

Summative Annotated Bibliography

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Table of Contents

How to Navigate/ Formatting Overview	2
1. An Investigation of Middle School Science Teachers & Students	3
2. Can We Teach Digital Natives Digital Literacy	5
3. Communicating & Connecting with Social Media	6
4. Connected to Learn	7
5. Digital Literacies	9
6. Digital Nativity	11
7. Digital Natives Digital Immigrants	13
8. Experts or Amateurs	14
9. How to Infuse Digital Literacy Throughout the Curriculum	16
10. Mapping Digital Literacy Policy & Practice	18
11. Never Send a Human to Do a Machine's Job	20
12. New Literacies for Digital Citizenship	21
13. Principals' Perceptions Of The Importance of Technology in Schools	22
14. School Leadership & Technology Challenges	23
15. Teachers' Perception of Principals' ICT Leadership	25
16. The Digital Divide in Canadian Schools	27
17. The Impact of Technology on High School Principals	29
18. The Myth About No Significant Difference	31
19. Understanding Decision Making in Teachers' Curriculum	33
20. Whatever Became of Educational Technology	35

How to Navigate

This bibliography summarizes 20 readings from my M.Ed journey that have significant professional or personal value to me as an educator, wife, mother, and community member.

These summaries are a compliment to my [Program Portfolio](#) which provides a more detailed reflection of my M.Ed. Page one of this document includes a [Table of Contents](#) that is hyperlinked to allow direct access to each summary. Readings are listed in alphabetical order by article name. Each individual reading will include a “[Back to T.o.C](#)” link that will return the reader to the Table of Contents so the next reading may be selected.

Formatting Overview

Each summary will be formatted using the following organization:

- Reference
- Summary of the Reading/Important Takeaways
- Professional or Personal Connection

An Investigation of Middle School Science Teachers and Students...

Wang, S., Hsu, H., Campbell, T., Coster, D. C., & Longhurst, M. (2014). An investigation of middle school science teachers and students use of technology inside and outside of classrooms: Considering whether digital natives are more technology savvy than their teachers. *Educational Technology Research and Development*, 62(6), 637-662. doi:10.1007/s11423-014-9355-4 Retrieved from Springer Link Contemporary database.

The authors investigated the assumption that students, digital natives, surpass their teachers, digital immigrants, when it comes to technology experience and understanding (p. 637). Over half of university students are not as well-versed in technological understanding as assumed (p. 639). Teens recognize the potential educational benefits of their devices but do not often use ICT in sophisticated ways outside of school (p. 641). Science teachers are usually early adopters of technology due to the nature of their curriculum (p. 642). The authors made 3 main conclusions: (1) a teacher's age and technology skill is not a cause of disconnect, (2) teachers depend much more on using technology than students, and (3) students need more opportunities to practice technology outside personal interests (p. 656).

The technology knowledge of classroom teachers may seem lacklustre in comparison to the knowledge of the students in their classroom; however, classroom teachers actually rely on technology, for purposes in and out of the classroom, more than their students p. 656). The relationship that many students have with technology is one centred on entertainment and communication (p. 656). While students' experiences in the digital world appear to be narrow in focus, they embrace new web 2.0 skills and learn introduced programs rapidly p. 656). One assumption that I run into frequently deals with the myth that students know more about technology than their teachers and that educators, therefore, are inadequately prepared to effectively incorporate technology into their classrooms. This reading clarifies that this

assumption is accurate and helps provide a framework for educators to move forward with the purposeful use of technology.

Can We Teach Digital Natives Digital Literacy

Wan, N. (2012). Can we teach digital natives digital literacy? *Computers & Education*, 59, 1065-1078. doi:10.1016/j.compedu.2012.04.016 Retrieved from Elsevier database.

The authors investigated the degree of digital literacy demonstrated by digital natives and the ease in which they adopted previously unfamiliar technologies. Their research yielded no evidence to demonstrate that the brain of individuals exposed to various technologies is structured any different than those who are not (p. 1065) and the use of technology is no different from any other skill an individual needs to learn to function within a community (p. 1066). Educators are tasked with introducing students to new literacies that not only focus on skill development but also emphasize social practices in the context of short message service (SMS), multimedia messaging service (MMS), social networking activities, and mobile technologies (p. 1066). While some educators make the assumption that their students can easily adopt these technologies simply because they are considered digital natives, the authors show that, “the availability of technology, prior experience, self-efficacy, and education” play a more important role in one’s comfort with technology than simply a student’s age (p. 1065).

