lo et al., 2014). Out of all school districts, the researchers found that the ones in Taipei offered more information literacy sessions to learners as both independent and collaborative units with subject teachers and the majority of learners visited the library for information literacy purposes (Lo et al., 2014).

Conversely, in Hong Kong, Shanghai, and Japan, school librarians recognized the critical importance of information literacy in a learners' education, but many schools were blocked by administration's focus on marks over substance (Lo et al., 2014). Homework and exams, many librarians noted, are overemphasized and librarians report this is to the detriment of learners' information literacy instruction (Lo et al., 2014). Likewise, Japanese librarians reported similar treatment of information literacy skills, where schools promote studying for university entrance exams over information literacy instruction (Lo et al., 2014). Librarians in these areas reported holding more traditional, supporting roles in their schools (Lo et al., 2014).

Lo et al. (2014) concluded that the amount of information literacy instruction was directly proportional to collaboration with subject teachers, contribution to curriculum development, and the amount of information support carried out by school librarians. Further, while information literacy instruction is seen as key to modern education throughout the world, most schools do not actively integrate information literacy instruction into their curricula (Lo et al., 2014). Successful information literacy programs need to be carried out, Lo et al. (2014) noted, in collaboration with classroom teachers and with support of administration. As seen in both South Korean and Taipei

schools, collaboration and administrative support could make information literacy instruction a priority to learners, enabling them to succeed in a modern, digital world (Lo et al., 2014).

The importance of holistic buy-in of information literacy instruction cannot be stressed enough. Without administrative support, information literacy instruction will most likely fail. The National Center for Educational Statistics (2018) found that, between 2009 and 2016, the United States lost 15% of its school librarians. People for Education (2019) found only 54% of Ontario elementary schools had at least one teacher-librarian compared to 80% in 1998. The latest Canadian-wide statistics found are from the 2003-2004 Information and Communications Technologies in Schools Survey, which found "Nationally, each school had, on average, 0.25 full-time equivalent (FTE) teacher-librarians devoted to the school library . . . Across Canada, schools had a higher average number of library technicians (0.26) than teacher-librarians (0.25)." (p. 14). Lance and Kachel (2018), who provided meta-analysis on school library impact studies, found, "The mere presence of a librarian is associated with better student outcomes, but what librarians do also has positive effects" (p. 17). One area in which school librarians supported the school in dramatic ways was with technology, including "Facilitating the use of technology by students and teachers" and "Providing technology support to teachers" (Lance & Kachel, 2018, p. 17). With ever-expanding lists of educational technologies available to educators, plus helping learners understand the importance of digital and media literacy, how can educators support their learners' use of technology without a certified support person to guide them towards success?

Technology Integration

Success in the modern world is highly tied to technology; however, technology evolves so fast that educators must seemingly predict what types of future technology learners may come into contact with in order to create successful learners. The Association of College and Research

Libraries (ACRL) updated *Framework for Information Literacy for Higher Education* (2016) acknowledged how this changing technology impacts learners and offers clear guidance to support educators. ACRL (2016) noted, "the rapidly changing higher education environment, along with the dynamic and often uncertain information ecosystem in which all of us work and live, require new attention to be focused on foundational ideas about that ecosystem" (p. 7). Essentially, educators must recognize the limitations of their environment and use the resources that best fit their and their students' situations. ACRL (2016) noted that they have intentionally used the term *Framework* as their recommendations of information literacy instructions are "based on a cluster of interconnected core concepts, with flexible options for implementation" rather than a set of prescribed and static skills (p. 7). In this sense, educators are allowed to use their creativity, judgement, and "threshold concepts, which are those ideas in any discipline that are passageways or portals to enlarged understanding or ways of thinking and practicing within that discipline" to use whatever technologies and other resources best fit specific situations (p. 7). The ACRL (2016) information literacy framework was based on six conceptual frames that could be taught in any curriculum or course and with no, low, or high-tech integration. While all of the ACRL's (2016) framework can be taught without technology, an information professional's duty is to use technology integration to extend "the arc of learning throughout a student's academic career" (p. 8). Since we have no idea what technologies will be available to learners in the future, educators must rely on teaching overarching digital survival skills so learners can continue to grow in an ever-changing digital landscape.

However, the world we live in is already primarily digital. The internet and online databases are where we access and search for information. To enable learners to prosper, it is imperative we educate learners in information literacy competencies; however, even after

information literacy courses, learners do not always become internet savvy or information literate individuals (November, 2012). Too often, schools overlook the necessity of information literacy or merely insert information literacy instruction randomly within different parts of the curriculum without properly envisioning lifelong learning skills and resource evaluation (Adhikari, Scogings, Mathrani, & Sofa, 2017; CLA, 2003).

This section looked at a study examining how bring-your-own-device (BYOD) policies impact information literacy instruction. Further, another study looked at self-directed learning where learners worked together with the instructor as a guide. Another area of information literacy instruction highlighted how gamification and game-based learning affects learning outcomes. The last study examined how gamification affects information literacy instruction and assessments.

With technology integration at the forefront of many schools' policies, much research has revolved around bring-your-own-device (BYOD) policies. Adhikari, Scogings, Mathrani, and Sofat's (2017) study sought to discover how equity of information literacy and learning outcomes have evolved in conjunction with technologies and teaching and learning in schools. The authors used a five-year, longitudinal case study to review a BYOD policy in one New Zealand secondary school and investigated how information literacy, computer self-efficacy, and general technology are transforming curriculum practices. The specific New Zealand school was a unique choice for Adhikari et. al.'s (2017) case study, as it was one of the first adopters of a BYOD policy in New Zealand and all data was either observed or sourced from semi-structured interviews with five teachers involved in both the development and implementation of the BYOD policy (Adhikari et. al., 2017). As device use increased, Adhikari et. al. (2017) found a shift in boundaries between formal and informal learning spaces as learners demanded more

ownership of, and creativity with, their own learning. Through curricula changes, proper technological support, and allowing teachers to become facilitators of learning, learners adopted greater responsibilities for their own learning, as well as an interest in independent and higher-order learning skills (Adhikari et. al., 2017). BYOD, the study found, not only broadened where learning takes place, but also amplified higher order thinking skills.

Some researchers recommended a blended learning model incorporating information literacy instruction while also teaching the class's core subject. Chaiyama (2015) aimed to develop an efficient blended learning management model to improve information literacy skills in undergraduate learners. The researcher developed this model as a blend between face-to-face and online learning, focusing on self-directed learning with the instructor acting as a guide and the learners working together to learn (Chaiyama, 2015).

The researcher began implementation with 30 students of Institute of Physical Education Phetchabun, a public university in Sadiang, Thailand, who were enrolled in the course *ST 071001: Information Technology for Learning* (Chaiyama, 2015, p. 484). To start, the researcher had a step-by-step implementation of this model, including a pre-test of learners' information literacy skills, a preparation and training period for learners to use the information technology system, implementing the learning model within the course, collecting and analyzing data, and a post-test of learners' skills. The researcher duplicated this experiment in a second course with different students for model validation (Chaiyama, 2015, p.484). For data collection, the researcher developed a learning management plan and learning evaluation inventory, both stored in the classes' Learning Management System and based on the approach of the Association of College and Research Libraries (ACRL) (Chaiyama, 2015, p. 484). Data was analyzed by comparing the researcher's assessment of the learning evaluation inventory, conducting a post-

test similar to the learners' pre-test, and by having 1:1 interviews with the learners (Chaiyama, 2015, p. 484). Issues discussed with learners included the appropriateness of learning activities, characteristics of learning activities, and learners' personal evaluations of their learning (Chaiyama, 2015, p. 484).

Results of the data analysis showed the learners had high satisfaction and engagement in their learning as the blended learning made the students eager to continue their learning (Chaiyama, 2015, p. 488). More than other models, the researcher found that this model built a strong learning community within the class and allowed the students to debate and confidently present their findings (p. 488). Finally, the researcher found that the students had significantly higher information literacy scores in their post-test compared to the pre-test (Chaiyama, 2015, p. 488). The researcher noted that their blended learning management model could easily be applied to other courses to develop information literacy skills and and concluded that, "developing the skill of the information literacy process to the students helped the students use it as the learning core of other sciences" (Chaiyama, 2015, p. 488). When courses implement a blended learning approach that integrates information literacy into the instruction of the core subject, learners are better able to transfer this knowledge to other subjects.

A course that focuses on self-directed learning often incorporates a wide array of learning tools through digital means, including gamification and game-based learning. The concepts of gamification and game-based learning have grown in popularity and are even finding places in academia. Wiggins (2016) ensured to keep the terms separate and noted that game-based learning involves "actual games . . . used in the classroom to enhance learning and teaching" and gamification advocates "the use of game-design elements in non-game contexts" (Wiggins, 2016, p. 18). While gamification and game-based learning do not always revolve around

technology, Wiggens (2016) noted, “digital games remain an option for enhancing educational curricula in the interest of attracting and maintaining attention and to increase retained knowledge” (p. 19). Tewell and Angell (2015) sought to understand how game-based learning of library-related subject matter impacted learners. Specifically, the researchers saw an increase in academic gamification but found little scholarly literature on if the gamification improved learner performance. Tewell and Angell (2015) tested two games created for information literacy instruction with 86 students in seven introductory English composition courses. Each of the classes visited the library twice a semester for library instruction. Researchers divided participants into a control group and an experimental group, each consisting of 43 students. Both groups experienced identical lectures, but the control group did not play games whereas the experimental group did play games. Pre and post-test questionnaires were developed and administered before and after course completion. Results showed significant differences between pretest and post-test scores with the experimental group, where participants improved their scores an average of ten percentage points. Conversely, the control group improved roughly 2%. Tewell and Angell (2015) concluded that the trend of gamification “may have the potential to positively impact information literacy skill development” (p. 26).

Guo and Goh (2014) sought to develop a digital game for information literacy instruction based on both the Heuristic Evaluation of Playability (HEP) and on participatory design. The researchers organized the 43 heuristics in HEP into four categories that included game story, mechanics, game play, and usability (Guo and Goh, 2014, p. 355). Guo and Goh (2014) found these factors closely related to the theory of Digital Game-based Learning (DGBL) where games attempt to meet students’ technology skills, improve motivation, and enhance performance. Researchers employed participatory design (PD) by allowing students from local universities to

help the researchers develop and test the game. The researchers and student volunteers focused on including elements to keep the user engaged, such as varying levels of difficulty, player customizability, clear goals, continuous feedback, and social interaction. The game, ultimately, was designed as an "escape room" style game where players had to solve information literacy mysteries to escape an abandoned library.

In follow-up research, Guo and Goh (2016b) tested the previously created game on 39 volunteer students who were first introduced to the HEP framework, completed the game, and evaluation questionnaire. The evaluation examined how the game did or did not support each heuristic in HEP and gathered the participants' subjective game feedback. While participants rated the game positively overall, Guo and Goh (2016b) found that the game worked positively as players exercised what they learnt immediately after each mission. A follow-up study looked at how embodied agents (EA), referring to "a life-like agent, i.e., one with a face and body, and communicates with users via speech, facial expressions and body gestures . . . with the ability of emotional expression," within the information literacy game affected learner performance (Guo and Goh, 2016a, p. 60). The researchers found that "integrated with affective instruction delivery, affective EAs can enhance students' learning outcome" and EAs improved motivation, decreased communication gaps, and increased learning enjoyment (Guo and Goh, 2016a, p. 72).

To support learners, information literacy instruction should support technology integration and new technologies should integrate with information literacy instruction seamlessly. Technology is an essential part of our modern world. To fully support learning, however, technology should not be used as a Band-Aid, nor should it be used as a digital form of an identical, in-person course. Technology should enhance learning, and there is no better way to

do that than by allowing it to guide student inquiry, putting the students in control of their own learning.

Guided Inquiry

With guided inquiry, students learn to learn and become the architect of their own knowledge. The Ontario School Library Association (OSLA) noted that the inquiry process allows learners to take learning from the classroom and allows the learner to create new meaning and understanding (OSLA, 2010). OSLA further believed that guided inquiry is a necessary part of 21st education as it,

> Expands personal horizons and knowledge base, encourages the collision of ideas, engages the learner in rich, real-world tasks that interest and motivate, embeds essential and recurring skills and knowledge, provides a strategy for processing information, benefits from intentional, guided intervention, scaffolds learning for success, promotes open-ended thinking in all phases of the process, extends learning through diverse strategies, resources, technologies, and products, balances sequential learning with holistic learning and differentiated instruction, develops multiple literacies, fosters metacognition, i.e., learning how to learn in both familiar and new contexts, encourages a collaborative approach to learning (p. 23).

In this section, I investigated how different studies helped students become more engaged with information. Researchers in the first study created their own guided-inquiry framework and trialed the model with different students and subjects. Next, I looked at a study highlighting how they helped guide students to create meaningful connections with their learning. Last, researchers looked at how the guided inquiry process impacts information literacy.

Taking students step-by-step through the learning and research process is a key tool to information literacy skill knowledge. Lee, Grant, Neuman, and DeCarlo (2016) turned to a focus group of four teachers and 41 middle school students in an urban school to determine if the I-LEARN framework improved competencies in information literacy. The I-LEARN model is a teaching tool that involves identifying problems, locating information, evaluating research, applying information to generate new understandings, reflecting on the learning process, and retaining the knowledge to apply on future research endeavours (Lee, Grant, Neuman, & DeCarlo, 2016). The I-LEARN model was implemented into four Social Studies and four Language Arts classes and the model encouraged students to delve deep into the research process by evaluating a variety of websites and using technology to enhance their presentations (Lee, Grant, Neuman, & DeCarlo, 2016). The researchers used student work artefacts, teacher materials, transcripts of focus group interviews, and observational data to complete their research (Lee, Grant, Neuman, & DeCarlo, 2016). Lee, Grant, Neuman, and DeCarlo (2016) found that students who created projects with wider and more meaningful contributions to community issues, such as investigating bullying or gun violence, were better able to understand how to locate and evaluate information. Though students reported their frustrations over searching and evaluating information, the I-LEARN process of integrating information literacy instruction directly into the curriculum proved to be useful in teaching students "digital skills that ranged from basic keyboarding functions to more sophisticated uses of digital tools and applications" (Lee, Grant, Neuman, & DeCarlo, 2016, p. 488). Lastly, teachers noted wide strides in information literacy development, viewing the integration of information literacy and increased use of technology in their classroom not only as a motivator for self-directed learning, but also

allowing students autonomy and creative exploration of learned information literacy competencies (Lee, Grant, Neuman, & DeCarlo, 2016).

Maybee and Flierl (2016) looked at a first-year university introductory literacy course with over 400 first-year students where the teacher assigned a project enabling students to have a personal connection with their research. The authors used a survey to determine that students were more engaged and motivated when they had a moderate amount of autonomy over task, but lacked a focus on how to actually search (Maybee & Flierl, 2016). A second study revolved around a first-year university introductory biology course with 50 people where teachers had the students identify a topic of their choice, but spent most class time emphasizing information retrieval tasks (Maybee & Flierl, 705). A post-class survey discovered students not only appreciated the autonomy of the task, but were also able to engage with research and information literacy at a much more efficient level (Maybee & Flierl, 706). Maybee and Flierl (2016) recommended using information tasks revolving around real-life settings or subjects that have personal interest for the student, which they refer to as informed learning. In this model, information literacy competencies are emphasized when students are truly engaged with the learning and students are motivated by having tasks where they can explore autonomy, competence, and relatedness. Maybee and Flierl (2016) noted, “Students need to perceive that they have meaningful choices, feel connected, and are capable of successfully engaging with information to learn from the activities. When these needs are met, students will feel less coerced and more self-directed within the informed learning framework” (p. 702). Information retrieval and information literacy tasks assigned throughout each step of an assignment, combined with both the librarian and the teacher actively engaging the students promote meaningful information engagement (Maybee & Flierl, 2016). These meaningful connections to assignments often

persuade students to want to learn, promoting deeper learning by allowing students some autonomy over their knowledge.

Similarly, FitzGerald and Garrison (2016) investigated how the guided inquiry (GI) process affects information literacy. The researchers define GI as a "holistic approach to information literacy that prepares students for the reflective thinking that leads to wise information seeking and use in the dynamic global information environment" (FitzGerald & Garrison, 2016, p. 667). They used a mixed methodology study to investigate year 7 students (ages 12-13) in an all girls' Catholic school in Australia as the students engaged in two, semester-long projects (FitzGerald & Garrison, 2016). Data collection relied on research booklets filled by the students to document their process, as well as two focus groups at the end of each project, both looking at how students initially look at the GI process and how they later applied the GI process to a new project later in the year (FitzGerald & Garrison, 2016). Teachers and school librarians guided the students through the GI process during both semesters and the process was broken down into natural segments so students could easily engage with inquiry, collaborate, and evaluate found information (FitzGerald & Garrison, 2016). FitzGerald and Garrison (2016) found the GI process confusing and difficult at first for students, however students displayed confidence and improved understanding during their second research project, resulting in increased engagement and fluency with information literacy competencies.

Guided inquiry puts learning in the hands of the learner and is an important step of learner engagement, facilitating both knowledge absorption and the development of higher and deeper learning skills. The William and Flora Hewlett Foundation's Education Program, a nonpartisan foundation that awards grants to institutions "to promote a better world," funded a series of studies examining how deeper learning skills relate to learner outcomes (William and

Flora Hewlett Foundation, 2016). The first of the studies identified six key areas of deeper learning, including "mastery of core academic content, critical thinking and problem solving, effective communication, ability to work collaboratively, learning how to learn" and "academic mindsets" (William and Flora Hewlett Foundation, 2013). The National Research Council (2012) simplifies this definition, identifying deeper learning as "the process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations (i.e., transfer)" (National Research Council, 2012, p. 5-6). Facilitating the development of deeper learning skills by actively engaging learners is almost imperative in order to support 21st-century needs and to support successful information literacy instruction.

Deeper Learning Skills

Many researchers have noted the importance of educators promoting deeper learning with both their students and teachers by incorporating information literacy throughout subject and school careers. November (2012) concurred by stating, "Just as we do with reading and writing, if we are to truly educate our children to think critically on the web, we must train them to apply the same rigour and discipline to their online research that they apply to other skills across the curriculum" (November, 2012, p. 51). In this section, I used the broad National Research Council (2012) definition of deeper learning, meaning students can take what is learned in one situation or subject and apply it to another situation or subject (Ng, 2012, p. 1067; Loertscher & Wools, 2012, p. 250; Ontario, 2015). The Ontario document (2015) noted, "Through the process of deeper learning, students develop 21st century competencies, which can be defined as knowledge and competencies that are transferable" (p. 54). Deeper learning combines cognitive, social-emotional, and technical literacies to produce an interconnected information literacy (Ng, 2012). Neither deeper learning nor information literacy, however, fit into a traditional teaching

model, so to promote deeper learning, researchers suggest education shift from teaching static content to focus on the learning process as a whole, allowing students to develop their own abilities and take charge of their own learning (Loertscher & Wools, 2012; Ontario, 2016). The teacher can then allow the learner a more active role in their own—and their peers'—learning. This allows learners time to develop different strategies to cope with different needs in different circumstances (Loertscher & Wools, 2012; Milton, 2016; Ontario, 2016). The ultimate goal of this active learning is not only to promote deeper learning experiences, but to also encourage meaningful connections between students and learning.

This section looks at the connection between information literacy skills and deeper learning. The first study sought to understand how students adopt unfamiliar technologies into their learning. Next, researchers observed how the process of learner-centered, inquiry-based learning improved deeper learning for information literacy. A third study sought to understand the connections between information literacy taught in school, and how learners applied this knowledge outside of school.

Now that media is an ever-present piece of students' lives, creating meaningful connections from the topic to the learner are more important than ever. Ng (2012) sought to investigate the knowledge of educational technologies of "digital native" undergraduate students and how they adopted unfamiliar technologies into their learning. Further, Ng (2012) investigated the students' digital literacy skills, specifically looking at how these students learned technologies they were not familiar with and their attitudes and perceptions of their own information literacy. Though Ng's (2012) research revolved around university-level students, his findings may be applicable to middle grade and secondary students as well. Ng (2012) noted that students learned information literacy competencies best when they were "provided with the

opportunity to use them for meaningful purposes," which is seemingly true across age levels (Ng, 2012, p. 1067; Alberta Education, 2016; November, 2012). Ng (2012) noted that all 51 participants were enrolled in a course specifically aimed to develop higher order information literacy competencies and apply these to their broader studies. The researcher used a mixed methodology approach by using pre and post-project questionnaires validated by two information literacy experts (Ng, 2012). Ng (2012) found that, although this group had ideal access to technology, they did not actively seek out new technologies or information literacy competencies outside of their courses without instruction. As students have a very limited understanding and use of technology outside of social aspects, students must be guided to broaden their use of technology by educators (Ng, 2012). Ng (2012) noted, "Unless there is a purpose to integrate technologies in their learning . . . it is unlikely that [students] will deliberately use educational technologies, apart from searching for information on the Internet, in their normal learning routine" (p. 1077).

Bruce and Casey's (2012) study looked at the process of inquiry from start to finish as they spent three weeks observing a class of 8-9 year-olds producing an audiovisual slideshow on making a banana split. In their observations, the teacher divided the class into equal groups to prepare individual group projects. Each session had the class as a whole have open discussions and identify and define key vocabulary words, then separated into individual groups to take notes, photograph their work process, and decide on a recipe. Each learner had input into the final audiovisual presentation, adding photos, text, transition effects, images, and background music to showcase their work. Bruce and Casey (2012) observed the inquiry process in this simple project by identifying surface, deeper, and implicit dimensions of the activity. The researchers noted that the teacher used the production of the slideshow as a means of integrating

wider goals, storytelling, and activities as well as digital, oral, and print literacies. On a deeper level, the researchers noted, the learners practiced the process of inquiry as they took an active part in discussion and reflection and were guided by the teacher to scaffold the inquiry process. Bruce and Casey (2012) also saw an implicit dimension to the pedagogy, where the teacher conveyed the importance of collaboration by requiring meaningful participation for all members within each group. The researchers noted, "this practice, involving both teacher and students, had the implicit structure for all participants of conceiving learning as a social activity and valuing the perspectives and contributions of others" (Bruce and Casey, 2012, p. 202). Bruce and Casey made note that deeper learning began with the curiosity of the learner, especially in relation to information literacy. Information literacy translated into deeper learning when the process of inquiry grew from reflective actions and learner-centered pedagogy. The researchers noted, "Such a pedagogy is oriented to developing powerful environments in which learners can use new media for ends that make sense in their lives" (Bruce and Casey, 2012, p. 204). Bruce and Casey (2012) argued that information literacy could be fully comprehended through participation and learner-centered pedagogy, combined with new technologies, could spark more curiosity and, therefore, facilitate increased participation. The authors concluded by noting information literacy can be achieved through "a spiral path of inquiry: asking questions, investigating solutions, creating, discussing our discoveries and experiences, and reflecting on our new-found knowledge, and asking new questions" (Bruce and Casey, 2012, p. 194).

Bjørgen and Erstad (2015) wanted to understand how using digital tools in the classroom transferred to out-of-school use. The researchers conducted over 300 video observations and interviews with 37 middle grade students between the ages of 9 and 13 years old, all of whom attended Norwegian primary schools. As Norway places information literacy central to the

development of school curricula, teachers “are now being urged to scaffold the digital practices of the classroom in order to support connections between the learning space of the school and the sociocultural world of the student” (Bjørgen and Erstad, 2015, p. 114). The researchers discussed with the participants how learners' use of digital practices taught in the classroom translated into other activities outside of school. Bjørgen and Erstad (2015) found the majority of students using their digital experiences from the classroom in their leisure time, but “everyday digital practices are influenced by what children experience as important, exciting and relevant at that particular moment” (Bjørgen and Erstad, 2015, p. 119). The researchers noted that this concept was “a radical learning practice since it displays inconclusiveness and making things up as you go along” (Bjørgen and Erstad, 2015, p. 119).

