

DIGITAL TECHNOLOGIES, MENTAL HEALTH CHALLENGES AND ACADEMIC LANGUAGE DEVELOPMENT OF INDIGENOUS YOUTH: A RETROSPECTIVE

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Abstract

Indigenous students have experienced negative inter-generational impacts from colonization and socioeconomic stress, leading to mental health challenges and persistent subpar academic performance. Both issues intertwined pose a complex challenge that has been increasingly documented by media, research, and in government reports and has had a significant impact on Indigenous youth's wellbeing and academic achievement.

In addition to the educational disparity faced by Indigenous youth, particularly those living in remote Indigenous communities, high rates of suicide, depression, and substance abuse have prevented them from obtaining the language and literacy skills required for graduating high school and pursuing post-secondary education and professional opportunities. Educational interventions would be more effective if these issues were addressed in their design and implementation and grounded in Indigenous cultural and community practices.

Research has reported that many Indigenous youth have adopted or are keen to adopt digital technologies, which have the potential to provide e-mental health resources as well as opportunities to improve academic literacy skills. This research synthesis examines the evidence of the efficacy of using digital technologies to support Indigenous youth's mental health and the learning of language and literacy skills. It presents a profile of important studies focusing on Indigenous youth's perspectives on both issues. Based on a culturally responsive pedagogical framework, this article provides insights for teaching practice, and also identifies gaps for future research and instructional innovations that are urgently needed to support Indigenous youth students.

Keywords: *Digital technologies, mental health, academic language skills, Indigenous youth.*

1. Introduction

The Indigenous population in Canada is much younger than the non-Indigenous one. According to the 2016 Census of Population (Statistics Canada, 2021), young people aged 15-24 made up 17% of the Indigenous population but just 12% of the non-Indigenous population.

Some progress has been made in improving Indigenous youth's academic achievement, for example 70% of Indigenous youth aged 20 to 24 had completed high school in 2016, compared to 57% in 2006 (Statistics Canada, 2021). However, due to the historical trauma and diverse political and socio-economic factors, "Indigenous students tend to have lower enrolment rates, higher dropout rates, higher absenteeism rates, higher repetition rates, lower literacy rates and poorer educational outcomes than their non-Indigenous counterparts" (the United Nations, 2017, p. 209).

These issues, including historical displacement from tribal lands, treaty abuse, residential school attendance, the destruction of families, and inequitable access to learning resources and opportunities for teachers' professional development, have contributed to Indigenous youth's persistent academic underachievement and mental health challenges (Brown, Dickerson & D'Amico, 2016; Elias, Mignone, Hall, Hong, Hart & Sareen, 2012). Results from large-scale standardized language and literacy tests have shown that the performance of about 25% of participating Year 9 Indigenous students in Australia fell significantly below the national minimum standard (NMS) in English reading compared to 5.2% of their non-Indigenous peers; and 43.8% of the participating Indigenous students' scores were below NMS in English writing compared to 13.9% of non-Indigenous students' (National Assessment Program–Literacy and Numeracy, 2019).

Indigenous youth are especially vulnerable to mental health problems (Carlson, Farrell, Frazer, & Borthwick, 2015; Elias et al., 2012; Kumar & Jepkemoi, 2019). Research on suicide and suicidal ideation has also found high rates of suicide, depression, substance abuse, and violence among Indigenous people globally (Black, Ranmuthugala, Kondalsamy-Chennakesavan, Toombs, Nicholson & Kisley, 2015; Kisely, Alichniewicz, Black, Siskind, Spurling & Toombs, 2017; Pan American Health Organization, 2016; Pollock, Naicker, Loro, Muley & Colman, 2018). These two issues are the most pressing and formidable challenges that tax Indigenous youth's wellbeing and jeopardize their future academic and professional opportunities.

Recent research has revealed that Indigenous communities, particularly Indigenous youth, have embraced digital technologies. They are avid users of computers, laptops, tablets, and smartphones. Indigenous youth were found to be frequently engaged with several social media platforms, such as Facebook, YouTube, Twitter, Snapchat, and Instagram (Castleton, 2018; Gritton, Rushing, Stephens, Dog, Kerr & Moreno, 2017; Loebach, Tilleczek, Chaisson & Sharp, 2019; Sam, Wisener, Schuitemaker & Jarvis-Selinger, 2018). Sabato's (2019) study showed that more than 90% of American Indian and Alaska Native (AI/AN) youth participants used computers and cellphones on a daily or weekly basis, which was similar to or exceeded such use by their non-Native counterparts in the United States. Sam et al.'s (2018) study also found that First Nations, Métis, and Inuit (FNMI) youth spent 2-8 hours online each day. This holds great potential to develop innovative mental health interventions and instructional strategies to support Indigenous youth, particularly those who reside in remote and rural areas, to overcome the persistent mental health challenges and the barriers in their language and literacy learning.