This article has assisted me in framing perspective for educators who either assume their students can easily adopt any technology into their learning and/or that educators are unable to easily adopt a technology because they did not grow up learning that way. I find that the research provided by the authors help shift the focus from a, “can/cannot”, mindset to a, “how”, mindset as it emphasizes the importance of digital literacies being a learned skill as opposed to an inherent understanding. Despite evidence to the contrary, the myth of the digital native lives on and can be a source of contention for educators.

Communicating & Connecting with Social Media

Ferriter, W.M., Ramsden, J.T., & Sheninger, E.C. (2011). *Communicating & connecting with social media*. Bloomington, IN: Solution Tree Press.

As the leader of their building it is one of the principal's primary objectives to communicate school information clearly and concisely with all stakeholders (p. 20). The authors examine how social media can be used as an effective communication tool for schools, specifically: 1) using social media tools to enhance school communication plans, 2) using social media tools to enhance professional development and, 3) developing professional responsible social media practices (p. 2). The authors effectively use anecdotal accounts and tutorials to showcase how social media can be used to enhance the transparency of a school community. They argue that communication is the most important job a principal can participate in throughout their day (p. 20) and that, "With transparency being more important now than at any time ever, it is important that we use every means necessary to get out our message as schools leaders and get the feedback necessary to get our stakeholders invested." (2011, para. 7).

In the age of social media it can be scary to dive into the "unknown" and use a tool that previously was not associated with education. I am a strong believer that, with the amount of people using social media, someone is sharing information about your education scenario whether you approve of it or not; this includes your students, student families, and/or community members. By utilizing these tools and meeting your audience, "where they're at", you can at least be in charge of your own narrative and present the story in a way that is timely, accurate, professional, and meets the communication guidelines set forth by your school division and teachers' union.

Connected to Learn

Johnson, M., Riel, R. & Froese-Germain, B. (2016). *Connected to learn: teachers' experiences with networked technologies in the classroom*. Ottawa: MediaSmarts/Canadian Teachers' Federation. Retrieved June 28, 2017, from http://mediasmarts.ca/sites/mediasmarts/files/publication-report/full/ycwwiii_connected_to_learn.pdf

This Canadian-based study examined the experiences of Canadian educators in regards to their use of networked technologies in the classroom such as social media and their perceived successes and challenges in the incorporation of those technologies into their professional practice. Survey results identified that the top five digital literacy skills related to social media that students should know are: (1) how to stay safe online, (2) appropriate online behaviour, (3) dealing with cyberbullying, (4) understanding online privacy issues and settings, and (5) verifying the authenticity of online information (p. 9). Despite the increasing presence of networked technologies only 54% of Canadian educators feel their school provides them with enough support on how to use technology with their students (p. 43) and only 37% feel their admin would support them if they ran into a conflict online (p. 45).

In order for various technologies to support teaching and learning schools must be provided with: (1) adequate infrastructure to support the use of technology in schools, (2) equitable access to up-to-date equipment and resources, and (3) timely technical support to ensure that technology works as it should so that instruction can proceed smoothly (p. 77). If these requirements are not met then educators are plagued by unreliable internet access, incompatible tools, slow log-in times, and restricting school filters. One example of barriers faced by educators was highlighted by Johnson (p. 73), "Preparing lessons at home and having

none of the links or programs work at school due to out-of-date technology at school or filters and settings on computers and the board network.” Unfortunately, teachers and students are sometimes left turning to their personal devices and cellular service providers in order to have reliable access to online resources (2016, p. 78). Time is a valuable commodity in a classroom setting and educators are not motivated to pursue digital literacy initiatives if they feel as though they have to spend more time battling technology than using it.

This research was perhaps one of the most revisited articles I utilized over the past two years as it is very difficult to find research that is Canadian-specific and also current; especially because statistics related to technology use in education essentially become outdated the moment they are put into print. This document is comprehensive and I feel that it paints an accurate portrayal of the realities of our education landscape. As someone who is looking to eventually pursue a consultant position related to the incorporation of technology, this research provides a solid starting point in which to base my approach.

