Mino-Pimaatisiwin:

Instructors' Experiences in Privileging Indigenous Arts Integration in Post-Secondary Curriculum

by

Karen Favell

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Abstract

From residential schools to the present day, the federal government has controlled Indigenous education in Canada. The provincial government has determined the curriculum for on-reserve band-run schools, with little to no consultation or involvement of Indigenous peoples, as part of federal funding policy. The trend toward curricular integration that has taken place in mainstream education through STEM (Science, Technology, Engineering, and Mathematics) and then STEAM (Science, Technology, Engineering, Arts, and Mathematics) programming is also beginning to occur in Indigenous education. This disciplinary integration could include Indigenous education as part of this move to a more wholistic curricular approach. Through interviews with 12 instructors who have incorporated STEM, STEAM, Arts and/or Indigenous arts Integration, I discovered complexifying strategies they used to deliver these integrations. An analysis of these integration strategies permitted me to identify required components of a solid wholistic approach. Using this wholistic integrative approach, I created a template design for an Indigenous-focused Bachelor of Education program stream. The resultant curriculum developed for such a stream features an integrated curriculum that incorporates all of these elements into the program.

Keywords: Indigenous education, STEM, STEAM, Arts Integration, Indigenous Arts Integration, Indigenous program development, Indigenous curriculum integration

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CHAPTER 1: INTRODUCTION

Indigenous education has been a contentious issue in Canada for decades, and for most of that time, Indigenous education was used by the Canadian government to further the assimilationist agenda they had with regard to Indigenous people (Anuik et al., 2010; Battiste, 2013; Carpenter, 2017; Iseke, 2010; Milloy, 1996; Truth and Reconciliation Commission [TRC], 2015). This assimilationist agenda served three purposes: a) to further the European strategy of justifying colonial behaviour under the guise of raising Indigenous people up to the level of Europeans, in particular, the French and the British (Armitage, 1995; Belmessous, 2013;), b) to assimilate Indigenous people, ensuring that Indigenous children became so assimilated to the dominant culture that they would leave the reservations to become absorbed into Canadian society, and c) relieving the government of its fiduciary obligation to Indigenous peoples once they left the reservations behind (Allen, 1993; ; Borrows & Rotman, 2018; Hurley, 2002). However, despite these governmental attempts to ensure cultural assimilation of Indigenous people for more than a century, many Indigenous people have retained their cultures and language, while others strive to regain what they may have lost or forgotten (Antone, 2005; Atleo & Fitznor, 2010; Blyth, 2008; Trudeau & Cherubini, 2010).

One way Indigenous cultures and languages can be maintained and extended to future generations is through education. However, methods of Indigenous education such as residential school were not necessarily created in order to benefit Indigenous students or Indigenous communities. Instead, the schools alienated Indigenous people from their own identities and separated them, sometimes irrevocably, from their home communities (Milloy, 2017). Over time, educators and government began to see the need for Indigenous education that would benefit Indigenous people through the development of more culturally appropriate and respectful

education (Anuik et al., 2010; Battiste, 2000; Battiste et al., 2002; Castellano et al., 2000; Iseke-Barnes, 2008; Kanu, 2011; Ragoonaden & Mueller, 2017).

As Indigenous education moved toward more culturally respectful curriculum, mainstream education moved toward curricular integration, also known as interdisciplinarity (Breiner et al., 2012). Holley (2017) describes interdisciplinarity as the "interaction of knowledge from different disciplines; integration of knowledge from different disciplines; and an overarching topic, theme, or problem that shapes the learning experience" (p. 1). The benefits of interdisciplinary education are that students can build greater understanding of content by seeing how one subject or problem relates to others and that problem solving is, in fact, interdisciplinary (Burnaford et al., 2007). Educators could include Indigenous education in this integrated model of education because Indigenous education is naturally more interdisciplinary (Atleo & Fitznor, 2010; Battiste, 2000; Battiste, 2013; Bell, 2013; Brunette & Richmond, 2018; Episkenew, 2012; Iseke, 2010; Kanu, 2011; Young, 2015). The mainstream interdisciplinary approach parallels more Indigenous approaches, which would include the concept of wholism.

Wholism, which includes the "w", is a concept that refers not only to interdisciplinarity, but also to "wholeness as in complete, circular and full" (Absolon, 2016, p. 45). For Absolon (2016), and for many Indigenous people, wholism includes "connection to the land, cultural identity, impacts of colonial socialization and internalization, decolonizing and Indigenizing while reclaiming, relearning and recovering my whole self…voice, spirit, heart, mind and body" (p. 45). A wholistic approach to curriculum does not refer only to the integration of separate courses in order to assemble a complete curriculum; it also speaks to a different Indigenous worldview, in which all things are related, within ourselves and how we exist in the world. It is this culturally inclusive approach to life, as well as to processes such as curriculum development,

that differentiates Indigenous curriculum integration from mainstream approaches, including STEM and STEM. A wholistic perspective is one of the reasons that Indigenous curriculum development must be led by Indigenous people who share these beliefs about what wholism is and who would have the opportunity to develop meaningful, culturally appropriate, and respectful wholistic curriculum.

Background to the Study

Indigenous education in Canada has changed as the relationship between Indigenous peoples and colonizing powers evolved. The residential school system in Canada has its roots in the changes to power dynamics between Indigenous peoples and the governments of the British, and later, Canada. For more than 200 years, the British and French valued Indigenous peoples in Canada for their knowledge about living on the land, as well as for military alliance in case the British were attacked by others (Milloy, 2017; Royal Commission on Aboriginal Peoples [RCAP], 1996). Over time, and with the arrival of more British settlers in Canada, the power balance that existed for centuries began to shift in favour of the British and French, particularly when they began to establish larger, more permanent settlements and had less need for Indigenous peoples (Carter, 1999; Dickason, 1997). It was then that the British, followed by the Canadians, began to assert control over the education of Indigenous peoples, eventually resulting in the residential school system. Even though the Bryce Report (1907) and the National Crime (Bryce, 1922) publications were known about by the Government of Canada, the residential school system continued for another seven decades.

As more Indigenous students began to be educated in the mainstream system outside of the residential schools system, their curriculum continued to be mainstream, with little to no Indigenous-created content, even if their instructors were Indigenous (Corbiere, 2000).

Essentially, the mainstream education system perpetuated the assimilationist agenda of the provincial and federal governments, but the *Statement of the Government of Canada on Indian Policy, 1969*, also known as the White Paper (1969) would create changes to Indigenous education, although they were not the changes the government had hoped to create. The White Paper (1969), which called for the elimination of any special status Indigenous people had in Canada because their status prevented them from participating fully in Canadian society, sparked outrage in the Indigenous community and was largely responsible for creating Indigenous rights movements across Canada and the development of the Indian Control of Indian Education (ICIE, 1972) document, which described in detail how Indigenous education should look and what Indigenous education should be doing for the people. This was in contrast to mainstream education, which continued to fail generations of Indigenous students. Instead, Indigenous educators began to infuse curriculum with Indigenous cultural values and education practices to varying degrees and with varying levels of success (Battiste et al., Carr-Stewart, 2019, Gunn et al., 2011; McGregor, 2017). Modern treaties such as Nunavut in 1999 have been signed with the federal government across Canada. As well, Indigenous bands have signed self-government agreements and education agreements, all of which have or will lead to greater control over all aspects of education for these communities (Government of Canada, 2019), which may lead to the implementation of Indigenous education in those areas and communities. Some are already creating and delivering Indigenous education of their own.

Indigenous Issues in Mainstream Education

Although the government realized as early as the 1930s that the residential school system was unsustainable (TRC, 2015a), both for financial and educational reasons (but not for ethical reasons), and that the shift in Indigenous education was going to be from assimilation to

integration with mainstream society, the residential school system continued to operate until 1996 (TRC, 2015b). Indigenous students who attended mainstream schools during and following the residential school era continued to receive education that followed colonial guidelines for curriculum delivery and content tied to transfer funding from the federal government to the provincial governments, who hold jurisdiction over education in Canada (Adler & Greyeyes-Brant, 2011; Anuik et al., 2010; Gordon & White, 2013; Preston, 2008; Ray and Cormier, 2012; Scowcroft, 2015). Most, if not all, instructors were non-Indigenous, although in more recent times classroom instructors might have been Indigenous (Corbiere, 2000).

The perpetuation of colonialist ways continued, and the government did not implement the ICIE document, which among its many recommendations called for developing culturally respectful curriculum, working with Indigenous communities to develop this curriculum, training Indigenous teachers, and helping non-Indigenous teachers to become more culturally aware of Indigenous issues (Martens, 2019, McLellan, 2013; Pidgeon, 2014). However, over time, Indigenous issues in education became of greater importance to the government and Indigenous content is now a part of the Manitoba curriculum, some of which was developed either by or with Indigenous educators (Province of Manitoba, 2017). While these changes certainly reflect some progress, the curriculum is constrained by its colonial framework. For example, the curriculum is standardized across the province, which does not acknowledge any diversity among Indigenous groups, even though there are several different nations, cultural contexts, locations, and traditional belief systems within Manitoba. According to Stansfield and Browne (2013), Indigenous knowledge is “grounded in local contexts, communities, and histories and, therefore, is not an identical set of knowledge in any one nation, community or society” (p. 144). Also, although Indigenous people were allowed to contribute to the curriculum development

process, the control of that curriculum remains with the provincial government (DeLuca & Pitblado, 2018; Paquette & Fallon, 2014). This is also true for the Manitoba First Nations School System which was established in 2016; although they will be allowed to adapt the curriculum in order to incorporate Indigenous cultural components such as language and culture, they are still required to follow provincial curriculum (Manitoba First Nations Education Resource Centre [MFNERC], 2017). Another issue is that government commitments are often limited, extending to different projects but not incorporating any long-term solutions (Battiste et al., 2002; Mackh, 2015; Restoule, 2008). One alternative to this government-controlled education is to develop Indigenous academic institutions, such as the First Nations University of Canada, Yellowquill College, and University College of the North (First Nations University of Canada, 2020; Jenkins, 2008; Yellowquill College, 2020; UCN, n.d.).

Connection to Culture

When Indigenous people are mandated to operate within an educational system that operates within a colonial system, they are to a great extent bound by the rules of that system (Dupont, 2016). However, it is possible to infuse mainstream curriculum with Indigenous perspectives (Anuik et al., 2010; Cajete, 1994; Gaudry & Hancock, 2012; McCue, 2006; Ray & Cormier, 2012). Some teachers have worked toward positioning Indigenous curriculum and pedagogy as a central feature of their teaching at primary and secondary levels (Kanu, 2011; Treaty Relations Commission of Manitoba [TRCM], 2019). As well, the Manitoba NDP government worked collaboratively with post-secondary institutions to develop the *Manitoba Collaborative Indigenous Education Blueprint* (Manitoba Blueprint), through which signatories from all Manitoban universities, colleges, and school boards agreed to implement the education calls to action of the TRC (2015b). In addition to developing respectful relationships with

Indigenous people in order to improve education, the signatories also agreed to incorporate "Indigenous knowledge, languages and intellectual traditions, models and approaches into curriculum and pedagogy" (Manitoba Blueprint, 2015, p. 1). Incorporation of Indigenous knowledge into mainstream curriculum, then, is no longer a distant goal of Indigenous education; it is now government policy, and not just for Indigenous students, but for all students. This is in contrast to past mainstream curriculum, which did not incorporate much Indigenous curriculum or pedagogy into curriculum, if it incorporated any at all. Unfortunately, once the NDP lost the provincial election to the Progressive Conservative party in 2016, Indigenous education initiatives such as the Manitoba Blueprint ceased to be priorities.

Indigenous Curriculum Integration

Historically, Indigenous people did not see themselves reflected in mainstream curriculum (Anderson et al., 2016; Schick & St Denis, 2005), and if they did, they often saw themselves depicted in terms of negative stereotypes, faced discrimination in the classroom because of these same stereotypes, or both (Castellano et al., 2000; Henry & Tator, 2000; Riley, 2012). It is important for Indigenous students to see themselves reflected positively in the curriculum because prior research has shown that past discrimination in curriculum has contributed to lower levels of academic success and that culturally respectful curriculum contributes to greater success (Anuik et al., 2010; Battiste, 2000; Battiste, 2013; Battiste et al., 2002; Castellano et al., 2000; Gallop, 2016; ICIE, 1972; Iseke-Barnes, 2008; Kanu, 2011; Malatest, 2005; Pidgeon et al., 2013). As well, past research has shown that when instructors incorporate aspects of Indigenous culture such as Indigenous knowledge and technology, such as bannock maing, sweet grass gathering, drum and dream catcher making, tipi raising, sweatlodge construction), arts (language, stories, music, dancing, painting, regalia construction) into the

curriculum, Indigenous students are more successful because the content and teaching methods are more meaningful and relevant to them (Battiste et al., 2002; Crammer et al., 2019; Denomme-Welch & McNeil, 2018; Leddy, 2018; Lewis et al., 2018; McLaughlin & Whatman, 2007; Rose, 1996; Treleaven, 2018). Indigenous integration as curricular integration is also important because of the injustices in the past that can be identified and addressed in Indigenous education (Atleo & Fitznor, 2010; Blythe, 2008; Lester-Smith & Price, 2010; Marsh, 2012; Mashford-Pringle & Nardoz, 2013). In the past, some educators incorporated Indigenous content into curriculum using the add-on approach, for example, by adding Indigenous culture units to courses or by having Indigenous cultural days separate from the rest of the curriculum (Robertson, 2003). A strategically integrative approach can make the curriculum more relevant for Indigenous and non-Indigenous students.

The TRC has successfully drawn attention to the need for Indigenous curriculum at all levels of education, primary, secondary, and post-secondary; this was shown by the signing of the Manitoba Blueprint by representatives from all of these levels (Government of Manitoba, 2015). The University of Winnipeg, in response to the TRC Calls to Action, has made it mandatory for all of their students to take a three-credit hour course in Indigenous culture or history (University of Winnipeg, n.d.); the University of Manitoba has also debated whether or not it will do so across the institution, although individual faculties do have mandatory Indigenous-focused courses (The Manitoban, 2016). It is possible to integrate Indigenous content into mainstream curriculum without involving Indigenous arts, as long as you limit this content to historical or current events. However, if you incorporate a more in-depth and wholistic examination of Indigenous culture, it would be very difficult, if not impossible, to exclude Indigenous arts (Bell, 2013; Cook-Lynn, 1997; James, 2018; Ohnesorge, 2008; White Shield,

2003). Also, in addition to more modern Indigenous arts (Barajas-Lopez & Bang, 2018), Indigenous artists continue to practice traditional arts such as powwow singing and dancing, carving, and beading, while others participate in more modern music forms such as rap, hip hop and country music; others create modernized styles of Indigenous art that have evolved over time (Ohnesorge, 2008), so Indigenous arts curriculum could be varied and engaged with present-day Indigenous issues, which should be characteristic of new or post-modern curriculum (Biin & Weston, 2015; Pacini-Ketchabaw & Pence, 2011).

Mainstream Curriculum Integration

The concept of integrating curriculum in this way started to be more common in the United States in the 1970s (Mackh, 2015; Pandora & Fredrick, 2017; Universities Canada, 2016) but its roots reach much further back. For example, Dewey (1931) stated that separating curriculum into subjects was confusing for students because knowledge was interdependent and there needed to be a better relationship between that knowledge and purpose in curriculum and an integration of those subjects so that students could improve their understanding of the content (Kliebard, 2004). As far back as 1936, the National Council of Teachers of English in the United States recommended integrating English into all aspects of curriculum (Burnaford et al., 2007). More recently, proponents of curriculum integration, such as STEM and STEAM, have proposed that curriculum integration is necessary because modern occupations such as engineers, scientists, actuarials, communications operators, engineers, and computer scientists, benefit from integrated education (Erdogan & Stuessy, 2015; Gunn, 2017).

Indigenous Arts Integration

STEM, STEAM and arts integration are all forms of mainstream arts integration. Indigenous arts integration would be beneficial to students for the same reasons as arts

integration is beneficial to students, however, there are additional benefits to Indigenous arts integration, such as including Indigenous content, connections to Indigenous culture through Indigenous arts performed during ceremonies, as well as connections to Indigenous languages (Anuik et al., 2010; Berti et al., 2014; Hydo et al., 2007; Matilpi, 2012; Ohnesorge, 2008; Pacini-Ketchabaw & Pence, 2011). Indigenous arts integration would benefit Indigenous students because some of them may no longer be connected to their cultures or may want to strengthen their connection to it, and this may be easier for some students through use of arts such as singing and drumming (Anuik et al., 2010; Auger et al., 2016; Barajas-Lopez & Bang, 2018; Reading & Wien, 2009).

Indigenous arts integration could also help Indigenous people to reconnect with their culture, and privileging this curriculum might help both Indigenous and non-Indigenous students to do this (Curwen Doige, 2003; Lashua & Fox, 2006). In addition, arts may provide an easier method of connecting to spirituality, which otherwise could be a difficult topic for some students (Curwen Doige, 2003; Gaudry & Hancock, 2012; Trudeau & Cherubini, 2010; White Shield, 2009).

My Position as Researcher

Kaagaagagiizhagook ndizhnikaaz. Maakwa ndoodem; Waazhushk Oniigaming doonjii. Naotkamegwaaning onjii ni-maamaa; Waabigoon Saaga'igan onjii ni-baabaa. My English name is Karen Favell and I am an Anishinaabe woman originally from Kenora, Ontario and a member of the Bear clan. My mother is from Whitefish Bay, Ontario, and my father is from Wabigoon Lake, Ontario. I am a musician, I play mainstream music on the piano, and I sing Indigenous sacred music with my drum and in ceremonies. I have always been interested in both education and music, and as an Indigenous woman, I would like to understand how mainstream and

Indigenous music could be combined and formally integrated in order to improve post-secondary education. My cultural background, history, and identity will certainly have a bearing upon the research I conduct and how I interpret my findings. Consequently, I think it is important to provide information from the outset about my positionality.