Educators played an important role mediating the relationship between the digital identities learners acquired at school and their identities they developed at home. Bjørgen and Erstad (2015) found most of the learners were able to use the digital tools learned at school and apply them to produce and share content in leisure time, such as creating audiovisual presentations and book covers revolving around content that mattered to their personal interests. That being said, several students struggled to apply the digital tools they used in school to their personal lives. Students who were able to transfer their knowledge between school and home, however, often acted as mentors to the students who were unable to bridge in-school digital tools and leisure activities. These students also acted as brokers in their families, connecting their parents to new technologies and “strengthened their positions as competent contributors into the family using competencies from school” (Bjørgen and Erstad, 2015, p. 122). Bjørgen and Erstad (2015) noted that “it is not the technical expertise in itself that is important here, but what the technology allows children to do,” providing learners the role as both a mentor and expert “as

well as letting them experience new learning identities related to who they are and what they are capable of doing" (p. 122). Learners who were able to transfer their digital abilities from school to home used what Bjørgen and Erstad (2015) called positional identity, a term that defines how learners "make sense of the differences and similarities between digital practices inside and outside school" (p. 123). The researchers believed that identity is dynamic, implying that the majority of learners had the capacity "to recognize, transform and explore content and methods across learning contexts" (Bjørgen and Erstad, 2015, p. 123). The most important aspect of a learner's ability to transfer digital knowledge from school to home and allow learners to understand their own digital identity was to connect "learning in meaningful ways to the learner's identities and social and cultural practices, providing the possibility of integrating new with established practices" and provide opportunities to engage and compare, as well as contrast and reflect upon different literacy practices in different settings with the goal of critically navigating different practices (Bjørgen and Erstad, 2015, p. 124). Ensuring that each learner connects to the learning is especially important in a digital context so learners' identities can understand their evolving digital identities.

Research Gap

Although there is an abundance of research literature on the necessity of information and digital literacy in a school setting, research and case studies do not often provide insight on what information professionals actually do to implement information literacy into the curriculum, the hurdles faced, or if and how they collaborate with teachers (Adhikari, Scogings, Mathrani, & Sofat, 2017; Chaiyama, 2015; Crossman, 2012; Davies, Halford, & Gibbins, 2012; Derakhshan & Singh, 2011; Gardner, 2017; Hobbs, 2011; Hutchison & Reinking, 2011; Iscioglu & Kocakusak, 2012; Lo, Chao-Chen, Dukic, Youn, Hirakue, Nakahima, & Yang, 2014; Mertes,

2014; Messenger, 2015; Moreira, 2010; Rutledge & LeMire, 2017; and Tewell, 2015). Most research on information literacy integration focuses on US or international schools. The research in this research study was structured to fill this gap by discovering how information literacy skills were integrated specifically within a Canadian context following the Ontario grade 5-8 curriculums.

Conclusion

Information literacy is a difficult topic. While most educators recognize the importance of information literacy, it does not fit into a traditional teaching model and must, instead, be taught in a dynamic context where learners control their learning (Loertscher & Wools, 2012; Ontario, 2016). Education reform, however, is not only slow to change static behaviour, but it also fights back. School librarians, who have the education background, training, and knowledge to help foster information literacy, are often seen as only supporting staff who are unable to contribute to the learning culture of the school. However, school library impact studies across the world have conclusively shown a positive correlation between learner achievement and the presence of a school librarian, especially when a school librarian is allowed to lead learning goals and is allowed to create an active program for learners (Lance & Kerbel, 2018, p. 17). School librarians are aptly trained and prepared to use, train others, and help implement technologies. Yet, despite the increase in school technologies, certified librarians are disappearing from North American schools. Instead, districts have created new roles to support teachers in education technology integration. Lance and Kerbel (2018) noted that, “between 2000 and 2016 (the last year for which NCES data are available), the number of instructional coordinators in the U.S. increased from 38,667 to 87,495 — an increase of 226%” (p. 18). These newly created positions to meet technology needs of learners and teachers are not necessary, as

librarians not only have advanced training in using and teaching education technologies, but they can also help teachers and learners best use these technologies to their advantage. Librarians are also able to leverage new technologies by not only providing active information literacy instruction, but also guiding seamless integration into classroom curriculum, as well as use these technologies to help guide the inquiry process. Guided inquiry allows students to become more engaged and motivated, promoting meaningful information engagement. Creating meaningful learning experiences using a school librarian's literacy, technology, and guided inquiry skills all create an optimal learning environment for learners to develop deeper learning skills. The goal of information literacy itself is to promote lifelong learning, and it is necessary for students to develop deeper learning skills to apply information gleaned from one subject onto another subject, thus promoting lifelong learning.

Chapter 3: Methodology

The purpose of this research was to investigate information literacy instruction within Ontario middle schools and to seek clarification on the integration of information literacy into the general curriculum. This section will review the methodology of this study's research and the information will be divided into several categories. Before investigating the methodology, however, I will first provide a brief description of the conceptual framework I developed and used to guide my inquiry. After the conceptual framework, there will be an overview of the chosen research tradition related to this study, which will define research traditions and highlight the main elements of the selected research. This section will also define methodology as well as discuss the main elements of my chosen methodology. After a broad overview of methodology and research traditions, I will focus on my own research and include rationale for choosing my methodology and research tradition. Moreover, the methodology section also includes the research question and sub-questions guiding my research as well as specific information on the population and sampling of participants contributing data. Further, this section will also comprise information regarding the methods of data collection, including what tools I used to collect data and how the collection methods aligned with my research questions. Following information on data collection, there is a section on the methods of data analysis, which describes and justifies the tools I used to analyze data. Finally, the last piece of this section revolves around limitations, delimitations, and ethical considerations protecting rights and Research Ethics Board (REB) compliance.

Conceptual Framework

The conceptual framework is "the system of concepts, assumptions, expectations, beliefs, and theories that supports and informs your research" (Maxwell, 2012, p. 39). My conceptual

framework centered around information literacy best practices within middle grade, Ontario classes. I used a Venn diagram (fig. 2) to show the interrelationship between administrative support of information literacy, teacher and librarian collaboration, and librarians designing active learning sessions to lead to information literacy best practices. Librarians designing active information literacy instruction improves teacher and school librarian collaboration, which helps to tailor lessons to the learner, increase retention, and improve deeper learning. With administration support of information literacy, librarians can focus not only on the direct task of information literacy instruction, but also better supporting the goals of supporting learners' transferable skill abilities from one subject to another. Finally, if administration allows and supports teacher and librarian collaboration to encourage information literacy, an information literacy curriculum can be embedded into the curriculum allowing for learners to get a more thorough, applicable understanding of information literacy as well as greater application throughout a learner’s career.

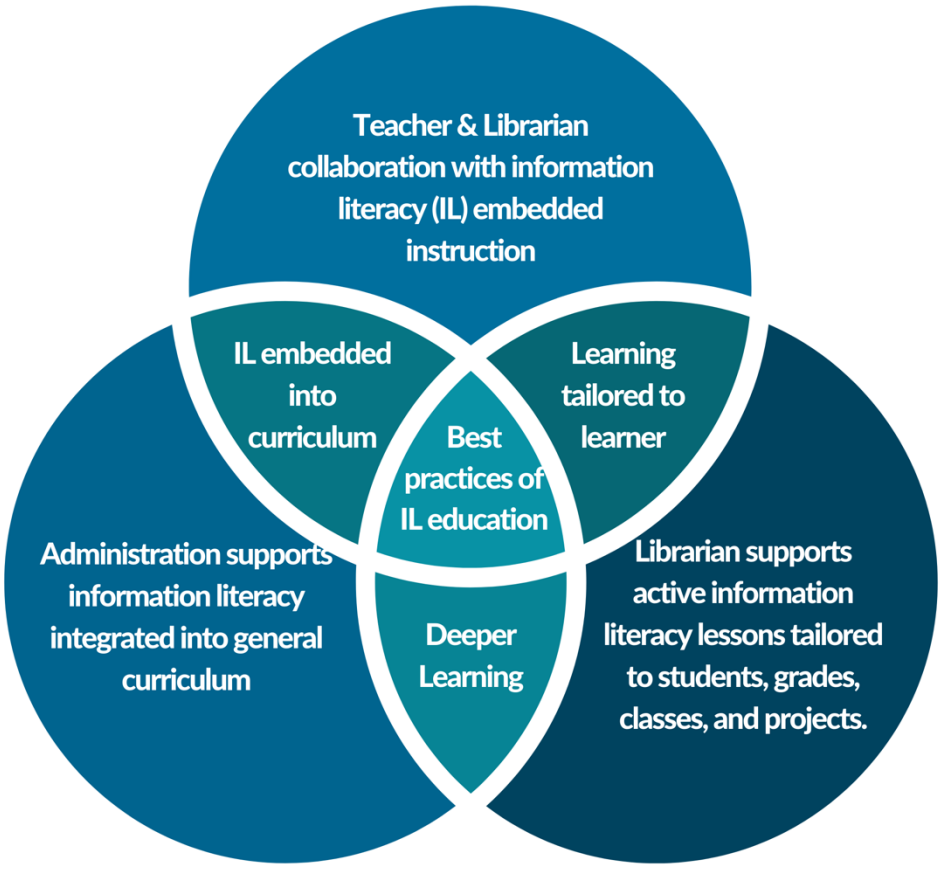


Figure 2: Conceptual Framework

Methodology

According to Ghauri and Grønhaug (2020), "the research design provides a plan or a framework for data collection and analysis . . . it reveals the type of research and the priorities of the researcher" (p. 61). Ghauri and Grønhaug (2020) noted that research could be exploratory, descriptive research, or classic. My study is partially exploratory and partially descriptive research. Ghauri and Grønhaug (2020) note exploratory research is used "when the research problem is badly understood" while descriptive research is used "when the problem is structured and well understood" (p. 64). My research is descriptive, as there is much research already known about the importance of information literacy and how it is implemented into schools.

However, my research is also exploratory, as the known research primarily focuses on US or international schools, and I sought to explore information literacy instruction within an Ontario-specific context.

Once a researcher selects their research design, Ghauri and Grønhaug (2020) noted, they can then select their research method. Ghauri and Grønhaug (2020) define research methods as "rules and procedures and can be seen as tools or ways of proceeding to solve problems" (p. 42). Research methods provide reasoning to arrive at solutions, rules for explanation of data analysis, and guidelines on how outsiders can explain and evaluate findings. Also called methodology, this term indicates the set of rules and procedures researchers use to guide and evaluate their claims. Miller and Brewer (2003) summarized by stating, "Overall, methodology provides the tools whereby understanding is created," offering structure and conventions for inquiry, drawing conclusions from evidence, and is centrally concerned with conceptualizing and analyzing information (p. 192).

The method for collecting data can be either qualitative or quantitative. Quantitative research "tends more to emphasize descriptions and testing of derived hypotheses" while qualitative research "tends to be more explorative and unstructured with emphasis on understanding" (Ghauri & Grønhaug, 2020, p. 130). Due to the nature of my research question and inquiry, this study falls within the qualitative constructivist research paradigm. Miller and Brewer (2003) defined paradigm as a set of beliefs shared by a given community that guide how problems or theories are to be tested, evaluated, and revised. Ghauri and Grønhaug (2020) note that qualitative methods are useful to provide in-depth insights into posited issues, to uncover and understand research questions that have little prior knowledge, are flexible, and focus on data collection within natural settings.

Researchers who prescribe to this paradigm are generally "interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (Merriam& Tisdell, 2016, p. 6). Qualitative research, Merriamand Tisdell (2016) noted, involves exploring a problem usually related to human behaviour and then developing an understanding based on both facts and opinions. Importantly, Miller and Brewer (2003) further noted that "Qualitative research seeks meaning . . . and contributes to theory development by proceeding inductively. Meaning is achieved not by looking at particular features of many instances of a phenomenon but rather by looking at all aspects of the same phenomenon to see their inter-relationships and establish how they come together to form a whole" (p. 194).

Qualitative research can further be broken down into three separate types of research. Merriam and Tisdell (2016) identify these as positivist, interpretive or constructivism, and critical research. This study will specifically be operating from a constructivist viewpoint, one in which researchers understand there is no single reality, but multiple interpretations of a single event (Merriam & Tisdell, 2016). Constructivism "refers to a collection of educational practices that are student-focused, meaning based, process-oriented, interactive, and responsive to student personal interests and needs" and can either be an epistemology or a learning theory depending on who is defining the term (Johnson, 2005, p. 3). For this study, constructivism is an epistemology, defined as the investigation of what distinguishes defendable beliefs from opinions (Cilesiz & Spector, 2014). From this perspective, learners construct knowledge through active interpretation of their own life experiences. Cilesiz and Spector (2014) note that humans naturally, "create internal representations of things we experience—especially puzzling things or things we have not previously experienced. We construct internal representations that serve us as

interpretations of our experiences" (p. 879). Learning, therefore, takes place by reflecting on and assessing the learner's own progress (Cilesiz & Spector, 2014).

Constructivists agree on two main points. The first point is that "learning is an active process of constructing rather than acquiring knowledge", meaning that students' previous knowledge impacts what they are learning (Cunningham & Duffy, 1996, p. 2). The second point most constructivists agree is that, "instruction is a process of supporting that construction rather than communicating knowledge" (Cunningham & Duffy, 1996, p. 2). Constructive learning is a dynamic process that revolves around the student's needs (Johnson, 2005).

Constructivism in educational research focuses "on how learning develops within particular learners in various situations, considering all perspectives—the learner perspective, the instructor perspective, and the design perspective—and the interactions among these" (Cilesiz & Spector, 2014, p. 879). Analysis of learning outcomes is not limited to standardized tests and, instead, looks at the "subjective experiences of learners" (Johnson, 2005, p. 12). In the constructivist concept, knowledge is constructed from data, which can be collected from a small number of participants by questionnaire, interviews, and observations. Data analysis is done by determining the meaning of text and, eventually, a detailed description emerges about the central topic. Finally, writing and reporting is both flexible in terms of formats used and reflexive on the researchers' own biases (Creswell, 2008). Creswell (2008) noted the constructivist approach "is more interested in the views, values, beliefs, feelings, assumptions, and ideologies of individuals than in gathering facts and describing acts" and involves more suggestive or questioning of the data than developing precise conclusions (p. 429).

In constructivism, there are various ways to collect data. These include using questionnaires, interviews, and observations of a small number of participants. These forms of

data collection can fall under a wide variety of methodologies such as “case study, ethnography, grounded theory, life and narrative approaches, participatory research, and clinical research” (Merriam, 2009, p. 21). Each methodology is unique and useful in its own way, but the methodology I will use is case study.

Case studies produce insights that can play “an important role in advancing a field’s knowledge base” and “offers insights and illuminates meanings that expand its readers’ experiences” (Merriam, 2009, p. 51). Yin (2009) defined case study research as comprising “an all-encompassing method-covering the logic of design, data collection techniques, and specific approaches to data analysis. In this sense, the case study is not limited to being a data collection tactic alone or even a design feature alone” (p.18). Case studies, in essence, address “the ‘how’ or ‘why’ questions concerning the phenomenon of interest” (Yazan, 2015, p. 138).

In a qualitative case study, research revolves around a single unit defined by specific boundaries (Merriam, 2009). In this methodology, the researcher is the primary instrument of data collection and analysis, producing a “richly descriptive” end product (Merriam, 2009, p. 39). Case studies are in-depth analysis of a bounded system and focus on a “process, issue, or concern” of issues, often chosen as “researchers are interested in insight, discovery, and interpretation rather than hypothesis testing” as case students often include “direct observation of the events being studied and interviews of the persons involved in the events” (Merriam, 2009, p. 42; Yin, 2008, p. 11). Stake further noted that case studies are holistic as they should “consider the interrelationship between the phenomenon and its contexts” and empirical since studies are based on researcher observations

A case study focuses on a single issue or case, which has clear boundaries related to a “phenomenon, a program, a group, an institution, a community, or a specific policy” (Merriam,

2009, p. 40). While other methodologies are defined by the focus of the study, a case study is defined by the unit of analysis and can actually be combined with other types of studies to study groups, cultures, or people more in depthly (Merriam, 2009). Further, case studies can use any methods to gather and analyze data, though Merriam (2009) noted that when applied to qualitative research, a case study "is chosen precisely because researchers are interested in insight, discovery, and interpretation rather than hypothesis testing" (p. 42) and Yin (2008) stated, "the case study is preferred in examining contemporary events, but when the relevant behaviors cannot be manipulated" (p. 11). Further, Stake noted that case study results are both interpretive, as researchers use their intuition to see their research as "researcher-subject interaction," and empathetic as "researchers reflect the vicarious experiences of the subjects in an emic perspective" (Yazan, 2015, p. 138).

Yin (2008) noted, "the case study's unique strength is its ability to deal with a full variety of evidence-documents, artifacts, interviews, and observations-beyond what might be available in a conventional historical study" (p. 11). Merriam (2009) also identified several special features of case studies. She defined these as particularistic, descriptive, and heuristic. Particularistic, Merriam (2009) noted, means that case studies focus on a "particular situation, event, program, or phenomenon" (p. 43). A case study is also descriptive, meaning that data analysis reveals "holistic, lifelike, grounded, and exploratory" details about the case (Merriam, 2009, p. 44). Finally, Merriam (2009) noted that case studies are heuristic, meaning they "illuminate the reader's understanding of the phenomenon under study. They can bring about the discovery of new meaning, extend the reader's experience, or confirm what is known" (Merriam, 2009, p. 44). These three special features allow for new relationships and variables emerging

from the researcher's data analysis, whereby researchers convey their own understanding of the case and glean a unique, holistic overview of the findings (Merriam, 2009).

There are some issues recognizing which epistemological orientation case studies belong. Yin (2008) believed that most case studies fall under positivism, as researchers should "maximize four conditions related to design quality: construct validity, internal validity, external validity, and reliability." However, both Stake (1995) and Merriam (1998) argued that case studies fit more in with constructivism as "qualitative case study researchers as interpreters, and gatherers of interpretations which require them to report their rendition or construction of the constructed reality or knowledge that they gather through their investigation" (Yazan, 2015, p. 137). Merrian (1998) further noted, "The researcher brings a construction of reality to the research situation, which interacts with other people's constructions or interpretations of the phenomenon being studied. The final product of this type of study is yet another interpretation by the researcher of others' views filtered through his or her own" (p. 22). As my research takes on a constructivist approach due to my perception of social reality "generated and constructed by people and existing largely within people's minds," my view of case studies fits more in line with Stake (1995) and Merriam (1998), though I value Yin's (1998) strategies and recommendations (Yazan, 2015, p. 138).

The epistemological orientation of case studies is not the only issue researchers take with case studies, as there are pros and cons with all methodologies. Yin (2008) noted that many researchers take issue with case studies, as bias in case studies may be "more frequently encountered and less frequently overcome" due to "lack of rigor of case study research" (Yin, 2008, p. 12). While the use of case studies can expand a reader's experience by acting as a hypothesis to advance a field's knowledge base, and results may be applied and transferred to

similar situations, Yin (2009) notes that case studies "provide little basis for scientific generalization . . . the case study, like the experiment, does not represent a "sample," and in doing a case study, your goal will be to expand and generalize theories" (p. 15). Further, Merriam (2009) notes that the vast amount of data extracted from case study analysis can result in lengthy research that often goes unread by the intended audience (Merriam, 2009). Another drawback to a case study is the lack of guidelines in observation and interviewing, forcing the researcher to "rely on his or her own instincts and abilities throughout most of this research effort" (Merriam, 2009, p. 52). Yin (2009) concurred, noting "good case studies are still difficult to do. The problem is that we have little way of screening for an investigator's ability to do good case studies" (p. 17). Yin (2009) recognized the prejudices, as case studies have more flexibility and a lack of standardized approach, which could increase the chance of researcher confusion, bias, sloppiness, and academic dishonesty.

That being said, case studies are not without merit. Both Merriam (1998) and Yin (2009) recommended a more structured approach to case study research, and emphasized that the goal of the case study is not "particularizing analysis" but "to do a generalizing" (Yazan, 2015, p. 143; Yin, 2008, p. 16). In this sense, a case study's goal is to "expand and generalize theories" using qualitative research with a constructivist perspective (Yin, 2009, p. 16). For my research, the case study will allow me to discover current forms of information literacy instruction interpreted through the eyes of Ontario middle-grade information professions and, therefore, will allow me to better understand the experiences and goals of information literacy instructors and expand the knowledge base. Creswell (2013) believed individuals create meanings of their experiences, which leads to a complexity of viewpoints, especially when formed through interaction with others. This may allow interviewed information professionals a more well-

rounded viewpoint on information literacy instruction, and their own experiences will inform their opinions on what is best for them and their students.

The focus of this study was to understand how information literacy skills were integrated at the middle school level within an Ontario context. I wanted to glean insight into how librarians were allowed to teach information literacy within their school, and if there was any integration of information literacy instruction within the general curriculum. Specifically, I investigated the idea of "best practices" of teaching information literacy from the viewpoint of the librarians. Considering this, a case study approach was instrumental to my research, as case studies "contribute to our knowledge of individual, group, organizational, social, political, and related phenomena" and aid researchers in developing thorough understanding of "contemporary phenomenon set within its real-world context" (Yin, 2008, p. 4). Furthermore, case studies are also useful in answering descriptive questions, such as how are information literacy skills integrated at the middle school level within an Ontario context? Case studies, moreover, "deal with a full variety of evidence-documents, artifacts, interviews, and observation" (Yin, 2008, p. 11). In my study, the main sources for data were questionnaires and semi-structured interviews, but I also used secondary source materials, such as curricula documentation voluntarily provided by several school librarians as well as relevant literature.

Purpose

To answer a proposed research problem, researchers need to collect data. The focus of my study was to investigate information literacy instruction within Ontario middle schools, as well as to seek clarification on the integration of information literacy into the general curriculum. With that in mind, the next sections will present the data collection process of this study,

including my research sub-questions, participant demographics, and how the questionnaire and interviews were conducted.

Research Questions

My study sought to understand information literacy instruction in an Ontario middle grade school setting, specifically looking to recognize how information literacy skills were integrated at the middle-school as well as formulate evidence-based recommendations on the best practices of information literacy instruction. My sub-questions focused on understanding how school librarians integrated information literacy into their teachings and/or Ontario curriculum. One sub-question was: how do librarians believe information literacy should be taught for middle grade? Another sub-question included: what are librarian's perception of best practices regarding an ideal information literacy instruction? Lastly, the final sub-question asked: who, where, and when should students be taught information literacy competencies? Accordingly, these questions helped me focus on the information needed to answer the inquiry, as well as identify participants who could help provide and share that information. The following section will detail the criteria for contributor participation and the methods used to find the participants.