A growing body of literature has reported the relevant research in these areas. Thus, to examine Indigenous youth's perspective on the impact of using digital technology to address their mental health issues and to enhance the language and literacy skills required at school, a thorough literature review on empirical studies was conducted to respond to two research questions.

2. Research questions

1. What are Indigenous youth's perspectives on using digital technology to support their mental health?
2. What are Indigenous youth's perspectives on using digital technology to support their learning and practice of academic language and literacy?

3. Methods

Table 1. Search terms used for databases.

Category	Search terms
Population of interest	(Indigenous) OR (Indigeneity) OR (Aboriginal) OR ("First Nations") OR (Métis) OR (Inuit) OR (FNMI) OR ("American Indian") OR ("Alaska Native") OR (AI/AN) OR ("Native American") OR ("Native Canadian") OR ("Torres Strait Islander") OR (Māori) OR ("Pacific people") AND (teen* OR adolescen* OR youth OR "young people")
Digital technology	(technology) OR (ICT) OR ("digital media") OR ("new media") OR ("digital literacy") OR ("digital storytelling") OR (filmmaking) OR (videomaking) OR ("digital learning") OR (eLearning) OR ("online learning") OR ("Internet learning") OR ("web-based learning") OR ("blended learning") OR ("mobile learning") OR (mLearning) OR ("mobile device") OR ("social media") OR ("social networking") OR (Facebook) OR (Instagram) OR (Snapchat) OR (Twitter) OR (YouTube) OR (blog) OR (texting) OR (Tumblr) OR (gaming)
Subject (Mental health and literacy and language)	("mental health") OR ("mental wellbeing") OR ("mental wellness") OR (stress*) OR (depression) OR (anxiety) OR ("substance abuse") OR ("drug abuse") OR (alcohol*) OR (trauma*) OR (suicid*) (language) OR (literacy) OR (multiliterac*) OR (reading skill*) OR (writing skill*) OR ("English learner*") OR (L2) OR (ESL) OR (TESOL) OR (TESL) OR (translanguag*)
Youth perception	(perception* OR perspective*)

This systematic review was conducted, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009). The searches were conducted for empirical studies published between 2020 and 2021. Using the terms listed in Table 1, relevant databases were searched. These included 1) Indigenous databases: Bibliography of Native North Americans via EBSCOhost, Informit Indigenous Collection, and Indigenous Studies Portal, 2) APA PsycInfo via ProQuest, Web of Science via Clarivate Analytics, and PubMed for mental health, 3) ERIC, and Education

Source via EBSCOhost, 4) Computers and Applied Sciences Complete, and Communication & Mass Media Complete via EBSCOhost, 5) Canadian Business & Current Affairs, and Canadian Reference Centre databases, 6) Scholar's Portal Journals and Academic Search Premier via EBSCOhost, and multidisciplinary scholarly search engines, such as Microsoft Academic, Semantic Scholar, and Google Scholar.

Through all the searches reported above, and after removing duplicate copies and manually screening each article for relevance, a total of 15 articles were eligible for this review. Finally, hand-searches of the reference lists of the 15 articles found three additional articles. At last, 18 articles were included in this review for Indigenous youth's perspectives on using digital technology to support their mental health (n = 9) and their language and literacy development (n = 6).

4. Data analysis

To analysis Indigenous youth's perspectives on using digital technology to support their mental health and language and literacy learning, grounded theory (Glaser, 2001) was applied for open coding (Braun & Clarke, 2019) of all results reported in the studies reviewed. As no study addressed both of the topics, relevant idea units were coded separately first, then were categorized, tallied, and consolidated into the themes that responded to the two research questions.

5. Results

5.1. Indigenous youth's perspectives: Digital storytelling for healing and e-mental health

Regarding using digital technology to address the mental health issue, Indigenous youth's perspectives were reported from three categories of the relevant studies reviewed: 1) five studies reporting on Indigenous youth's feedback on digital storytelling, and video- and film-making projects focusing wholly or partly on mental health issues (Linds, Sjollem, Victor, Eninew & Goulet, 2019; Loebach, Tilleczek, Chaisson & Sharp, 2019; Riecken, Scott & Tanaka, 2006; Stewart, Riecken, Scott, Tanaka & Riecken, 2008; Wexler, Gubrium, Griffin & DiFulvio, 2013); 2) three studies about Indigenous youth's report on their use of digital technologies for mental health purposes (Carlson et al., 2015; Gritton et al., 2017; Hefler, Kerrigan, Henryks, Freeman & Thomas, 2018), 3) a study regarding Indigenous youth's perspective on eMH tools (Fleming, Merry, Stasiak, Hopkins, Patolo, Ruru, et al., 2019).