I was born in Ontario and lived in small towns as well as in a family cabin in the country, which was located off-reserve because we were non-Status Indians at that time. My parents were both professionals; my mother was a nurse and my father was an administrator in various Indigenous organizations. Although there was addiction throughout the generations of my family in my lifetime, including in my own house, our home life improved over time and we started to focus upon other things, such as education. We moved to Winnipeg before I started kindergarten, and I have continued to live here until the present, for the most part. I was educated in St. Boniface, and most of my teachers were either current or former nuns, although there were also some younger teachers. I admit that it was not the most modern education, but the information I learned about math and English served me well in my future educational endeavours and in some of my later employment, which became increasingly education-focused. After high school, I went to university for a long time, eventually earning undergraduate degrees in English, music, and education, as well as a graduate degree in education, although I did not complete most of those degrees until I was in my late 30s and 40s. I did not begin my PhD until I was 46.

I had been working at a government job for years before I decided to go back to university to complete my music degree, which I had earlier abandoned. This decision led to my becoming an educator, not because it was something I had always wanted to do, but because of economic necessity. I received band funding for tuition and books, but because music was my second undergraduate degree, my band refused to supply me with a living allowance, which

meant that I had to get a job to support myself. A professor had told me in my early 20s that I was a good writer, so I applied for a job as a peer tutor at the Writing Centre at Brandon University, not anticipating where that job might lead. As it turned out, I enjoyed tutoring other students and it was not long before the other Indigenous students coming to the centre learned that one of the tutors was Indigenous; after that, many of them chose to come to me. I really enjoyed working with Indigenous students, which I had never really done, except for the times I tutored students in math at the Indian and Metis Friendship Centre in Winnipeg when I was a teenager. I had missed spending time with Indigenous people since my family lived in another city and there were no Indigenous students or instructors in the Faculty of Music. The experience made me want to continue working with my own people in the future. However, after working for eight months at the Writing Centre, and with a year left to complete my music degree, the other tutor and I left to teach English in Taiwan, which was the first time I taught students in a classroom.

Although I did not have an education degree, I was able to get a job in Taiwan because of my English degree. I had never taught children in a classroom before, had never taught English as an additional language, and had never lived outside Canada, so I had a series of new experiences there. The best experiences I had in Taiwan were in the classroom, where I found that teaching came easily to me, although I had to learn how to be a good teacher through trial and error and by learning all I could from my fellow teachers, most of whom had education degrees; I also found some very helpful websites. I learned from the students that some of them had Indigenous ancestry, which I found interesting because I had not been aware that there were Indigenous people in Southeast Asia. We later drove up to the mountains in Taiwan and I was able to meet and visit with some Indigenous musicians there, which was a fantastic experience.

Another great musical experience I had was being invited to sit in the Taoist temple close to our school to listen to the prayers and songs they sang there. The priest came to the school, which was down the road from the temple, to ask if I would like to spend time in the temple with them because I stood outside and listened to their singing almost every day on my way to work. Eventually, I began teaching music in Taiwan, which gave me the opportunity to teach Western music while learning Taiwanese music from the students. For my part, I was grateful for the shared musical experience.

Another of the most interesting learning experiences I had was unrelated to music, however. It occurred near the beginning of my time at the school, when I was told by the principal that we were obligated actively to discourage our students from speaking Mandarin, which was their native language. I had several long conversations with the principal about residential schools in Canada and their often successful attempts to eradicate Indigenous language-speaking ability from their students. However, this was 20 years ago, and although my principal and most of the other teachers were from Canada, many appeared to be for the most part unaware of the experiences of Indigenous students in residential schools. In fact, they appeared to be ignorant about any Indigenous education issues even though some of them had worked as teachers in Canada. I was instructed to punish students for speaking their language by having them stand with their noses touching the whiteboard, to stand with their book bags over their heads, or to keep them after class, all of which I refused to do. In fact, I allowed my students to use Mandarin in the classroom, and I was the only teacher to do so. I just asked the students to keep that information to themselves, which they may have, because the principal never said anything to me about it. That experience reminded me of the social justice aspect of being allowed to speak Indigenous languages and the punitive measures taken against Indigenous

people in Canada and the United States who dared to speak their own language while learning in a foreign language at school. Despite the somewhat colonial and assimilationist nature of the school where I worked, I enjoyed my experiences in Taiwan so much that I decided I might actually want to become a teacher once I returned to Canada.

I came back to Canada, completed my music degree, and then worked as an administrator in Aboriginal Focus Programs, which was an Indigenous program area at the University of Manitoba. After a few months in that role, I attended an education conference in Kenora and happened to see a booth advertising an Indigenous Teacher Education program, which was a Bachelor of Education degree offered through Queen's University, specializing in Indigenous education and delivered in northwestern Ontario on the weekends. The campus was about four hours from Winnipeg and was close to Whitefish Bay, where my mother's relatives are. I decided to apply for the program because I had started tutoring students and teaching courses in some of our programs, and I thought a Bachelor of Education degree would improve my teaching. Although I have participated in ceremonies and other Indigenous cultural activities since I was a small child, it was while taking this degree that I participated in my first Indigenous learning experiences in a formal education setting. All of our instructors were Indigenous, and all of them incorporated Indigenous content and learning activities, some of which were land-based, into their courses. I became more familiar with Indigenous teaching methods and learned more about how to incorporate culture into mainstream education courses, which was also a focus of the program. I tried to ensure that I included Indigenous learning perspectives when I was teaching, but my job at the university remained primarily administrative. However, once I graduated from the program, I left the university to become an instructor in the School of Indigenous Education at Red River College.

The courses I taught at Red River College were mainly academic courses because the diploma program in which I taught laddered into an undergraduate degree program at the University of Winnipeg. Most of the courses in the School of Indigenous Education were mainstream academic or trades programs. However, there were many cultural supports at the college: there were two elders who provided support to students and gave cultural teachings in classrooms and in the Indigenous Centre and the staff of the Centre also facilitated seasonal feasts, sweat lodge ceremonies, full moon ceremonies, drumming, and crafts throughout the school year, as well as special events such as orientations and graduation ceremonies for Indigenous students. There were many opportunities for the students to engage in cultural activities outside of the classroom, but few opportunities inside the classroom. I taught an Indigenous Music and Art course in which students the opportunity to construct instruments such as flutes and hand drums, to play music, to create works of art, and to experience Indigenous ceremonies. The course was meant to infuse curriculum with Indigenous content, teaching methods, and worldviews in order to intentionally and positively impact student perceptions of their experiences in the program (Iseke-Barnes, 2008; Wilson, 2007). It was during this course that I saw how infusing Indigenous education with music and art benefited the students, who had near-perfect attendance and reported feeling that not only did being the course improve their experiences in their program, but it also positively impacted their self-worth as Indigenous people (Favell, 2013).

Throughout my experiences in education, as both a student and a teacher, I have been privileged to work with my own people so often. I have developed a strong sense of wanting to improve the lives of Indigenous people through education, not only because of the social justice factor, but because I want our people to be as powerful and self-determining as we can be, to

regain our position within the world and within ourselves. As a musician, I have always been intrinsically motivated to facilitate musical experiences with my students because it helps us to connect to our culture and to our past, and also because it is a positive contributor to the learning experience, not only for Indigenous students, but for all students.

Purpose of the Study

Integration of curriculum has been an increasingly important goal of education in Canada and elsewhere over the last two decades. Instructors have been working on integrating course content through STEM (Science, Technology, Engineering, Mathematics), which is important because of the need for more students with expertise in these areas, as well as because of the benefits of integrating curriculum (DeCoito, 2016; Gaskins, 2016; Kelley & Knowles, 2016; Soldner et al., 2012). The STEM philosophy in education existed for years before the arts were added (STEAM) because of the benefits of arts integration (AI) to curriculum and teaching methods (Burnaford et al.; Glass et al., 2013). Another major theme in curriculum integration in some countries, such as Canada, has been the incorporation of Indigenous culture into mainstream curriculum (Battiste, 2000; Battiste, 2013; Bell, 2013; Iseke-Barnes, 2008; Kanu, 2011; Paquette & Fallon, 2014; Pidgeon et al., 2013).

STEM, Arts Integration, and Indigenous education are all collaborative methods of developing and delivering curriculum; because of this, it may be possible to create university programs that integrate all three principles. Additionally, some characteristics of Indigenous education align well with STEM and arts integration, such as a wholistic approach to curriculum, incorporation of hands-on activities, and incorporation of culturally relevant activities (Bruhac, 2014; Kirkness & Barnhardt, 1991; Leik, 2009). As well, any Indigenous education program should incorporate Indigenous knowledges and worldviews if educators intend to include them in

meaningful ways. This will include leaving the classroom to connect to the land, learning through experiences, and learning about Indigenous ways of seeing the world (Battiste, 2002), but in order to integrate Indigenous learning and knowledge into classrooms meaningfully, the classroom itself would have to change. It will be difficult to include Indigenous knowledges and worldviews into the current education system, unless it is possible to create change within mainstream education to accommodate these.

However, there are plans to develop more Indigenous programming at the University of Manitoba. It would be helpful for all students, Indigenous and non-Indigenous, if the goals and ideals of collaborative education, such as those offered through STEM, Indigenous education, arts integration, and Indigenous arts integration, could be integrated into this potential program at the planning stages, rather than incorporating these important educational principles into the program once it has already been developed (Biin & Weston, 2015; Estrada, 2018; Pandora & Fredrick, 2017).

The purpose of this study is to determine what the experiences are of Indigenous and non-Indigenous instructors who have worked toward curriculum integration, arts integration, or Indigenization of curriculum in order to explore the challenges and possibilities of doing so in post-secondary education programs.

Research Questions

I have designed the research questions for this study in order to investigate the experiences of Indigenous and non-Indigenous instructors who have worked with integration of curriculum in order to determine how best to integrate Indigenous arts-based curriculum into mainstream curriculum. Specifically, the participants in the study will be instructors who have worked with STEM, STEAM, and the integration of Indigenous arts.

1. To what extent does incorporating arts integration into mainstream education programs benefit students? What are the challenges and benefits to incorporating arts education in an integrated curriculum?
2. How does incorporating Indigenous perspectives and worldviews into mainstream education programs improve the experiences of students in the program? What are the challenges and benefits to incorporating Indigenous arts into integrated curriculum?
3. What are the positive or negative effects of Indigenous arts integration upon post-secondary students?
4. What are the structural and pedagogical changes that administrators and instructors need to make within existing mainstream systems in order to facilitate curriculum integration?

These questions will be the basis upon which this research study is conducted, in order to ensure the development of curriculum that is integrated and respectful toward Indigenous peoples, to the benefit of all students.

Definition of Terms

Indigenous

In this study, I use the term Indigenous to identify Indigenous people of all First Nations represented in this study, including Status Indians, non-Status Indians, Metis, and Inuit peoples. Although people of different Indigenous nations have names in their languages for who they are, such as Anishinaabe, these individual words do not simultaneously encompass all different groups of Indigenous people (Schertow, 2008).

Integration

Integration is not a neutral term. In the past, colonial policies such as the Royal Proclamation of 1763, the treaties, the Indian Act, and the residential school system were all the

results of attempts by the British and then by the Government of Canada to assimilate Indigenous peoples into mainstream society (Carr-Stewart, 2001; Giokas, 1995; Milloy, 1996; Milloy, 2017; Morden, 2016; RCAP, 1996; TRC, 2015a). Given the past colonial history of Indigenous education, it is important that new Indigenous education regimes not follow along the same path, but rather than Indigenous components be equal to, and at times be privileged over colonial aspects of education, such as curriculum, teaching methods, and worldview (Aikenhead, 2001; Ermine, 1995; Hogue, 2016; Mack et al., 2012; Ogawa, 1995; TRC, 2015a). By the term "integration", I mean that Indigenous integration would involve curriculum integration that privileges Indigenous curriculum and ways of knowing, while still including mainstream aspects of education, including content, as part of the curriculum integration.

STEM

STEM refers to a teaching approach wherein educators integrate four components of the curriculum: science, technology, engineering, and mathematics, in order to facilitate learning across these four disciplines and better prepare students for future employment in STEM fields such as software development, computer systems analysts, as well as social sciences (Pandora & Fredrick, 2017).

STEAM

STEAM also involves integration of curriculum across the same components (science, technology, engineering, and mathematics), with the addition of arts, which adds dimensions of hands-on activities, creative thinking, and real-world experiences; in addition, adding arts to STEM is inclusive of students who engage in visual and performing arts (Pandora & Fredrick, 2017).

Indigenous Arts Integration (IAI)

The Indigenous arts integration approach to teaching incorporates principles of arts integration (learning of mainstream curriculum through different arts, such as music, visual art, drama, dance, and creative writing) (Abbotsford School, 2018), principles of STEAM (Pandora & Fredrick, 2017), Indigenous curriculum integration (Battiste et al., 2002; Ragoonaden & Mueller, 2017; RCAP, 1996; TRC, 2015b), and Indigenous arts integration (Bell, 2013; Cook-Lynn, 1997; White Shield, 2003). The contribution that Indigenous Arts Integration makes to the area of curriculum integration is that it encompasses all of the other forms of integration, including STEM, STEAM, and Arts Integration, as well as Indigenous forms of curriculum integration such as Two-Eyed Seeing and Indigenous Arts Integration. The benefit of this for Indigenous peoples is that their perspectives, cultures, and ways of knowing will be privileged in the integration; as well, if Indigenous peoples are involved with or lead this curriculum development, then the Indigenous vision of seeing curriculum in a wholistic way will also be honoured.

Delimitations of the Study

1. The participants in this study will be Indigenous and non-Indigenous instructors who have integrated curriculum through STEM education, Arts integration, Indigenization of curriculum, and the use of Indigenous arts in the classroom.
2. The participants will mainly be from Canada, possibly with limited additional participants from the United States and New Zealand. They will be asked to share positive and negative experiences in curriculum integration so that future programming can be improved, to the benefit of all students.

Limitations of the Study

I acknowledge that there are a number of limitations to consider when I am drawing conclusions about this study.

1. There are many arts integration programs at the primary and secondary levels, but not as many at the post-secondary level, so participants may not be able to speak to STEAM or Indigenous Arts integration at that level.
2. There may not be many Indigenous instructors who are also artists or musicians, so the participants may not all have worked as instructors, so they may not see their work through an education lens.
3. Educators in different countries will have experienced different challenges and successes from each other because of differences in government policies and in Indigenous populations.
4. I am an Indigenous musician, and I might have intrinsic reasons for wanting the study to prove my own personal beliefs, which are that curricular integration, arts integration, and Indigenized curriculum would benefit all students, not just musicians, artists, or Indigenous people.

Significance of the Study

While STEM and STEAM have existed for years, they have not often also integrated Indigenous arts or Indigenous education. There has been little research into the idea of STEAM that includes Indigenous arts. Findings from this study may help to develop STEAM programs that include Indigenous arts.

As well, this curricular integration will be at the post-secondary level. While there are existing STEM and STEAM programs at the post-secondary level, they do not include

Indigenous arts, so this study may help others to develop future programs, which will be inclusive not only of Indigenous content and perspectives, but also Indigenous teaching methods.

In this time of reconciliation, this study may lead to more culturally respectful Indigenous curriculum at the post-secondary level. Call to Action 10 of the TRC (2015b) demands government work with Indigenous peoples to develop "culturally appropriate curricula" (p. 2); the Manitoba Blueprint (2015) also calls for the inclusion of "Indigenous knowledge, languages and intellectual traditions, models and approaches into curriculum and pedagogy" (p. 1). This study involved representatives from the Indigenous community (Abbotsford School, 2018; Aquash, 2013; Bartlett et al., 2012; Drawson et al., 2017; Mackh, 2015) working toward creating culturally respectful Indigenous curriculum and ensuring that Indigenous curriculum has equal positioning with mainstream curriculum.

Summary

Curriculum integration is necessary in order to prepare students for modern employment. STEM and STEAM are methods of integration that have been used by instructors for 20 years; as well, educators have incorporated more Indigenous content into mainstream curriculum here in Manitoba and elsewhere. This curriculum integration and inclusion of Indigenous curriculum and learning principles predated the release of the TRC Calls to Action, but Indigenous curricular integration is paramount at this time because the government might be more likely to support initiatives that are responsive to the calls to action.

In this chapter, I have described the background to the study, study purpose, my positionality, research questions, limitations, delimitations, and significance of the study. In the next chapter, I will provide a review of the literature as it relates to Indigenous curriculum,

initiatives that have incorporated curriculum integration and Indigenous curriculum, my theoretical framework, and past and present practices of Indigenous education.

CHAPTER 2: LITERATURE REVIEW

Introduction

In Canada, we are living in a time of rapid change. Society is changing, and educational systems are also in the process of changing in order to prepare students for employment in the midst of this change (Santos et al., 2017). The TRC (2015) also calls for changes in education in order to create systems that privilege Indigenous knowledges in curriculum. While curriculum integration has existed for decades in the United States and Canada (Burnaford et al., 2017), STEM programs are becoming increasingly common because students need to have this knowledge in order to succeed in 21st century occupations, such as careers involving the environment, information technology, research, and science (Erdogan & Stuessy, 2015; York University, n.d.). There has also been an increase in programs which prepare students from historically underrepresented populations for these occupations, so there are aspects of social justice inherent in some STEM programs (Erdogan & Stuessy, 2015; Leggon & Gaines, 2017). In addition to preparing students academically for future careers, one of the benefits of STEM is that it involves "the purposeful integration of the various disciplines as used in solving real-world problems" (Erdogan & Stuessy, 2015, p. 1521). Eventually, STEM grew to include the arts and humanities in order better to facilitate creative problem solving within integrated curriculum (Liao, 2016), which became STEAM. More recently, Indigenous educators have been incorporating STEM into the education of Indigenous students in community and mainstream education programs (Barajas-Lopez & Bang, 2018; CBC News, 2018; Pinto, 2017). Conversely, educators have been incorporating Indigenous arts into mainstream STEAM programs as good pedagogy and also as a function of social justice (Kafai et al., 2009; Tan & Calabrese Barton, 2018). Integrating Indigenous arts into STEAM programs helps Indigenous students in those

programs to connect to their own histories, cultures, and communities (Barajas-Lopez & Bang, 2018) and helps them to experience cultural continuity, enabling them to pass this knowledge on to future generations (Auger, 2016; Reading & Wien, 2009). A common feature of Indigenous education, STEM, STEAM and arts education is the integration of curriculum.