Population Sampling and Methods

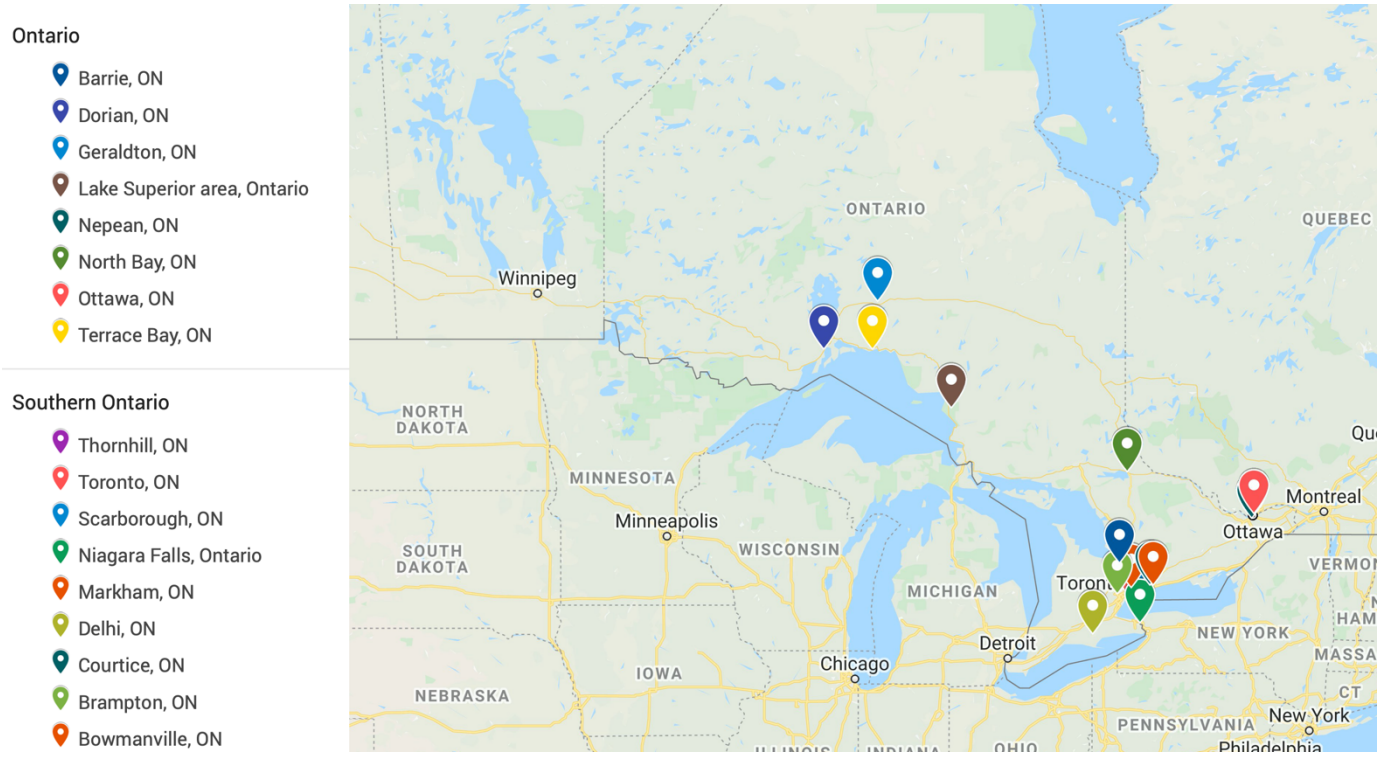
For this research, it was important for me to locate participants who not only had information literacy courses already developed, but who also administered these lessons to learners in grades 5-8. With that in mind, I initially contacted participants through directly emailing Ontario school principals to inform them of the study, purposes, and intent, and requested the teacher-librarian participation in the questionnaire. As most schools in Ontario required individual applications for conducting external research, I chose to focus on gathering

information from the Toronto District Schoolboard (hereafter, TDSB) as this was my local school board, and I imagined it would be simpler to conduct interviews and, if needed, observations through a TDSB school. All principals and their corresponding emails were found through the TDSB website (www.tdsb.on.ca). TDSB required a multi-part application for conducting external research, which was approved by the TDSB's External Research Review Committee (ERRC). As recommended by the TDSB ERRC, principals were contacted directly with an email requesting the school librarian's participation in the study.

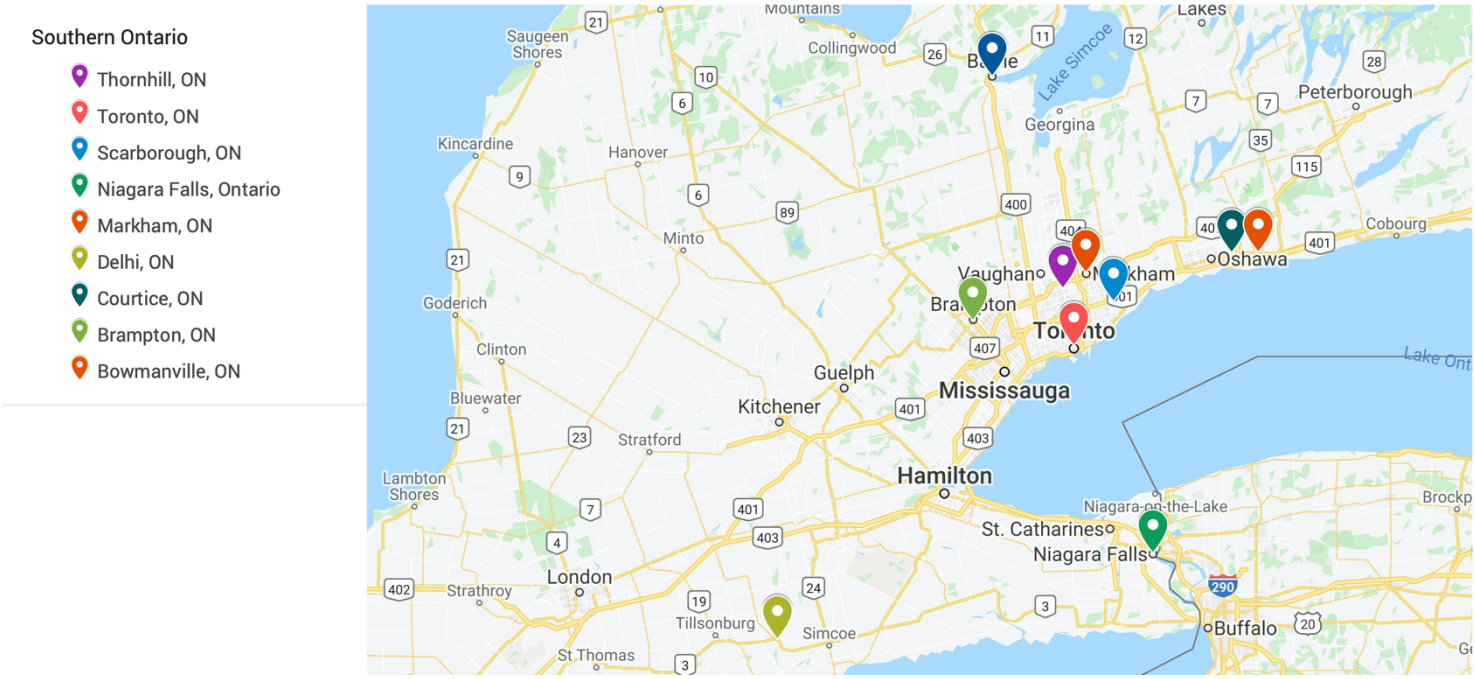
Despite contacting over 30 principals within TDSB multiple times and 70 schools, principals, and librarians within Ontario, there was an extreme lack of response. I then contacted board members of the Ontario Library Association (OLA) to glean advice on obtaining interest and gathering responses to my research questionnaire. After reviewing the questionnaire, the OLA board members recommended paring down the questions to appeal to a broader amount of librarians. The board members also noted that my research was not about a singular school, so completing an external research request for each Ontario school was not mandatory, and I should widen my research request outside of the TDSB. To find participants, I then turned to social media sites Twitter and Facebook and directly searched for, and contacted, Ontario librarians. On Twitter, I discovered librarians by examining the followers of TDSB Library (@TDSBLibrary) and Together For Learning (@T4LOntario) and read through followers who were associated with an Ontario school. On Facebook, I joined several private groups with open permissions for librarian involvement in questionnaires. These private groups include Future Ready Librarians, Learning Librarians, The School Librarian's Workshop, Ontario Teacher-Librarians, and Elementary Librarian Exchange.

Once the research questions were revised and sent out, I received 23 responses from

elementary, middle, and high school librarians. The variation between elementary and high school librarians was dependent on their school board allotment of the middle-grade classrooms, where some schools kept grades 5-8 within elementary, while other schools overlapped middle grades within high school. Some respondents also gave me access to classroom notes, syllabi, and lesson plans, which was beneficial for my overall understanding of how they taught. School librarians were also asked to provide external links to any websites, online public access catalogues (OPAC), and/or created resources available online related to information literacy. After I analyzed questionnaire responses, I requested an interview with every participant who indicated they would be willing to conduct a follow-up interview. Of the eighteen emailed, I received eleven responses. While the majority of the librarians were located in Southern Ontario, there was a fairly decent spread of librarians from all over Ontario, including from Geraldton, Ontario near Thunder Bay (North Ontario) to Delhi, Ontario near the US border. You can see the areas of Ontario where participants were from in Map 1 and, in Map 2, you can see a close-up view of Southern Ontario.



Map 1: Geographic locations of questionnaire and interview participants



Map 2: Southern Ontario geographic locations of questionnaire and interview participants.

Now that the population sample has been defined, the next sections will look at the data collection methods I used.

Data Collection Methods

Qualitative research case studies allow for a variety of methods to obtain data. These methods can consist of a combination of surveys, questionnaires, interviews, artifacts, documents, and observations. Since the focus of my study was to understand how information literacy skills were integrated at the middle school level within an Ontario context, I found the data collection methods of questionnaire, interview, and documentation allowed me to theoretically connect easily to librarians across Ontario.

Questionnaire, Interview, and Documentation

To add credibility to a study, researchers often use multiple methods of collecting data "to increase the probability that the research findings and interpretations will be found credible" (Nowell et. al., 2017, p. 3). This triangulation of data is "a strategy for obtaining consistent and dependable data, as well as data that are most congruent with reality as understood by the participants" (Merriam, 2009, p. 222). Further, Bowen (2009) noted, "by examining information collected through different methods, the researcher can corroborate findings across data sets and thus reduce the impact of potential biases that can exist in a single study" (p. 28). For my study, I used a questionnaire, interviews, and documentation as data collection tools.

This study involved telephone or email interviews and an online questionnaire created through Google Forms, which was shared digitally with participant librarians. The development and analysis of the online questionnaire followed procedures and recommendations on qualitative research as suggested by Merriam (2009) and the *Memorial University of Newfoundland Research Integrity and Ethics* (2016) document. A questionnaire is a flexible way

to discover characteristics of a specific population or topic. Brewed (2009) explained that questionnaires gather information to learn about various characteristics of a sample population and Rowley (2014) described questionnaires as useful tools for surveying large populations and/or from a geographically wide sample. Pazzaglia, Stafford, and Rodrigues (2016) defined several steps to questionnaire research: defining the population, specifying the sampling procedure, determining the sample size, selecting the sample, then finally administering the questionnaire. Brewer (2009) as well as Pazzaglia, Stafford, and Rodrigues (2016) explained that, once completed, the researcher should analyze the questionnaire responses, including describing and drawing conclusions. The analysis of the participant responses make up the data. The flexibility and ease of distribution are two advantages to questionnaires, but there are several other benefits to using a questionnaire for research purposes. Bloomberg (2008) said that a questionnaire "emphasizes the importance of a flexible research design for qualitative inquiry" and online questionnaires are quite flexible for respondents (p. 92). Participants using online forms participate at their own pace, time, and setting. Further, online questionnaires are "relatively unobtrusive and relatively easily administered and managed" (Bloomberg, 2008, p. 91). Further, Ary, Jacobs and Razavieh (2002) noted that questionnaire respondents are more likely to be truthful about uncomfortable issues.

Conversely, there are limitations to questionnaires. Rowley (2014) stated "One of the limitations of questionnaires is that you will never be sure whether the respondents have understood your questions, or indeed, whether they have taken the time to provide accurate data" (p. 11). Ary, Jacobs and Razavieh (2002) further define limitations for questionnaires to include low return rate, misinterpretation of questions or wording, longer wait time to receive responses, and lack of interaction between participants and researchers. Lastly, Rowley (2014) believed that

questionnaires should primarily focus on closed questions for increase response rate and ease of analysis, but due to the nature of my investigation, my questionnaire contained primarily open-ended questions to provide more comprehensive insights; however, open questions are more time consuming to complete and to analyze, which lowers return rates.

Despite the limitations, a questionnaire was selected as my primary method of data collection for a variety of reasons. Rowley (2014) noted that a questionnaire has many advantages, the main being the "the ability to make contact with and gather responses from a relatively large number of people in scattered and possibly remote locations" (p. 2). Since my research focused on all of Ontario, a questionnaire fit my needs. Furthermore, Rowley (2014) noted that the sample participants are chosen "to 'represent' the wider population" and the objective of a questionnaire is to profile the targeted sample" (p. 4). The population I focused on included librarians or library technicians working in middle-grade classrooms throughout Ontario and I viewed their responses as representative of the wider population of Ontario school librarians. Understandably, the participants' viewpoints do not entirely mirror that of every school in Ontario, but their experiences can help researchers understand the viewpoints of individuals with similar positions. Finally, Rowley (2014) believed "the big advantage of questionnaires is that it is easier to get responses from a large number of people, and the data gathered may therefore be seen to generate findings that are more generalizable" (p. 5). My hope was to find a wide array of middle-grade librarians with different backgrounds and who lived in both urban and rural landscapes throughout Ontario to develop an overarching sample of information literacy best practices. Unfortunately, this is not what I experienced with my questionnaire. That being said, a questionnaire was ultimately the best choice for research

investigating information literacy instruction within Ontario middle schools as well as to seek clarification on the integration of information literacy into the general curriculum.

While the questionnaire was my main data collection tool, I saw the need to expand several of the questions and add depth to respondent answers by adding an interview component. As the option of an interview was considered during questionnaire planning, I included a question within the questionnaire to opt-in or out of a follow-up interview. All but two respondents agreed to allow follow-up interviews. Adamson, Woolhead, and Donovan (2004) deemed this tactic "questerviews" as they found questionnaires "provoked detailed stories about experiences to explain and justify responses to items" that "encouraged detailed narratives, but also highlighted the complexity of people's views" (p. 141-142). Kajornboon (2005) identified four main types of interviews, including semi-structured, unstructured, non-directive, and structured or standardized interviews. Semi-structured interviews are the most common type of interview style, as the questions and themes are pre-chosen, but format allows for flexibility and further probing questions. Unstructured interviews are more casual and flexible and "interviewees are encouraged to speak openly, frankly and give as much detail as possible" (Kajornboon, 2005, p. 7). Non-directive interviews are the most open type, allowing the interviewer to listen, "check on unclear points and to rephrase the answer to check for accuracy and understanding," and the interviewee to take the lead (Kajornboon, 2005, p. 7).

As I had such difficulties finding respondents, I felt the best course for interviewing my participants was conducting identical, structured interviews. I felt this would encourage the most response and give a clearer picture of how librarians perceived information literacy within their schools. Kajornboon (2005) described structured interviews as introducing "rigidity to the interview" as all participants are asked the same questions (p. 4). While there are pros and cons

to structured interviews, they are helpful because they allow researchers to have control over the interview format, making data analysis easier to code and compare (Kajornboon, 2005, p. 5). Lastly, I gathered documentation to add further credibility to my research. Merriam (2009) noted that "documents give us a snapshot into what the author thinks is important, that is, their personal perspective" (p. 142). Documents are part of what Ritchie and Lewis (2003) dub "naturally occurring data" that exists before a study takes place and are beneficial to researchers when "behaviours and interactions . . . need to be understood in real world contexts" (p. 34). Merriam (2009) affirmed that documents are usually broken down into three primary types, including public, personal, and physical evidence. Documents I used included the public websites of the schools where participant librarians worked, which offered valuable insights on school and board-wide bylaws, policies, procedures and protocols as well as their core beliefs and values, strategic plans, available programs, and educational priorities. Some participant librarians offered their year-long planning, which gave insight into the librarians' activities related to curricular support as well as information literacy instruction. I also used some learning commons policies provided by different librarians as they further expanded the breadth of understanding related to the librarians' and their schools' core beliefs, equity and inclusivity commitments, and educational technology support.

A questionnaire, interviews, and supportive documentation gave me triangulation of data and added credibility and trustworthiness to my study. Since my research focused on librarians throughout Ontario, each method of data collection was useful to gain information from a sample of people scattered across Ontario and their responses help to understand viewpoints of individuals with similar positions. With the data collections in place, the next step was to code responses through data analysis.

Methods of Data Analysis

Once participants began offering responses, data analysis can begin. Researchers prefer to analyze data "simultaneously with data collection" (Merriam & Tisdell, 2016, p. 171). When qualitative researchers begin their investigation, they already know what problem they will focus on and what sample they will need "to collect data in order to address the problem;" however, the open-ended problem ensures that researchers will not know what information will be discovered (Merriam & Tisdell, 2016, p. 171). To convey this new knowledge to a broader audience, any data received should be coded to develop descriptions of people and places or broken down into themes "that present a broader abstraction than codes" (Creswell, 2008), p. 261). It is the duty of the researcher, Nowell et. al. (2017) advised, to convey to readers how their data was coded, organized, and interpreted. Nowell et. al. (2017) advocated for the responsibility of the researcher when they said,

> When conducting data analysis, the researcher becomes the instrument for analysis, making judgments about coding, theming, decontextualizing, and recontextualizing the data. Each qualitative research approach has specific techniques for conducting, documenting, and evaluating data analysis processes, but it is the individual researcher's responsibility to assure rigor and trustworthiness. Qualitative researchers can demonstrate how data analysis has been conducted through recording, systematizing, and disclosing the methods of analysis with enough detail to enable the reader to determine whether the process is credible (p. 2).

Researchers must give a thorough and exhaustive explanation of their data analysis to ensure precision and trustworthiness. There are several research designs used to guide the

collection and analysis of data. Saldaña (2015) identified some of these designs, including narrative analysis, two-cycle coding, analytical analysis, and initial coding analysis.

My study used initial coding focused on thematic analysis as the mechanism to sort through the data. Saldaña (2015) noted that initial coding was an open-ended approach to coding and "an opportunity for you as a researcher to reflect deeply on the contents and nuances of your data" (p. 100). Initial coding is used to reflect on data and is meant to employ other types of analysis, such as thematic, as the data analysis progresses. Braun and Clarke (2006) described thematic analysis as identifying, analyzing, and reporting themes within data, as well as interpreting different aspects of the research topic. Nowell et. al. (2017) describes thematic analysis as a method to connect and examine perspectives and responses from different research participants, comparing and contrasting their opinions while also finding unanticipated reflections on the main research questions. This version of analysis involves the researcher familiarizing themselves, and actively engaging, with the data. Next, the researcher must begin identifying interesting or meaningful "codes" within the data. These codes are broad themes that "identify a feature of the data (semantic content or latent) that appears interesting to the analyst" (Braun & Clarke, 2006, p. 95). The next step revolves around interpreting themes extracted from relevant data, then the researcher must review and refine the themes found in the previous step. Braun and Clarke (2006) noted, "data within themes should cohere together meaningfully, while there should be clear and identifiable distinctions between themes" (p. 97). Once a careful review of themes has been made, the researcher should "define and further refine the themes that you will present for your analysis, and analyse the data within them" (Braun & Clarke, 2006, p. 99). At this point, Braun and Clarke (2006) emphasized that the "names need to be concise, punchy, and immediately give the reader a sense of what the theme is about" (p.100). The last piece of

thematic analysis involves transforming the analysis into a written account of the data. The goal of the written report "is to tell the complicated story of your data in a way which convinces the reader of the merit and validity of your analysis" (Braun & Clarke, 2006, p. 100). The written analysis must be concise, clear, and interesting to support the evidence of the themes within the data (Braun & Clarke, 2006).

Thematic analysis does have some disadvantages. Braun and Clarke (2006) as well as Nowell et. al. (2017) have found that many authors do not consider thematic analysis a separate research method, so the literature on thematic analysis is limited. This may cause novice researchers to question how a thematic analysis can be conducted. Furthermore, some researchers may call into question the flexibility of thematic analysis as it could lead to inconsistency and "a lack of coherence when developing themes derived from the research data" (Nowell et. al., 2017, p. 2).

Trustworthiness

Nowell et. al. (2017) believed, "Trustworthiness is one way researchers can persuade themselves and readers that their research findings are worthy of attention" (p. 3). It is essential for researchers to ensure their findings are both credible and trustworthy. One such way is through triangulation of data sources. By using questionnaires, interviews, and documents, I have corroborated evidence from different individuals, types of data, and data collection methods. These data sources helped to define and provide evidence to support my themes. Furthermore, as the questionnaire was completely digital and the respondents were found through social media, many participants provided their school email accounts and websites to ensure participants were who they said they were. Each participant's school and board websites were reviewed and the librarians' social media and/or professional LinkedIn accounts were cross-checked for

verification. Furthermore, I ensured my research process was "logical, traceable, and clearly documented" by having extensive spreadsheets showing who I contacted and outlined the questions, responses, and confirmable data coding directly related to the responses (Nowell et. al., 2017, p. 3)

Limitations and Delimitations

Limitations are issues that arise within a study that are out of the researcher's control (Simon & Goes, 2013). Every study has limitations, and future research may introduce issues or draw conclusions that cast doubt on any previously found hypothesis (Simon & Goes, 2013). Qualitative case studies generally have limitations related to validity and reliability, as research usually cannot be exactly replicated due to where and how research is conducted, and causal inferences, as the behaviour of one group, person, or organization may or may not reflect the behaviour of a similar group (Simon & Goes, 2013).

Delimitations are the limitations that researchers can control, or the defined boundaries researchers make regarding their research choices (Simon & Goes, 2013). All delimitations result from specific choices made by the research to narrow the scope of his or her study, including choosing objectives, questions, paradigm, theoretical framework, choice of participants, settings, and etc. (Simon & Goes, 2013).

Limitations:

- Inflexible questions
- Inaccurate answers
- Dishonest responses
- Responses lacking depth
- Exaggeration

- Low return rate
- Misinterpretation of question and/or answers
- Longer wait time to return
- Lack of interaction between participant and researcher
- Lack of conscientious responses
- Lack of personalization
- Time-consuming to collect and analyze

Delimitations:

- Ontario geography
- Employed in a school library with grade 5-8 students
- MLIS, MLS, or library diploma
- Teach information literacy (or literacies within the information literacy umbrella)

Protection of Human Rights and Ethical Considerations.

This study was completed by participants on a voluntary basis and participants could have withdrawn at any time before the data analysis began. Participants remained anonymous throughout the analysis and at any point they could have requested copies of this study through email correspondence. Written consent was obtained via a fillable form, which was dated and signed by both the researcher and the participant. This form assured participants that collected data would only "be reported in aggregate form, so that it will not be possible to identify individuals" (MUN, 2014). When necessary, pseudonyms were used to protect the anonymity of both the participant and the school. All participants will have access to the final thesis once submitted.

Summary

This chapter outlined the conceptual framework, methodology, purpose, and data analysis methods used to gather data for my study. These pieces guided my research and set clear directions for data collection, analysis, and reporting. My rationale for the chosen research design, data collection method, and use of case study ultimately aimed to provide my research with a richer understanding of information literacy instruction within middle-grade classrooms. Furthermore, I provided my explanation behind using a questionnaire and interviews. Both data collection methods provided unique views of information literacy instruction within an Ontario landscape, as the research sample consisted of librarians or librarian technicians who worked in Ontario middle grade schools. Thematic analysis of the data was defined and discussed and the ethical considerations related to participant research were identified. All participants responded voluntarily with assurance of their anonymity.