Digital Literacies

Beach, Campano, Edmiston, & Borgmann. (2010). *Literacy Tools in the Classroom: Teaching Through Critical Inquiry, Grades 5-12*. Ohio: Teachers College Press.

Acknowledging the importance of becoming digitally literate, Beach, Campano, Edmiston, and Borgmann (p. 109) share four literacy skills that students develop through the use of various digital tools. The authors summarize the literacies of multimodality, hyperlinking, connectivity, and collaboration through short explanatory narratives and provide examples of tools that can be utilized to address the literacy (p. 109-117). Since the chapter's publication in 2010 the prevalence of social media has increased rapidly and provides further platforms for students to develop these literacies. The plethora of information that is available online requires students to think critically about what is being presented to them and the ability to analyze the validity of information is an essential skill that I feel should have been identified as a stand alone form of literacy.

The authors use classroom narratives to illustrate the seemingless endless possibilities of how to use various digital tools to build student literacy. Beach et al (2010, p. 107) encourages educators to embrace new digital tools, "Rather than limit the use of such tools in schools, it is essential that teachers build on and add their own crucial dimension to these media." The authors argue that the following literacy skills should be acquired: (1) multimodality, the ability to combine text, images, video, and audio to create a cohesive publication, (2) hyperlinking, "knowing how to understand and employ intertextual connections between different ideas", (3) connectivity, the ability to use communication tools to network with others, and (4)

collaboration, the ability to work with others to achieve a finished product (p. 109-117). While it can be easy to assume that students have an increased knowledge base when it comes to digital literacy, having teachers provide purposeful education and ongoing modelling that is tailored to be relevant and meaningful for their students gives students support to build their digital skill repertoire.

Digital Nativity

Teo, T. (2013). 'Digital nativity': A definitional framework. *World Journal on Educational Technology*, 5(3), 389-394. Retrieved from http://www.world-education-center.org/index.php/wjet/article/view/2874/pdf_220

The author attempts to put forward a working definition of the term “digital native” as coined by [Prensky](#) in 2001. As opposed to Prensky who focused purely on the age of an individual, Teo expanded this framework to anyone who: 1) grew up with the use of digital technology, 2) was comfortable multitasking, 3) relied on graphics as part of their communication medium, and 4) thrived on instant gratification (p. 390). While some educators assume that their students know more about technology than they do, and are using it with more frequency, the author argues that students are primarily relying on only two of the eight possible digital realms: (1) rapid communication technology like mobile phones and social networking, and (2) web resources like games, videos and music (p. 392). He implores educators to stop blindly going after new technologies simply because they are the “new thing” and rather, “acquire the knowledge and skills to effectively select, evaluate, and adapt technologies to meet their professional goals and student needs” (p. 392).

This article has supported survey findings from MediaSmarts that shared that while students are comfortable with technology for entertainment they require purposeful training on how to use these tools for educational purposes. I enjoy the four-tier framework presented by Teo because it expands the definition of what a digital native is and helps soften the line between student and teacher biases that were previously centered purely on age. I believe it also provides

some insight into how our students are communicating and functioning which can allow educators to adapt their practices to best meet their individual student needs.

Digital Natives Digital Immigrants

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1-6. Retrieved from <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>

In 2001 Marc Prensky (p. 1) began referring to people born in or after 1980 as “digital natives”. Prensky argued that these people have spent their entire lives surrounded by and using various forms of technology (p. 1) and, as such, their brain has developed in a manner that is different than their predecessors (p. 3). Resultantly, there is an unavoidable conflict between the digital native students found in today’s classrooms and their teachers, the digital immigrants, who are now forced to adapt their teaching styles (p. 6). The author frankly and unapologetically states that teachers must change their methodologies in their classrooms in order to meet the needs of their current students and allow them to be successful (p. 6).