Curriculum Integration

Indigenous Education

Indigenous people have long recognized the need to change existing systems, such as the education system, in order for more Indigenous people to relate to, and therefore succeed in, those systems. Until Indigenous people achieve self-determination, this change will likely involve the Canadian government, which under the Canadian constitution has jurisdiction over Indigenous peoples; it is likely also to involve the provincial government, which has jurisdiction over education (Government of Canada, 2018). The Government of Canada has also recognized the need to change existing systems that directly affect Indigenous peoples (RCAP, 1996; TRC, 2015c). This includes the education system, and for more than 50 years the government has undertaken numerous initiatives to meet the educational needs of Indigenous students, with varying levels of participation from Indigenous peoples. Indigenous peoples themselves have made major contributions to improving Indigenous education in Canada, but also with varying levels of Indigenous involvement in the process and often with inadequate collaboration with the Canadian government.

Now, however, Canada is in an era of reconciliation, not only because of the TRC, but because of recent and historic events that have culminated in this time of reconciliation, which may be the threshold of meaningful change to the education system, as well as other systems, of Indigenous peoples and of all Canadians. To what extent will the TRC calls to action be

implemented? Over the past few decades there have been numerous recommendations made in various pieces of legislation, attempted legislation, and other policy papers produced by both the government and the Indigenous community; some recommendations have been implemented and some have not.

In this chapter I will examine past government and Indigenous policies, Indigenous education policies, the history of curricular and arts integration, and how Indigenous education could be developed that would involve this integration of curriculum.

Government Control

Residential Schools. Residential schools were the result of the earliest and the most notorious of these government policies, and Indigenous peoples' participation in that system resulted in devastating and long-lasting impacts for Indigenous peoples across Canada. Indigenous people signing treaties in the late 1870s saw the need for their Indigenous peoples to learn settler skills in order to function well in mainstream society and therefore ensured that education was a treaty right (Miller & Marshall, 2018; Indigenous and Northern Affairs Canada, 2013). Indigenous parents believed that it would be possible for their children to continue to receive teachings from their parents and other community members while learning these settler skills (Carr-Stewart, 2001). In addition, the signatories of the numbered treaties believed that the education that was included in the treaties was for everyone, adults and children, in the same way that Christian missionaries had taught everyone, not only the children (Carr-Stewart, 2001). However, the government already had an assimilationist agenda that they had failed to disclose to Indigenous peoples when they were negotiating the treaties.

The 1876 Indian Act incorporated earlier legislation such as the Gradual Civilization Act (1857) and the Enfranchisement Act (1869) (Giokas, 1995). Indigenous people could become

full British citizens with all of the attendant rights of citizenship, including land ownership, but they would cease to be Indians under the Indian Act, as would their wives and children, in perpetuity (Milloy, 1996). One of the goals of assimilating Indigenous people so that they were no longer Indians under the Indian Act but citizens in mainstream society was that the government would no longer have any financial obligation to enfranchised Indigenous people (Carr-Stewart, 2001). As well, the government wanted to assimilate Indigenous people into mainstream society because we posed a problem in Canadian society, a problem that needed to be eliminated, as Duncan Campbell Scott, the superintendent of Indian Affairs famously stated: "I want to get rid of the Indian problem…Our objective is to continue until there is not a single Indian in Canada that has not been absorbed into the body politic and there is no Indian question, and no Indian Department" (Palmater, 2011).

The racist superiority inherent in these policies extended to residential schools, where Indigenous people were looked upon not as people with a rich culture and heritage, but as subjects who needed to be indoctrinated into the mainstream system (Carr-Stewart, 2001; Palmater, 2011; Milloy, 2017), These notions of racial and cultural superiority the English harboured at that time were certainly present in what is now Canada at the time of Confederation, the treaties, and the Indian Act (Morden, 2016); some have argued that it is this idea of superiority that has persisted in Indigenous policy-making from that time to this (Hogarth & Fletcher, 2018). Once the residential school era ended, the assimilationist agenda of the government continued, however, because most Indigenous people continued to be educated within the mainstream system, which continues to deliver curriculum that is predominantly colonial (Munroe et al., 2013). Changes to this mainstream curriculum have historically been difficult to make because of government control, but the government has been more willing to

collaborate with Indigenous people in more recent times, mainstream curriculum includes more Indigenous perspectives and content than it has in the past (Government of Manitoba, 2018; Manitoba First Nations Education Resource Centre, 2018); this process has been ongoing since before the TRC existed and should only be expanded if the government and Indigenous people implement the calls to action of the TRC.

The British North America Act. This willingness to work with Indigenous people to achieve common goals is certainly a recent development in the working relationship between the Government of Canada and Indigenous peoples. The Constitution Act, 1867 (British North America Act) ensured that Indigenous people ceased to be independent nations when section 91(24) gave the federal government authority over "Indians, and land reserved for the Indians" (Government of Canada, 2018), which ended the prior nation-to-nation relationship Indigenous peoples had with the British Crown and essentially made Indigenous peoples wards of the state (Kerr, 2017). It is because of the Indigenous peoples' lower status that the government was able to implement unilateral policies such as the residential school system. This legislated Indigenous disempowerment continued for decades, until Indigenous veterans returned from World War II and began to be unwilling to be continually subjugated by the federal government (Milloy, 2017; Hogarth & Fletcher, 2018; Kerr, 2017). It was following the war that Indigenous people formed the first political organization in resistance to the federal government, which was the Federation of Saskatchewan Indians (1946), now known as the Federation of Sovereign Indigenous Nations (Federation of Sovereign Indigenous Nations, n.d.). Indigenous peoples formed many more political organizations in response to the White Paper, which was released in 1969. The White Paper was itself a response to an earlier document, the Hawthorn-Tremblay report, which was released in 1966.

Hawthorn-Tremblay Report. The document which led directly to the White Paper was the 1966 Hawthorn-Tremblay report. This report was commissioned by the federal government and was published following a three-year study of the living conditions of Indigenous people (Hawthorn, 1966). The report found that there was a 94% high school dropout rate for students in Indigenous communities, that there were was a large gap in income levels compared to non-Indigenous people, that Indigenous people had high rates of illness and low life expectancies, that many Indigenous people wanted to be free of government control but did not have enough capacity to manage their own affairs, that they felt like lower-class citizens, and that Indigenous people should have a different status from other Canadians ("citizens plus") because in addition to having the same rights as other Canadians, they have additional rights given to them because of the treaties and the Indian Act (Hawthorn, 1966). The Hawthorn-Tremblay report could have elicited a positive response from the Canadian government, such as the development of educational and social programs that would benefit Indigenous people and an acknowledgement of past unfair treatment of Indigenous peoples in Canada (Cairns, 2000). However, the government had a very different reaction to the report.

The White Paper. The Government of Canada's response to the Hawthorn-Tremblay report was to produce the White Paper, the official title of which is *Statement of the Government of Canada on Indian Policy*, written by Prime Minister Pierre Trudeau and Jean Chretien, who was at that time the Minister of Indian Affairs and Northern Development (Kerr, 2017). Trudeau believed he could use the White Paper to ensure that Indigenous people in Canada could participate fully in a "just society" (Government of Canada, 1969), wherein Indigenous people had the same rights and opportunities as everyone else in Canada, but which the Indian Act and the treaties had denied them (Cairns, 2000). The government believed that the only way to

ensure that Indigenous people in Canada could have an equal opportunity to succeed in Canada was the "principle of common services" (Government of Canada, 1969). This idea meant that there could be no differences in rights among any Canadian citizens, including Indigenous people, whose "citizens plus" status accorded by the Hawthorn-Tremblay report was seen as discriminatory toward Indigenous and non-Indigenous peoples alike (Kerr, 2017). The government's solution to this inequality was to abolish the Indian Act, dismantle Indian Affairs, eliminate reservations (as some believed, although continuing with the reservation system was put forward by the government as an option), and remove section 91(24) from the Constitution Act, in effect, abolishing all of the Indigenous and treaty rights of Indigenous peoples (Cairns, 2000). The government, through the White Paper, would have eliminated the legal status of Indigenous people in order for them to have equal status to other Canadians, while simultaneously claiming elsewhere in the document to be against the idea of Indigenous assimilation (Federation of Saskatchewan Indigenous Nations, n.d.).

One topic of debate with regard to the White Paper is the degree to which Indigenous people were consulted during its creation and whether or not all Indigenous people were opposed to its recommendations. Some historians believe that although Indigenous people were consulted extensively, their recommendations were ignored by the government and did not appear in the final document, which was one of the reasons the Indigenous leaders objected to the document so strongly (Cairns, 2000). Others believe that Indigenous people did participate meaningfully and the recommendations in the document are the ones that the Indigenous participants in the process wanted to be there (Kerr, 2017). Also, it appears that there was some support for some of the recommendations in the White Paper: in a 1970 survey, 20% of

Indigenous chiefs were supportive of the idea of full integration of Indigenous people into mainstream society (Dickason & McNab, 2009).

The publication of the White Paper also seemed to represent a call to action of Indigenous peoples throughout Canada. Flanagan describes the backlash against the White Paper as leading to a profound shift in the priorities of Indigenous people, who became more concerned with "Aboriginal rights, land claims, and self-government"; they also "emphasized their separateness from, rather than their integration into, the larger society" (Flanagan, 2008). The Indigenous rights movement that grew out of opposition to the White Paper was, and continues to be, characterized by resistance toward assimilation, working to ensure that Indigenous people have their own place within Canadian society, distinct from the mainstream.

Indigenous Response

Unjust Society. Harold Cardinal, a 24-year-old Cree activist and leader of the Indian Association of Alberta (IAA) (Cairns, 2000), published a response to the White Paper, also in 1969. Its title, *The Unjust Society*, was a wry reference to Trudeau's "just society" philosophy, which he had included in the White Paper, and which referred to the individual freedoms all Canadian citizens should have, regardless of race (or Indian status) (Kerr, 2017). For his part, Cardinal believed the White Paper amounted to "cultural genocide" and that it would lead to "extermination through assimilation" because "the only good Indian is a non-Indian" (Cardinal, 1969). Assimilation had always been one of the goals of the Government of Canada (Miller & Marshall, 2018; Milloy, 1996; Milloy, 2017), so it should not have surprised the government that the Indigenous community would interpret the White Paper as a racist document that outlined how the assimilation of Indigenous peoples would take place. Cardinal also commented that Canadians showed more interest in conserving the distinctiveness of birds, not to mention the

birds themselves, than Indigenous people, adding, “Canada…does not ask its cranes to become Canada geese….whooping cranes can remain whooping cranes, but Indians are to become brown white men….Indians have aspirations, hopes and dreams, but becoming white men is not one of them” (Cardinal, 1969). The White Paper became a catalyst for Indigenous people to speak about preservation of culture and language and to fight against the apparent government agenda of assimilation. However, Cardinal was not alone in his belief that the government appeared not to care about the culture and identity of Indigenous peoples, and that this lack of concern was exemplified by the White Paper.

The Red Paper. The second response to the White Paper came from Cardinal along with the Indian Association of Alberta (Kerr, 2017), in a document called *Citizens Plus* (1970), the title of which was a direct reference to the same term used in the Hawthorn-Tremblay report (Hawthorn, 1966; Indian Chiefs of Alberta, 1970). In this 100-page document, the chiefs give a detailed description of their objections to the content of the White Paper, including their consultation process of Indigenous people: “What Indians asked that the Canadian Constitution be changed to remove any reference to Indians or Indian lands?...that Treaties be brought to an end?...that aboriginal rights not be recognized?...The answer is no Treaty Indians asked for any of these things” (Indian Chiefs of Alberta, 1970). The authors of the Red Paper believed that Trudeau and Chretien misused Indigenous consultation during the process in order to further their own agenda of Indigenous assimilation, further, that the government was rushing the implementation process so that Indigenous people had no time to respond to the recommendations (Indian Chiefs of Alberta, 1970). This was especially important because at that time there was no formula in place to amend the Constitution; that would not exist until the

Constitution was re-patriated in 1982 (Government of Canada, 2018), so as difficult as it would be to change the Constitution once, it would be almost impossible to change again.

It was then vitally important to retain Indian status under section 91(24) of the Constitution, even though it was not an ideal arrangement for Indigenous people. The point the authors of the Red Paper were trying to make is that it should be the decision of Indigenous people to re-negotiate what Indian status in Canada meant, but not until they were ready to do so, and certainly not in a mandated, one-sided government action (Indian Chiefs of Alberta, 1970). Also, not removing section 91(24) from the Constitution was seen as important to maintaining Indigenous culture, because Indigenous people were recognized as a separate group of people with their own rights and privileges that accompanied that designation, including treaty and Indigenous rights (Indian Chiefs of Alberta, 1970). Without these rights, assimilation might likely follow. The authors of the Red Paper were not against change, in fact, they recognized the need for change, but they wanted Indigenous people to lead that process, not have change dictated to them by the federal government, under the guise of giving Indigenous people the same rights as other Canadians.

In fact, the Indigenous people of Canada, the authors argued, already had access to the same services and had the same rights as other Canadians because of prior government legislation such as the Constitution, Bill of Rights (although this could sometimes be superseded by the Indian Act) (Government of Canada, 2017), and other government documents, so repealing the Indian Act was not going to give Indigenous people any more rights than they already had (Indian Chiefs of Alberta, 2017). In fact, repealing the Indian Act would only *remove* the special rights given to Indigenous peoples as “Citizens Plus”.

The authors of the Red Paper believed that there needed to be changes made to the Indian Act, but not that it needed to be repealed altogether, in fact, the document says that "it is neither possible nor desirable to eliminate the Indian Act" (Indian Chiefs of Alberta, 1970). However, the paternalistic tone and policies of the Indian Act needed to be updated and Indigenous peoples needed to have more power in their own affairs. It would not be fair to Indigenous communities which did not have the capacity to administer their own affairs to be put in the position of doing so, with no preparation or training (Indian Chiefs of Alberta, 1970). Also, the Red Paper stated that "there will always be a continuing need for an Indian Affairs Branch" (Indian Chiefs of Alberta, 2017), so dismantling Indian Affairs, as the White Paper stated, would also not be a good option. However, again, they agreed that the Department of Indian Affairs needed to be changed in order to make the organization less paternalistic and more responsive to the needs of Indigenous people, particularly at local levels.

Indigenous peoples recognized that these documents and organizations needed to be changed, but the issue was that there needed to be collaboration with Indigenous peoples in order to do so. The White Paper was a paternalistic document that appeared not to recognize that Indigenous peoples had the right to participate in processes such as constitutional reform. However, the quality and specificity of authors' recommendations in the Red Paper certainly showed that Indigenous peoples were more than capable to doing so. The federal government finally and abandoned the White Paper in 1971, which empowered Indigenous peoples to no longer passively receive direction from the government; they needed to have more power and influence over what happened in their own lives.

Indian Control of Indian Education. The government's plan to dismantle the Indian Act and the Department of Indian Affairs with the White Paper led to what was surely an

unintended consequence: the banding together of Indigenous people across the country in angry opposition to this plan. The National Indian Brotherhood (now the Assembly of First Nations) came into existence in 1968, the year before the White Paper, but it was the release of the White Paper that compelled the group to prevent the document from becoming official government policy (Assembly of First Nations, n.d.). In 1972, they released the Indian Control of Indian Education (ICIE) policy paper, which they had produced after consultation with Indigenous organizations across Canada (National Indian Brotherhood, 1972). The government, with Jean Chretien still as the Minister of Indian Affairs, seemed to support the initiative: "I and my Department are fully committed to realizing the educational goals for the Indian people which are set forth in the Brotherhood's proposal" (Government of Canada, 1973). The policy paper outlined a comprehensive plan for reforming Indigenous education that was based upon four areas of concern: responsibility, programs, teachers, and facilities (National Indian Brotherhood, 1972).

Responsibility. Indigenous parents had never had any authority or say over their own children's education under the Indian Act. Under the ICIE, there would be varying levels of local control of on-reserve education while building community capacity; this would eventually result in Indigenous autonomy over education. There would also be regulations for mandatory Indigenous representation on provincial and territorial school boards, including Indigenous people in any discussions about Indigenous education, funding Indigenous education programs, and, most importantly, having Indigenous control over Indigenous education (National Indian Brotherhood, 1972).

Programs. There would need to be adult education programs in communities such as remedial education (at that time there was a 94% dropout rate in communities) (Hawthorn,

1966), vocational training, and addictions education, all under the direction on an Indigenous education authority. As well, Indigenous language, history, culture, and contributions to Canadian society would all be part of curriculum, not just in Indigenous communities, but across Canada (National Indian Brotherhood, 1972).

Teachers. It should be a priority of the federal government to train Indigenous teachers as well as Indigenous student counsellors all across Canada. In the absence of Indigenous teachers and counsellors, non-Indigenous teachers should be given training to improve their qualifications to teach Indigenous children, including learning about Indigenous history, culture, and the local Indigenous languages of the communities in which they are teaching Indigenous students. Indigenous teachers and counsellors, and teacher aides must be fully qualified for their positions, and only the best teachers should be hired to teach in Indigenous communities (National Indian Brotherhood, 1972).