The next chapter presents the analysis of data collected from both the questionnaire and the interviews. Qualitative data collected from both methods are arranged by theme. The thematic analysis used to analyze the data revealed five main themes. I identified these themes as follows: defining information literacy, developing an information literacy curriculum, online presence, advocates and obstacles to information literacy, and an idealized curriculum.

Chapter 4: Data Analysis

The focus of this study was to investigate information literacy instruction within Ontario middle schools, as well as to seek clarification on the integration of information literacy into the general curriculum. My sub-questions focus on understanding how school librarians integrate information literacy into their teachings and/or Ontario curriculum. Specifically, I sought to discover school librarian recommendations on how information literacy lessons should be taught, their perception of best practices of an ideal information literacy instruction, and who, where, and when students should be taught these competencies. In this regard, my study aimed to formulate evidence-based recommendations towards information literacy instruction in an Ontario school setting. Specifically, I sought to understand how information literacy skills are integrated at the middle-school level within an Ontario context.

With that in mind, this chapter outlines the analysis of data collected from the tools outlined in the previous chapter. Qualitative data gathered from the open-ended questions added richness and depth to the data. Included in the analysis is participant demographic information to help visualize the different areas of Ontario participants work. The other information from the analysis is arranged using thematic analysis. The thematic analysis revealed five main themes, which I identified as follows: defining information literacy, developing an information literacy curriculum, online presence, advocates and obstacles to information literacy, and an idealized curriculum. While the focal point of each theme, as well as the data as a whole, centered around the best practices of information literacy instruction within an Ontario middle-grade context, open-ended questions were used to encourage participants to define their personal views and observations in their own words.

Questions

Questions revolved around who taught information literacy within the librarian's school, who created information literacy curriculum, what cooperation there was between different players within the school (e.g. teachers, administration), and the perceived obstacles to information literacy education. I was also intrigued to look into what, in the respondent's opinion, their ideal information literacy curriculum would look like. Is information literacy integrated into certain aspects of Ontario middle-grade curriculum? What are some best practices for teaching information literacy? How is information literacy perceived by Ontario school districts, and how do librarians perceive their schools' support? Initial reflection of questionnaire responses influenced the interview questions. First, I asked participants to define information literacy and sought to understand the terminology they used within their school. I also asked how teachers support information literacy instruction and what piece of their own instruction students get the most information out of. Finally, I asked what their ideal information literacy curriculum looked like. While I asked a similar question in the questionnaire, I rephrased it in the interview to glean a more thorough and thoughtful response.

That being said, the study's main research question and sub-questions were always central. The main research questions sought to clarify the best practices of information literacy instruction within an Ontario middle-grade context, and the sub-questions helped focus the needs of the query to identify participants. The following section will give a brief insight into select participants who represent the general population of my respondents.

Sample and Participant Demographics

While my final questionnaire did not ask respondents to distinguish themselves between library technicians, librarians, or teacher-librarians, I was able to conduct extensive research into

the respondents by searching school websites, LinkedIn profiles, social media, and other grey literature sources. There was a split between teacher-librarians and library technicians that seemed similar to what People for Education (2017) found, as they noted only "52% of elementary schools had at least one teacher–librarian, either full- or part-time, a decline from 60% in 2008" and this statistic seemed apparent in my respondents as well (p. 11). While this statistic is of note as there are differences between job duties and degree earned, I did not separate librarians from library technicians throughout my study. The main difference between the types of librarians is through degree, where library technicians generally receive a library technician diploma, librarians have a Master of Library and Information Science degree (MLIS), and teacher-librarians have a teaching degree with either a continuing education specialty in school librarianship or have a MLIS on top of their teaching degree. Further, library technicians do not generally have the same educational responsibilities as teacher-librarians, but this is different for every school.

That being said, this section will give several examples of the participants' demographic details, including years taught, type of librarian, and location. One participant was a teacher-librarian who has worked at a JK-8 school within the York Region District School Board for over 8 years as a librarian, technology coach, and kindergarten teacher. Another teacher-librarian worked at a JK-8 private religious school whose position was cut from full-time, to half time, and then to a .25 role. A third teacher-librarian worked at a JK - grade 8 school in the Kawartha Pine Ridge District School Board. There were more frequent responses from library technicians. One library technician worked for 1 year at a JK - grade 6 school in the Ottawa-Carleton District School Board. Another library technician worked in the Near North District School Board as an early childhood educator (ECE) supply since 2012 and then became the librarian at a JK - grade

6 school. Yet another library technician had worked for 11 years at a grade 8-12 high school in Superior-Greenstone District School Board that serves First Nations and rural populations. All surveyed librarians and library technicians either taught or co-taught information literacy sessions or have helped create information literacy curriculum.

Now that I have introduced the focus of the questions and the sample and participant demographics, the next section will cover the responses and findings from the data analysis.

Findings

This section examines the open-ended questions of both the questionnaire and the interviews. Participants were asked a series of questions reflecting their current practice of teaching information literacy, as well as their personal views of triumphs and pitfalls while supporting their students' information literacy needs. These findings have been divided into five themes. The first theme I call defining information literacy, which provides information on the different terms used by librarians to define information literacy and what these specific terms mean to them and their schools. The next section covers the resources librarians used to develop their information literacy curriculums. Third, librarians showed how their online presence was used to provide different resources for students. The fourth section details what librarians perceived to be advocates and obstacles to information literacy instruction. Last, I looked at what librarians wished they could do to help support an ideal information literacy curriculum.

Theme 1: Defining Information Literacy

The initial questions revolved around the teaching of information literacy. All librarians involved with the questionnaire taught information literacy or had helped to develop an information literacy curriculum for their school (figure 3). Only 17.6% of surveyed Ontario

librarians taught information literacy "All of the time", but the majority, 47.1%, taught it occasionally.

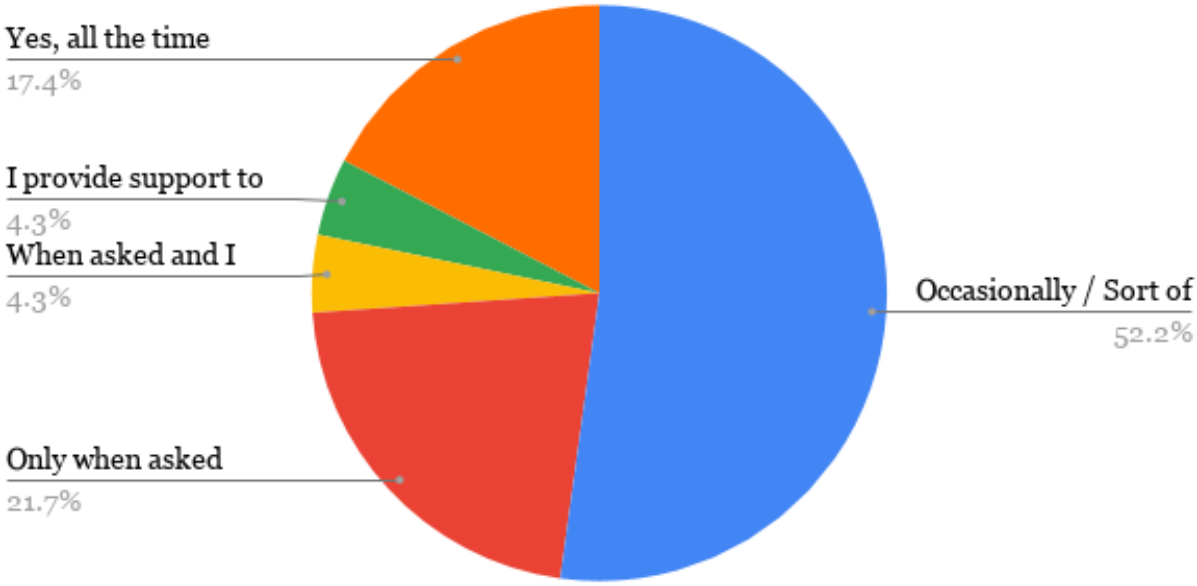


Figure 3: Teaching or co-teaching information literacy

During the interview portion, librarians identified different terminology used to name the teaching of information literacy skills. Most librarians noted they did not rely on just one term to refer to information literacy instruction, but changed terms depending on the focus of the instruction. The most common terms used to define the concept of information literacy include "Digital citizenship" and "Media Literacy." Other popular terms include "Research Skills" and "Library Instruction," but more unique terms identified from separate schools were "Online fluency," "Applied Digital Skills," and "Digital Citizenship" (figure 4).

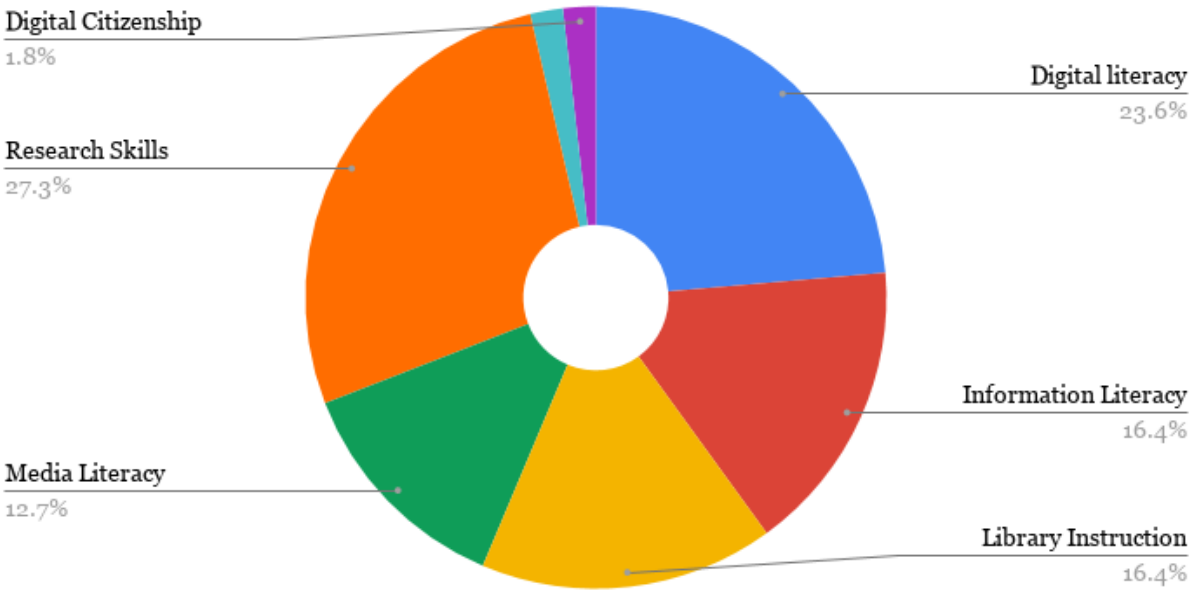


Figure 4: Terminology used for information literacy instruction

One teacher-librarian from Ottawa noted that the terminology used to define the type of information literacy lesson being taught had specific connotations within their school. In an interview, the librarian noted,

> In our school board there is a marked difference between digital citizenship and information literacy. We teach our students that digital citizenship is the safe and responsible use of technology / devices. How to be an informed user of the internet and what they may choose to post, and of course view. This may include topics such as cyber bullying; the risks of offering up too much personal information on the net; and emphasizing the permanent nature of items posted to the net. Information literacy, at least from my perspective within this school board, deals more with the gathering of information from the internet. It deals with teaching students best practices in research skills. The ability to access information, selecting the best sources, gather together data,

> evaluate and communicate that information accurately. It would also include using information to solve problems, make decisions and build on their knowledge of the topic. We would use terms such as “critical thinking” and “problem solving”. We would also teach the students to use balanced and diverse resources to find information.

Most teacher-librarians interviewed defined information literacy in similar ways, where different literacies that fell under the umbrella of information literacy were given different terms. One interviewed librarian noted, “I would define information literacy as the understanding (of students) of not just how to find information (eg. research, reading, listening) but also how to assess a source’s legitimacy and how to ensure one’s information comes from a wide variety of sources. At my school we would call that media literacy.”

Different terminology may be used because of the type of information literacy being taught, but it also could differ because of the different resources librarians used to create an information literacy curriculum for their schools.

Theme 2: Developing an Information Literacy Curriculum

When it came to resources used to support and/or develop an information literacy curriculum for their school, the majority of teachers noted multiple websites used to help build, expand, and improve their information literacy curriculum. Surprisingly, the majority of respondents mentioned they use their school board (82%) or Ontario Library Association (OLA) (18%) provided resources (figure 5).

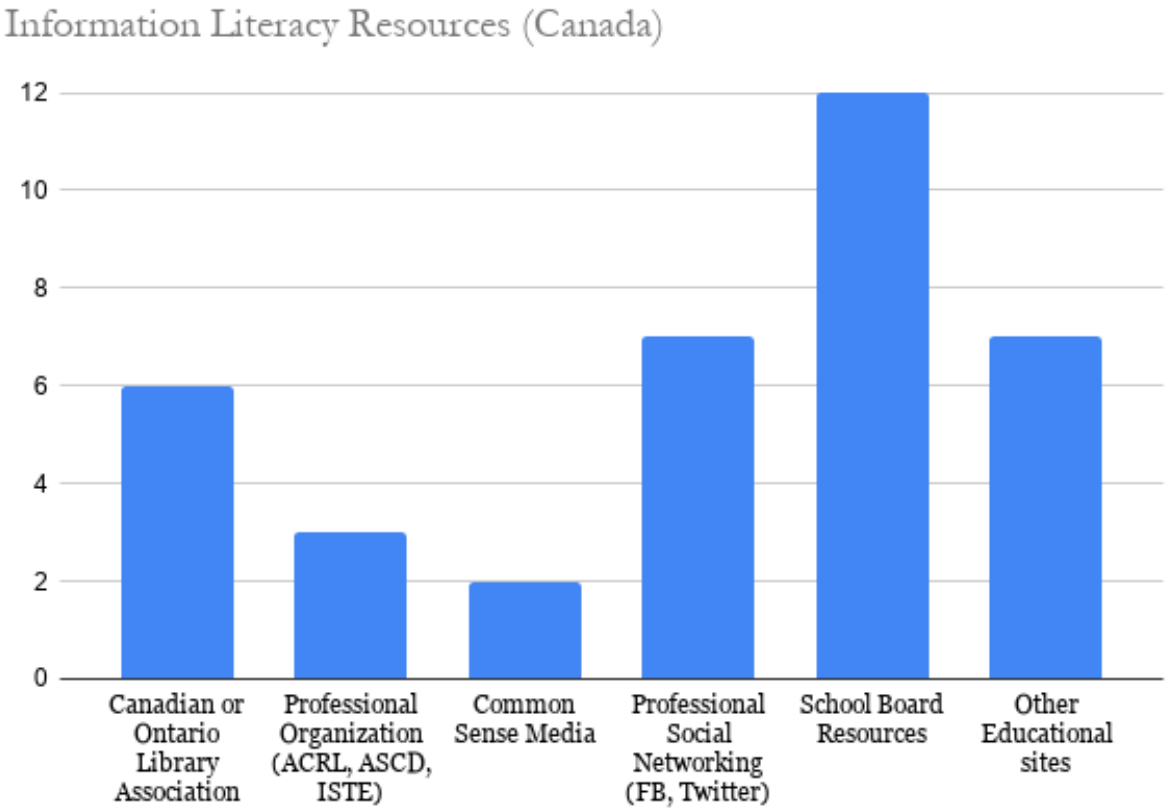


Figure 5: Resources used for Information Literacy lessons

One interviewed librarian made note of her long-term planning throughout the year. All plans, they noted, tried to incorporate both character education and some level of information literacy. For example, the character trait of November is honesty and her culminating question, "How can I inquire into topics using the library and its resources?", revolved around the information literacy topics of internet safety and research, anti-bullying, and respecting copyright policies. Other topics throughout her long-term plans supported culminating questions like "How do I process and analyze information?, "How do I put together information from different sources?", "How can I be a digital citizen?", and "How do I evaluate/ challenge myself as a reader and learner?"

While the resources used to develop an information literacy curriculum are important, it is also important for learners to access resources related to information literacy. Often, educators can provide virtual information literacy lessons, guidance, or other resources through a website or other online platform.

Theme 3: Online Presence

It seems as though Ontario has great support for information literacy and library instruction online. As previously noted, librarians relied heavily on their local board, school district, or Ontario Ministry of Education supplied materials to develop information literacy curriculum. That being said, most surveyed librarians *did* have a web presence aside from their local school board site (figure 6).

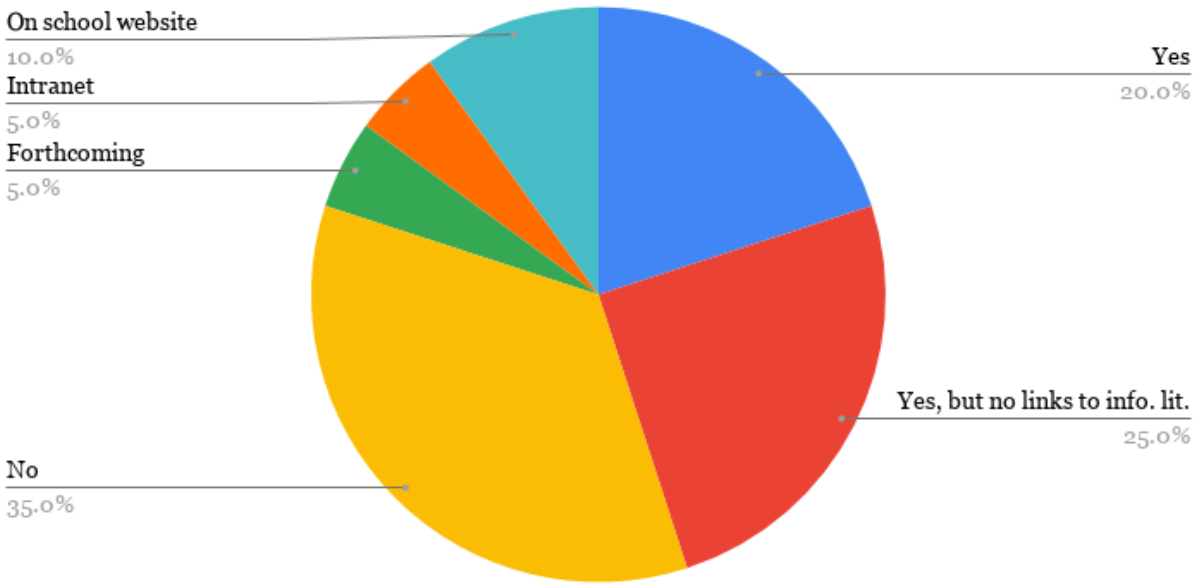


Figure 6: Library Web Presence

However, most others relied on their online public access catalog (OPAC) or simply used a page inside their school website. The library's Online Public Access Catalogues (OPAC) were used like a digital repository containing links to various online learning resources available to students. One example was *Unionville Public School*, a JK-grade 8 school, which had a direct link from the school's main page to a library landing page (image 1).

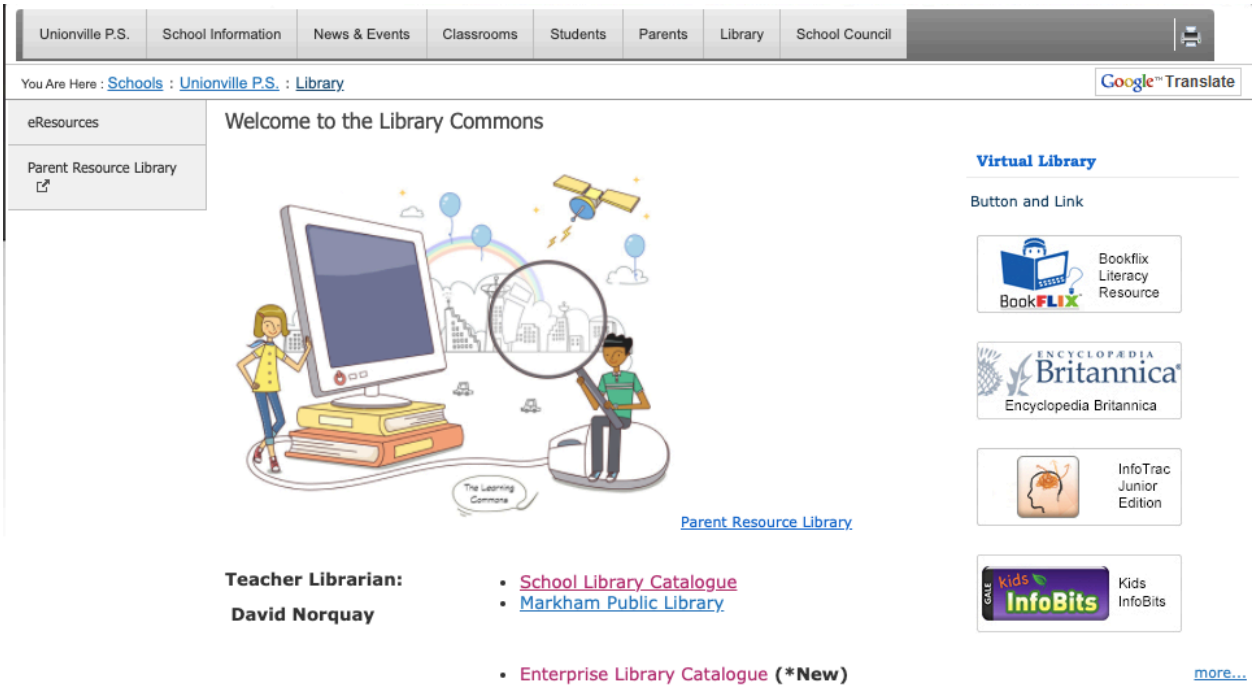


Image 1: Unionville Public School Library's landing page linked from main school website.

The first link available on the library landing page (image 1) was to the "school library catalogue" (image 2). The catalogue provided several links for student use. One resource was "Student Online Tools," which linked to a variety of online tools and resources for students (image 3). The "Student Online Tools" page (image 3) also linked to the Government of Ontario's Learn at home website, specifically created to help students and teachers access resources during emergency remote learning during the 2020 pandemic (image 4). *Learn at*

Home also provided a wealth of links for online learning and digital citizenship; however, my focus was primarily links directly provided by school library websites or OPACS.