I referenced the work of Prensky several times throughout the past few years as his work is cited in countless works related to educational technology, social media, and the use of digital tools in the classroom. I feel that it is important to note, however, that his work is now relatively outdated as the prevalence of educational technology has changed tenfold and our understanding of its effects has improved. The frustration felt by Prensky as he tried to categorize the distinction between digital natives, students, and digital immigrants, teachers, is reflective of what I see many teachers feeling when they attempt to incorporate various educational technologies into their classrooms. As such, I feel his work provides me with an appropriate foundation to understand my colleagues who may not yet feel comfortable with using digital tools with their students.

Experts or Amateurs

Steeves, Valerie. (2014). "Young Canadians in a Wired World, Phase III: Experts or Amateurs? Gauging Young Canadians' Digital Literacy Skills." *Media Smarts*. Available online at: http://mediasmarts.ca/sites/mediasmarts/files/pdfs/publicationreport/full/YCWWIII_Experts_or_Amateurs.pdf

This Canadian-based study examined the experiences of Canadian youth in regards to their use of digital technologies in regards to access, frequency of use, type of use, and differences between their practices within school and away from school. Results found that online gaming, participating in aspects of social networking, and streaming media such as music, television programs, or movies, ranked in the top technology uses for students in grades four to ten (pp. 25-31). Students identified that they wish they had learned more digital skills in the classroom, with identifying how to critique the validity of online information, how to stay safe while online, and the legality of certain online practices topping students' knowledge wish lists (pp. 25-31). The report summary shared that, "... Young people as a whole have enthusiastically integrated a variety of networked media into their daily lives, and can text, upload photos and blog with relative ease. However, using media effortlessly isn't necessarily the same thing as using it well. Young people are mistakenly considered experts in digital technologies because they're so highly connected, but they are still lacking many essential digital literacy skills" (p. 1).

In similar fashion to the previously mentioned, [Connected to Learn](#) study, this research was perhaps one of the most revisited articles I utilized over the past two years as it is very difficult to find research that is Canadian-specific and also current; especially because statistics related to technology use in education essentially become outdated the moment they are put into print. This document is comprehensive and I feel that it paints an accurate portrayal of the

realities of our education landscape. As someone who is looking to eventually pursue a consultant position related to the incorporation of technology, this research provides a solid starting point in which to base my approach.

How To Infuse Digital Literacy Throughout the Curriculum

Carey, J. (2014, March 26). How to infuse digital literacy throughout the curriculum. Powerful learning practice. Retrieved May 27, 2015, from <http://plpnetwork.com/2014/03/26/infuse-digital-literacy-curriculum/>

The author evaluated how schools can incorporate digital literacy skills into an established curriculum that can have little wiggle room (para. 2-3). Some educators have a tendency to feel overwhelmed by the notion of adding in “one more thing” to their teaching load. The author includes several areas of focus that can provide a starting point for the “novice techy” to begin. Evaluating online content for currency, relevance, authority, accuracy, and purpose, should be required in all subject area classes (“Evaluating online content is a research skill”, para. 2). There does not need to be separate classes designated for online communication skills when it can be incorporated into pre-existing models (“Engaging online is a modern communication skill”, para. 7). Digital literacy is a skill that needs to be encouraged by teachers and supported by administrators (“Digital Literacy: An everyday dimension of learning”, para. 1).

This article reaffirmed the theoretical framework of the Manitoba Literacy with ICT (LwICT) document which has become a staple reference in my work over the past four years. It is important to note that Manitoba does not have a separate curriculum dedicated to ICT, but sees these skills as harmonious elements that need to be infused alongside pre-existing concepts (Manitoba Education, Citizenship and Youth, 2006, p. 9). As such, the ICT curriculum is supported by seven guiding principles: (1) inquiry-based learning, (2) constructivist approach to implementation, (3) high-level critical thinking, (4) deep understanding of concepts, (5) gradual release of responsibility, (6) digital citizenship, and (7) multiple literacies (Manitoba Education,

Citizenship and Youth, 2006, p. 11). By outlining ICT implementation as a continuum, Manitoba easily assists teachers in identifying students' understanding and begin incorporation in a manner that suits their teaching style and comfort levels.