Facilities. There must be adequate educational facilities for students, which could include residences for Indigenous students who would have to attend school far away from their home communities; however, these would be administered and staffed by Indigenous people and the residences would be home communities for the students. Educational buildings on reserves should be up to code, if not, then new buildings must be built and financed by the federal government (National Indian Brotherhood, 1972).

Unfortunately, the ICIE policy was never fully implemented. One of the reasons for this is that the government refused to give jurisdiction over education to Indigenous bands, so the control remained always with Indian Affairs, which was the opposite of the intention of the ICIE (Kirkness, 2003). Another reason the policy was not fully implemented may have been a lack of confidence on the part of Indigenous people in communities to really take control of their

children's education away from the provincial and federal governments. As a result, Indigenous schools on reserves still follow provincial curriculum and the only Indigenous curriculum is in the form of add-ons to mainstream provincial curriculum (Kirkness, 2003), which is the least effective method of adding Indigenous content to education (Sadler, 2017). There were efforts to change the Indian Act in order to accommodate local control of Indigenous schools, but those changes were never made (Kirkness, 2003), which again, was partially due to the government's refusal to give up power and control over education (among other things, such as governance and land ownership) to Indigenous peoples (Debassige, 2010; Drawson et al., 2017; Fallon & Paquette, 2012; Iseke, 2010; Jenkins, 2008; Paquette & Fallon, 2010). Some of the ideas in the ICIE, such as access to adequate funding, Indigenous control of education, Indigenous language revitalization, culturally relevant curriculum and delivery methods, having Indigenous instructors as well as culturally aware non-Indigenous instructors, and safe, modern schools, appear to have been very good ideas because they are still part of Indigenous education policies and reports up to the present day. Unfortunately, these issues from 1972 continue to be issues because the government and Indigenous peoples have been unable (or in some cases, unwilling) to make changes to Indigenous education system. Following the failure of the White Paper and Indigenous responses to the White Paper, the federal government appeared to be willing to collaborate with Indigenous peoples for the most part, but it also continued to create legislation without the participation of Indigenous peoples, or with the participation of some Indigenous people and the exclusion of others.

Government Legislation

Royal Commission on Aboriginal Peoples. The Royal Commission on Aboriginal Peoples (RCAP) was established in 1991 by the federal government as a response to discussions

about Indigenous rights with Mohawk protestors at Oka (Warrior Publications, 2007). Its goals were "to develop a new relationship between Aboriginal and non-Aboriginal people based on a mutual recognition, respect, sharing and responsibility" (RCAP, 2016). The RCAP final report, released in 1996, was 4,000 pages long and contained 440 recommendations for making improvements to Indigenous policies in a number of areas (Assembly of First Nations, 2006), including treaties, self-government, land and resource management, economic development, child welfare, health, housing, and education (RCAP, 2016). Although the government initiated the process, once the report was released there was little response from the government and most of the recommendations were not implemented. However, many of the recommendations regarding education have been implemented very recently, 20 years after the final report was released.

Elders in Indigenous-Controlled Schools. Some of the recommendations were related specifically to education, such as having elders interacting with Indigenous youth in schools that are controlled by Indigenous people (RCAP, 2016). Elder presence in classrooms has been increasing in recent years (McGregor, 2017; Perry et al, 2017; Alkholy et al, 2017), but the schools are not always controlled by Indigenous people. However, the Manitoba First Nations School system, operated completely by Indigenous peoples and with jurisdiction over schools in ten different first nations, was officially launched in 2017 (Malone, 2017). This was enthusiastically supported by the federal government, as indicated by Indigenous Services minister Jane Philpott: "Ultimately it's this kind of school system that will represent the change that the whole country needs in order to ensure that First Nations children get the highest possible delivery of educational services" (Malone, 2017). It is encouraging that the federal

government is supportive of this Indigenous education policy, both ideologically and financially, because they have not always been supportive in the past.

Education as Part of Indigenous Self-Government. The RCAP also recommended that education be part of Indigenous self-government (RCAP, 2016), as also recommended in the Red Paper and in Indian Control of Indian Education more than two decades previously (Indian Chiefs of Alberta, 1970; National Indian Brotherhood, 1972). This recommendation was in some ways implemented because when modern treaty settlements were negotiated, for example with the Nisga'a and in the formation of Nunavut, education was an area over which Indigenous communities had some control, but the process of developing Indigenous curriculum proved to be lengthy and has continued to be underfunded by the government (Auditor General of Canada, 2013; Nunavut Department of Education, n.d.; Government of Canada, 2017). However, Indigenous peoples negotiating modern treaties have made gains with regard to local control and the inclusion of Indigenous content.

Government Funding of Indigenous Education. Another recommendation of the RCAP was to ensure the federal government fulfilled its treaty obligations to Indigenous people by ensuring that students are fully funded for their education, including at the post-secondary level (RCAP, 2016), based upon the treaty rights to education that are contained in many numbered treaties and as part of the treaty rights that were "recognized and affirmed" under section 35(1) of the repatriated Constitution Act, 1982 (Government of Canada, 2018). Unfortunately, this recommendation was never implemented because the federal government continues to maintain that post-secondary education is not a treaty right under the numbered treaties; neither is the obligation to provide post-secondary education to Indigenous students a treaty right under the Constitution (Assembly of First Nations, 2006). The Canadian government maintains that it

provides money for education for some treaty students as a social policy, not because Indigenous people have a treaty right to funded education (Assembly of First Nations, 2006). This policy will likely remain unchanged until Indigenous peoples are able to prove in court that the government is obligated to provide post-secondary funding for Indigenous students because it is an obligation the government agreed to when they signed the treaties. One of the other recommendations of the RCAP was to increase funding for post-secondary students, which had been capped at 2% annually since 1996. The Trudeau government removed the 2% cap in 2016 (Fontaine, 2015). As well, since 2015, the government has announced more than $11 billion in new funding over the next five years, $219 million of which is for education and training.

Dismantling of INAC. The RCAP called for the abolition of INAC (Indigenous and Northern Affairs Canada) (Government of Canada, 2016). Ironically, this is also the action called for in the White Paper of 1969 (Government of Canada, 1969). However, rather than being a unilateral action on the part of government with no collaboration with Indigenous peoples, the RCAP recommended splitting the organization into two entities: one to implement RCAP recommendations with Indigenous peoples and the other to provide services to Indigenous communities which had not implemented their own self-government systems (Government of Canada, 2016). On August 28, 2017, Prime Minister Trudeau announced that INAC as an entity would be dissolved and two new departments would be created: one to collaborate with Indigenous peoples to determine how the two departments would develop and also to work toward self-determination in a nation-to-nation relationship. The other department would continue to serve Indigenous peoples, including the Inuit and the Metis, and work toward self-government (Prime Minister of Canada, 2017). Trudeau also acknowledged the RCAP

recommendation to dissolve INAC into two departments (Prime Minster of Canada, 2017), which are also similar to the two departments recommended in the RCAP.

Although there were many other RCAP recommendations under education that were not implemented, or were under-implemented, such as funding for child care, establishing and supporting Indigenous post-secondary institutions, and creating an international Indigenous university, some of the education-related recommendations were implemented to varying degrees. Unfortunately, it took 20 years for the Government of Canada to make some of those changes. However, the release of the TRC in 2015 has made a difference to government policy and despite the similarities in the recommendations between the RCAP and the TRC, people seem more determined on both sides to ensure that the recommendations of the TRC are implemented this time.

First Nations Control of First Nations Education Act. This document was created by the Assembly of First Nations in 2010 and was intended to be an updated version of the 1972 Indian Control of Indian Education document (as can be seen by the title of the document), also created by the Assembly of First Nations under their former name, National Indian Brotherhood (Assembly of First Nations, 2010). It was meant as a foundational document to assist both Indigenous peoples and the federal government with "building the requisite policies, programs, services and systems to ensure the future prosperity of First Nations peoples in Canada" (Assembly of First Nations, 2010). The First Nations Control of First Nations Education Act (FNCFNEA) was to address educational issues such as language, culturally relevant and wholistic curriculum, well-trained educators, leadership, parental involvement, and safe educational facilities, all of which were also priorities of the original ICIE document (National Indian Brotherhood, 1972). The AFN claimed that the reason most of the ICIE

recommendations were not implemented was because of a lack of funding by the federal government, as well as not enough sharing of power with Indigenous people (Assembly of First Nations, 2010). Despite deficits in federal funding and support, Indigenous education did improve over the years, with more Indigenous-controlled schools and post-secondary institutions, more qualified Indigenous teachers and administrators, more culturally appropriate curricula and teaching methods, and more sharing of control with provincial education authorities (Assembly of First Nations, 2010). The AFN also included the need to collaborate with the federal government to develop funding models for student assessment, staff salaries, special needs supports, funding of students who attend schools off-reserve, Indigenous language curriculum, and culturally relevant curriculum and evaluation for all subject areas (Assembly of First Nations, 2010). As well, the AFN included financial collaboration with the federal government in the form of developing reporting mechanisms to ensure proper accountability and evaluation (Assembly of First Nations, 2010).

Opposition to the FNCFNEA. There was widespread opposition to FNCFNEA (Bill C-33) because some felt that the legislation would ensure that most of the power in Indigenous education would remain with the government because it was missing definite explanations of what Indigenous control would actually mean and this lack of clarity would lead to the government and Indigenous people blaming each other for any failures in the education system (Anderson & Fleming, 2014). Also, some felt that too much emphasis was placed upon financial reporting and government control and not enough upon making changes to the education system in order to produce more Indigenous graduates (Anderson & Fleming, 2014; Rae, 2018).

There was possibly a larger issue at the centre of the opposition from within the AFN to Bill C-33, which was that some of the other chiefs within AFN were opposed to the leadership of

Shawn Atleo, the grand chief (The Canadian Press, 2014). Some of the chiefs in the AFN believed that Atleo's relationship with then prime minister Stephen Harper was too close and that the two of them had worked out a secret deal, that excluded the other chiefs within the AFN (The Canadian Press, 2014). As time passed, some of the chiefs began to oppose the bill, including those who had supported it earlier in the process (The Canadian Press, 2014). Eventually, Atleo resigned and the bill was never passed. Some of the opposition to Bill C-33 might have had nothing to do with the legislation, but it was clear at the time that it was still possible to prevent government legislation from passing, as had happened with the White Paper in 1969. Another piece of government legislation led to one of the largest Indigenous social movements in the history of Canada.

Truth and Reconciliation Commission

The Truth and Reconciliation Commission (TRC) was established in 2008 as a response to over 12,000 individual abuse cases as well as class-action lawsuits filed by former residential school students (Regan, 2010). The Government of Canada, national Indigenous organizations such as the AFN, and representatives of Presbyterian, Anglican, and United churches collaborated upon the settlement agreement, which included monetary reparations, a health support program for survivors, a commemoration program, the formation of the TRC, and the holding of seven national TRC events (TRC, 2015c). These national events were held in Winnipeg, Inuvik, Halifax, Saskatoon, Montreal, Vancouver, and Edmonton between 2010 and 2014. In addition to these, the TRC held 238 days of hearings in 77 communities across Canada (TRC, 2015c).

According to the TRC, reconciliation means "establishing and maintaining a mutually respectful relationship between Aboriginal and non-Aboriginal peoples in this country….there

has to be awareness of the past, acknowledgment of the harm that has been inflicted, atonement for the causes, and action to change behaviour" (TRC, 2015c). The goal of the TRC was not only to compensate people for the pain and suffering they endured as children in residential schools, but to educate all Canadians about the reality of what happened to Indigenous peoples at the schools so that they could work together to improve the lives of all Canadians in the future by learning about this traumatic past.

The TRC released their final report of their findings in June 2015, which contained 94 calls to action divided into two broad categories: Legacy and Reconciliation (TRC, 2015c). The Legacy category involves attempting to atone for the harms of the past and is divided into five categories: child welfare, education, language and culture, health, and justice. The Reconciliation category involves attempting to reconcile governments and Indigenous nations for the future and is divided into several categories, including the United Nations Declaration on the Rights of Indigenous Peoples, equity in the legal system, apologies from churches, education for reconciliation, the NCTR, and accurate information about residential schools for newcomers to Canada (TRC, 2015c).

TRC Calls to Action for Education. One of the calls to action involves repealing section 43 of the criminal code of Canada which gives parents and teachers the right to spank children (TRC, 2015a); obviously physical abuse was common in many residential schools. Another recommendation is for the federal government and Indigenous peoples to develop a collaborative strategy to address the education and employment gaps that currently exist between Indigenous and non-Indigenous peoples (TRC, 2015a). One of the recommendations that has been made from the beginning, even in the ICIE, is for more money for Indigenous children (National Indian Brotherhood, 1972), at least to have equal funding for Indigenous students

whether they are educated on reserves or off- reserve (TRC, 2015a). Funding was a major theme in the recommendations for education, in order to close education attainment gaps between Indigenous and non-Indigenous peoples, to improve Indigenous success rates, develop culturally appropriate curriculum, protect Indigenous languages, give responsibility and accountability for students to parents and communities, and to respect and honour treaty relationships (TRC, 2015). Funding has always been a problem for Indigenous education initiatives, but the federal government has already committed funding to these initiatives, including providing enough funding to end the backlog of Indigenous students who are trying to attend post-secondary institutions (McDiarmid, 2017; TRC, 2015a), so perhaps there will enough funding to help these initiatives to succeed, at least for as long as the current government remains in power.

CICan Protocol and Manitoba Blueprint

CICan Protocol. In anticipation of the TRC's final report, Colleges and Institutes Canada released a document that included its own Indigenous education protocols for colleges and institutes (Colleges and Institutes Canada (n.d.). CICan developed these protocols in conjunction with representatives from colleges and Indigenous communities from across Canada and is based upon seven principles: making Indigenous education a priority, ensuring institutional governance is respectful of Indigenous peoples, infusing curriculum with Indigenous content and teaching approaches, working with students and staff to increase reciprocity between Indigenous and non-Indigenous people, committing to increasing the number of Indigenous employees, creating wholistic learning environments and student supports, and building relationships with Indigenous communities (Colleges and Institutes Canada, n.d.).

Manitoba Collaborative Indigenous Education Blueprint. The Manitoba Blueprint was developed in collaboration with universities, colleges, and public school boards across

Manitoba (Government of Manitoba, 2015). The Blueprint includes commitments to celebrate the gifts Indigenous peoples bring to these educational institutions, acknowledges the diversity of Indigenous peoples in Manitoba as well as their distinct worldviews, recognizes treaties as nation-to-nation agreements, recognizes that Indigenous education is an international right under the United Nations Declaration on the Rights of Indigenous Peoples, and supports reconciliation between Indigenous and non-Indigenous peoples in Manitoba (Government of Manitoba, 2015). Some of the commitments of the Manitoba Blueprint are: engaging with Indigenous peoples in respectful and reciprocal relationships; bringing Indigenous knowledge, languages, and traditions into curriculum and pedagogy; increasing access to services and supports to Indigenous students, building school communities that value diversity and are free of racism, increasing and measuring Indigenous school and post-secondary success rates, and hiring practices that reflect the diversity of First Nations, Inuit and Metis cultures (Government of Manitoba, 2015).

These protocols are examples of how communities can choose to implement the recommendations of the TRC without waiting for a national strategy or funding agreements to be in place. There are many similarities among these three documents, including making Indigenous education a priority; increasing access for Indigenous students; honouring Indigenous culture such as language and Indigenous ways of knowing in the curriculum, teaching methods, and evaluation; increasing funding for Indigenous initiatives; and collaborating with others, including non-Indigenous people and Indigenous communities.

STEM

Integration of curriculum has been an increasingly important goal of education in Canada and elsewhere over the last two decades. Instructors have been working on integrating course content through STEM, which is important because of the perceived need for more students with

expertise in these areas in the future global economy (Kennedy & Odell, 2014; Wang et al., 2011), as well as because of the pedagogical benefits of integrating curriculum (DeCoito, 2016; Gaskins, 2016; Glancy & Moore, 2013; Kelley & Knowles, 2016; Soldner et al., 2012). One of the main drivers for the creation of STEM programs is that these education programs must successfully develop "future scientists, technologists, engineers, and mathematicians to remain viable and competitive in the global economy" (Breiner et al., 2012, p. 5). Some characteristics of effective STEM instruction are: collaborative environments, meaningful integration of STEM subjects, and connections to real-life concerns and situations, however, there are multiple opinions about what STEM is and what its role in education should be (Breiner et al., 2012). One of the reasons for these multiple perspectives is that instructors' individual academic disciplines often influence the ways those instructors conceptualize STEM (Breiner et al., 2012). This has influenced the type of curriculum integration that instructors and researchers have developed; often the integration might involve one or two subjects, but not all four (Breiner et al., 2012; Gunn, 2017; Kelley & Knowles, 2016), or the four subjects may not be integrated well (Wang et al., 2011).

Instead, STEM education could "combine some or all of the four disciplines of science, technology, engineering, and mathematics into one class, unit, or lesson that is based on connections between the subjects and real-world problems" (Moore et al., 2014, p. 38). This integration might lead to more relevant educational experience and improve critical thinking and problem solving skills (Stohlmann et al., 2012).