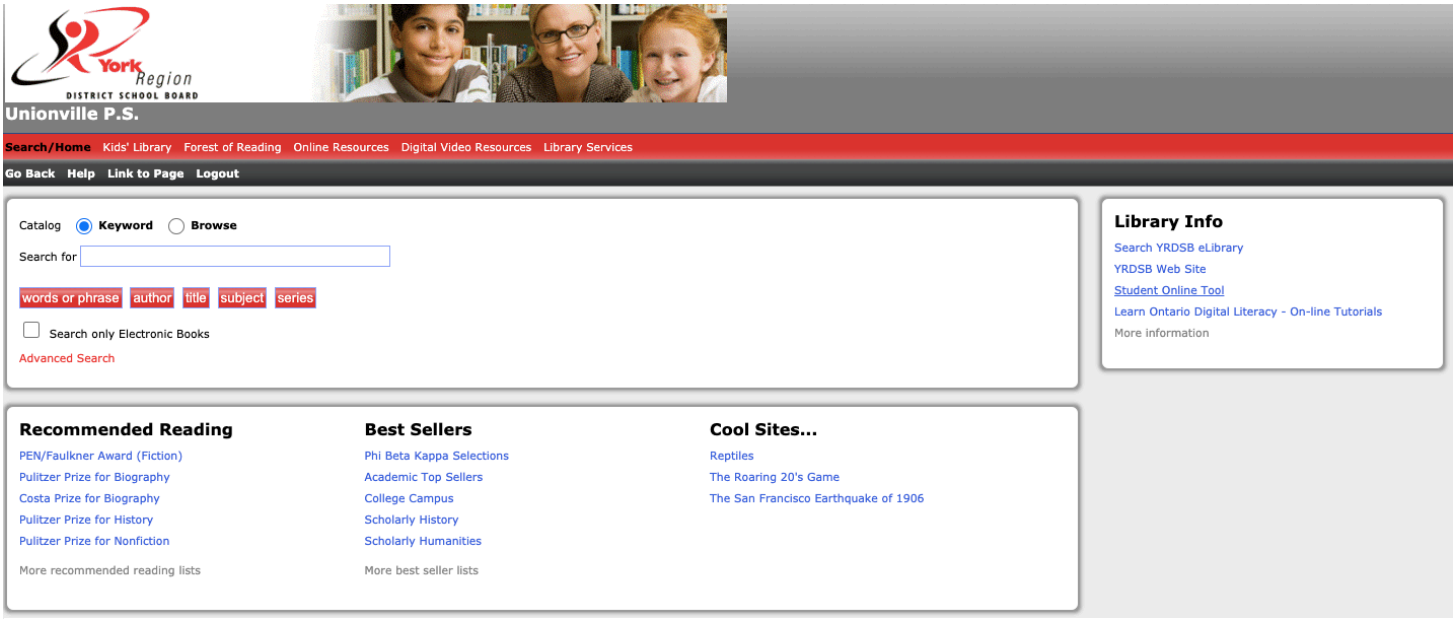


Image 2: Unionville Public School library catalogue

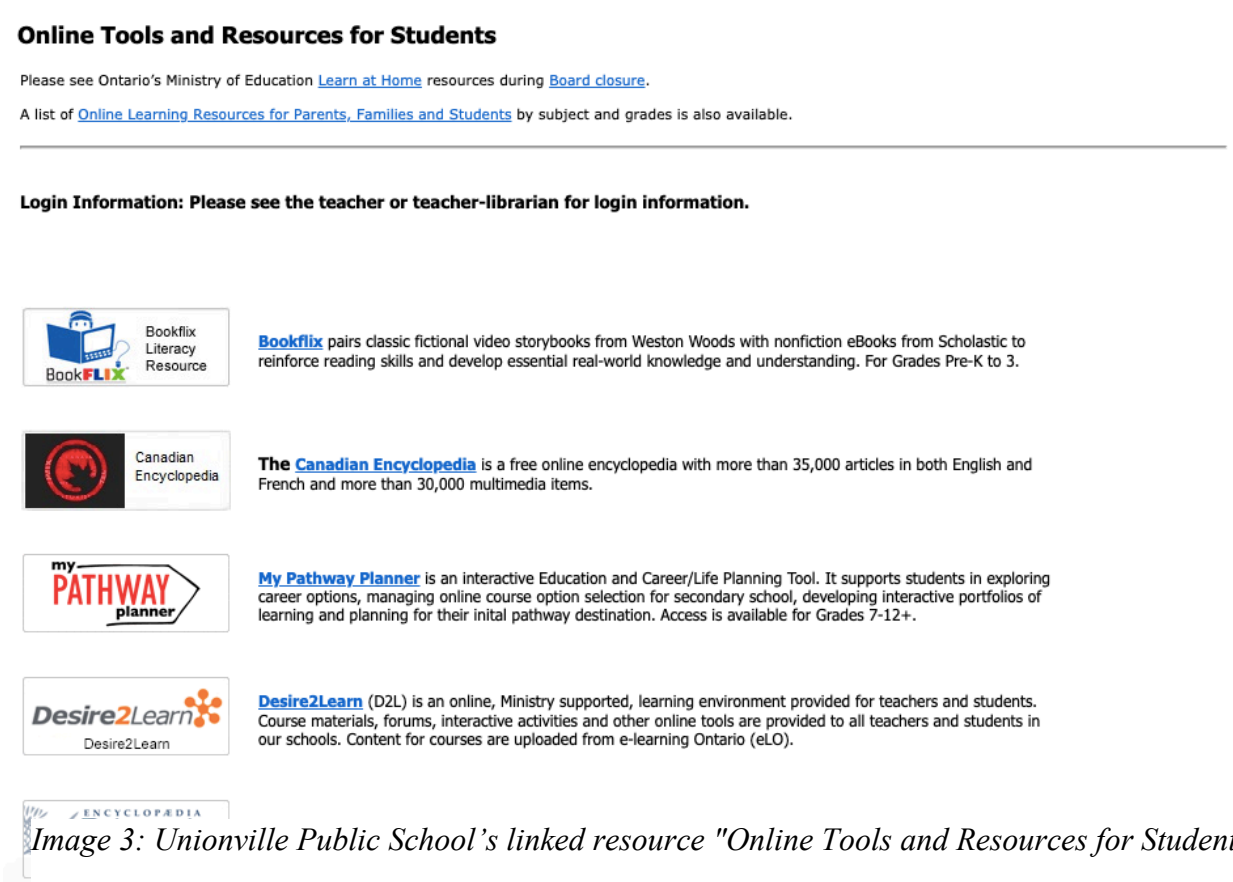


Image 3: Unionville Public School's linked resource "Online Tools and Resources for Students"

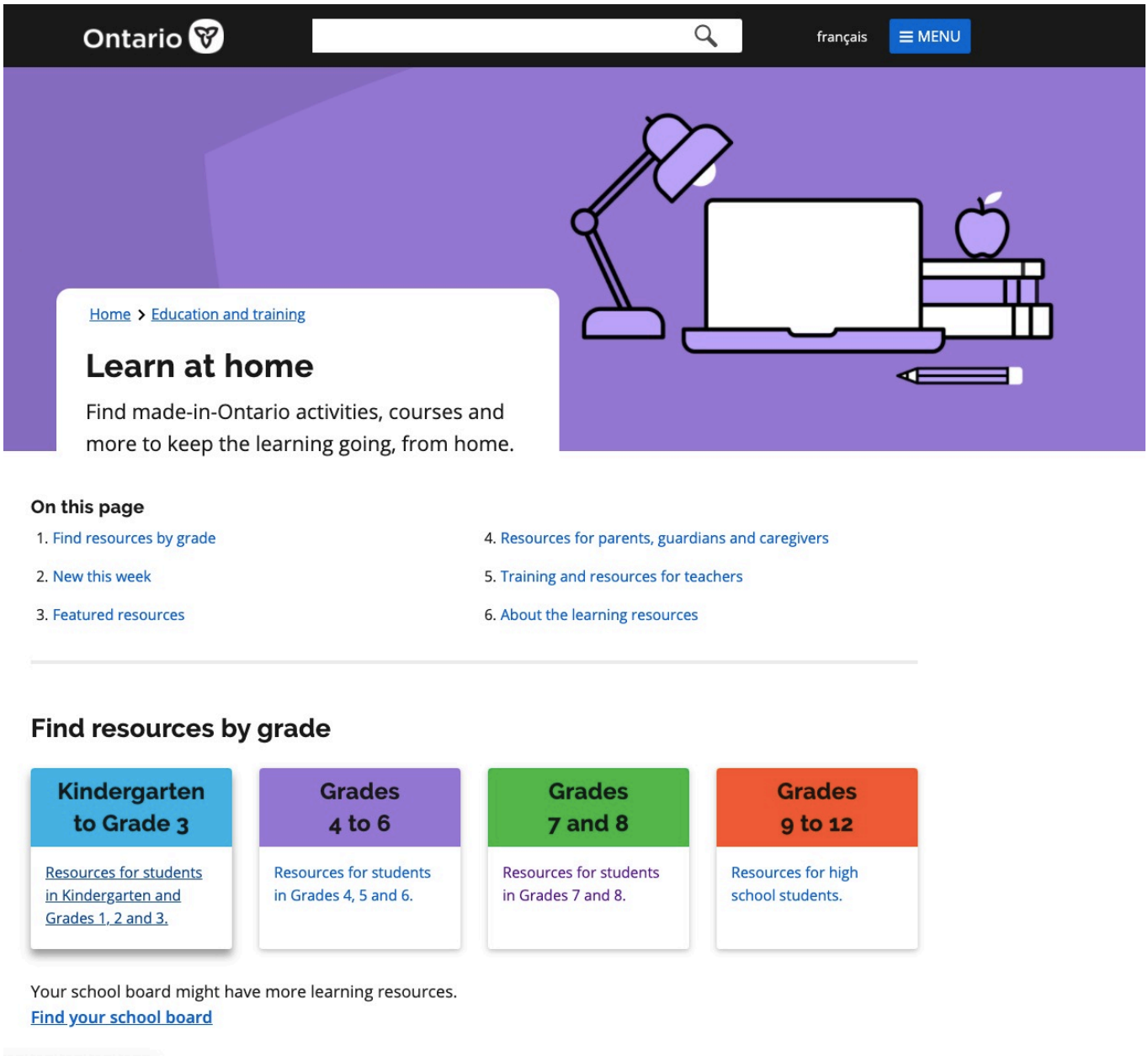


Image 4: The Government of Ontario's Learn at home website created to help learners access resources during emergency remote learning

Unionville Public School's OPAC also provided a link entitled "Learn Ontario Digital Literacy - On-line Tutorials." Unfortunately, the link was dead. However, the *Unionville Public*

School library landing page linked from main school website (image 1) contained three links to *School Library Catalogue (image 2)*, *Markham Public Library*, and *Enterprise Library Catalogue (*New)* (image 5).

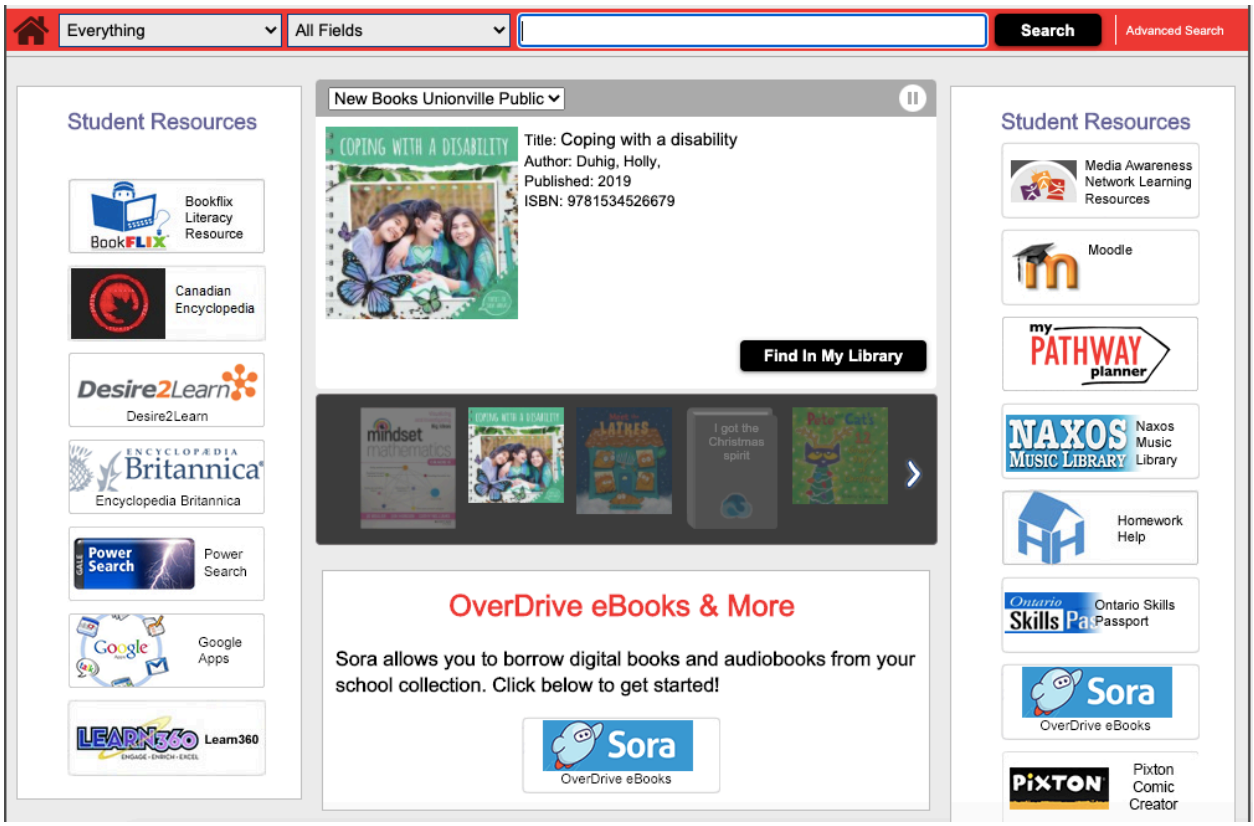


Image 5: Unionville Public School's Enterprise Library Catalogue

The *Enterprise Library Catalogue* (image 5) is definitely a more robust space than the first link to the *Unionville Public School library catalogue* (image 2). Not only does the *Enterprise Library Catalogue* contain easy access to the OPAC, but it also contains many of the links provided in Online Tools and Resources for Students (image 3) as well as a direct link to *MediaSmarts: Canada's Centre for Digital and Media Literacy* (image 6).

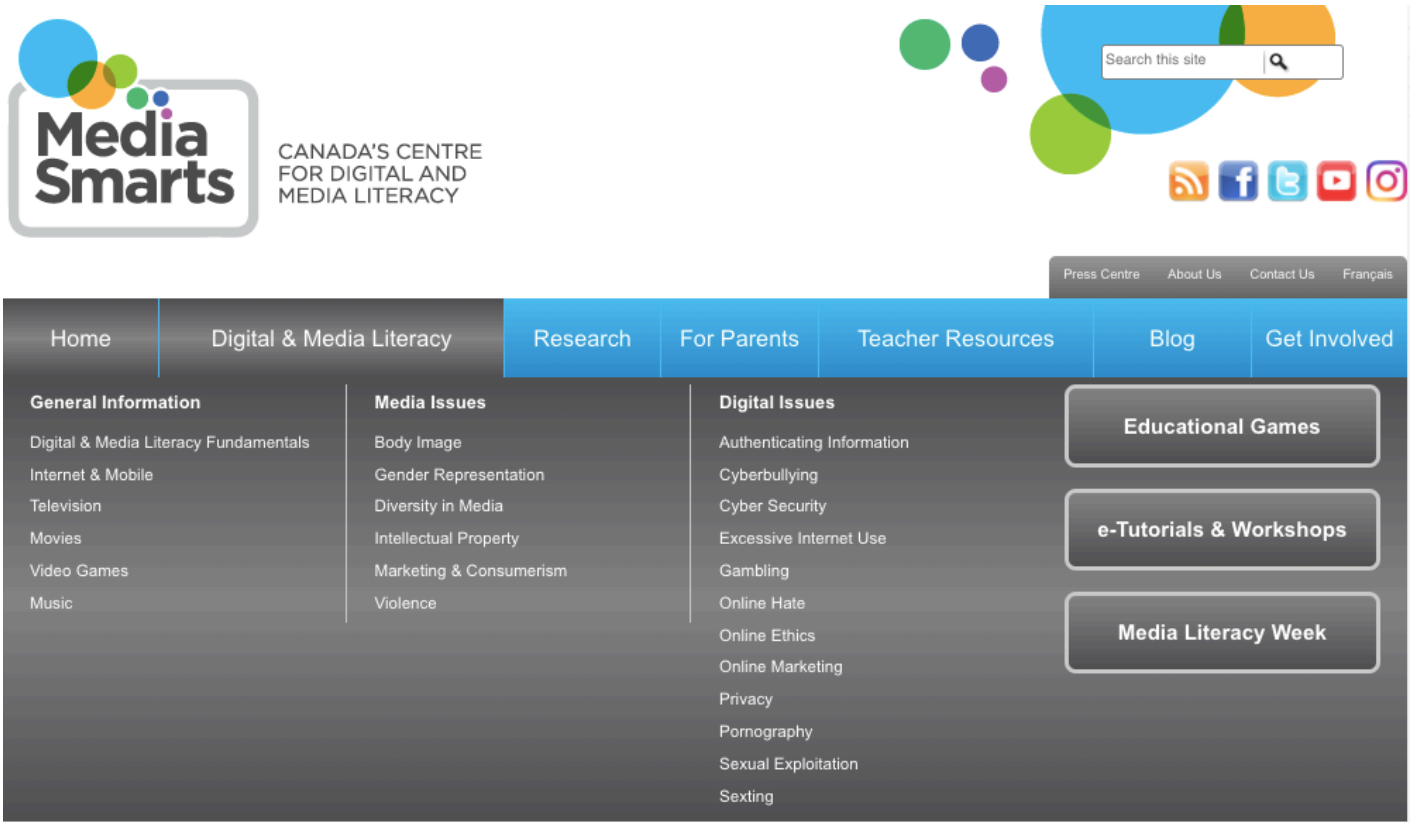


Image 6: Media Smarts provides links for students, parents, and teachers on digital and media literacy.

From a user standpoint, access to this information literacy resource was cumbersome at best and I imagine students would give up quickly if they were ever trying to access these resources; however, there resources were available and able to be found with persistence.

While some librarians used their OPACS as a way to provide online tools, others were not able to do so. One librarian, whose library did not have a unique web presence, lamented,

> Most schools with a library web presence are dependent on Library Technicians to maintain the web content. I personally find that I do not have time in my busy schedule to maintain web content. I divide my week between two schools, that allows me only 35 or so hours to each school per week.

Seeing as finding the time to update and maintain a digital presence could be an obstacle faced by many, only about half of school libraries had a digital presence for their information literacy tutorials and guides. School librarians either had no information literacy materials online (50%) or used the local school board website (Figure 7). All Toronto District School Board (TDSB) students, for instance, have a standardized virtual library connected across the board, as well as to each school. The TDSB virtual library can be found at https://www.tdsb.on.ca/library/ and individual TDSB librarians may choose whether they personally update the site for their school or not.

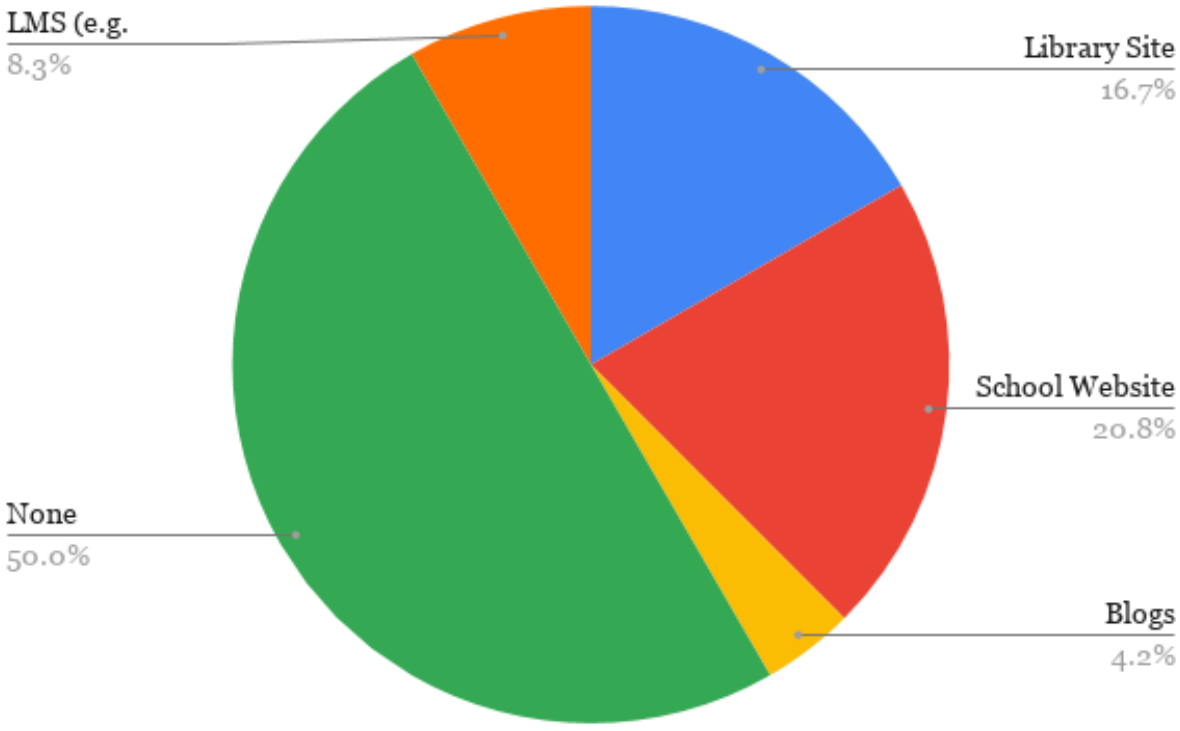


Figure 7: How can students access information literacy guides or tutorials?

There is no doubt that websites take time and effort to manage, but many librarians struggle with having little or no time for anything but their in-library duties. The next theme details what the librarians perceive to be the largest hurdles to information literacy in their schools.

Theme 4: Advocates and Obstacles to Information Literacy.

Despite their best attempts, however, it seems as though information professionals have an uphill battle in regard to information literacy instruction. Collaboration between librarians and teachers was minimal as almost 50% of respondents were given no official time to implement information literacy instruction with teachers or their school community (figure 8). The other half of respondents used time allotted within PD sessions (professional development days) or PLC sessions (professional learning community, generally one hour per week per grade).

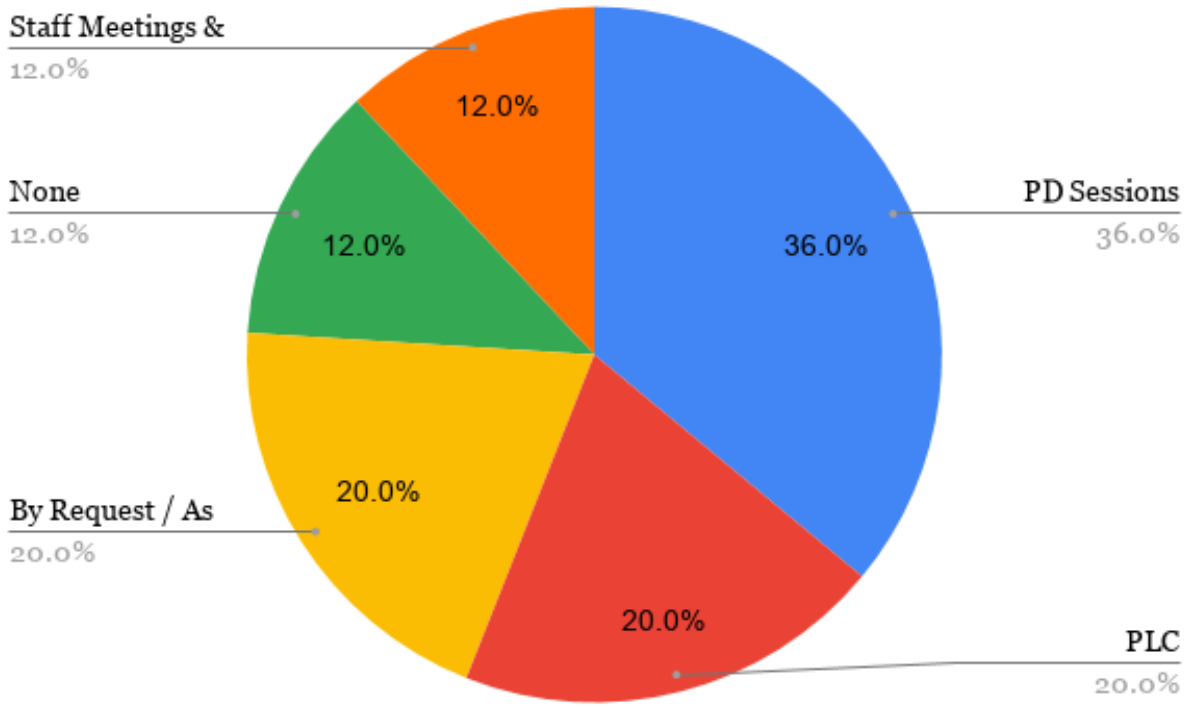


Figure 8: Collaboration between librarians & teachers

One teacher noted about the struggles she faced having a schedule not in-line with general teachers, saying,

> We have to make time ourselves, after school, or during lunch hours to collaborate and plan co teaching lessons. I don't usually have the same planning times as classroom teachers. I often get end or beginning of day planning times as teachers ask to not have these times so they can set routines for the day or talk with parents at the end of day.