Mapping Digital Literacy Policy & Practice

Hoechsmann, M., & DeWaard, H. (2015). *Mapping digital literacy policy and practice in the Canadian education landscape*. Ottawa, ON: MediaSmarts. Retrieved from <http://mediasmarts.ca/sites/mediasmarts/files/publication-report/full/mapping-digital-literacy.pdf>

Hoechsmann and DeWaard compared the means by which the Canadian provinces and territories approach digital literacy and digital citizenship in their schools (p. 3). As of 2015, 11 of Canada's 13 provinces and territories have established ICT curricular policies that range from infusion and dispersal amongst pre-existing curriculums to structured cross-curricular models and specifically assessed benchmarks (pp. 15-17). The authors identified 4 trends in educational technology: (1) mobility of hand-held devices, (2) interactivity of supplies, (3) expanded places for learning, and (4) augmented spaces (p. 51). No conclusions are drawn, although the authors suggested that educators and policy makers should establish common guidelines in regards to approaching digital literacy and citizenship (p. 55). This summary provided an effective means to compare other existing ICT approaches to Manitoba's provincial document *A Continuum Model for Literacy With ICT Across the Curriculum*, which features a "holistic and pedagogy-focused approach" to ICT integration (p. 15).

This document was utilized a lot by myself and my cohort partner, Chelsea Hockridge, as we worked to design an updated "Literacy with ICT" curriculum as part of our [02:782](#) coursework. Being able to access each approach to digital literacy and digital citizenship across the country helped us to make informed pedagogical decisions on what the "best practices" currently included. I appreciated that this summary provided an unbiased comparison of the

approaches rather than attempt to place them in a hierarchy or discuss the ambiguity of technology achievement.

Never Send a Human to Do a Machine's Job

Zhao, Y., Gaoming, Z., Lei, J., & Wei, Q., (2016). *Never send a human to do a machine's job: Correcting the top 5 edtech mistakes*. Thousand Oaks, CA: Corwin. (note: only the Introduction & Chapter 1, pp 1-31).

Zhao critically examines the relationship between teachers and technology in an attempt to settle the question of, “will teachers be replaced?” (p. 11). As new technologies have been introduced over the decades this question seems to appear and reappear with increased frequency. With the onset of artificial intelligence (AI) and an increased access to the internet the debate seems to be on the forefront of people’s minds. Zhao argues that the relationship between humans and technology function as part of an ecosystem rather than a hierarchy in which one replaces the other (p. 12). Each component of the educational ecosystem fills a unique niche in which they can flourish and help students expand their learning opportunities (p. 15). For example, simple tasks devoted to organizational components, repetition and low-level thinking can be filled by some type of digital tool like an app while tasks devoted to critical thinking and developing the social-emotional components of education can be filled by the teacher (p. 16).

This article has revolutionized my approach to education. As a frequent user of educational technology I found that I was still apprehensive about “relinquishing control” to a digital tool. I have now been able to streamline my pedagogy to allow digital tools to complete those simple tasks for me and fully utilized that opportunity to increase the one-on-one time I spend with my students; the “biotic elements” of my classroom ecosystem. I have written in more detail about how I approach this on my blog: [Why I Replaced Myself With a Machine](#).

New Literacies for Digital Citizenship

Simsek, E., & Simsek, A. (2013). New literacies for digital citizenship. *Contemporary Educational Technology*, 4(2), 126-137. Retrieved from <http://www.cedtech.net/articles/42/424.pdf>

The authors argue that the prevalence of technology has resulted in our populace being exposed to information consistently and new literacy skills are required in order to effectively process and utilize this information (p. 126). As early as 1997, it was identified that traditional forms of literacy were not sufficient and that students required new skills such as searching for information through non-linear routes (p. 128). Their new concept of digital literacy can be subdivided up into categories that include: 1) information literacy, 2) computer literacy, 3) media literacy, 4) communication literacy, 5) visual literacy, and 6) technology literacy (p. 129). The authors also argue for the importance of the social elements of digital literacy that include, “the norms of behaviour with regard to active technology use” (p. 130).

The information summarized in this article is important for both students and teachers as we work to develop our competence with various technologies. In my personal classroom a lesson may include written notes, a reading, an online video, a simulation displayed on the SMART Board, and a group discussion; all within an hour class. The different types of literacy skills I am inadvertently asking my students to utilize within that short time frame can be drastic. It is important for educators to remember that while students may feel comfortable with technology for entertainment purposes they require direction to effectively use these tools for educational purposes. Building in discussions about the type of information, not just the content of the information can be critical in developing our students’ digital literacy skills.