STEM Theoretical Framework: Integrated STEM Education

Kelley and Knowles (2016) proposed an integrated approach to STEM that helps instructors to find connections among STEM subjects while applying science, technology,

engineering, and mathematics to real-world situations. In this framework, “situated learning, engineering design, scientific inquiry, technological literacy, and mathematical thinking” are connected in an integrated system (Kelley & Knowles, 2016, p. 3). Further, STEM content could be situated within situated cognition theory (Brown et al., 1989), in which “understanding how knowledge and skills can be applied is as important as learning the knowledge and skills itself” (Kelley & Knowles, 2016, p. 4). In Kelley and Knowles’ model (2016), the situated context is the engineering design of the project. Connections between the STEM disciplines can be made through engineering design because both science inquiry and mathematical reasoning can be applied using engineering design. For example, students can use science and mathematics to create experiments that will then inform the engineering and technological aspects of their projects (Kelley & Knowles, 2016). According to Brown et al. (1989), “engagement in the practices of engineering design is as much as a part of learning science as engagement in the practices of science” (p. 12). Students can be given the power to direct their own learning by designing their own lines of inquiry about the subject they are investigating, and also engage in learning by doing, which will help them to learning science that is relevant to them and relevant to real-life situations (Kelley & Knowles, 2016).

Technology means different things to different people: it can be related to construction and use of objects, but it can also relate to their cultural, social, economic, political and environmental impacts (Maeda, 2013). Mitcham (1994) describes technology as objects and knowledge as well as activities and volition, which encompasses the view of technology as objects, but also as driven by people and including their own cultural values. Mathematics in STEM is related to all of the other disciplines in their classroom projects, which has resulted in higher assessments, possibly due to their being able to see the purpose in mathematics as part of

STEM projects (Kelley & Knowles, 2016). In addition, Kelley and Knowles (2016) found that STEM is most easily used is the classroom in multi-disciplinary projects that involve problem-based inquiry and a design-based approach.

For example, the TRAILS (Teachers and Researchers Advancing Integrated Lessons) project delivers a two-week summer workshop for teachers in order to show them how to implement STEM education through inquiry (Kelley & Knowles, 2016). The program shows teachers how to integrate and adapt curriculum collaboratively and shows students how to "design, test, and develop products and artifacts to help them make real-life connections to the world in which they live" (Education Development Center, 2020, para. 2). The students learn how the science works (scientific inquiry and mathematics) and then apply the science they learn to address real-world problems (engineering and technology). The teachers also engage with inquiry in this project, which benefits them as well as students; as well, the students felt as though what they learned could benefit the world around them, which is a desired outcome of STEM projects such as this (Education Development Center, 2020).

STEAM

While STEM is concerned with four integrated subject areas (science, technology, engineering, and math), STEAM includes those four subject areas and adds a fifth, which is the arts (Etheridge, 2019). In STEAM education, the arts are not limited to the four forms of performing arts music, art, dance, and drama (Manitoba Education, n.d.); they also include language arts, social studies, and physical arts while developing critical thinking skills and working within liminal spaces between STEM subject areas (Liao, 2016; MacDonald et al., 2020). According to Godin (2008), one of the most important aspects of STEM education is that it contributes to innovation, which is believed to be one of the most important skills that will be

needed in the future workforce. As well, this innovation is associated with creativity, which will also be an important ability for students to cultivate for the future (Trilling & Fadel, 2009). Arts offer a way to develop that creativity (Bequette & Bequette, 2012; Liao, 2016; Maeda, 2013; Watson, 2015).

STEAM Theoretical Framework: From Interdisciplinary to Transdisciplinary

An integrated approach to curriculum is useful in education because people use multiple skills to solve problems, not just math or science (Honey et al., 2014). Some educators believe that combining STEM and arts integration as successful methods to achieve this integration in curriculum, but also that STEM and arts educators should collaborate in order to create STEAM curriculum (Bequette & Bequette, 2012). However, according to Silverstein and Layne (2010), sometimes the arts component is included as a method of enhancing other STEAM subjects, instead of existing as an entity on its own (LaJevic, 2016).

One way to ensure that arts occupy an important position in STEAM education, according to Liao (2016), is for educators to implement STEAM projects in the same way they would arts integration. Silverstein and Layne (2010) describe this process as, "students construct and demonstrate understanding through an art form. Students engage in a creative process which connects an art form and another subject area and meets evolving objectives in both". One of the most central ideas in STEAM education is the creation or production of art in order to solve a problem, while simultaneously making connections among different knowledge and skills in order to, ultimately, apply these skills to solving real-world problems (Liao, 2016). A common approach to STEAM, according to Liao (2016) is to make connections among STEAM elements (interdisciplinarity), but a better approach is transdisciplinarity, which is combining STEAM subjects without separating the elements of STEAM from each other (Liao, 2016). Some

characteristics of this transdisciplinary education include the development of new understandings by making connections among different curricular aspects of activities, being centred around important themes, including global issues, and collaboration (Liao, 2016). Students learn in multiple disciplines simultaneously, without separating projects into separate parts, such as science or art; they are engaged with all of the components throughout the project (Liao, 2016).

For example, Liao (2016) describes a project that incorporated all five aspects of STEAM in which students created a work of art, which was a physical 3-D storybook, for which they would have to learn and apply STEAM concepts and skills. The students used a program called TinkerCAD to create 3-D characters, which they printed using a 3-D printer as illustrations for the storybook (Liao, 2016). They also incorporated functioning buttons using a Makey Makey (electric circuit board) in the books that would produce sounds related to the story such as text and sound effects, for which they had to learn the science and mathematics of circuits and electricity, as well as coding, art, and technology skills (Liao, 2016). The students found that the curriculum integration itself led to better learning experiences and development of skills in working collaboratively (Liao, 2016). The positive STEAM aspects of the project are that the students learned through art while art remained a component on its own without being eclipsed by other STEAM subjects, that students had to focus on the aesthetics of their project and learn art skills such as designing and creating the model; also, the students applied knowledge and skills from all of the other STEAM subjects, such as science, technology, engineering, and mathematics (Liao, 2016). Another benefit to projects such as this is that a single teacher could implement it and it would not require many extra resources; over time, they could collaborate with other teachers and create more sophisticated projects (Liao, 2016).

Arts Integration (AI)

The concept of arts integration has existed since the early-1900s, beginning with Dewey who proposed in 1931 that curriculum could be organized by subject or by project so that "the interdependence of knowledge and the relationship between knowledge and human purpose would be made clear" (Kliebard, 2004, p. 149). Also, Weeks (1936) introduced the idea that democratic education could combine curriculum from separate courses with interdisciplinarity. Eventually teaching artists came into the schools to help classroom teachers to integrate arts and non-arts curriculum; these became more popular in the 1960s and 1970s (Burnaford et al., 2017).

As these artist-teacher partnerships became more common, teachers and researchers began to identify common characteristics of arts integration programs. These included students learning through arts such as drama, dance, visual art, music, and creative writing; engaging in creativity and making meaningful connections to curriculum through the arts, taking both arts and non-arts courses through collaborative instruction, having opportunities for direct instruction in all arts, and working collaboratively with other students (Abbotsford School, 2018; Russell & Zembylas, 2007; Scheinfeld, 2004). The benefits of arts integration are that students engage in deep study, it enhances reading, writing, and other fundamental skills across the curriculum, and enhances creativity, which assists with critical thinking and decision-making skills; as well, students develop abilities to engage with curriculum using individual learning styles and combining these (Burnaford et al., 2017). As well, students who learn through arts integration develop capacity in learning 21st century skills, such as innovation, critical thinking, communication, multi-disciplinary thinking, digital literacy, community building, and cross-cultural understanding (Abbotsford School, 2018). These skills are the same as those cultivated by STEM and STEAM programs (Abdurrahman, 2019; Jang, 2016; Sen, et al., 2018)

According to Scheinfeld (2004), the purpose of art education is to contribute to the learning process in the curriculum, but while ensuring that the arts are an integral part of that process, not just an enhancement to the "real" learning that takes place in those subjects.

Arts Integration Theoretical Framework: Arts Integration and Disadvantaged Student Success

Robinson (2011) described arts integration as "a curricular connection process that collaboratively engages all to promote learning through and with the arts" (p. 371). Robinson's framework builds upon Bresler's (1995) co-equal cognitive integration approach to arts integration. This approach "seamlessly merges art standards with core curricula to build connections, provide engaging context, and differentiate both the processes and products of learning…in order to create deeper learning experiences for students" (Robinson, 2011). As well, Universal Design for Learning (UDL) guidelines support all students, including those from disadvantaged backgrounds because it incorporates multiple methods of student representation, engagement, and expression (Center for Applied Special Technology (CAST), 2020). Teachers using arts integration allow students to use multiple forms of art such as music, dance, drama, and media to represent their information, which helps students to learn through their own engagement with creativity, while providing opportunities for students to self-reflect, self-assess, as well as to collaborate in these processes with their classmates and their teacher (Robinson, 2011). Using arts integration to implement UDL guidelines would benefit disadvantaged students because arts integration has the power to make them feel that they are more capable of success and help to raise their self-esteem (Robinson, 2011). This could lead to positive outcomes for students from disadvantaged backgrounds, according to Robinson (2011):

> Students who have a stronger belief in their capability to perform a specific task successfully (self-efficacy), would demonstrate more self-regulation behaviors such as

> goal setting, self-monitoring, self-evaluation, and the use of learning strategies…they receive recognition (emotional support, cognitive respect, and social esteem) within their community of value because they are contributing in a positive way. They would experience feeling valuable from the perspective of their peers which could increase their academic motivation as they feel less stressed, anxious, and depressed. Hence, they select more challenging activities and work with increased effort and persistence. This increased effort and persistence could result in increased academic achievement. (p. 372)

Robinson's (2011) conceptual framework would explain the relationship between skills developed in the arts as well as how arts integration could fit easily with UDL and create learning environments for all students, including those with disadvantages.

Two-Eyed Seeing

Elder Albert Marshall describes the principle of two-eyed seeing (Etuaptmumk), as the ability to:

> Learn to see from your one eye with the best or the strengths in the Indigenous knowledges and ways of knowing…and learn to see from your other eye with the best or the strengths in the mainstream (Western or Eurocentric) knowledge and ways of knowing…but most importantly, learn to see with both these eyes together, for the benefit of all. (Bartlett et al., 2012, p. 8)

Although the principle of two-eyed seeing in education refers specifically to utilizing the strengths of Indigenous and Western perspectives, it could benefit all students by preparing them for the workplace or for post-secondary education (Hatcher, 2012; Hogue, 2016; Michie et al., 2018). This principle could also benefit non-Indigenous instructors who are unsure about how to incorporate Indigenous perspectives into curriculum because these could be incorporated into a

two-eyed seeing approach (Hogue, 2016), Maryboy et al. (2020) found that two-eyed seeing could provide added value to the curriculum because of the differences between non-Indigenous and Indigenous perspectives, because of the combination of Western linear epistemologies and cyclical paradigms of traditional knowledge when both perspectives are included. Also, two-eyed seeing would incorporate "reciprocity, mutual accountability, and co-learning and is foundational to the First Nations' lifelong learning philosophy" (Hogue, 2016, para. 15). Mack et al. (2012) found that "in order for science education to become truly culturally relevant, it needs to be more culturally inclusive" (p. 53), because centuries-old Indigenous knowledge has informed and continues to inform Western science practices today (Berkes, 2017).

The point of two-eyed seeing in curriculum is not to contrast Indigenous and Western epistemologies, but to "extend knowledge systems and find value and new perspectives for teaching and learning from both" (Brayboy & Castagno, 2008). This is in opposition to "enculturation into Western science, [which] is experienced as an attempt at assimilation into a foreign culture. Because students generally reject assimilation into the culture of Western science, they tend to become alienated from Western science" (Aikenhead, 2001, p. 338), which limits their participation in science and technology in school and then in their future lives. This is a larger problem for some Indigenous students because of the colonial education system from residential schools and into the present, so "any further attempt to assimilate Aboriginal students into Western science continues this colonisation and raises issues of social power and privilege in the science classroom" (p. 338). Instead, Indigenous students could participate in an educational approach that incorporates coming to knowing (Ermine, 1995) by reflecting on their own understanding, coming to know the Indigenous perspectives from their communities, encountering Western ways of knowing, and being introduced to Western science conventions

(Ogawa, 1995). Incorporating coming to knowing into science education would stop forcing Indigenous students to abandon their own ways of knowing and eventual assimilation (Aikenhead, 2001). If Indigenous and non-Indigenous epistemologies are incorporated into classrooms, then "knowledge transfer could go both ways"; as well, instructors should not be incorporating Indigenous cultures into classrooms in tokenistic ways, such as one teacher who "trivialized or superficially incorporated in a way that does not benefit the student…example of a teacher who incorporated culture by having students count and categorize beads…although this did integrate 'culture', it did little to engage the students in mathematics" (Mack et al., 2012, p. 63).

Instructors who develop two-eyed seeing projects need to blend Indigenous and non-Indigenous worldviews throughout the process, involve the community, and should reflect Indigenous ways of knowing, the inclusion of land-based activities, traditional teachings, and ceremonies, which is being done to different degrees by different researchers, according to Bartlett et al. (2012). In the future, researchers and educators will have to work toward refining the theory so that it could be interpreted and applied more consistently in classrooms (Wright et al., 2019).

Indigenous STEM

Indigenous students are under-represented in STEM professions because they are also under-represented at the post-secondary level, which also prevents them from working in these areas and from having a position in project development or other government initiatives (Hogue, 2016). Some Indigenous students under-perform in math or science because the Western model of theory followed by practice is the opposite of some Indigenous ways of knowing, which would be more hands-on and learning by doing first (Aikenhead, 2001; Hogue, 2016). As well,

sciences and mathematics are abstract concepts that are not taught as thought they had any relation to each other and bear little resemblance to how they exist in the world (Hogue, 2016).

However, Hogue (2016) also notes that as mainstream curriculum moves toward STEM, learning activities have become more hands-on, more related to real-world issues, school subjects are interrelated and more relevant to students, which are all Indigenous concepts and approaches to learning. It makes sense, then, that Indigenous education and STEM could co-exist well in the classroom for all students, not just for Indigenous students. In addition, this STEM curriculum could be infused with cultural knowledge, which would help Indigenous students to see themselves in the curriculum in positive ways, particularly when engineering and design conceptual understandings of cultural and historical items such as tipi design are included (Hogue, 2016). If more culturally relevant teaching methodologies such as "performance, narrative, story, hands-on first, learning-by-doing and learning as a community" (para. 16) were included by teachers in the classroom, perhaps students would be more engaged and have greater success in schools. An important component of this Indigenous knowledge is art and music which "crucial missing pieces and the bridge to Aboriginal engagement and success in the current education system….it is this piece that is the natural linker for explaining and sense-making, that actually bridges cultures and enables understanding" (Hogue, 2016, para. 22). Indigenous students who participated in educational projects that incorporated Indigenous STEM stated that "the creative methods, the hands-on projects and community learning enabled them to relate their hands-on learning to understand science and mathematics in the classroom in a better way" and that "learning science by doing it first and making it relevant to them, enabled them to bridge it to the theory and understand it easier" (Hogue, 2016, para. 17).

Indigenous STEM: Mapping with Science, Mathematics, and Technology

In this project, students built binomial distribution curves with a geography professor, which helped them to understand mean, median, and distribution before reading about these concepts in books. They then used a GPS (Global Positioning System) to map the landscape while relating this process to ways their ancestors had accomplished the same task (Hogue, 2016). They then learned about the science and mathematics of tipis while simultaneously learning about the cultural values associated with tipis and working with a mathematics instructor to solve puzzles, constructed hoops and learned about the physics of motion through hoop dancing, and connected the repetitive loops in coding to repeating philosophies of medicine wheels (Hogue, 2016). The students also used art to create individual puzzle pieces that represented their impressions of the project; these pieces fit with the other students' pieces to demonstrate the interrelatedness of all of their experiences. The project helped those Indigenous students to feel more positive about future interactions with science, mathematics, and technology.

Indigenous Arts Integration

> Environmental relationship, myth, visionary traditions, traditional arts, Tribal community, and Nature-centred spirituality have traditionally formed the foundations in American Indian life for discovering one's true face (character, potential, identity), one's heart (soul, creative self, true passion), and one's foundation (true work, vocation), all of which lead to the expression of a complete life. (Cajete, 1994, p. 23).

It is difficult to exclude Indigenous arts from any discussion about Indigenous culture because for many, the arts are a central feature of indigenous identity (Cajete, 1994; Denomme-Welch, 2008; The Royal Conservatory, 2017). Including Indigenous arts in education curriculum

for Indigenous students can help improve their self-image, help connect them to their culture, and can improve their educational experience (Antone, 2005; Anderson et al., 2016; Flicker et al., 2016; The Royal Conservatory, 2017; Wang, 2010). In the past, Indigenous arts such as visual art, music, or sculpture were seen by the mainstream as examples of primitive art created by primitive culture (Robertson & Weber, 2007). However, when historical and contemporary Indigenous arts are taught as an integral, important part of an Indigenous program, then the curriculum within those programs and the Indigenous context within which these arts were created are privileged (Robertson & Weber, 2007).

STEM, STEAM, Arts Integration, two-eyed seeing, and Indigenous STEM education are all collaborative methods of developing and delivering curriculum; because of this, it may be possible to create university programs that integrate all three principles. In the future, an Indigenous stream of the Bachelor of Education program may be developed at the University of Manitoba. It would be helpful for all students, Indigenous and non-Indigenous, if the goals and ideals of collaborative education, such as those offered through STEM, STEAM, AI, and IAI, could be integrated into this potential program at the planning stages, rather than incorporating these important educational principles into the program once it has already been developed (Biin & Weston, 2015; Pandora & Fredrick, 2017).

IAI Educational Program Characteristics

Curriculum Integration. Of course STEM, STEAM, AI, and Indigenous STEM involve curriculum integration, so this would also be a feature of IAI curriculum. Integrated curriculum is also a more wholistic approach to curriculum and has been shown to benefit Indigenous students (Hogue, 2016; Liao, 2016; Mack et al., 2012; Michie et al., 2018). Curriculum integration through the arts also helps students to make these connections between subjects in the

curriculum (Burnaford et al., 2007), which is also an important component of Indigenous STEM; Hogue (2016) contended that arts constituted an important link between cultures as well as the understanding of STEM concepts. STEM, STEAM, Arts integration, and Indigenous STEM are all becoming increasingly related because the characteristics of these mainstream forms of curriculum integration are becoming increasingly similar to Indigenous STEM (Hogue, 2016). These same characteristics (wholism, real-world connections, hands-on activities, story, collaborative learning, learning by doing) (Hogue, 2016) would also be characteristics of IAI.