Conflicting schedules with classroom teachers, unfortunately, means the librarians are not always alerted to situations that could be addressed by information literacy instruction. If the librarian is not notified of these situations, the librarian has no way of conveying their information literacy expertise to teachers. Surveyed librarians, however (35.9%) felt teachers did alert them to possible issues, while an equal amount felt the administration or parents (35.9%) let them know of any problem that could be dealt with information literacy lessons (figure 9).

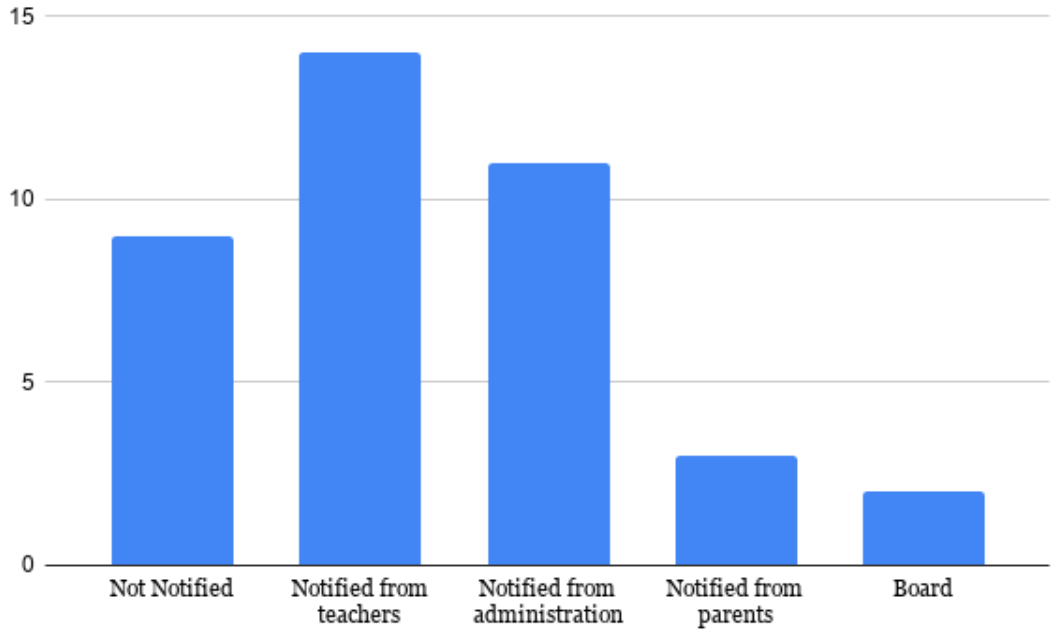


Figure 9: How librarians are notified of information literacy issues

When asked how teachers support - or do not support - information literacy instruction, librarians had wildly mixed responses. One librarian said, “teachers support IL by teaching students how to research effectively, how to cite sources properly, depending on the format requested and how to summarize, paraphrase and quote appropriately.” Still, another stated that teachers in their school “Offer digital means of completing reading/ writing/ presenting/ demonstrating comprehension” and “explicit instruction on specific platforms” to help support digital and media literacy. Conversely, some librarians felt support was lacking. One librarian complained of teachers at her school, “They don’t communicate that with me unless they need my help.” Another sadly noted, “most teachers in my school operate in isolation.” While librarians may realize information literacy is a universal issue, others may not. One interviewee stated, “Teachers think it is only my job and not part of theirs.” Conversely, some librarians were pleasantly surprised by the support they received.

While scheduling conflicts certainly were an obstacle to information literacy instruction, the largest obstacle noted by the librarians was time. Some problems, the librarians noted, were “limited time to connect with classroom teachers to plan” as well as “librarians are now part-time” and “school interruptions (ex. Fire drills, assemblies).” Still, another said, there was no urgency for information literacy instruction as it is “seen as an add on so people do not have extra time to deal with this. I often make it part of the planning time I cover when I teach media literacy. Also, I teach in a French Immersion school and teachers struggle constantly to try to run a balanced program.” These are very real and very accurate obstacles that all educators face, but teaching information literacy is not a graded subject and, therefore, tends to be ignored. Similarly, about half of the respondents saw their administrators as barriers to information literacy instruction. Librarians saw information literacy instruction as “not considered a priority”

and no time given for information literacy instruction. One noted that "Scheduling is so tight and this is not considered a priority." Another teacher librarian noted that administration provides the software to guide instruction, but gives no direction or expectation on the software's use. The largest hurdle, one librarian noted, " not having a board wide policy and procedure is half the problem." Another teacher noted that, despite having administrative support, "The program kept getting cut. It went from a full time role, to a part time role, to .25. Given that restraint, providing proper information literacy lessons was a challenge."

Conversely, the other half of respondents felt their administration was fully supportive. Librarians who feel supported mentioned having "freedom" over their teaching and "time" to actually instruct. Improved spaces, updated technology, and encouraging staff and student participation in information literacy instruction are also mentioned when the librarian felt supported by administration. One noted, "Admin supports the library program by allowing me to plan based on what I perceive to be student needs" and another appreciated the supportive staff, mentioning, "We work as a team to support our students." Another librarian commented,

> I have been encouraged to cover the topics in my Media Literacy planning time coverage or to make it part of the messages shared during collaborative learning times in the Library Learning Commons. I also have a VP who was a Teacher Librarian so encourages integration of these ideas anytime kids are present in the LLC.

School librarians are well-trained professionals and could be tremendous assets to their schools, but many face increased limitations of time, scheduling, and unsupportive administration or board. Without support, bringing information literacy to classrooms is a struggle. While some schools and administration seem to wholly support an information literacy

curriculum, others definitely fall short of what librarians view as an ideal information literacy curriculum.

Theme 5: An Ideal Curriculum

The final questions of both the questionnaire and of the structured interview were open-ended. First, I asked what interviewees believed students best responded to within information literacy lessons. Games, such as those offered using Kahoot.com or through websites like *Common Sense Media* or *Google's Be Internet Awesome*, were overwhelmingly noted as the most engaging for students. However, one interviewee said, "It is always beneficial to have honest discussions with students. This will give staff the opportunity to identify what students already know and understand. Misconceptions can be corrected and doing this in a group setting will often allow students to be "braver" with their questions."

Finally, I inquired into the librarians' opinions on how their school could better improve information literacy and information literacy instruction, and asked to know what their ideal information literacy instruction would look like. Interview respondents noted that information literacy instruction "needs to be valued as an important part of education, and our digital world." Librarians think "embedding it into regular instruction" and offering more PD on information literacy are essential to improved information literacy instruction and collaboration between teachers and librarians. Administrations should be supportive, offering increased "planning time for the teacher librarian and classroom teachers" and encouraging "teachers to utilize the expertise of the Teacher Librarian and/or use the collaborative co planning and co teaching times in the weekly schedule." Despite seemingly adequate Ontario resources, librarians note that it is imperative to "have a board wide policy and procedure" and school boards should provide increased "access to more board-wide online resources at various levels . . . add[ing] needed

resources." There are many school boards, one librarian lamented, who needed to "realize the importance of [information literacy instruction] and the fact that the school Librarian is a great resource for this subject." Finally, in an ideal situation, one librarian saw the importance of,

> A balance between virtual and actual instruction, with ample time to explore, experiment and examine multiple platforms. Students need flexible structuring of assignments that are responsive to their learning styles, needs and interests. Students need practice developing critical criteria for useful and effective tools.

No doubt school librarians have definite viewpoints on the best practices of an ideal information literacy curriculum. Without support, time, and collaboration, these ideas may just be wishful thinking.

Conclusion

The research tradition within this study uses qualitative research, which addresses problems researchers need to explore in order to discover variables or explore phenomena from different perspectives (Creswell, 2008). The data analyzed from the researcher's questionnaire focused on different perspectives, lessons, and ideas on information literacy instruction in an Ontario middle grade setting, looking at open-ended answers of participants' views of their current information literacy instruction.

The research findings indicate that all librarians taught some form of information literacy, and most integrated it into their everyday lessons. While many librarians helped train teachers on information literacy during PLCs and PD sessions, there was still an overall feeling that increased teacher training was one of the major areas of improvement the school's information literacy curriculum could see. The most prevalent issue librarians faced was lack of time to actually integrate, plan, and show the importance of a solid information literacy curriculum. That

being said, most librarians relied on trusted resources, like *Common Sense Media* and Google's *Be Internet Awesome*, to support the development of their information literacy curriculum; furthermore, they used these resources to better prepare for enhancing unit-specific information literacy sessions. Despite the importance of learning how to navigate in a digital environment, most librarians surveyed felt unsupported by school administration, a view consistent with trends in school librarianship.

The next chapter will discuss how the findings in this data analysis not only helped to answer my research question, but also how these findings fit in with the themes extracted from relevant literature.

Chapter 5: Discussion of findings

The focus of this study was to investigate information literacy instruction within Ontario middle schools as well as to seek clarification on the integration of information literacy into the general curriculum. My interests relied heavily in understanding how school librarians perceive information literacy instruction within their school, how they are supported in information literacy endeavours, and what improvements they could recommend to better their current information literacy instruction. With that in mind, the goal of this chapter is to discuss how my data analysis findings not only answer my research questions, but also how my findings fit in with the themes within relevant literature.

Literature Review Summary & Key Findings

My literature review focused on four key themes and, in this section, I attempt to connect these themes with the findings from the questionnaire and interview responses. The first theme revolved around the relationship between school librarians, the physical space of the school library, and information literacy instruction. The second theme centered around technology integration used to engage and connect learners to information literacy instruction. Third, I focused on the importance of guided inquiry to create meaningful connections between information literacy activities and knowledge absorption. Last, I looked at how information literacy instruction helps to better develop higher order thinking skills.

School Librarians, Libraries, and Information Literacy Instruction

The first theme reviewed literature that addressed the importance of both the librarian as a trained information professional as well as the importance of the physical space of the library as a hub for information literacy instruction and support. In my study, librarians noted they occasionally taught information literacy in both the library and within classrooms by request as

well as within their own library curriculum. This is supported by Loertscher and Wools (2012), as they believed that moving beyond the walls of the library and into classrooms allows librarians to step "beyond being a supplier of information to the position of co-teacher alongside the classroom instructor. Together, the content expert and the 'learning how to learn' expert use their skills to promote deep understanding" (p. 250). Though the library is an important space for information learning, taking that instruction to the classroom helps learners apply the skills of information literacy directly in conjunction with curricular units. This would ensure the concept of information literacy is not just taught in a one-time lesson and quickly forgotten, but used authentically with learners

While relocating some portions of information literacy instruction to the classrooms was an important piece to integrating information literacy instruction into the curriculum, collaboration with classroom teachers was key in almost every study. This was especially true when it came to modern teaching methods like flipped or hybrid learning. Arnold-Garza (2014) found that, when librarians were directly included in the flipping of traditional classrooms, they organically integrated information literacy into the learning, consequently influencing teachers to integrate technology and new teaching strategies. Further, Williams et al.'s (2013) study examined librarians' impact on learner achievement, highlighting the importance of the partnership between all members of the education team to support the learning experience. They discovered that schools with at least one, full-time equivalent librarian saw dramatic increases in test scores across all subjects, including "reading, maths, science, history and writing" (Williams et. al., 2013, p. 16). Williams et. al. (2013) also analyzed dozens of school library impact studies, all of which found librarians essential to maintaining curriculum content standards and

"providing students with the intellectual and technical scaffolds they need to learn and to be ethical and productive users and consumers of information" (p. 22).

Unfortunately, neither collaboration nor administrative support were common for the majority of the librarians surveyed in my study. Only eight out of 23 respondents said they felt supported by their administration, however even these respondents noted less than desirable support in other questions. One respondent, who claimed full support from the administration, noted in another question that information literacy "needs to be valued as an important part of education, and our digital world." Yet another wanted their administration to "make sure each class gets time for information literacy teaching." Another respondent who believed their administration were supportive also stated the administration needed to "realize the importance of this and the fact that the school Librarian is a great resource for this subject."

While some school librarian respondents did feel supported despite limitations, many others faced lack of time and collaborative opportunities as well as feeling as if they were used mainly as a crutch for administration rather than information specialists with advanced degrees. That being said, most librarians' ideal information literacy curriculum involved collaboration with classroom teachers and allowing the librarians to be resources for teachers and the whole school. However, the majority of the librarians had been moved to half-time or split so thinly between campuses, grades, etc., their scheduling left little time to improve collaborative relationships and the lack of support from administration left them with few options.

Collaboration with teachers was key when it came to applying information literacy skills to authentic learning experiences, but this collaboration was only possible with administrative support. Many studies have shown the importance of administrative support for libraries and librarians (Arnold-Garza, 2014; Loertscher & Wools, 2012; Williams et. al., 2013), however

only 54% of Ontario elementary schools had at least one full-time teacher-librarian (People for Education, 2019). While there is overwhelming support in literature for school librarians, most librarians in my study found this did not translate into reality despite librarians' strong abilities with educational technologies.

Technology Integration

While the librarian as an information professional as well as the physical space where information literacy was taught was seen as imperative to instruction, the internet and other forms of technology were seen as vital to information literacy instruction. Technology is an essential tool within information literacy and portions of different information literacy frameworks directly revolve around the use of technology. ACRL (2015) believed that educators should use whatever technologies and other resources best fit specific situations as technology should extend "the arc of learning throughout a learner's academic career" (p. 8). This portion of my literature review focused on how different technologies, such as bring-your-own-device (BYOD) policies, self-directed learning, and gamification and game-based learning, affects learning outcomes.

Adhikari et. al. (2017) looked at BYOD and found that, as device use increased, the boundaries between formal and informal learning spaces shifted as learners took more ownership of, and creativity with, their own learning. Increased devices led to the use of more varied tools, including tools that supported game-based or gamified learning. Wiggens (2016) as well as Tewell and Angell (2015) found the gamification of learning allowed for enhanced learning and maintaining attention. Due to trimming the questionnaire for a wider appeal, I did not specifically ask about BYOD or gamification. Librarians did, however, use online games and activities, like *Kahoot* learning games, as well other interactivities to deepen the connection of

the learner to learning. One librarian allowed access to their learning commons policies where it noted, “Virtual resources with no cost or registration and available through the school library website. Primary student access is on a frequent basis. Student access to computers is daily . . .” and these online resources offered customized “learning activities to reflect students’ diverse learning styles.”

Furthermore, another interview respondent commented that curriculum should be “a balance between virtual and actual instruction” with a myriad of online and physical resources. While I was not able to delve into the device aspect of learning, the librarians did note their reliance on different technologies to help deliver their instruction, including multiple websites and databases provided by the school board to help build, expand, and improve information literacy instruction. In Ontario, each school district provides specific online research databases and other technologies to the schools within their district. For example all public school students in the Toronto District School Board have access to *Capstone Interactive*, *BookFlix*, and *Gale Virtual Reference Library*, which are interactive ebook databases, as well as research databases such as *Gale in Context*, *PebbleGo*, *ProQuest CultureGrams*, and *EBSCOHost*. In the Delhi District School Board, students have access to online databases like *EBSCOHost* and *Gale in Context*. The Near North District School board offers students ebook collections through *EBSCOHost* and *Gale Virtual Reference Library* as well as research databases through *EBSCOHost*, *Gale OneFile, Gale Cengage*, *ScienceFlix*, and *Scholastic Go!*. Other school districts had very few databases offered. The Superior-Greenstone District School Board seemed to only offer access to *Xello,* a career preparedness tool with integrated lessons, and *EDSBY*, a learning management system. Likewise, the Ottawa Catholic School Board seemed to only offer access to *EBSCOHost* research database. Nonetheless, online databases provide learners with a

safe space to find answers and practice research skills as well as help learners to critically assess a resource's relevancy, accuracy, and authority. Online databases guide learners towards new abilities to learning, ultimately allowing them to understand the perspectives of different digital activities, media, and found information, all of which are key elements within information literacy instruction.

Both researchers and surveyed librarians viewed technology as a means to both support and enhance information instruction. While many surveyed librarians were not allowed the time nor support to implement technologies, technology could be used to guide student inquiry, putting the students in control of their own learning.

Guided Inquiry

Technology is an essential part of supporting modern learning outcomes, but it should not be used to just replace traditional learning practices. Technology should enhance learning and one way to support technology enhancements is through guided inquiry, which puts the learner in control of their own learning. Lee, Grant, Neuman, and DeCarlo (2016) found that students who created projects with wider and more meaningful contributions to community issues were better able to understand how to locate and evaluate information. Further, Maybee and Flierl (2016) saw that students appreciated task autonomy, which allowed them improved engagement and motivation. Likewise, FitzGerald and Garrison (2016) showed how the process of guided inquiry improved understanding, increased engagement, and enhanced fluency with information literacy competencies. Through an analysis of data, I found librarians in my survey lauded the freedom they had at creating their own curriculums based on the perceived needs of their student so they could focus more on guided inquiry when creating their content "based on what I perceive to be student needs," as one librarian noted. Further, when asked what their schools

could do to improve information literacy instruction, librarians overwhelmingly endorsed the theories behind guided inquiry. One respondent said instruction needed, “a balance between virtual and actual instruction, with ample time to explore, experiment and examine multiple platforms. Learners need flexible structuring of assignments that are responsive to their learning styles, needs and interests. Learners need practice developing critical criteria for useful and effective tools.” Another librarian stated there needed to be “more time to plan in order to integrate more information literacy into curriculum units/inquiry school wide for K-8.” Others substantiated these ideas, agreeing that administration needed to “support a year-long, IL & digital literacy curriculum” by “embedding it into regular instruction” as well as “encourage teachers to utilize the expertise of the Teacher Librarian and/or use the collaborative co planning and co teaching times in the weekly schedule.”

Guided inquiry puts learning in the hands of the learner and is an important step of learner engagement, facilitating both knowledge absorption and the development of higher and deeper learning skills. Guided inquiry facilitates the development of deeper learning skills by actively engaging learners, an almost imperative goal to support 21st century needs.

Deeper Learning Skills

Allowing learners to drive lessons through guided inquiry is proven to make learning more relevant to their lives as well as improve a learner’s ability to take what is learned in one situation or subject and apply it to another situation or subject. This is known as deeper learning and it is essential to not only create a drive for lifelong learning, but also allows instructors to allow learners a more active role in the learning process as a whole. Ng (2012) sought to understand how students adopted unfamiliar technologies into their learning, discovering that, though “digital natives” had ideal access to technology, they did not actively seek out new

technologies or information literacy competencies outside of their courses without instruction. Similarly, very few librarians in my study noted any deeper learning occurring during their library sessions. Similarly to the obstacles of guided inquiry, the stressors of time and lack of support from administration were huge barriers towards deeper learning. In order for deeper learning to be an attainable goal, information literacy instruction needs to be balanced within the general curriculum. One librarian shared with me their learning commons policies. Under their "technology in learning" section they wrote,

> Students appear to have natural abilities to use emerging technology. But the reality is, while students easily grasp the entertainment and communication value of the devices they use, they need to be taught how these tools can be used in learning and critical thought.

Furthermore, Bruce and Casey (2012) argued that information literacy could be fully comprehended through participation and learner-centered pedagogy, combined with new technologies, could spark more curiosity and, therefore, facilitate increased participation. Bjørgen and Erstad (2015) found deeper learning best achieved when learners are provided opportunities to engage and compare in different settings with the goal of critically navigating different practices. Providing differentiated engagement activities seemed to be an enormous challenge for librarians. Though half of the librarians appreciated the freedoms their administrations allowed them to take in order to create a curriculum they believed best fit their school, an equal number of respondents believed the administration did not support their information literacy instruction. In fact, all of the librarians lamented the fact that their positions were cut so far there was little time for any instruction at all. One librarian mentioned that information literacy instruction was an afterthought as "scheduling is so tight and this is not

considered a priority." Yet another respondent bemoaned, "I do what I can with K-3 students but my impact is minimal. I leave media literacy to the homeroom teachers to cover." A third librarian said, "The grade 4-8 students do not see the teacher librarian. I only see K-3 due to the way my school board allocates my time." Without investing the time for deeper learning to take place, even learners with an ideal access to technology and other learning resources may not actively seek out ways to learn new technologies or information literacy competencies that encourage deeper learning.

Both the librarians surveyed and the literature reviewed found that learners who have information literacy education integrated into the general curriculum not only learn better, but can also apply acquired information literacy competencies to multiple subjects better than learners who had information literacy courses as a separate library tasks (Buchanan, 2016; FitzGerald, & Garrison, 2016; Geck, 2016; November, 2012; November, 2015; Ontario, 2016). To do this, most of the librarians wanted increased collaboration between themselves and the classroom teacher as both instructors within the library space as well as in the classroom. Increased collaboration would allow for more customized learning paths, an important piece to learning found in both the literature and the librarian responses, to allow for continual and transferable learning (Loertscher & Wools, 2012; Moreira, 2010; November, 2012; November, 2015). However, librarians felt there were many hurdles including time, lack of support, and administration not prioritizing information literacy instruction. The literature concurred, with researchers noting that classroom teachers must be engaged and see the librarian and the library as a physical space as a partner in learning (Arnold-Garza, 2014). Both the literature and my study deemed information literacy instruction as, ostensibly, a duty of the school librarian, but learner success is the responsibility of the school as a whole. Many schools do not recognize the

full potential of librarians as information professionals as well as their abilities to promote access to information. Librarians in my study wanted improved collaboration and support, which researchers have identified as a critical factor to achieve learner success.

The next section will detail my research questions and sub-questions and answer them based on the data analysis.

Summary of Findings

The purpose of this research was to investigate information literacy instruction within Ontario middle schools and to seek clarification on the integration of information literacy into the general curriculum. This section hopes to clarify my three sub-questions and the main research question.

Sub-question 1: How do school librarians integrate information literacy into their teaching and/or within the Ontario curriculum?

Librarians used a wide array of resources to help them build unique information literacy lessons for their students. The most frequently used resources included resources provided by the Canadian Library Association (CLA) or Ontario Library Association (OLA); professional library associations like the American Association of School Librarians (AASL), Association of College and Research Libraries (ACRL), Association for Supervision and Curriculum Development (ASCD), or International Society for Technology in Education (ISTE); Common Sense Media; professional learning networks; and school board resources. As most of the librarians surveyed were half-time, however, they only occasionally taught information literacy in both the library and within classrooms. Further, most were unable to collaborate with teachers to improve information literacy connection to curriculum standards.

Sub-question 2: What are school librarians' perceptions of "best practices" for an ideal information literacy instruction or curriculum?

Most librarians' ideal information literacy curriculum centered around collaboration with classroom teachers and allowing the librarians to be resources for the school community. This could not be possible without support from both administration and the school board as librarian and teacher schedules rarely overlapped. Librarians desired more support school and board-wide to allow them to not only create customized learning activities for active learning in both online and physical capacities, but also wanted improved teacher professional development for school-wide information literacy education and increased collaboration time with teachers to integrate these skills into the learner's everyday lives. Respondents also wanted increased implementation of guided inquiry, specifically to design content to match the learner's needs, allowing learners more time for exploratory research and flexibility in learning.