Principals' Perceptions Of The Importance of Technology in Schools

Waxman, H. C., Boriack, A. W., Lee, Y., & MacNeil, A. (2013). Principals' perceptions of the importance of technology in schools. *Contemporary Educational Technology*, 4(3), 187-196. Retrieved from <http://www.cedtech.net/articles/43/433.pdf>

In order to support their teachers effectively, school leaders need to keep up to date with new technology programs and tools, and model appropriate use for their staff (p. 193). The authors argue that, as the leader of their building, it is one of the principal's primary objectives to communicate school information clearly and concisely with all stakeholders (p. 191). Rather than a top-down approach that discusses technology implementation as it relates to budget, curriculum mandates, or divisional goals, it is time for educators to "walk the walk" when it comes to applying the digital literacy skills we expect from our students. Furthermore, modelling appropriate use and keeping up to date with new technology programs and tools allows for principals to more effectively support their teaching staff in their technological development as well (p. 193).

As with any aspect of leadership, seeing someone "in the trenches" with you provides you with a sense that your concerns are understood and that any necessary troubleshooting can be tackled together rather than independently. I believe that, as much as possible, a principal should be able to do any task that they are asking their staff to incorporate. With aspects such as technology, which can be utilized for both personal and professional uses, staff may have drastically different levels of comfort with these tools and seeing their administration model effective practices on how to use these tools in the professional sphere will help ensure a consistent approach within a building/division.

School Leadership & Technology Challenges

Peck, C., Mullen, C. A., Lashley, C., & Eldridge, J. A. (2011). School leadership and technology challenges: Lessons from a new American high school. *AASA Journal of Scholarship and Practice*, 7(4), 39-51. Retrieved from http://www.aasa.org/uploadedFiles/Publications/Newsletters/JSP_Winter2011.FINAL.pdf

The authors examined a series of schools in the United States in regards to their use of technology and the impact that various leadership models played in the successes/challenges of their programming. Upon study of the role leadership plays in technology implementation Peck (p. 47-48) noted that school leaders who were actively involved in successful implementation programs shared the following characteristics: 1) they developed long-term implementation plans in advance, 2) worked with staff to determine individual needs such as PD, 3) created formal support networks to assist with challenges, 4) showcased program successes and 5) developed and enforced consistent technology policies for staff and students. In contrast, leaders who demonstrated a formal “top down” approach contributed to implementation challenges including: 1) requiring staff to maintain online and offline records in case of technological failure which required staff to double their workload, 2) not providing sufficient professional development for staff, 3) allowing wait times for maintenance of technology tools to exceed two months and 4) not enforcing policies relating to technology that lead to inconsistencies between staff members (p. 43-45).

As someone who tries to involve myself with what is happening in regards to technology implementation across Manitoba I have had the opportunity to visit several schools/divisions to analyze what they are doing in regards to their approach to educational technology. As such, I

have seen several different approaches and heard different anecdotal accounts of the successes and challenges experienced by both teachers and their administrations. I hope to eventually pursue a consultant position in the field of educational technology and I feel that this article helped showcase some of the successes and challenges that have been experienced in various schools. It is my hope that being more informed on all aspects of technology implementation in schools will assist me in making the most appropriate recommendations for success.

Teachers' Perception of Principals' ICT Leadership

Peterson, A. (2014). Teachers' perception of principals' ICT leadership. *Contemporary Educational Technology*, 5(4), 302-315. Retrieved from <http://www.cedtech.net/articles/54/543.pdf>

Peterson surveyed teachers from 2 schools about how they experienced the leadership of their principals during an international multi-year ICT project (p. 305). The author identified 2 types of leadership: (1) principals who work closely with staff members as one of the team, and (2) principals who support their staff but do not participate in their projects (p. 302). Teachers identified that they wanted support in their ICT development but did not want to be guided and forced into mandated projects (p. 308). No conclusions are drawn, although Peterson identified that effective leadership is a significant predictor of successful ICT use in schools (p. 311). The authors found that although most school leaders have positive opinions towards technology, they fall into two very different categories in regards to their approach: 1) distributed principals who work closely with their teachers and ICT teams to ensure effective implementation, and 2) formal principals who offer positive encouragement towards ICT ideas but do not personally participate in planning or training (p. 302). Of the two types of leaders, the schools that commit to digital literacy development as a team initiative and focus on collaboration and communication are more successful in their implementation than those schools who force a top-down approach with minimal support (pp. 304-310).