Student Engagement. Student engagement is one of the main benefits of curriculum integration for a variety of reasons. Students in STEM, STEAM, AI, and Indigenous STEM programs are able to direct their own learning, design their own lines of inquiry, learn by doing, and focus upon learning about topics that interest them (Burnaford et al., 2018; EDC, 2020; Gaskins, 2016; Kelley & Knowles, 2016; Liao, 2016). One of the reasons for increased student engagement is the hands-on, experiential nature of these projects, which in many cases may also involve leaving the classroom to learn out on the land (Aikenhead & Mitchell, 2011; Bruhac, 2014; Hogue, 2016; Kelley & Knowles, 2016; Kirkness & Barnhardt, 1991; Leik, 2009; Robinson, 2011).

Connection to Real-World Problems. Additionally, STEM and STEAM both describe how instructors can integrate curriculum based on making connections among the subjects themselves and then to solving real-world problems (Breiner et al., 2012; Godin, 2008). AI (Abbotsford School, 2018), two-eyed seeing (Michie et al., 2018), and Indigenous STEAM (Hogue, 2016) also include the importance of addressing real-world issues in curriculum; so this would also be important in IAI curriculum. As well, having Indigenous people being better able to connect to STEM curriculum would help Indigenous students to participate meaningfully in

this education at all levels and then to work in these fields, which are going to be increasingly important fields in the future (Breiner et al., 2012; Godin, 2008; Kennedy & Odell, 2014; Pandora & Fredrick, 2017; Trilling & Fadel, 2009; Wang et al., 2011).

Alternative to Assimilative Education. IAI curriculum should also redress issues of assimilation and historical ignoring or devaluing Indigenous education, including Indigenous knowledges and ways of knowing. In the Two-eyed seeing paradigm, part of the goal of education would be to increase Indigenous presence in science and math programs at all levels because excluding them has resulted in lack of participation at the post-secondary level and in negotiations for collaboration with government and others (Hatcher, 2012). Hogue (2016) also addresses this lack of participation as one of the purposes for delivering Indigenous STEM programs. Two-eyed seeing and Indigenous STEM both address colonial curriculum which is a natural extension of the assimilative education systems of the residential school system and the post-residential school era, where assimilation of Indigenous peoples remained a primary goal (Anuik et al., 2010; Battiste, 2013; Carpenter, 2017; Corbiere, 2000; Iseke, 2010; Milloy, 1996; Munroe et al., 2013; TRC, 2015).

Enhances Academic Skills. Curriculum integration through STEM and STEAM helps students succeed through multi-disciplinary inquiry (Moore et al., 2014), which would in turn lead to more relevant educational experience and improve critical thinking and problem solving skills (Stohlmann et al., 2012). As Indigenous students learn in ways that are less assimilative, for example by integrating their own ways of knowing in mainstream education, than they are better able to engage with the content and succeed in mathematics and science because the learning environment is more culturally respectful (Hogue, 2016). In the future, this could lead to

greater representation of Indigenous people in STEM at the post-secondary level and in the workplace (Hogue, 2016).

Arts Help Students Make Curricular Connections. In arts integration learning environments, students are able to engage their creativity in the classroom in order to make connections between different parts of the curriculum and to enhance their learning in other parts of the curriculum, such as reading and writing (Bequette & Bequette, 2012; Robinson, 2011). STEM and STEAM programs also help students to connect to different parts of the curriculum because they use multiple skills to solve problems in addition to science or math (Bequette & Bequette, 2012; Liao, 2016; Maeda, 2013; Watson, 2015). Indigenous perspectives in curriculum adds value to Western courses because of the contributions of Indigenous people, which is beneficial for all students; as well, Indigenous people (Mack et al., 2012). Arts also help students to construct and demonstrate their own understanding of problems using critical thinking and decision making skills, both of which are important characteristics of integrated curriculum (Abdurrahman, 2019; Burnaford et al, 2017; Godin, 2008; Jang, 2016; Liao, 2016; MacDonald et al., 2020; Sen et al., 2018; Trillings & Fadel, 2009).

Implementing IAI would benefit all students, but Indigenous students in particular would benefit from learning through collaboration in curriculum as well as the use of Indigenous ways of knowing, both of which already exist to some extent in curriculum integration. For example, curriculum integration, whether it is STEM, STEAM, Arts Integration, or Indigenous STEM would incorporate a wholistic approach to curriculum, since all of the courses are related to each other while engaging in problem-based inquiry or a design-based approach. Ideally, students would engage with multiple disciplines simultaneously, without completing projects in separate components; students should be engaged with all components of the project at the same time. IAI

would also benefit Indigenous students because their cultural knowledge and learning styles would be included by instructors from the beginning, such as hands-on components, learning by doing, learning collaboratively, and working as a group toward common goals. IAI could also be respectful of Indigenous arts, cultures, and ceremonies within an integrated framework because Indigenous knowledges would be central to the design of IAI projects while incorporating other aspects of curriculum integration such as STEM, STEAM, and Arts Integration. It would also benefit Indigenous students to participate in an education program that centred Indigenous knowledges and culture as an act of reconciliation in education. Additionally, IAI would benefit all students because their program would be built upon the strengths of both Western and Indigenous perspectives. Also, non-Indigenous instructors might feel more comfortable delivering Indigenous education if it is integrated with Western subjects, rather than being contrasted to Indigenous education.

CHAPTER 3: METHODOLOGY

Introduction

Indigenous peoples have a lengthy history upon this land, which some Anishinaabe people call Turtle Island and others call North America (Newcombe, 2011). For most of that time, Anishinaabemowin (Ojibway) and other Indigenous languages have been spoken languages, but there were predecessors to spoken language (Bender, 2017). Some examples are hieroglyphic writing, such as petroglyphs, which are images carved into solid rock (Ontario Parks, 2019); petroforms, which are large figures created by arranging rocks and stones into animal, human, and less definable arrangements (Historic Resources Branch, n.d.); and pictographs, which are paintings on stone (Bradshaw Foundation, 2011). These carvings, formations, and paintings were created by Indigenous people hundreds or thousands of years ago in order to convey information or to tell stories about the people or the environment (Bender, 2017). Spoken language and now written forms of Anishinaabemowin serve the same function today (Archibald, 2008). Story continues to be important to contemporary Indigenous people and can be an important characteristic of Indigenous research (Archibald, 2008; Atleo & Fitznor, 2010; Chartrand, 2012; Iseke, 2010; Kovach, 2010; Young, 2015). In this chapter I will describe the research design, research activities, data analysis, and ethical considerations of this study.

Indigenous Research

Indigenous research has undergone changes in the past few decades because of the increasing number of Indigenous scholars who are doing this work (Anuik et al., 2010; Gaudry & Hancock, 2012; Greenwood et al., 2008; Kovach, 2010). Prior to that time, nearly all of the research involving Indigenous people was conducted by non-Indigenous scholars, and then by non-Indigenous scholars with an Indigenous team member (Kovach, 2010). Some non-

Indigenous scholars who conducted this past research had very different approaches to Indigenous research because they felt their role was to solve Indigenous problems that Indigenous people had been incapable of solving (Fletcher, 2003; Koster et al., 2012; Smith, 1999). Because some of these researchers did not feel the Indigenous people they were studying had much competency, past non-Indigenous researchers were not necessarily interested in collaborating with Indigenous community members, so there was little to no community involvement in the process (Iseke, 2010; Koster et al., 2012; Smith, 1999; Young, 2015). However, once Indigenous researchers became more prevalent in the academy and began conducting their own research with Indigenous people, they developed more culturally respectful research methodologies, such as the use of story (Archibald, 2008; Chartrand, 2012; Corntassel, 2009; Kovach, 2010).

Indigenous Conversational Method

Storytelling, according to Young (2015), is "a means of transferring and creating knowledge through discussion, conversations, oral traditions, and oral testimonies" (p. 14). In the absence of written language, storytelling was a method of relating that knowledge from one generation to the next, connecting people to the past and to the future (Auger, 2016; Reading & Wren, 2009; Bouvier et al., 2016; Atleo, 2001; Iseke, 2010; Archibald, 2008). Indigenous storytelling has also been tied to reclamation of culture and power among Indigenous peoples (Corntassel, 2009), by combating biased and untrue settler stories about their history and how they attained their positions of power (Smith, 1999).

Story can also help researchers to find their way to the truth. According to Kovach (2010), storytelling can be method of gathering knowledge in Indigenous research. In a research context, Kovach (2010) refers to this technique of gathering data as "the conversational method"

(p. 40), which is "congruent with an Indigenous worldview…because our doing is intricately related with our knowing" (p. 40). The conversational method is important in Indigenous research because it suggests that the relationship between the researcher and the participants might be different in an Indigenous research study than it in a mainstream study because of the relationships among Indigenous epistemology, method, and interpretation (Kovach, 2010).

In this study, I synthesized the experiences of Indigenous and non-Indigenous educators and artists who have worked toward curriculum integration, which is a more wholistic approach to curriculum. In addition, I included the experiences of Indigenous artists who have collaborated in curriculum integration that also includes Indigenous arts. The program design that resulted from this examination of curriculum integration incorporated curriculum integration, Indigenous curriculum, arts curriculum, Indigenous arts curriculum, and has a wholistic approach to Indigenous education. I conducted interviews that, while there are predetermined questions, were open-ended and I allowed the participants to share all of the information they felt was important.

Research Timeline

Research Activity	Timeline
Proposal given to PhD Committee	January 31, 2019
Defense of Research Proposal	February 14, 2019
Ethics Approval	October 2, 2019
Recruitment	November/December, 2019
Participant Interviews	December, 2019/January 2020
Data Analysis	January 2020 to July 2020
Dissertation Submission	July 2020

Research Design

Participant Recruitment

I recruited participants for this study who have developed integrated curriculum at the post-secondary and secondary levels and who have incorporated principles of STEM, STEAM, Arts Integration, Indigenous curriculum integration, and/or Indigenous Arts Integration into the curriculum. Of the 12 participants who took part in the study, eight were Indigenous and four were non-Indigenous; nine of the 12 were post-secondary instructors, two were Indigenous musicians and artists who have contributed to Indigenous curriculum integration and Indigenous Arts Integration, and one was an Indigenous former classroom teacher who now works with Indigenous curriculum within the province. This is the extent to which I can speak to the roles my participants have in the Indigenous education community. I have a small sample size and the Indigenous education community itself is not large, so I do not want to risk compromising the identity of the participants with any further descriptions of their characteristics. I used both purposive and snowball sampling in order to select these participants.

Purposive Sampling. I chose participants for this study who were most likely to make informed contributions to the study (Oliver, 2006), based on their experiences of mainstream, Indigenous, and arts curricular integration. Participants who had past experiences working to integrate curriculum or to add Indigenous content to mainstream curriculum will be able to supply detailed and relevant information about best practices and challenges to the curriculum integration process (Oliver, 2006).

Snowball Sampling. Some of the participants in this study were able to identify others who were also be suitable participants, so I then invited these others to participate (Atkinson & Flint, 2011). These participants shared common traits such as developing educational programs

that have integrated mainstream, Indigenous, or arts curriculum and who were valuable assets to studying the process of integrating curriculum (Atkinson & Flint, 2011). Prior to my conducting the study, I had certain people in mind who I thought would be good participants who would then be able to give the me the names of other good participants, but this was not the case as the people I thought would be good participants and who I did formally ask to participate, did not. As a result, I did have to recruit some participants I did not know, and they were also able to give me some names of people who might participate in the study, which they did.

Proposed Sample Group. The participants in this study were ten educators (later 12), former educators, and/or Indigenous artists who are willing to participate in this study and who: a) had worked to integrate curriculum using STEM processes; b) had worked to integrate curriculum using STEAM processes; c) had integrated curriculum at the secondary or post-secondary level; or d) were Indigenous artists who have contributed to the Indigenous arts curriculum integration process. These criteria will ensure that the participants will be most knowledgeable about the processes of curriculum integration, have learned best practices and overcome challenges through their experiences, and are willing to share these with the researcher. I eventually increased my number of participants to 12 in order to accommodate two participants who had a great deal of knowledge about STEM and STEAM, which my other participants did not. As a result, the STEM and STEAM portions of the findings section in Chapter 6 primarily represent the responses of those two participants.

Data Collection

Interviews

The interviews were approximately one hour long but consisted of open-ended questions, so two interviews were more than two hours long and one interview was 45 minutes long, because of the length of discussion. The interview questions are in Appendix A.

I contacted all potential participants by telephone to see if they would be interested in participating in the study. Once they agreed to participate, I sent them copies of the letter of information (Appendix B) and the letter of consent (Appendix C) for them to read once they agreed to participate. We then agreed upon the time and place for the interviews.

I wanted to interview participants in person when possible, and I did interview five in person. I also conducted four participant interviews over the telephone, and two over the Internet with the online communication applications, WhatsApp and MSN Messenger. I recorded the interviews using a digital recorder and then transcribed the recordings on to a file on a flash drive, which I locked in a filing cabinet in my office, which was also locked. I also kept an interview journal in which I recorded any observations during the interview that might have helped me to recall the discussion following the interview, which I locked in my desk, separate from the recorded interviews on the flash drive. I transcribed the interviews as soon as was possible following the interviews and send a copy of the transcript to the interviewees so that they could review them for accuracy. I adapted the interview transcripts of two participants according to the requests of the interviewees after they had reviewed the interview transcript.

I then coded the data into themes, using gender-neutral pseudonyms for the participants in order to preserve their anonymity.

Interview Data

Once the interviews were conducted, I saved the interview files onto a flash drive and then immediately deleted the files from my digital recorder. I then transcribed the interviews as soon as possible after the interviews so that I still remembered the details of the experience. I sent a copy of the transcribed interview to each participant in case they had suggestions for changes, which two did. As I deleted the interview data from my digital recorder immediately following the interviews, I will also destroy the flash drives containing the data from this study after five years. The flash drive is in a locked filing cabinet, the interview log is in a locked desk, and both of these are within my locked office. The flash drive is also password-protected. I will dispose of any printed material in a locked shredding bin in the Faculty of Education. Following publication, I will ensure that I share the dissertation with each of the interviewees who contributed to the study.

Data Analysis

I manually coded the data from the interviews and developed the themes as I analyzed the data. I based these themes upon topics or themes that emerged while I was analyzing the data, as well as repetition of words, phrases, terms, ideas, and concepts (Basit, 2003). I also kept a list of themes that emerged, as well as a short definition of each code in order to ensure that the themes were different from each other and not just so similar that they should be combined (Basit, 2003). I kept written notes during the data analysis process in order to record ideas or thoughts I may have about the codes and how they are related to each other (Basit, 2003). I began with 21 separate themes after the initial data analysis, which I revised many times during the data analysis process. Eventually I had 13 overall themes, divided into subthemes and spread over three findings chapters centred around three themes: the need for renewal in Indigenous

education, the changes that are currently underway in Indigenous education, and Indigenous and mainstream curriculum integration, including the integration of Indigenous and mainstream arts.

Summary

The conversational method of conducting Indigenous research can help interviewees to feel valued in the process and helps them to know that their information is valuable (Kovach, 2010). I ensured that the participants were aware of how I am protecting their anonymity by storing and then destroying the data appropriately. I also ensure that the participants had the opportunity to ensure that I interpreted their comments correctly and that they will have access to the final product, once it is available.

Research Questions and Participant Characteristics

For this study, I wanted to investigate the experiences of Indigenous and non-Indigenous instructors who have worked with curriculum integration in order to determine how they were able to integrate Indigenous arts-based curriculum into mainstream curriculum. These were the research questions for this study:

1. To what extent does incorporating arts integration into mainstream education programs benefit students? What are the challenges and benefits to incorporating arts education in an integrated curriculum?
2. How does incorporating Indigenous perspectives and worldviews into mainstream education programs improve the experiences of students in the program? What are the challenges and benefits to incorporating Indigenous arts into integrated curriculum?
3. What are the positive or negative effects of Indigenous arts integration upon post-secondary students?

4. What are the structural and pedagogical changes that administrators and instructors need to make within existing mainstream systems in order to facilitate curriculum integration?

These questions will be the basis upon which this research study is conducted, in order to ensure the development of curriculum that is integrated and respectful toward Indigenous peoples, to the benefit of all students.

There were 12 participants in this study. The participants had varied backgrounds: some were academics and others had shared their knowledge with students at the post-secondary level as cultural knowledge keepers or as consultants. Charlie was an Indigenous post-secondary instructor in a university who became an administrator for a short and then returned to teaching Indigenous students. Sydney was a non-Indigenous science instructor who had been directing a STEAM post-secondary education program at a university for about five years. Alex was an Indigenous former classroom teacher who had been working for many years as a government program director for more than ten years. Sam was a non-Indigenous professor who had worked for more than 20 years to incorporate Indigenous courses and pushed administration to hire Indigenous instructors in their faculty. They also did community outreach work with Indigenous people which was connected to their work in the faculty. Robin was an Indigenous post-secondary instructor who worked with STEM at the post-secondary level and delivered STEM programs to Indigenous students in Indigenous communities throughout their province. Drew was an Indigenous professor for 30 years at different universities across Canada who worked with both Indigenous and non-Indigenous programs. Bobby was an Indigenous musician and knowledge holder who worked with schools, colleges, and universities as a cultural teacher. They also worked as a mainstream teacher in a school system. Bailey was an Access director at a university for 25 years who also worked directly with Indigenous communities in different parts

of Canada. Ashley was an Indigenous musician who worked with schools to design Indigenous arts programs and who also taught in those programs. Morgan was a professor and former Canada Research Chair in STEM education at a Canadian university. Taylor was a non-Indigenous professor at a Canadian university who incorporated Indigenous music and art into some of her programs and delivered them to Indigenous and non-Indigenous students. Jamie was an Indigenous knowledge holder and musician who worked with different schools and universities helping them to incorporate Indigenous knowledges into curriculum.