Sub-question 3: When teaching information literacy, who should do the teaching? Where should the teaching take place? When should learners be taught teaching?

Both the literature and the respondents deemed information literacy instruction as, ostensibly, the duty of the school librarian; however, learner success was viewed as the responsibility of the school as a whole. When it came to applying information literacy skills to authentic learning experiences, collaboration with teachers was viewed as a key factor for respondents, but this collaboration could only be possible with administrative support. Many schools did not recognize the full potential of librarians as information professionals nor understand the librarians' abilities to promote access to information. Librarians in my study wanted improved collaboration and encouragement from administration for teachers to use the expertise of the

librarians and embrace information literacy co-planning both inside the library and within the classroom.

Loertscher and Wools (2012) believed that moving beyond the walls of the library and into classrooms allows librarians to step "beyond being a supplier of information to the position of co-teacher alongside the classroom instructor" (p. 250). Librarians in my study concurred with researchers, believing a mixture of in-library instruction, virtual, and in-class instruction with teacher collaboration were the best places for information literacy instruction. Though the library was an important space for information learning, taking that instruction to the classroom could help learners apply the skills of information literacy directly to curricular units allowing students to make more meaningful connections to the skills.

Both the librarians surveyed and the literature reviewed found that learners who have information literacy education integrated into the general curriculum not only learn better, but can also apply acquired information literacy competencies to multiple subjects better than learners who had information literacy courses as a separate library tasks (Buchanan, 2016; FitzGerald, & Garrison, 2016; Geck, 2016; November, 2012; November, 2015; Ontario, 2016). Librarians desired more time to plan with teachers so they could better integrate information literacy into curriculum units as well as improve opportunities for deeper learner inquiry school wide. Hence, most of the respondents wanted administrative support for a year-long information literacy program embedded directly into regular instruction, with information literacy connected directly to curriculum expectations.

Main Research Question: How are information literacy skills integrated at the middle-school level within an Ontario context?

When comparing the reviewed literature to that of my analysis, it doesn't seem as though information literacy skills in Ontario are implemented very well. Librarians, now mostly employed in half-time positions, rarely found opportunities to collaborate with teachers and improve upon school-wide information literacy instruction. Some librarians were only allowed to actually teach specific grades or cohorts of students, while others had difficulties making an impact due to time constraints and limited support from administration. While all questioned librarians seemed to know the best practices recommended by groups like the American Library Association (ALA), the American Association of School Librarians (AASL), and the International Society for Technology in Education (ISTE), very few schools actually adopted these principles of collaboration, active learning, and personalizing lessons to improve knowledge absorption. Information literacy is a difficult topic to assess as it's not plainly written as curricular expectations, so administration did not prioritize information literacy instruction.

Implications

After reviewing the literature and analyzing data from my questionnaire, it seems as if there is a universal consensus among librarians and researchers about what works, and what doesn't work, for information literacy instruction. These implications are fairly simple, but any chance for implementation would need to overcome tremendous hurdles.

One implication of my study was that the majority of librarians felt they were well trained and able to conduct information literacy instruction on a school-wide basis. Librarians already had either an entire information literacy curriculum or the basic structures of classes and curriculums in place. Using websites, database resources, and other information literacy curriculums, librarians were able to expand upon their already designed curriculum using different online tools when presented with challenging situations, such as a sudden plagiarism

lesson or cyber bullying incident. Librarians lamented their reduced hours and urged for collaboration as they wanted to be used as a resource.

Moreover, both the librarians surveyed and the literature reviewed voiced the importance of having an integrated and collaborative information literacy curriculum where librarians took an active role in classes. An integrated curriculum combined with guided inquiry related to in-class tasks would help learners better able to transfer knowledge between subjects and attain the deeper knowledge that educators strive for.

Conversely, both the information literacy curriculum and the integration of lessons came with significant challenges. What all librarians lacked was both time and support, as most librarians felt administration didn't prioritize information literacy and didn't know how to best use the information professionals readily available within their schools to the best of their abilities. Since the subject of information literacy is not included within report card grades, some librarians felt their administration did not encourage collaboration with teachers and, as well, they did not prioritize information literacy instruction. Furthermore, without board-wide policies librarians felt actively discouraged from enhancing the information literacy curriculum due to time constraints, their own time being used for other endeavours, and information literacy being viewed as a supplemental subject.

While the implications of my study are fairly simple, the limitations I faced conducting the study and gathering participants were fairly complex.

Limitations

The focus of this study was to investigate how librarians conducted information literacy instruction within Ontario middle schools, specifically to seek clarification on the integration of

information literacy instruction within the general curriculum as well as to glean recommendations of instructional best practices.

My study used a qualitative method case study with a questionnaire and interview. As noted in the methodology section, there are several limitations to each of these tools. The limitations of case studies may include questionable epistemological orientations, suffering from more bias than other methods, and can be lengthy and, thus, go unread to intended audiences. Questionnaires equally have noted limitations. Researchers take issue with questionnaires as they are difficult to glean whether or not questions are fully understood or if the respondents have provided accurate data. Further, other limitations of questionnaires include low return rate, misinterpretation of questions or wording, longer wait time to receive responses, and lack of interaction between participants and researchers.

Likewise, there were real limitations to gathering participants and contributing data for my study. My initial questionnaire revolved around the themes extracted from the literature review; however, after contacting over 70 schools, principals, and librarians, I received very little feedback. I then contacted board members of the Ontario Library Association (OLA) to glean advice on obtaining interest and response to my research questionnaire. After reviewing the questionnaire, the OLA board members recommended paring down the questions to appeal to more participants. Though the revised questionnaire and interview questions attempted to remain thematically similar to the literature review themes, it was difficult to extract the comprehensive understanding from the provided data.

The next limitation was the time it took to find participants. I attempted to gather participants throughout the entire school year beginning in early November, 2018. Since I was initially told I needed to interact directly with TDSB school principals, I waited three weeks for

their responses. I sent a follow-up email in late November and then phoned each school in early December. Due to the holidays, I was told to follow-up again in January. Throughout that winter and spring, I spoke with teachers and other school personnel who offered dozens of leads for respondents that, ultimately, failed. It was not until I contacted OLA board members did I make any real progress in getting connected with librarians, but by that point it was library conference season and no one was willing to spend the time on my questionnaire. In August 2019, I engaged multiple social media channels to broaden my search for participants.

Another limitation may be my personal bias. I am a librarian and currently working in a K-8 school in Ontario. Though I am not a teacher-librarian who has both a teaching and library sciences degree, I am well-versed in educational pedagogy, the Science of Teaching and Learning (SoTL), and Universal Design for Learning as well as educational technology integration, instructional design, and user experience design. My true passion, however, is bringing information literacy to the masses and I am a strong advocate for building these skills in learners of any age through collaboration with faculty to create active and inquiry-based learning. That being said, like many of my respondents I have been jaded by our current education system and feel underutilized, underappreciated, and an afterthought in the cog of the business of education. While I have remained in a full-time position unlike many of my fellow school-librarians, my position has been incredibly diminished and my frustrations of what I know to be best practices for student learning being overshadowed by the best practices for business development have made me incredibly discontented and disheartened.

As these limitations were very palpable during my research, further research needs to be done to understand all facets of information literacy instruction in Ontario.

Further Research

The focus of this study was to investigate information literacy instruction within Ontario middle schools as well as to seek clarification on the integration of information literacy into the general curriculum. In future research, it would be beneficial to find a wider array of school librarian participants throughout K-12 education. This could be done with increased support from the Ontario Library Association and/or the Ontario School Library Association. Responses from administration as well as teachers would also be beneficial to get a more complete view from the different players in information literacy instruction. Furthermore, observations of actual information literacy classes within different schools could add yet another layer to the depth of this research. Increasing the amount of face-to-face interviews with librarians, teachers, and administration would also be incredibly beneficial to gather more viewpoints about the face of information literacy instruction within education. Lastly, comparing information literacy curriculum, classes, and instruction between the different grade levels, such comparing elementary, middle, and high schools, to what is expected within higher education would also add further depth to the information literacy needs of learners.

Conclusion

The focus of this study was to investigate information literacy instruction within Ontario middle schools as well as to seek clarification on the integration of information literacy into the general curriculum within an Ontario context. My study found most surveyed librarians did teach information literacy in both the library and within classrooms by request as well as within their own library curriculum. That being said, very few saw the library at their school positioned as a place of research and learning. While the librarian as an information professional as well as the physical space where information literacy is taught were viewed as important components to

instruction, the internet and other forms of technology were vital pieces to a complete information literacy instruction. Librarians noted the need to use whatever technologies and other resources best fit specific situations as technology should augment learning and inspire active learning. Lastly, librarians overwhelmingly noted guided inquiry was part of their ideal information literacy curriculum as it is a crucial piece to achieving deeper learning. However, many schools do not recognize the full potential of librarians as information professionals as well as their abilities to promote access to information. Administration should encourage collaboration and board-wide policies to better guide professionals and promote information literacy.

My literature review emphasized the changing roles of school librarians and the school library, noting the necessity of collaboration and supporting classroom teachers to facilitate information literacy instruction into a learner's daily studies. While some librarians in my study remarked positively on their collaborations with teachers and support by administration, many felt they were used mainly as a crutch or as a non-essential, supplementary support worker rather than as specialists in information literacy. Research has shown that students who have information literacy education integrated into the general curriculum not only learn better, but can also apply acquired information literacy competencies to multiple subjects better than students who had information literacy courses as a separate library task (Buchanan, 2016; FitzGerald & Garrison, 2016; Geck, 2016; November, 2012; November, 2015; Ontario, 2016). Most school librarians in my study desired increased collaboration between themselves, administration, and classroom teachers both in the learning commons space as well as in classrooms.

Furthermore, researchers examined librarians' impact on learner achievement, highlighting the importance of the partnership between all members of the education team to support the learning experience (Lance & Kachel, 2018; Lo et al., 2014; Williams et. al., 2013). My study found librarians had the urge to improve this partnership, but lack of time and administrative support left them with few options to improve information literacy curriculum. Similarly, there are many studies examining the positive impact of librarians' on student achievement, but most librarians in my study saw their positions diminished to half-time and the lack of time was a major barrier to instruction (Lance & Kachel, 2018; Lo et al., 2014; Williams et. al., 2013). Lack of time and support were also barriers to technology integration, as librarians felt they had little time to learn and implement new technologies and also received little direction from administration. Researchers concurred, as literature found an overall lack of utilization of the school librarian, often showing school districts, teachers, and administrators did not recognize nor understand a librarian’s full potential (Lo et al., 2014).

Likewise, support for librarians could also support guided inquiry, as all librarians in my study saw their ideal information literacy curriculum involving the theories behind guided inquiry, such as free exploration of virtual and in-person work, flexible structuring of lessons, and exploratory research. Both the literature and the librarian respondents felt information literacy instruction with similar recurring and integrated lessons should be customized to the learners’ academic level as well as tailored for continual and transferable learning (Loertscher & Wools, 2012; Moreira, 2010; November, 2012; November, 2015; Maybee & Flierl, 2016). Allowing for guided inquiry could then further help librarians support classroom and information literacy instruction by giving way for more deeper learning, which is a learner’s ability to take what is learned in one situation or subject and apply it to another situation or subject (FitzGerald

& Garrison, 2016; Bruce and Casey, 2012; Bjørgen & Erstad, 2015). Research supported this idea, as the literature found learners who have information literacy education integrated into their core classes not only learn better, but can also apply competencies to multiple subjects better than learners who had separate information literacy instruction (Buchanan, 2016; FitzGerald, & Garrison, 2016; Geck, 2016; Ng, 2012; November, 2012; November, 2015; Ontario, 2016).

To summarize, the focus of this study was to investigate information literacy instruction within Ontario middle schools as well as to seek clarification on the integration of information literacy into the general curriculum. My research discovered that most Ontario librarians were, in fact, teaching information literacy at some level. That being said, very few librarians saw themselves positioned as an essential member of their school research and learning community. Librarians believed their role as an information professional and the physical space where information literacy is taught were imperative to instruction, the internet and other forms of technology were seen as vital to information literacy instruction and guided inquiry, but many respondents felt their schools did not recognize the full potential of librarians as information professionals as well as their abilities to promote access to information.

The implications of both my study and the discussed literature show that most educators do recognize the importance of information literacy, but it does not fit into a traditional teaching model and must, instead, be taught in a dynamic context where learners control their learning (Loertscher & Wools, 2012; Ontario, 2016). My study highlights the need of the education system to better support librarians in order to implement information literacy. Encouraging collaboration and board-wide policies could help to better promote information literacy and make the subject a mainstay within the curriculum. Education reform, however, is not only slow to change static behaviour, but it also fights back. School librarians, who have the education

background, training, and knowledge to help foster information literacy, are often seen as only supporting staff unable to contribute to the learning culture of the school. However, school library impact studies across the world have conclusively shown a positive correlation between learner achievement and the presence of a school librarian, especially when a school librarian is allowed to lead learning goals and is allowed to create an active program for learners (Lance & Kerbel, 2018, p. 17).

This investigation provides a unique insight into the under-researched topic of information literacy curriculum within Ontario-specific classrooms. Using a qualitative research case study supported with a questionnaire and interviews, this study reveals a pattern of information literacy instruction in Ontario schools. This research provides new understandings on how librarians instruct information literacy and how schools support the librarians as well as information literacy curriculums. The implications of my study highlight the need to better support librarians in order to implement information literacy. Encouraging collaboration and board-wide policies could help to better promote information literacy. While there were several issues regarding the limitations of my study, it can be used as a starting point for further research. This research and the resulting data contribute to new understandings of information literacy instruction in Ontario education as all educators want to improve deeper learning and one way is by improving information literacy curriculum. Despite the literature and first-hand recommendations from librarians within their schools, the data suggests there is a long way to go before information literacy instruction is prioritized within schools. Despite limitations, my study is valuable to inform future researchers and policymakers to help understand the complex relationship between Ontario librarians, administration, and the problematic topic of information literacy instruction.

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Appendices

Appendix 1: ICEHR Approval

MEMORIAL UNIVERSITY

Interdisciplinary Committee on Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C 5S7
Tel: 709 864-2561 icehr@mun.ca
www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	**20191789-ED**
Approval Period:	October 31, 2018 – October 31, 2020
Funding Source:	
Responsible Faculty:	Dr. David Gill Faculty of Education
Title of Project:	*Information literacy instruction in middle grade classrooms*
Amendment #:	***01***

January 28, 2020

Ms. Abigail Colucci
Faculty of Education
Memorial University of Newfoundland

Dear Ms. Colucci:

The Interdisciplinary Committee on Ethics in Human Research (ICEHR) has reviewed the proposed revisions for the above referenced project, as outlined in your amendment request dated January 18, 2020, and is pleased to give approval to the revised survey and interview questions, as described in your request, provided all other previously approved protocols are followed.

If you need to make any other changes during the conduct of the research that may affect ethical relations with human participants, please submit an amendment request, with a description of these changes, via your Researcher Portal account for the Committee's consideration.

Your ethics clearance for this project expires October 31, 2020, before which time you must submit an annual update to ICEHR. If you plan to continue the project, you need to request renewal of your ethics clearance, and include a brief summary on the progress of your research. When the project no longer requires contact with human participants, is completed and/or terminated, you need to provide an annual update with a brief final summary, and your file will be closed.

Annual updates and amendment requests can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage.

The Committee would like to thank you for the update on your proposal and we wish you well with your research.

Yours sincerely,

Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary Committee on
Ethics in Human Research

KB/bc

cc: Supervisor – Dr. David Gill, Faculty of Education

Appendix 2: School Board Permission Document

My name is Abigail Colucci and I am a Master of Education Technology Student in the Faculty of Education at Memorial University of Newfoundland. I am also a librarian at [redacted] in Toronto. I am conducting a research for my graduate thesis called *Information literacy instruction in Ontario middle grade classrooms*. The purpose of the study is to explore the teaching of information literacy education to grades 5-8 within an Ontario-specific context. I am contacting you as I would like to invite the school's librarian to participate in an online questionnaire in which s/he will be asked to share their experiences teaching information literacy in an Ontario, middle grade context. Some participants may also be asked for a follow-up interview and/or observation. No student information will be obtained or needed during the entirety of this process.

Purpose of Study:

The purpose of this study is to explore the teaching of information literacy to middle grade students within an Ontario context. Specifically, this study will be seeking to understand the integration of information literacy into the curriculum from a Canadian standpoint. My proposed study will look to formulate evidence-based recommendations by investigated a variety of Canadian schools and discovering how information literacy is instructed, assessed, and what an ideal information literacy curriculum would look like.

The study's main research question asks how information literacy skills are integrated at the middle school level within a Canadian context. Sub-questions include:

1. Where is information literacy instruction taught?

2. Who is involved in information literacy instruction?

3. What is the focus of information literacy instruction?

4. How often is information literacy taught during the school year?

Selected librarians who wish to participate in this study will fill out an online questionnaire, which you can access by clicking this link to view, entitled Information literacy instruction in Ontario middle grade classrooms. All questions are voluntary and the participant may skip any questions s/he does not wish to answer.

Confidentiality and Anonymity

The data from this research project will be published as a thesis for Memorial University of Newfoundland's education program; however, all identities will be kept confidential. Although I may report direct quotations, all identifying information will be removed from the final report.

Storage of Data

The researcher and her advisor will be the only people who have access to the collected data. Any recorded interviews and transcriptions will be stored digitally on the researcher's password protected work computer.

Any electronic copy of the data will be stored on password protected computers or online services with only the researcher having access. Any printouts will be stored in the researcher's secure Memorial University and/or home office. The data will be kept for a minimum of five

years, as required by Memorial University policy on Integrity in Scholarly Research after which time it will be deleted from any file system and any hard copies will be securely shredded.

Reporting of Results and Sharing of Results with Participants

Upon completion, the thesis will be publicly available at Memorial University's Queen Elizabeth II library, and can be accessed online at http://collections.mun.ca/cdm/search/collection/theses. Participants can request digital copies of this project at any time after completion by emailing [redacted] or [redacted].

What Participants Will Do in this Study:

Participants will be invited to participate in an online questionnaire for this research study. The online questionnaire will ask questions related to the school librarian's experiences teaching information literacy to middle grade students within an Ontario context. Completing the questionnaire will require approximately 20 to 40 minutes. At the end of the questionnaire, participants will be given the opportunity to indicate if they would like to also take part an interview and/or potential classroom observations. If librarians indicate a willingness for further research, they may be contacted at a later date concerning the details of continued participation. Continued participation with the study may involve an interview and/or an observation. The interview will be audio-recorded with the teacher's consent. The digital recording of the interview will be transcribed. During the interview, the participants will be asked to expand upon the answers submitted from the questionnaire. Specifically, some questions may include:

- If you co-teach information literacy, how do you develop the lessons?
- Do you change your information literacy lessons based on current events?
- Do you change your information literacy lessons based on issues that occur during the school year (e.g. cyberbullying, digital footprint, etc.)?
- What are the obstacles, or perceived obstacles, to information literacy instruction in your school?
- What can your school do to improve information literacy & information literacy instruction in your school?

Further participation may involve the researcher conducting an observation in the school library/classroom during an instructional session where the librarian is teaching information literacy. Participants will not be asked to do anything specific for this portion of the study. The observation portion should take one library period plus additional time for any follow-up questions. Additional follow-up questions to the observation can be completed at the participant's convenience through email or phone and will take no more than 20 minutes of time.

Length of Time:

The questionnaire will take approximately 20 to 40 minutes of time. The interview will take approximately 30-60 minutes of time and will be scheduled at the participants' convenience. The observation will take one library period plus additional time for any follow-up questions. Additional follow-up questions, which can be completed at participants' convenience through email or phone, may be needed and will take no more than 20 minutes of time. Participants may decline to answer any questions that are asked in the questionnaire, interview, or observation follow-up.

Withdrawal from the Study:

School librarians approached to take part in this study do so completely voluntary and are under no obligation to participate. If participants wish to withdraw from the study while completing the online questionnaire, they can exit the webpage at any time before they click the final submission button. All information, such as the informed consent forms, will come directly to the researcher.

If participants wish to withdraw from the study once answers have been submitted or after interview/observation, they may email [redacted] or [redacted] anytime before August 2019.

Possible Benefits:

Questionnaire participants may gain new insights related to their personal pedagogies and methodologies in middle grade education.

There are at least three scholarly benefits that may come from this study. First, it will contribute to the growing body of knowledge concerning information literacy education. Second, it will add to the literature that legitimizes information literacy education as a serious curriculum area and may in turn lend support to other marginalized curriculum areas. Third, it will fill a gap in the local understanding of information literacy education in a middle grade context.

Possible Risks:

There is little to no risk to participants with regard to participating in the study. School librarians are being asked to make a voluntary decision as to whether they wish to participate. If there are any parts of the information that they do not understand, they may email [redacted] or [redacted] for clarification.

Questions may cause participants discomfort and/or put them in a position to criticize authority figures within the school and/or district. Participants are not obligated to answer any questions that make them feel uncomfortable. To minimize any potential impact, no identifying information will be used in the reports and publications. There is no remuneration for participating in this study.

The data collected from all participants in the study will be analyzed and used within a graduate thesis. The final thesis may also be used within journal publications and presentations as well as to inform the education community.

Confidentiality and Anonymity:

Confidentiality is ensuring that identities of participants are accessible only to those authorized to have access. Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

The data from this research project will be published as a thesis for Memorial University of Newfoundland's Masters of Education Educational Technology program; however, identities of all participants will be kept confidential. Although the researcher may report direct quotations, all identifying information will be removed from the final report. Name, email address, and location will be kept confidential and a pseudonym, if necessary, will be created for the final drafts of this thesis.

Storage of Collected Data:

The researcher and her advisor will be the only people who have access to the collected data. Any electronic copy of the data will be stored on password protected computers or online services with only the researcher and her advisor having access. Any printouts will be stored in the researcher's secure home office. The data will be kept for a minimum of five years, as required by Memorial University policy on Integrity in Scholarly Research, after which time it will be deleted from any file system and any hard copies will be securely shredded.

Reporting of Results and Sharing of Results with Participants:

Upon completion, the thesis will be publicly available at Memorial University's Queen Elizabeth II library, and can be accessed online at http://collections.mun.ca/cdm/search/collection/theses. Participants can request digital copies of this project at any time after completion by emailing [redacted] or [redacted]

Questions:
Participants are welcome to ask questions at any time during their participation in this research. If they would like more information about this study, please contact:
Abigail Colucci, MLIS
Graduate student, Faculty of Education
Memorial University of Newfoundland
E-mail: [redacted] or [redacted]

The online survey company, Google Forms, hosts all data within the United States and, as such, is subject to U.S. laws. The US Patriot Act allows authorities to access the records of internet service providers. Therefore, anonymity and confidentiality cannot be guaranteed. If participants choose to participate in this survey, they understand that their responses to the survey questions will be stored and may be accessed in the USA. The security and privacy policy for the web survey company can be found at the following link: https://www.google.com/policies/privacy/. The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If participants have ethical concerns about the research, such as the way they have been treated or their rights as a participant, they may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:
Consent to participation in the questionnaire, interview, and observation mean participants agree:
- They have read the information about the research.
- They understand they may ask questions about this study and receive answers prior to continuing.
- They are satisfied that any questions they had have been addressed.
- They understand what the study is about and what they will be doing.
- They understand that they are free to withdraw participation from the study without having to give a reason and that doing so will not affect them now or in the future.
- They understand their participation in this study is completely voluntary and they are under no obligation to participate. They may withdraw without reason anytime before August 2019.