This article was utilized multiple times throughout the past four years as it eloquently summarized the two types of leadership models that I see most often in schools. In similar fashion to my connection to [Peck's](#) article I feel that this article will assist me as I strive to help

my colleagues implement various educational technologies with success. By having insight on the characteristics of different leadership models I feel that I will be better prepared to provide recommendations for improvement when it comes to successful technology implementation.

The Digital Divide in Canadian Schools

Looker, E.D. & Thiessen, V. (2003). The digital divide in Canadian schools: factors affecting student access to and the use of information technology. *Research Data Centres*. Ottawa, Canada: Statistics Canada. Retrieved June 28, 2017, from https://www.researchgate.net/profile/Victor_Thiessen/publication/252575310_The_digital_divide_in_Canadian_schools_factors_affecting_student_access_to_and_use_of_information_technology/links/0deec52beba859b19b000000.pdf

The use of technology and a reliable networked internet connection can expand a classroom's boundaries and open up learning opportunities that might not otherwise be possible in rural, aboriginal or northern schools. However, research indicates that schools in these communities are less likely to place priority on ICT use and support, have less educational software available to them, are less likely to have well trained ICT coordinators in their buildings, and experience more barriers in regard to internet connectivity (pp. 10-13). Two research questions that came to mind while researching this topic were: 1) what impact has differing technology and internet access had on educational programming in rural and urban centers? 2) what programming is needed to bridge the gap between technology access and technology use in rural, aboriginal, and northern communities?

I appreciate the alternative perspective that this summary presents. I feel that this research is able to provide insight on a demographic that may have been missing from the [Connected to Learn](#) and [Experts or Amateurs](#) research summaries that were shared previously. My current teaching scenario is in a small rural community that has a high number of students who transfer regularly between our school and the First Nations schools of two nearby reserve communities. From my personal experiences within the community and through discussions with families I know that I have a steep digital divide amongst my students, especially those that

transfer communities regularly. This article assisted me in understanding some of the known statistics better and can help me make more informed decisions about my classroom practices.

The Impact of Technology on High School Principals

Hines, C., Edmonson, S., & Moore, G. (2008). The impact of technology on high school principals. *NASSP Bulletin*, 92(4), 276-291.

The authors focused their research on the use of technology by school principals for communication purposes. They argue that school leaders need to move away from the “killer Bs” that include aspects such as buildings, budgets, and bussing and focus on the “crucial Cs” such as communication, connecting, and collaboration (p. 277). Their research highlighted that one indicator of a principal’s managerial effectiveness directly relates to their ability to select the most appropriate platform(s) to best meet their communication needs (p. 278). As the prevalence of digital communication tools increases, school leaders need to adapt. As opposed to more traditional communication methods such as phone calls or television announcements that rely on stakeholders being available at a particular time, tools such as social media are popular with stakeholders because they can be accessed and interacted with at any time; gone are the days of playing “telephone tag” (p. 283).

This research article was a good compliment to the anecdotal approach provided by [Ferritier](#) in regards to effective communication by school administration. One concern I did have, however, was that the publication date has made this article outdated in regards to the different digital communication tools that are now available for use. With that being said, I still feel that the article provided an accurate portrayal of the demands of school leaders and suggested relevant recommendations on the role technology can play when it comes to communication. I specifically appreciated their overview of communication aspects such as syntax, social presence, rate of communication, and privacy, which are all impacted drastically

when tools such as social media are introduced in lieu of face-to-face communication (pp. 284-286).

The Myth About No Significant Difference

Oblinger, D.G., & Hawkins, D.L. (2006). The myth about no significant difference. *Educause Review*, 41(6), pp 14-15.