CHAPTER 4: FINDINGS

NEED FOR INDIGENOUS EDUCATION RENEWAL

Indigenous education has been an important issue for Indigenous people for decades, going back to the treaties, the residential school era, and multiple initiatives designed to revolutionize Indigenous education, with varying levels of success (Assembly of First Nations, 2010; Government of Canada, 1973; Government of Canada, 2011; National Indian Brotherhood, 1972). In the beginning and continuing forward to the present day, Indigenous peoples have worked toward the goal of having Indigenous peoples portrayed in positive ways in curriculum, as opposed to how we were, and at times still are, represented in curriculum documents and in some classroom activities.

In this chapter, I address some of the issues that the participants in this study discussed and that have existed in Indigenous education as it has developed over time, such as: negative representations of Indigenous peoples (Battiste et al., 2010), loss of connection to Indigenous culture and identity (RCAP, 1996; TRC, 2015), attempts to rebuild and strengthen this connection, and ways in which we might change existing systems in ways that will benefit Indigenous people rather than harm us (Anuik et al., 2010; Castellano et al., 2000; RCAP, 1996; TRC, 2015).

Theme 1: Indigenous Identity

1.1 Indigenous Perspectives and Curriculum

Some of the participants recalled their own educational experiences of seeing negative portrayals of Indigenous peoples in mainstream curriculum: “She started teaching [about] us in loincloths and I [thought], this is not how we dress…then calling us savages and barbarians, and it didn’t seem right” (Alex, Indigenous policy leader). After going home to tell their mother

about how they thought it was wrong for the curriculum to characterize Indigenous people in that way, Alex was then disappointed when their mother replied, “no, no, never mind; don’t say anything.” Over time, less racist depictions and more historical information replaced some of these negative characterizations of Indigenous people. Bobby, an Indigenous cultural educator, commented: “It’s important that people are educated on our past, and what we have to go through, even today…you can do a lot of research on residential schools and all this other stuff, and that’s part of the curriculum.” This would also help students who may not know the difference between Indigenous history and contemporary culture, according to Alex (Indigenous policy leader): “People think that we still live in the bush or live in tipis; there are still people who think that, [but] we’re very much alive today. We’re resilient, we’ve survived, so that’s part of what we want to teach in schools”.

However, although there were improvements in education over time, sometimes this inclusion of Indigenous perspectives has remained limited: “So it’s better…[but] is it where we want it to be? I don’t think it’s where we want to be, but if it’s where we’re at now, then it’s better than nothing” (Bailey, Indigenous post-secondary instructor). Indigenous history is not taught according to uniform standards across schools, although teachers could be using curriculum documents that are now available (Government of Manitoba, 2018). Bailey then added that “for 90% of the population, what little Indigenous education students receive in mainstream school is better than the learning they have right now, which is, potentially, the stereotypes and everything else.” Rather than perpetuating these stereotypes, education could have an important role in replacing stereotypical information about Indigenous people with more accurate curriculum. For example, Sam, a post-secondary instructor, emphasized the importance of including Indigenous history in mainstream education: “the approach that I took in the work

that I'm doing…you had to bring in history so that education can be transformative." Drew, an Indigenous post-secondary instructor, agreed that education has an important role in highlighting Indigenous past and current issues: "Education has been a big part of the change that occurred, so it might be able to bring in [information about Indigenous peoples], especially residential school and everything else that has occurred, so you can do that." One way of helping to ensure the curriculum represents Indigenous people in less stereotypical ways is to challenge students' preconceived ideas about who Indigenous people were in the past and who they are in the present.

1.2 Positive Representation of Indigenous Peoples

There continues to be a reluctance on the part of some students to learn about positive aspects of Indigenous culture and history, possibly because they have never learned that this knowledge is important for all Canadians to have, according to Bailey, an Indigenous post-secondary instructor:

> I found some students were firmly entrenched in the white hegemony of our world right now, so they were like, oh yeah, all that Indigenous bullshit, or I don't believe that, I could hear them telling each other, you know what I mean? You're always going to have people like that; you can't avoid it…it is what it is.

Sam, a post-secondary instructor, also commented upon racist attitudes of non-Indigenous people, which for some may continue into the present: "You can't have colonization without a belief in the superiority of white people…the beliefs and supremacy of peoples and White Western ways, which was the foundation of [colonialism], as well as the inferiority of Indigenous peoples and all others." A contributing factor to some having racist ideas about

Indigenous people may be the lack of positive portrayals of Indigenous people in the education system, which could include Indigenous perspectives about Canadian history.

These perspectives often differ from the Canadian narrative that most would know. Bobby, an Indigenous cultural educator, commented: "I do believe it's important for them to be educated on us as Indigenous people and the things we've been through, the real history, absolutely, I'm 100% for that." However, Indigenous history and culture must be taught in a good way, and to do it well may not be as easy as some may think, according to Drew (Indigenous post-secondary instructor):

> You can't really learn those things by just, well I'm going to bring this into the curriculum, and that's when it becomes problematic for me is the simplification of Indigenous knowledge like it's not important; anybody can do it. Not everyone can do it, at least not properly, so you're going to bring someone in and they're going to talk a little bit about history of residential schools and colonization, and that's going to be it…but the really deep things, they can't do it, most of them.

It is important, then, for Indigenous people to be involved in curriculum development and program design in order to ensure that well-trained and knowledgeable instructors deliver the content properly and also to choose which content to include: "we need to take a critical look at whatever knowledge we don't study. We don't take Indigenous studies and learn about Indigenous knowledge and history just because it's Indigenous; it needs to have relevance and application in our lives" (Charlie, Indigenous post-secondary instructor). It is important that Indigenous education is not only accurate, but is relevant to our current situation and how Indigenous people navigate their way through contemporary society because of this past.

Unfortunately, some of this past has been forgotten and people may then believe what they want to believe because it aligns with preconceived ideas they may have about Indigenous people, which was that we were primitive people without sophistication in our cultures or our belief systems:

> By the time the colonizers got there, there was probably 10% of the people that were left…people like healers [were] gone, so when you lose that group of people, those are your knowledge keepers…so they forgot how to do this stuff, they forgot because everyone was dead…so they turned back to what they were before. (Bailey, Indigenous post-secondary instructor)

In fact, Indigenous peoples did have their own systems of science and math because they were able to live, create, and build their own civilizations, but according to Bailey, many forgot about these systems as time passed:

> Most Indigenous people do not see science and math as sort of traditional aspects of their culture because of the way it's compartmentalized in our Western system. But in reality…what they understood prior to colonization was very much the way they got around in this world, they had to be…Indigenous people are some of the best math and science people ever.

If non-Indigenous people were more aware of the richness and complexities of Indigenous history, they might be more likely to, in turn, have more respect for Indigenous people. Conversely, if some Indigenous people were more aware of their contributions to Western society, they would likely have more pride in themselves as Indigenous people (Battiste, 2000; Archibald, 2008; Auger, 2016; Bouvier et al., 2016). If education were to help Indigenous

people to feel proud of themselves and their accomplishments, then it also might benefit Indigenous people in all settings, in addition to educational environments.

1.3 Assimilation

It can be difficult for Indigenous students to succeed in school if they never see or know of any positive Indigenous role models. When mainstream curriculum excludes positive depictions of Indigenous people, it may contribute to feelings of low self-esteem about their own Indigeneity and lack of awareness about Indigenous contributions to the world, particularly when media reports or Internet sites perpetuate hatred of Indigenous peoples, such as during the Wet'suwet'en and Haudenosaunee protests (Friesen, 2020; Sterritt, 2020). This could in turn lead to some Indigenous people disengaging from their Indigenous identity, as Bailey, an Indigenous post-secondary instructor, observed:

> I had a number of students come up after I gave my Indigenous [contributions to technology] presentation, and they [Indigenous students] were stunned. They said, 'I can't believe what you just said to me', and one of them actually said, and it was sad, one of them said, 'you made me really proud to be an Indigenous person', and I'm thinking, you should have already been that…but I'm glad that now you can reclaim some of it.

Sometimes Indigenous people lose their connection to culture if they move to urban areas or if their parents became disconnected to their cultures because of past events such as residential school or other mainstream educational experiences (Anderson et al., 2016; Davis, 2012; Feir, 2016; Flicker et al., 2016; Frideres, 2008; Godlewska et al., 2013; Milloy, 2017; TRC, 2015c). Bailey (Indigenous post-secondary instructor) recalled suggesting a former student might apply

for an Indigenous position in their faculty, but they felt that they would not be able to do the job: "part of it was incorporating Indigenous knowledge and they [felt like] a colonized person, so they said, 'I'm really uncomfortable with that because I spent the last eight years of my life studying [for university] and not my own culture.'" As a result, they did not apply for the job. Another Indigenous student was unaware of their own culture to the point that they had never known about band funding that is available for some Status Indigenous people: "We're talking about post-secondary funding and they said, you mean I could get that? They were going to apply for the first time for band funding…Maybe [their] family didn't want [them] to know about those things" (Drew, Indigenous post-secondary instructor). Drew then added:

> There's always an assimilation process that's going to continue, but I think you have to hang on to what you have because it's going to be a part of the identity. That's why I don't knock people who, maybe it seems like it's minimal knowledge, it seems like it's not that deep, but I don't knock people for doing that because it creates an identity of opposition, like this is what I am, this is a piece of who I am, and I think people in a way work out the kinks as they go along.

If education can help Indigenous people to be proud of who they are as Indigenous people, it may lead to higher levels of success, because it is easier to succeed when you feel success is possible, as Bobby, an Indigenous cultural educator, described:

> If you break it down in to a language or visual so that they can understand it, and after they can do that and you've taught that, to me that's success already, because they're learning something new. And it also gave the students pride, like wow, I can do this, I didn't think I could, but thank you for showing me how, now I understand.

Seeing successful representations of Indigenous people can help Indigenous students to become successful themselves, according to Alex (Indigenous policy leader):

> To me, that's what students can and should be learning about…I think it's really good to teach our Indigenous students but also all students, but to me the priority would be to teach the Indigenous students so that they'll have a sense of pride and they [may think] maybe one day I want to do that, too.

Ashley, an Indigenous cultural educator, recalled that when they were young, they did not really feel confident in their own abilities to succeed:

> I didn't really think at that time of being part of the music scene because I think I approached it [as] I could just dabble in it half-heartedly because if I fail, then it doesn't matter…there was a bit of reluctance and non-confidence growing up Indigenous, all the things you grew up feeling and experiencing [weren't] always good.

Part of this lack of confidence might have been due to never having seen positive portrayals of Indigenous people, especially at school. In the past, Indigenous peoples had a small presence in the curriculum. If they were mentioned, they were often portrayed in negative ways, and there has been some change in this area, but often only as one-day special events and not as an integrated part of the regular curriculum, as Bailey, an Indigenous post-secondary instructor, commented:

> When I grew up…we never would have thought of having Indigenous days, so there was at least some introduction of Indigenous culture in a positive way, and they had Indigenous people [doing it], so at least it's an introduction to the culture…it's an attempt of some kind, to show there is another group of people with another set of beliefs and

> another set of customs, who we share this country with…I don't know, it's not as good as it could be, but it's better.

Sometimes Indigenous people can begin to feel disconnected from their culture, especially if the residential school experience made their parents and grandparents feel as though they should do so (Harwood, 2011; TRC, 2015c). Indigenous students who receive culturally respectful education may feel more connected to their culture, which then could lead to their living their lives in a good way because of this positive connection to their identity.

1.4 Disconnection from Indigenous Identity

Some Indigenous people feel disconnected to their culture for a variety of reasons, and this disconnection may lead to Indigenous people connecting to their identity in different ways than they did in the past. However, it is still important for Indigenous students to connect to their own cultures, in order for them to reconnect, if necessary, as Alex (Indigenous policy leader) stated: "students need to know who they are and where they come from…that's their identity, and if students don't know who they are, where they come from, and don't know their identity, to me, that's not advantageous for them." Sometimes schools do provide these cultural teachings, which would then benefit Indigenous students. However, the benefits of this cultural education may not extend to the parents of these students:

> [Parents might say], I want all my kids to go to that school, and they're going to learn everything they need to know about culture and they're going to follow that, but I won't. That's what happens, anywhere from 75% to 90% of the time with parents. And it's an uphill battle for educators; it truly is. It's good enough for the kids to know but not good enough for them to know as parents. I think to educate the kids with the parents would

> be a really good step and I think that our programs that are doing that right now in some of the school divisions. (Bobby, Indigenous cultural educator)

The original Indian Control of Indian Education document (National Indian Brotherhood, 1972), the blueprint to Indigenous education in Canada, did make the recommendation that education should be not only for students, but for their parents also. Connecting, or in some cases, reconnecting, to culture might then benefit entire families, who could engage in traditional practices together: "I had a responsibility to my four daughters, so they started dancing with me and to this day, they still dance, and I think as parents, that's what kept us together; we had a common thing in life." (Jamie, Indigenous cultural educator)

Learning about Indigenous culture is a lifelong process, but unfortunately, some Indigenous people share their knowledge with others as though they have enough knowledge to do so, but sometimes they do not:

> The guy who developed those language apps, he's supposed to be Indigenous…but because they don't have those teachings, they don't have the most basic understandings of respecting people, you know? You have to respect people in order to accomplish something, when he started to develop [Indigenous language resources], he asked me if I could validate it…when I heard the language that he was developing Oji-Cree…I said, we can't endorse this [because] this is not Ojibway, it's Oji-Cree, and he wouldn't listen to me. He didn't speak the language. (Jamie, Indigenous cultural educator)

It is also true that some Indigenous people may believe they are engaging in traditions that have always existed in their communities, when in fact they had been brought there recently, but they may be unaware of that:

> There was one [person]…who does sweats and everything else, and says they follow [their] traditions, and this is the sweat lodge that I do and everything else, but you know, I remember when elders were…bringing the sweat lodge up there in the 1980s, and it wasn't up there before…but from his perspective it had never been lost because he had never not known what it was like not to have it. It had always been there, from his perspective. (Drew, Indigenous post-secondary instructor)

This lack of connection to history may be a contributing factor to Indigenous people who pass on culture to others that they may not fully know themselves because they have not connected with the community enough to do so, as Jamie (Indigenous cultural educator) commented:

> I see these young and old people who dance jingle, they don't even do it right, the way Maggie White taught us…. and they bend down and I remember Maggie always used to say, you stand upright, put your hand on your hip and your waist, look forward, don't copy from another person, do your own steps, you should be stepping up more than six inches off the ground….Maggie used to say you don't go back in life, you keep moving forward, you look forward. Things like that, they're just common sense stuff.

However, it is possible that in this time, Indigenous people may not know where to go or who to consult about how to engage in Indigenous cultural practices respectfully, and so they do the best they can without this knowledge. Indigenous people may also have been severed in many ways from their home communities by residential school and other colonial experiences, and they may not be aware that the way they are experiencing culture is different from others (Corntassel, 2012). Also, no culture is ever static (Cassel, 2015), and Indigenous culture is always undergoing change. The introduction of and continued presence of Christian in some

Indigenous communities resulted in extensive changes to Indigenous culture, and some of these changes have persisted into the present day.

1.5 The Influence of Christianity

Some Indigenous people were introduced to Christianity for the first time while attending residential schools, but others were introduced much earlier, such as the Mohawks and Algonquins in eastern Canada (Stanley, 2018). Drew (Indigenous post-secondary instructor) described how Christianity impacted Indigenous people in the east: "The Ojibways left because the Catholics were claiming everything, and the Mohawks got angry and converted to Methodism, and then when the United Church came in, they became [that], but in the 1960s and 70s, people became traditional again." However, Christianity continued to have impacts upon Indigenous people.

Sometimes Christianity in Indigenous communities was a divisive force. It has divided Indigenous people along Christian/traditional spirituality lines, as well as along Christian denominational groupings (Bradford & Horton, 2016). Some Indigenous communities have multiple churches, representing multiple Christian denominations (Bradford & Horton, 2016). Some Indigenous people were forced to hide the ceremonies in which they were participating because of the presence of Christianity in their communities as well as because of prohibitions against Indigenous spirituality that the government added to the Indian Act (Giokas, 1995; Pettipas, 1994). However, as time passed, ceremonies once again became allowable and more acceptable, according to Bobby (Indigenous cultural educator):

> Just because of the Christianity, a lot of it was kept secret among our own people, to avoid conflict, which is sad, but now things are changing. It's more acceptable now, and

> when those elders are gone, I can honestly see a change happening where Christianity's going to get bumped out.

There were several waves of Christian evangelism that swept through Indigenous communities throughout the middle and later parts of the 1900s, and some of the older people held on to their Christian beliefs while some younger people began to reclaim spirituality as part of their Indigeneity (Pettipas, 1994). Some of these changes have led to division within families:

> In the last 30 years or so…amongst our own people we are divided when it comes to Christianity and our own ceremony. Sometimes in the homes, the kids get a little confused…a lot of times I just shake my head when I see some of those elders who went through that abuse…and the people in those churches used to do a lot of bad things to our people…but they still like to follow that, but that's their choice, and always will be. (Bobby, Indigenous cultural educator).