If you or participants have any questions about me or my project, please contact me by email at [redacted] or [redacted].

Thank-you in advance for considering my request,

Abigail Colucci, MLIS
E: [redacted] or [redacted]
Faculty of Education
Memorial University of Newfoundland
St. John's, NL, Canada, A1B 3X8

The online survey company, Google Forms, hosting this survey is located in the United States and as such is subject to U.S. laws. The US Patriot Act allows authorities to access the records of internet service providers. Therefore, anonymity and confidentiality cannot be guaranteed. If you choose to participate in this survey, you understand that

your responses to the survey questions will be stored and may be accessed in the USA. The security and privacy policy for the web survey company can be found at the following link: https://www.google.com/policies/privacy/.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as your rights as a participant, you may contact the Chairperson of the ICEHR at icehr.chair@mun.ca or by telephone at 709-864-2861.

Appendix 3: Librarian Recruitment Letter

Subject Line: Information literacy in Ontario middle grade classrooms

Dear School Librarian,
My name is Abigail Colucci and I am a Master of Education Technology Student in the Faculty of Education at Memorial University of Newfoundland. I am conducting research for my graduate thesis in education called *Information literacy instruction in Ontario middle grade classrooms*. The purpose of the study is to explore the teaching of information literacy education to grades 5-8 within an Ontario-specific context.
I am contacting you to invite you to participate in an online questionnaire in which you will be asked to share your experiences teaching information literacy in an Ontario, middle grade school. Participation will require approximately 20 to 40 minutes of your time to complete the questionnaire.
At the end of the questionnaire you will be given the opportunity to indicate if you would like to also take part an interview and/or potential classroom observations. All questions and participation in the interview or observation are completely voluntary and you are under no obligation to complete these tasks. If you indicate your willingness, you may be contacted at a later date concerning the details of your continued participation. If you decide to take part in an interview it will take approximately 30-60 minutes of your time and will be scheduled at the your convenience. If you decide to, and are selected for, observations you should expect to invest one library period for observation plus additional time for any follow-up questions. Follow-up questions to the observation will take no more than 20 minutes and can be completed at your convenience through email.

Participating in this study is not a job requirement nor will you be penalized for not completing any parts. Your name, school email address, and location will be kept confidential and a pseudonym, if necessary, will be created for the final thesis drafts.
If you are interested in participating in this study, please click the link below to access the online questionnaire: Information literacy instruction in Ontario middle grade classrooms questionnaire (CLICK THIS LINK)
If you have any questions about me or my project, please contact me by email at [redacted] or [redacted]. Further, if you know anyone who may be

interested in participating in this study, please give them a copy of this information or let me know by emailing me at [redacted] or [redacted].
Thank-you in advance for considering my request,

Abigail Colucci, MLIS
E: [redacted] or [redacted]
Faculty of Education
Memorial University of Newfoundland
St. John's, NL, Canada, A1B 3X8

The online survey company, Google Forms, hosting this survey is located in the United States and as such is subject to U.S. laws. The US Patriot Act allows authorities to access the records of internet service providers. Therefore, anonymity and confidentiality cannot be guaranteed. If you choose to participate in this survey, you understand that your responses to the survey questions will be stored and may be accessed in the USA. The security and privacy policy for the web survey company can be found at the following link: https://www.google.com/policies/privacy/.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as your rights as a participant, you may contact the Chairperson of the ICEHR at icehr.chair@mun.ca or by telephone at 709-864-2861.

Appendix 4: Interview Informed Consent Form

Title: Information literacy in Ontario middle grade classrooms

Researcher:

Abigail Colucci, MLIS
Graduate student, Faculty of Education
Memorial University of Newfoundland
E-mail: [redacted] or [redacted]

You are invited to take part in a research project for my graduate thesis entitled "Information literacy in Ontario middle grade classrooms."

This document is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to

understand the information given to you. Please contact the researcher, Abigail Colucci, if you have any questions about the study or would like more information before you consent.
It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

My name is Abigail Colucci and I am a Master of Education Technology Student in the Faculty of Education at Memorial University of Newfoundland. I am conducting a research for my graduate thesis called *Information literacy instruction in Ontario middle grade classrooms*. The purpose of the study is to explore the teaching of information literacy education to grades 5-8 within an Ontario-specific context.

Purpose of Study:

The purpose of this study is to explore the teaching of information literacy to middle grade students within an Ontario context. Specifically, this study will seeking to understand the integration of information literacy into the curriculum from a Canadian standpoint. My proposed study will look to formulate evidence-based recommendations by investigated a variety of Canadian schools and discovering how information literacy is instructed, assessed, and what an ideal information literacy curriculum would look like.
The study's main research question asks how information literacy skills are integrated at the middle school level within a Canadian context. Sub-questions include:

1. Where is information literacy instruction taught?

2. Who is involved in information literacy instruction?

3. What is the focus of information literacy instruction?

4. How often is information literacy taught during the school year?

What You Will Do in this Study:

You are invited to participate in an individual interview for this research study. The interview will be audio-recorded with your consent. The digital recording of the interview will be transcribed. During the interview, you will be asked to expand upon the answers submitted from your questionnaire. Specifically, some questions may include: If you co-teach information literacy, how do you develop the lessons? Do you change your information literacy lessons based on current events? Do you change your information literacy lessons based on issues that occur during the school year (e.g. cyberbullying, digital footprint, etc.)? What are the obstacles, or perceived obstacles, to information literacy instruction in your school? What can your school do to improve information literacy & information literacy instruction in your school?
Please note that you may decline to answer any questions that are asked in the interview.

Length of Time:

The interview will take approximately 30-60 minutes of your time and will be scheduled at the participants' convenience. Additional follow-up questions, which can be completed at your

convenience through email or phone, may be needed and will take no more than 20 minutes of your time. Please note that you may decline to answer any questions asked in the follow-up.

Withdrawal from the Study:

You are under no obligation to participate in this study and your participation in this study is completely voluntary. If you wish to withdraw from the study at any time, you can contact Abigail Colucci through email at [redacted] or [redacted]. Withdrawal from the study must occur before August 2019.

Possible Benefits:

Interview participants may gain new insights related to their personal pedagogies and methodologies in middle grade education.

There are at least three scholarly benefits that may come from this study. First, it will contribute to the growing body of knowledge concerning information literacy education. Second, it will add to the literature that legitimizes information literacy education as a serious curriculum area and may in turn lend support to other marginalized curriculum areas. Third, it will fill a gap in the local understanding of information literacy education in a middle grade context.

Possible Risks:

There is little to no risk to you with regard to participating in the study. You are being asked to make a voluntary decision as to whether you wish to participate. If there are any parts of the information that you do not understand, please email [redacted] or [redacted] to clarify.

Questions may cause you discomfort and/or put you in a position to criticize authority figures within the school and/or district. You are not obligated to answer any questions that make you feel uncomfortable. To minimize any potential impact, no identifying information will be used in the reports and publications. There is no remuneration for participating in this study.

The data collected from all participants in the study will be analyzed and used within a graduate thesis. The final thesis may also be used within journal publications and presentations as well as to inform the education community.

Confidentiality and Anonymity:

Confidentiality is ensuring that identities of participants are accessible only to those authorized to have access. Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

The data from this research project will be published as a thesis for Memorial University of Newfoundland's Masters of Education Educational Technology program; however, your identity will be kept confidential. Although I may report direct quotations, all identifying information will be removed from the final report. Your name, school email address, and location will be kept confidential and a pseudonym, if necessary, will be created for the final drafts of this thesis.

Recording of Data:
With the permission of the participant, all interviews will be recorded with a digital audio recording app on a personal Smartphone.
Storage of Data:

The researcher and her advisor will be the only people who have access to the collected data. The recorded interviews and digital transcriptions will be stored digitally on the researcher's password protected work computer.
Any electronic copy of the data will be stored on password protected computers or online services with only the researcher and her advisor having access. Any printouts will be stored in the researcher's secure home office. The data will be kept for a minimum of five years, as required by Memorial University policy on Integrity in Scholarly Research, after which time it will be deleted from any file system and any hard copies will be securely shredded.
Reporting of Results and Sharing of Results with Participants:

Upon completion, the thesis will be publicly available at Memorial University's Queen Elizabeth II library, and can be accessed online at http://collections.mun.ca/cdm/search/collection/theses. Participants can request digital copies of this project at any time after completion by [redacted] a or [redacted].
Questions:

You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact:

Abigail Colucci, MLIS
Graduate student, Faculty of Education
Memorial University of Newfoundland
E-mail: [redacted] or [redacted]

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.
Consent:
Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand your participation in this study is completely voluntary and you are under no obligation to participate. You may withdraw without reason anytime before August 2019.

- You understand that any data collected from you up to the point of your withdrawal will be destroyed unless you withdraw after data analysis has started, in which case the data will be retained by the researcher for use in the research study.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Name (Print): _____ Signature: _____

☐ I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

☐ I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.

For your further consideration:

☐ Yes ☐ No I agree to be audio-recorded during the interview

☐ Yes ☐ No I agree to the use of quotations.

A copy of this Informed Consent Form has been given to me for my records.

_____ _____

Signature of participant Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator	Date

Appendix 5: Information Literacy Interview Questions

1. What is your definition of information literacy? What terminology do you use for information literacy at your school (e.g. media literacy, digital citizenship, etc.)?

2. How do teachers support - or not support - information literacy instruction in your school?

3. What piece(s) of Information Literacy lessons do you feel students get the most information out of (e.g. games, online quizzes, conversations, etc.)?

4. In your eyes, what would the ideal information literacy curriculum look like?

Appendix 6: School Board Consent Form

Information literacy instruction in middle grade classrooms - School Board and Principal Consent

Title: Information literacy in Ontario middle grade classrooms

Researcher: Abigail Colucci, MLIS.
Graduate student, Faculty of Education at Memorial University of Newfoundland
E-mail: ac2613@mun.ca or abbey.colucci@gmail.com

About:

The purpose of this study is to explore the teaching of information literacy to middle grade students within an Ontario context. Specifically, this study will seeking to understand the integration of information literacy into the curriculum from a Canadian standpoint. My proposed study will look to formulate evidence-based recommendations by investigated a variety of Canadian schools and discovering how information literacy is instructed, assessed, and what an ideal information literacy curriculum would look like.

Select school librarians are invited to participate in an online questionnaire, interview, and/or classroom observation for this research study. Schools are under no obligation to participate in the questionnaire, interview, and/or classroom observation and can withdraw from the study anytime before August 2019.

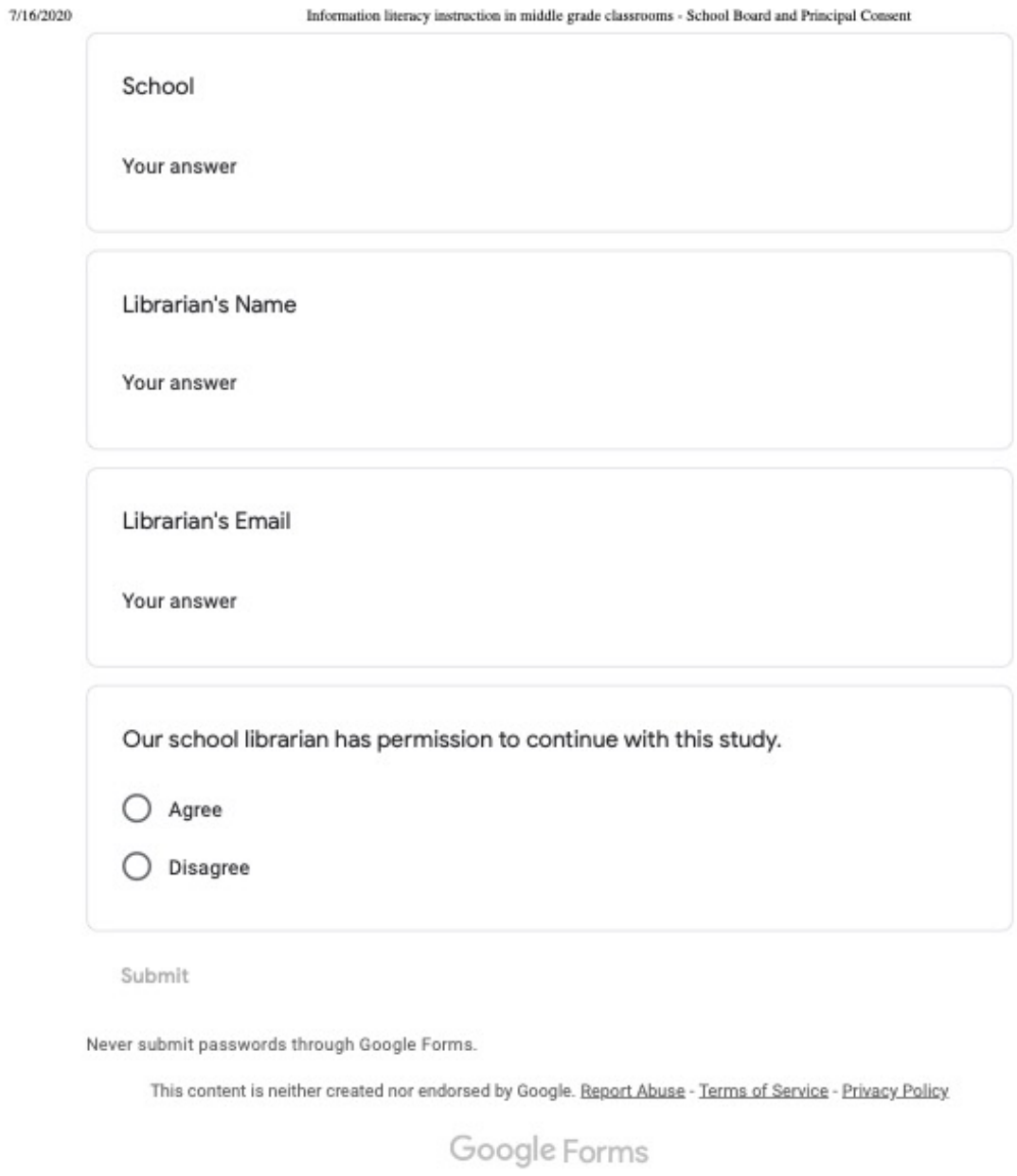
Please know:

Your school librarian will be asked a number of questions about information literacy instruction with middle grade students. You and/or the school librarian can withdraw participation from this study at any time before August 2019.

No student information will be collected, obtained, or needed during the entirety of this process.

Name

Your answer



7/16/2020 Information literacy instruction in middle grade classrooms - School Board and Principal Consent

School

Your answer

Librarian's Name

Your answer

Librarian's Email

Your answer

Our school librarian has permission to continue with this study.

- Agree
- Disagree

Submit

Never submit passwords through Google Forms.

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Google Forms

Appendix 7: Information Literacy Questionnaire

Information literacy instruction in Ontario classrooms

The purpose of the study is to explore the teaching of information literacy education to within an Ontario-specific context.

Page 1: Informed Consent

This is like a "Terms & Conditions" & not necessary to read to complete the survey. It just says you're information will be anonymous, only my professor & I have access to your responses, and you can have a copy of the thesis, research, & summary of responses if you want. You can also withdraw participation at any time by sending me an email (beyondinfolit@gmail.com).

Online Questionnaire

Title: Information literacy in Ontario classrooms

Researcher: Abigail Colucci, MLIS.
Graduate student, Faculty of Education at Memorial University of Newfoundland
E-mail: ac2613@mun.ca or beyondinfolit@gmail.com

You are invited to take part in a research project entitled "Information literacy in Ontario classrooms."

This section is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Abigail Colucci if you have any questions about the study or would like more information before you consent.

Online Questionnaire

Title: Information literacy in Ontario classrooms

Researcher: Abigail Colucci, MLIS.
Graduate student, Faculty of Education at Memorial University of Newfoundland
E-mail: ac2613@mun.ca or beyondinfolit@gmail.com

You are invited to take part in a research project entitled “Information literacy in Ontario classrooms.”

This section is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Abigail Colucci if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

My name is Abigail Colucci and I am a master of education technology student in the Faculty of Education at Memorial University of Newfoundland. I am conducting research for my graduate thesis called Information literacy instruction in Ontario classrooms. The purpose of the study is to explore the teaching of information literacy education within an Ontario-specific context.

Purpose of Study:

The purpose of this study is to explore the teaching of information literacy to students within an Ontario context. Specifically, this study will be seeking to understand the integration of information literacy into the curriculum from a Canadian standpoint. My proposed study will look to formulate evidence-based recommendations by investigating a variety of Canadian schools and discovering how information literacy is instructed, assessed, and what an ideal information literacy curriculum would look like.

The study’s main research question asks how information literacy skills are integrated within a Canadian context. Sub-questions include:

Where is information literacy instruction taught?
Who is involved in information literacy instruction?
What is the focus of information literacy instruction?
How often is information literacy taught during the school year?
What You Will Do in this Study:

You are invited to participate in an online questionnaire for this research study. The online questionnaire will ask questions related to your experiences teaching of information literacy to students within an Ontario context. Participation will require approximately 20 to 40 minutes of your time to complete the

questionnaire. At the end of the questionnaire, you will be given the opportunity to indicate if you would be willing to answer follow-up or clarifying questions via email.

Length of Time:

The questionnaire will take approximately 20 to 40 minutes of your time. You may skip any questions you do not wish to answer.

Withdrawal from the Study:

You are under no obligation to participate in this study and information such as the informed consent forms will come directly to the researcher.

Your participation in this study is completely voluntary. If you wish to withdraw from the study you can exit the questionnaire at any time before you click the final submission button. If you wish to withdraw from the study once your answers have been submitted, please email ac2613@mun.ca or beyondinfolit@gmail.com. You are under no obligation to participate in this study and can withdraw anytime before August 2019.

Possible Benefits:

Questionnaire participants may gain new insights related to their personal pedagogies and methodologies in education.

There are at least three scholarly benefits that may come from this study. First, it will contribute to the growing body of knowledge concerning information literacy education. Second, it will add to the literature that legitimizes information literacy education as a serious curriculum area and may, in turn, lend support to other marginalized curriculum areas. Third, it will fill a gap in the local understanding of secondary technology education and skilled trades and thereby also add to the international understanding of the same phenomena.

Possible Risks:

There is little to no risk to you with regard to participating in the study. You are being asked to make a voluntary decision as to whether you wish to participate in this study. If there are any parts of the information that you do not understand, please ask the researcher to explain it.

Questions pertaining to leadership, professional development, and marginalization may cause you discomfort and/or put you in a position to criticize authority figures within the school and/or district. You are not obligated to answer any questionnaire questions that make you feel uncomfortable. To minimize any potential impact, no identifying information will be used in the reports and publications. There is no remuneration for participating in this study.

The data collected from all participants in the study will be analyzed and used to inform the education community, as well will be included in journal publications, presentations within Memorial University and conference presentations.

Confidentiality and Anonymity:

Confidentiality is ensuring that the identities of participants are accessible only to those authorized to have access. Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

The data from this research project will be published as a thesis for Memorial University of Newfoundland's education program; however, your identity will be kept confidential. Although I may report direct quotations, all identifying information will be removed from the final report. Your name, school email address, and location will be kept confidential and a pseudonym, if necessary, will be created for the final drafts of this thesis.

Storage of Data:

The researcher and her advisor will be the only people who have access to the collected data. The

The researcher and her advisor will be the only people who have access to the collected data. The recorded interviews and digital transcriptions will be stored digitally on the researcher's password-protected work computer.

An electronic copy of the data will be stored on password-protected computers or online services with only the researcher having access. Any printouts will be stored in the researcher's secure Memorial University and/or home office. The data will be kept for a minimum of five years, as required by Memorial University policy on Integrity in Scholarly Research after which time it will be deleted from any file system and any hard copies will be securely shredded.

Reporting of Results and Sharing of Results with Participants:

Upon completion, the thesis will be publicly available at Memorial University's Queen Elizabeth II library and can be accessed online at http://collections.mun.ca/cdm/search/collection/theses. Participants can request digital copies of this project at any time after completion by emailing ac2613@mun.ca or beyondinfolit@gmail.com.

Questions:

You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact:

Abigail Colucci, MLIS
Graduate student, Faculty of Education
Memorial University of Newfoundland
E-mail: ac2613@mun.ca orbeyondinfolit@gmail.com

The online survey company, Google Forms, hosts all data within the United States and, as such, is subject to U.S. laws. The US Patriot Act allows authorities to access the records of internet service providers. Therefore, anonymity and confidentiality cannot be guaranteed. If you choose to participate in this survey, you understand that your responses to the survey questions will be stored and may be accessed in the USA. The security and privacy policy for the web survey company can be found at the following link: https://www.google.com/policies/privacy/.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

By continuing with this questionnaire you agree that:
*You have read the information about the research.
*You have been advised that you may ask questions about this study and receive answers prior to continuing.
*You are satisfied that any questions you had have been addressed.
*You understand what the study is about and what you will be doing.
*You understand that you are free to withdraw participation from the study by closing your browser window or navigating away from this page, without having to give a reason and that doing so will not affect you now or in the future.
*You understand that you can withdraw at any time by contacting the researcher through email at ac2613@mun.ca or beyondinfolit@gmail.com.

By consenting to this online survey, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Please retain a copy of this consent information for your records or email ac2613@mun.ca (official university email and will not work after graduation) or beyondinfolit@gmail.com for a digital copy.

Next

Information literacy instruction in Ontario classrooms

Information literacy instruction in Ontario classrooms: Questionnaire

School Name & Location(s)

Your answer

Do you teach or co-teach any information literacy sessions at your school OR have you helped create information literacy curriculum/lessons for your school?

- ◯ Yes, all the time
- ◯ No, it doesn't fit into the curriculum
- ◯ Occasionally / Sort of / Once and a while
- ◯ Only when asked
- ◯ Other:

What resources have you used to develop your information literacy curriculum? Please include names and/or links.

Your answer

Are information literacy sessions scheduled to go along with classroom units?

- [ ] Yes
- [ ] No
- [ ] Info Lit is taught all the time in every library session
- [ ] Info lit is rarely taught
- [ ] Info lit is taught by request only
- [ ] Other:

Does your library offer online information literacy guides or tutorials? How can students access these resources?

Your answer

Does your library have a web presence? Please provide link in "Other" answer.

- [ ] Yes
- [ ] No
- [ ] Other:

What type of cooperation is there between teachers and librarians in your school in order to improve the development of information literacy for students (e.g. PD sessions, PLC meetings, etc.)?

- [ ] PD Sessions (professional development days)
- [ ] PLC (professional learning community)
- [ ] Other:

If issues arise during the school year that are pertinent to information literacy (e.g. plagiarism in a class, cyber bullying, etc.), how are you made aware?

- [ ] Notified from teachers
- [ ] Notified from administration
- [ ] Notified from parents
- [ ] I am not made aware of issues throughout the school year
- [ ] Other:

What are the obstacles, or perceived obstacles, to information literacy instruction in your school (e.g. time, no support, etc.)?

Your answer

How does - or doesn't - your school administration support your information literacy endeavours?

Your answer

In your opinion, what else can your school do to improve information literacy & information literacy instruction in your school?

Your answer

Do you have any comments or extra information I didn't cover?

Your answer

May Abbey Colucci (researcher) contact via email for clarifying questions to the answers you provided if necessary?

- ◯ Yes
- ◯ No

If you answered 'yes' to above question, please include your email address below:

Your answer

Would you like a copy of this study upon completion?

- ◯ Yes
- ◯ No

Back Submit