Among the five Indigenous youth digital storytelling or film-making research projects, Wexler et al.'s (2013) study engaged Alaska Native youth in the production of digital stories, exploring protective factors of suicidality. The other four studies focused on the role of film production or digital storytelling on Indigenous youth's overall health and their personal and community wellness (Linds et al., 2019; Loebach et al., 2019; Riecken et al., 2006; Stewart et al., 2008). The results showed that digital storytelling and filmmaking activities were well-received by Indigenous youth and reported positive and meaningful experiences, such as a higher percentage of youth feeling "satisfied" with digital storytelling projects (Wexler et al., 2013).

Furthermore, many AI/AN youth participants believed that technology-based interventions and resources would be effective for supporting mental health (Gritton et al., 2017). Studies examining Indigenous youth's perspectives of critical social media posts, such as those expressing suicidal intent, found that Indigenous youth would try to help others who posted worrying content such as suicidal intent; however, some of them felt they were not confident in their abilities to help (Carlson et al., 2015; Gritton et al., 2017). Certain complicated barriers could prevent them from intervening, such as their inability to "[decipher] the true meaning of concerning posts" and "frustration when attempts to intervene proved ineffective" (Gritton et al., 2017, p. 73). Regarding Indigenous youth's perspectives and experiences with eMH tools, research found Indigenous youth had varying preferences for digital tools and this should be taken into consideration for the development of future eMH (Fleming et al., 2019).

5.2. Indigenous youth's perspectives: Digital storytelling for multiliteracies and language and literacy instruction and practice using digital technology

Six studies examined Indigenous youth's perspectives on using digital technology to support their language and literacy learning and practices. Similar to the research on mental health, digital storytelling projects were well-received by Indigenous youth. They believed that digital storytelling and narratives effectively supported their learning of multiliteracies, i.e., language, literacy, and technology skills, Indigenous knowledge, and other skills required at school and work, and also contributed to their wellbeing and identity empowerment (Begoray & Brown, 2018; Pirbhai-Illich, Turner & Austin 2009). For example, students created digital historical poems and narratives to retell Indigenous Dreamtime stories, acknowledging the significance of transgenerational storytelling and that its tradition should be continued through digital mediums (Mills, Davis-Warra, Sewell & Anderson, 2016).

For Indigenous youth's self-initiated language and literacy practices using digital technological tools (Bussert-Webb & Díaz, 2013; Jacobs, 2019), participants reported that telephone and email communications with their families helped them maintain their first language, and translanguaging (the use of more than one language) was also commonly practiced through digital mediums (Bussert-Webb, & Díaz, 2013). Research also found that Indigenous youth used visuals to help their comprehension during communication (Bussert-Webb & Diaz, 2013).

Moverover, Indigenous youth participants overall responded positively to digital technology-based language and literacy instruction. They were more inclined toward technology-based curriculum activities than traditional paper-based ones, and preferred searching for information on the Internet over textbook-based reading comprehension tasks (Pirbhai-Illich, 2009). They were also more interested in technology-based reading comprehension exercises for homework than paper-based ones to help them prepare for the state-mandated standardized test (Bussert-Webb and Diaz, 2013). Some mixed feedback was also reported by Indigenous undergraduate nursing students in an English writing class via Facebook. While they felt the course to be motivating, satisfying, collaborative, and helpful with their writing skill development, there were some concerns over whether the web-based environment could be as stimulating as face-to-face instruction for their learning and interaction with peers (Yu, 2018).

6. Conclusions

Mental health and academic English language development are two of the most intertwined and challenging issues faced by Indigenous youth. It is important to understand Indigenous youth's perspectives and their needs, so educators can be better prepared to address these barriers in both areas holistically with a culturally responsive approach. This article is the first to report on a systematic review of empirical evidence from extant research in the hope of providing insight for researchers and educators, so innovative interventions ranging from mental health to the development of language and literacy skills can be developed organically to provide effective support for Indigenous youth.

There are some limitations with this review and the articles it is based on. First, as all of the reviewed articles were published in English, this review was unable to capture more diverse Indigenous youth's perspectives. Work published in other languages will provide additional information for the design and implementation of digital technology-based interventions to engage Indigenous youth more broadly. Second, most of the studies reviewed had a short duration and all of them addressed the two issues separately, therefore longitudinal research is needed to examine the impact and effect of Indigenous students' engagement and progress with digital technology-based programs for improving both mental health and academic language skills. This would help students build a sense of belonging with the program team, through which they could feel that their efforts were being acknowledged, while fostering a positive cultural and academic identity against detrimental historical and socioeconomic factors. Most importantly, future interventions should strive to collaborate with Indigenous community members and provide adequate training to practitioners.

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