Does educational technology make a significant difference when it comes to student achievement in the classroom? The authors open by challenging those who claim to have results for either side of this argument as a student's learning never occurs in a "no-tech only" or "high-tech only" situation (p. 14). Our students are surrounded by various forms of technology throughout their day and the authors argue that the question shouldn't be about whether technology has increased student achievement but rather one of the following: 1) do we think of technology as a solution in itself or as a means to an end? 2) do we assume that using technology is an either/or proposition? 3) have we identified those processes and activities we want improved and looked at how technology can facilitate those actions? and 4) are we doing the same things with technology or are we taking advantage of the unique capabilities of technology and redesigning our activities? (p. 14-15).

When reflecting on my personal beliefs towards the question, does educational technology make a significant difference when it comes to student achievement in the classroom, I find myself siding with the authors. I do not believe that technology alone can have any significant difference on student achievement. As with anything that is implemented in the classroom it relies on a number of factors that can change as our learning situation changes. As educators it is our duty to implement technology with purpose that is backed by strong pedagogy and rooted in curricular theory. While technology alone cannot increase student achievement in the classroom being aware of the factors affecting student learning, accounting for your

classroom's unique variables, identifying a purpose, and backing all plans with strong pedagogy and theory will allow for the highest chance of success.

Understanding Decision Making in Teachers' Curriculum...

Boschman, F., McKenney, S., & Voogt, J. (2014). Understanding decision making in teachers' curriculum design approaches. *Educational Technology Research and Development*, 62(4), 393-416. doi:10.1007/s11423-014-9341-x Retrieved from Springer Link Contemporary database.

The authors compared the factors that influenced technology-rich curriculum design in 2 teams of kindergarten teachers and 1 team of literacy experts (p. 393). The study examined interview and discussion data in regards to the teachers' existing orientations, external priorities, and practical concerns (p. 395). Each teacher's experience, teaching orientation, and set of motivational strategies influenced their design plan (p. 412). It has been assumed that a focus on ICT would result in teachers becoming unfocused with their planning, because they would rely on computers to do the work they previously did, but research has concluded that the implementation of ICT lessons still requires teachers to use their knowledge of instructional strategies and the developing brain (p. 412). Practical implications suggest that teachers should be provided with support to meld technology with subject-specific concerns (pp. 414-415).

One of my biggest pet peeves in regards to educational technology is that many people in society, and unfortunately some educators, feel that the simple use of technology, any technology, will "hook" students and therefore result in success. Sometimes this approach does work in the short-term but the incorporation of any classroom tool without supported pedagogy will not lead to any long-term successes. This article helped solidify the importance of a strong pedagogical framework that is supported by curricular theory. The authors emphasize that while teachers may initially seek out specific technologies to meet their content areas, presenting

suggestions that focus on pedagogy and “exemplary” curricular practices will be of the most long-term benefit (p. 416).

Whatever Became of Educational Technology

Latchem, C. (2013). Whatever became of educational technology? The implications for teacher education. *World Journal of Educational Technology*, 5(3), 371-388. Retrieved from http://www.world-education-center.org/index.php/wjet/article/view/2873/pdf_219

This study focused on the concern that educational technology is being glanced over in the field of teacher education and is seen as an assumed understanding rather than an important aspect of both formal and informal education (pp. 371-372). Latchem argues that with technology being a fast-changing world, educators need to resist the urge to jump at new ideas without thinking of how its implementation can be maximized, what problems may arise, and how sustainable the tool will be for students down the road (p. 384). A major concern was that although many educators are able to express a pedagogical belief system about education and their students, their use of ICT did not match their statements (p. 383). The study summarizes five recommendations for the successful implementation of education technologies which include: 1) don't be seduced by the "newest" tool, 2) adopt a systems approach to planning that analyzes all factors, 3) monitor inputs versus outputs, 4) undertake long-term meta-analysis, and 5) ensure appropriate teacher training (p. 384).

While I was fortunate to have two educational technologies classes as part of my pre-service education I do agree with Latchem's concern that there was not a strong emphasis on how to connect various tools to our pedagogical belief system; although this reflection stands true for all my classes, not just the ones related to technology. It was not until my M.Ed that I was presented with the opportunity to truly explore pedagogical theory and reflect on how my

practices, past and present, fit in with that framework. Do I think that an M.Ed should be required by all teachers? Absolutely, but is this currently practical within our given structure?