Christianity has had numerous impacts upon the Indigenous community, some positive, and others less so. It can also have impacts upon Indigenous education when parents of non-Indigenous children protest against the inclusion of Indigenous spirituality in the curriculum (Troian, 2016). However, as Alex (Indigenous policy leader) points out, there are also schools and post-secondary institutions where Christians and others have the opportunity to received faith-based education, should they wish to have an education immersed in Christian practices:

> To me if people want to learn about Christianity, there are places of learning to do that and there [are] also institutions here. For example, people can go to different colleges like Providence College. People can go there and…it's literally a Christian setting where they can learn business administration and it's a religious or faith-based academy, so places like that do exist.

If Indigenous spirituality is a part of Indigenous culture as a whole, then it cannot be treated as a separate entity in the curriculum, as non-Indigenous spirituality often is (Marchant, 2002). From this perspective, aspects of Indigenous spirituality should be included in Indigenous curriculum because it is part of the culture. Additionally, Bobby, an Indigenous cultural educator, stated that if Indigenous spirituality exists within the curriculum, then it has to be a negotiated inclusion:

> In my opinion, it wasn't right for the church to be pushing their beliefs and doing the Lord's Prayer back in the 70s, like I used to have to every day, and there was a movement that was made [that said], that's religion, it doesn't have anything to do with your education, but if it does have something to do with your education, then it has to be agreed upon by both parties, the organization, teacher, school, and the student.

Inclusion of Indigenous spirituality in curriculum should involve a collaboration among all concerned. Curriculum developers should work collaboratively with Indigenous people regarding all aspects of Indigenous education in order to ensure that education programs better serve the people for whom they are designed, which means that Indigenous people must be involved in the curriculum design process, so that aspects of Indigenous culture are represented in a good way.

Theme 2: Connections to Culture

2.1: Indigenous Cultural Content in Curriculum

In the past, there was little to no inclusion of Indigenous content in curriculum. What did exist was there because individual teachers found ways to do it, according to Alex (Indigenous policy leader):

> I remember when I was teaching at [an Indigenous school], one of my colleagues used to teach all of these different traditional games, and when he could incorporate those into

> the curriculum, he did. One of them was the Snake game…and all of these different games; it was so interesting, and the students were really intrigued by those, right? Because a lot of them didn't have an opportunity to see ourselves really reflected in the curriculum, but I think that's happening more now than it was back when I was teaching in the mid-80s and early 90s.

As time passed, Indigenous schools worked toward including more Indigenous content in the curriculum so that Indigenous students would feel more connected to the curriculum, which has been shown to lead to higher success rates (Battiste, 2013; Godlewska et al., 2013). Alex (Indigenous policy leader) described this as: "[the schools] do use provincial curriculum, but also infuse Indigenous ways of knowing, being, and doing in the schools." Ceremonies are also a critical part of the schools. Another benefit of adding Indigenous content to the curriculum is to help Indigenous people to see themselves in positive ways to combat existing negative stereotypes, according to Bailey (Indigenous post-secondary instructor): "I just wanted to try to instill this pride and this knowledge into Indigenous students, and I figure the younger the age, the better, so I have taken that information into schools and done presentations and different things." Indigenous students may not have access to cultural knowledge of their people if their parents do not carry that knowledge, which might be for a variety of reasons, so schools might be one of the only places in which Indigenous people can learn about their culture, according to Jamie, an Indigenous cultural educator: "The mere fact of living these teachings, the teachings come in different forms: sometimes your parents or your grandparents are not the only ones who teach you these basic understandings." This would be another good reason for including this content in the curriculum for Indigenous students who may not have other options but who wish to learn more.

In addition, adding Indigenous content in mainstream curriculum would benefit all students, not just Indigenous students, because non-Indigenous students would gain broader understanding of Indigenous issues and because Indigenous content and pedagogy is good for all students, according to Bailey, an Indigenous post-secondary instructor: "So to me, incorporating this Indigenous knowledge into our curriculum…don't think we're doing it for [the] Indigenous students because that's not who we're doing this for. If we do this, we're doing this so that everybody is better." Bailey added that if non-Indigenous students were better informed about Indigenous issues, then they may be more likely to consider Indigenous perspectives everywhere, not just while they are in school:

> It's not going to work for everybody, but nothing will. But if you can get to 20 or 30 or 40% of them, that could be the difference-maker, right? Because they're the ones who could say to their boss or their co-workers, have you thought about this…but if you can get, not even a majority but a large minority of people, then I think you can make a difference.

It is important that all students, Indigenous and non-Indigenous, learn about Indigenous peoples in schools so that they will have a broader understanding of Indigenous issues when they are in positions of being able to influence or to create positive changes for everyone in the future. One aspect of Indigenous culture that may occupy more space in curriculum in the future is ceremony.

2.2: Purpose of Ceremony

Indigenous education curriculum developers could develop and design curriculum so that Indigenous and non-Indigenous students could learn to value Indigenous cultures as they existed in the past and as it is in the present. There are different perspectives about how this could be

done in a classroom, but the participants agreed that it is important knowledge to share with students.

Alex (Indigenous policy leader) described Indigenous culture as: "Culture is teaching, helping people to understand who we are, our histories, our languages, our customs, some of our ceremonies, [and] our contemporary lifestyles because we're still here today." Alex includes spirituality in their list of what should be included in curriculum, but qualified its inclusion by saying "*some* [my emphasis] of our ceremonies," which might indicate that not all ceremonies should be included in mainstream curriculum. It would be difficult to include ceremony in a regular classroom environment because most take place outdoors, so the classroom schedule would have to be flexible enough for students to be out on the land at times. Most Indigenous education programs include a land-based component (Bartlett et al., 2012; Ray & Cormier, 2012; Young, 2015), so ceremonies might be incorporated into curriculum in that way, but there would still have to be time allowed to do so.

Some of the participants spoke about how they incorporated spirituality in their teaching, but not as a separate entity, because spirituality is pervasive throughout cultural teachings and does not have to be discussed explicitly, according to Jamie (Indigenous cultural educator):

> My prayers are something that come from my heart, I said. I don't stand up there and recite a prayer from a piece of paper…but we never talk about spirituality because it's in your actions when you demonstrate respect, when you demonstrate the drumming, it's embedded in there, nobody has to come along and tell you that this is spirituality.

Similarly, Jamie believed that speaking about spiritual issues can be incorporated into regular Indigenous education because it is relevant to everyone and can be embedded within other curriculum that may not be spiritual in nature:

> People talk about those seven teachings. Well, in my generation there were more than just seven. It was *pimaatisiwin*: the way of life. What about those other beliefs? They may not be identified in those seven words that people talk about, but they're part of our lives, our everyday lives. People have to be able to talk beyond the seven teachings if you want to look at our way of life, how we function in the city, the urban area, wherever we live.

However, not all Indigenous participants agreed that spirituality should be included as a part of Indigenous curriculum. Some participants stated that spirituality should be available to students who want to learn about it, but not necessarily shared with students who may not be interested. For example, Bobby (Indigenous cultural educator) related:

> When it comes to the traditional way of life, I refuse to teach anybody who isn't genuinely interested or that can respect it…I think it's wrong for the school divisions and the universities to implement something when it comes to traditionalism. When it comes to ceremony, when it comes to our way of life, that should be optional and not forced upon, and I've been saying that for years to educators…you don't have to teach the seven teachings. Make that separate; give them an option. If you want to be there, I'll teach it to you, but if you don't want to do that and you don't want to follow that way of life, then why are you coming?

2.3 Indigenous Ceremony in the Classroom

Some cultural practices, such as smudging, already take place in classrooms and so educators who feel they are qualified to do so should follow already-established protocols for smudging in the classroom:

> There are ways that people prepare for it: they make sure there is a ventilated space [and] there's some advance notice put up. Some people actually put up signage outside the

> door, like smudging will be held here from 2-4, and students [would] have the choice to opt out, and you also prepare people. (Alex, Indigenous policy leader)

Alex added that educators can access written documents that further explain the smudging ceremony so that instructors could inform students about the ceremony and so that they would be informed themselves about how to conduct the ceremony:

> We also have a document we've developed…not a policy, but a guideline for people who want to know what smudging is, why smudge and also the teachings around some of the medicines…how we actually do it, how to take care of each other…as well as how to smudge, why we smudge, how to dispose of the smudge ashes, but those are all teachings that are important for people that want to learn it….I think those are important components to teach students in educational settings.

Some ceremonies, such as smudges, have been done so often that some might think they have the right to conduct them without having had the teachings from knowledge keepers. This takes time that not everyone is willing to commit, which sometimes leads to negative consequences such as people conducting ceremonies who may not realize their significance, as Bobby (Indigenous cultural educator) stated: "I've always told my classroom and everybody else, you don't have to teach the seven teachings. Do you do that? Do you go to ceremony? Then why are you teaching it? Why? You shouldn't be doing that." Another issue that might arise from including Indigenous ceremony in the classroom is teaching this content to non-Indigenous students, but Bobby (Indigenous cultural educator) spoke about not being concerned about doing so:

> I've worked with so many non-Indigenous students over the years….I'm a strong believer in, I don't care who you are, where you come from, or what colour your skin is.

> If you are genuinely interested in who I am, what I do, and what we do as Anishinaabe, or Dakota, or Indigenous people in general, you can respect it, then I have no problem teaching it to you.

However, Bobby also expressed his concern that students should be willing to accept these teachings in the classroom and should not be forced to participate in these ceremonies and teachings if they are part of mandatory curriculum:

> You never want to force them, but you always want to give them that option….If your child is not interested in being here, I don't want you to bring your child back here unless they want to be here. And 9 times out of 10, that child was coming out to powwow club because their friends were there and they wanted to come back. And when they did come back, they were genuinely interested and they thrived after that.

Charlie (Indigenous post-secondary instructor) added that the cultural teachings students receive need to be legitimate according to Indigenous peoples, and not diluted for the consumption of others:

> I think that's a tough one to get past is that looking at the institutions…we're going to be good if we get more Indigenous students in here and they feel comfortable to be students here, but if we're not changing everything that's being homogenized and diminished, then we're not really changing very much; we're just making it feel a little better.

Instructors may need to collaborate with the Indigenous community to ensure their curriculum is culturally respectful, but also that the community agrees that it is good curriculum. Ideally, these changes in curriculum would be supported by administration, who would see its benefits, as Alex (Indigenous policy leader) commented: "I think that would be my dream and that people should be able to understand that and then we wouldn't have to defend our lobby and

say this is why this is important, but that people would understand." If Indigenous education is to incorporate aspects of spirituality in the classroom, then educators must work to ensure that the curriculum and content of this education is culturally respectful and as truthful as possible, since many of the students may not be familiar enough with this type of curriculum to know whether they are learning accurate information or not.

Some of the participants believe that Indigenous education must include aspects of spirituality in the curriculum; others believe that any Indigenous curriculum should include spirituality because it is indivisible from Indigenous culture. It can be a controversial topic for a number of reasons, such as disagreement about cultural protocols, clashes with administration about what would not be allowed in the classroom, and what should be shared with non-Indigenous peoples. These issues could be more easily addressed in Indigenous schools, where people are aware of the cultural practices that would be practiced there: "the majority of the students there wanted to be there because they chose to be there and their parents chose them to be there" (Alex, Indigenous policy leader). The students and their parents would know what to expect in an Indigenous learning environment such as an Indigenous school. However, not all learning environments are controlled by Indigenous people, and in those situations there is more potential for disagreement, according to Bobby, an Indigenous cultural educator:

> There are some obstacles you have to try to avoid if it's possible, but I'm a strong believer in what I teach, and I am willing to walk away if it's not done right, and I've done that, not because I wanted to, but because this is the way I've been taught. And if it's going to be taught in a way that in my opinion is not the right way, then I don't want to have anything to do with it, because it's my name and my reputation on the line. And people will sit back and say, well, [they] should have known better, so whenever

> something comes up that goes against my values and traditional lifestyle, I am willing to walk away, and I have in the past because of who I am, and what I am, and what I believe in.

In the past, Indigenous educators working in the mainstream system had to work within that system, and often it was Indigenous people who needed to change in order to fit into the mainstream system, or in order to reach a compromise, as Bobby (Indigenous cultural educator) described:

> When working in [certain schools], they wanted you to do a certain thing and sometimes they wanted you to do things in a way where the proper protocol wasn't followed properly. A good example of that would be, we want to start this, like maybe we want kids to smudge every morning, so let's have an option for the kids to do that, but you can't do it in here because it'll set off the fire alarm, so you're going to have to do it outside, simple things like that.

However, this should not be as difficult in the future as it was in the past because the government is giving the appearance of being supportive of these Indigenous educational initiatives at both the federal and provincial levels (TRC, 2015a). Some participants believed that Indigenous spirituality should not be a mandatory part of curriculum for non-Indigenous students. Instead, this type of education should be voluntary, through clubs or activities outside of class: "There are many different things that can be [done]…but I think there should be something separate, another program that gives an option for those who want to go that little extra in a traditional setting and aspect" (Bobby, Indigenous cultural educator). Jamie (Indigenous cultural educator) added, "we're really not trying to recruit people to become part of our culture." The purpose of including spirituality in mainstream education would be not to pass

cultural practices on to non-Indigenous people, but to ensure that they had some basic understanding of Indigenous people. Education about spirituality would be for students who respected it and who actually wanted to be there, for the benefit of all students.

However, some Indigenous people do not see Indigenous spirituality as an Indigenous version of Christianity or other religions, but as a series of cultural practices that are indivisible from the rest of Indigenous culture, as Alex (Indigenous policy leader) suggested:

> It's like I always find that discussion always comes up every time anyone wants a smudge: Is this spirituality? Is it religious? Is it a cultural practice? To me, how I've been taught, is that it is part of our cultural ways, so it's a cultural practice. Some people say it's spiritual, it's religious, but that's how I've been taught and that's what we teach.

Jamie, an Indigenous cultural educator, agreed that spirituality is part of being Indigenous: "Well, I don't call it spirituality; I call it *pimaatisiwin*: it's a way of life. That's how I address spirituality in the classroom." For this reason, any Indigenous education program should involve aspects of spirituality because it is not a separate aspect of culture, but rather a part of a greater whole.

As the governments of Canada and the provinces address how to include Indigenous content in mainstream curriculum, including spirituality in the curriculum may be one of the most challenging aspects of culture for curriculum developers to negotiate, however, if spirituality is seen, as some of the participants see it, as an aspect of Indigenous culture that is not separate from other aspects, spirituality will have to be included in some way. Decisions about whether to learn more about spiritual teachings are different for everyone, even among different Indigenous people. If instructors wish to learn more about Indigenous spirituality, their path might be different from others who choose to do so.

2.4: Spirituality and the Individual

The path of Indigenous spirituality can be a highly individual undertaking and is not something to be spoken of in a shallow way, which unfortunately might be the only way to speak about it in a classroom, due to time constraints; spirituality is a way of being that can encompass all aspects of a person's being and is not something people can learn about in one class, as Drew (Indigenous post-secondary instructor) stated: "The real things that we know, you cannot pass them on…in a two-hour session, so you can only give snippets of these things and that's what a lot of people are getting." It is paramount importance that if spirituality is incorporated into Indigenous education at all, that it is done in a good way so that people understand the true significance of spiritual activities and their significance for Indigenous peoples. This might mean that some aspects could be talked about in the main classroom and others would have to be talked about separately, away from the classroom. However, there could be benefits to everyone if spirituality were included in some way in curriculum, as Jamie (Indigenous cultural educator) commented:

> Once you accomplish that balance, your spirituality, your cultural beliefs, creating that balance within ourselves, you become a better person….it's between you and the Creator. At the end of the day when you go to bed at night and how you feel about waking up in the morning and what kind of day you're going to have. Only you can achieve that, and you'll know when that balance is not there because things go wrong.

Incorporating ceremony into their own lives is an individual journey that is very important to some Indigenous people, not only to achieve a sense of balance, but to help people through hard times, as Bobby (Indigenous cultural educator) described:

> For me to go to ceremony, it's something that I need in my life, it gives me that extra boost to be able to move forward when times are hard. It builds your spirit, makes you that much stronger, so you can overcome those obstacles. For me, that's who I am and what I do and why I do it, and to me that's important.

Spirituality would likely benefit students if it were included in the curriculum, but some participants believed that it might be advisable to talk about some things in the classroom and to leave other discussions for times outside the classroom. In this way, students will have the opportunity to learn about spirituality in deeper ways than may be possible in class, and educators would be more able to devote the necessary time to the topic and allow time to engage in some ceremonies outside of the classroom. Spiritual topics could be approached in the classroom in other ways besides ceremony, such as through story, which is prevalent throughout Indigenous cultures, as well as most other cultures.

2.5: Story in Indigenous Curriculum

Although some stories themselves may be Indigenous, their teachings are for everybody, not just Indigenous people, according to Charlie (Indigenous post-secondary instructor): "Sometimes our stories, our Okanagan Salish stories, they sometimes get racialized in their interpretations, but they're not racialized in their language or in their story forms, but sometimes, they get looked at as there's Indigenous vs Western." An example of this are the stories about Coyote and the power of the human mind:

> These Coyote stories are not just for Indigenous peoples. They're about renewing our human mind power, understanding that our human mind power can be destructive, it can be, you know, abusive, it can be irresponsible, but it can also be really, really amazing and can do the most wonderful of things to create practices that make positive

> relationships, if they are really applied and thought about. (Charlie, Indigenous post-secondary instructor)

Indigenous stories, then, did not exist as entertainment, nor was their intended purpose just to pass the time. There is meaning within them that can help people to live their lives while carrying themselves in a good way, and this continues into the present day. This is one of the reasons why storytelling should not be minimalized in Indigenous curriculum and why the stories themselves need to be included in curriculum in a good way, according to Drew (Indigenous post-secondary instructor):

> They're going to be irrelevant as curriculum developers unless they understand the context of what they're teaching, so our sport is Tewaarato, which is lacrosse, which is Little Brother War, the Creator's game, and there are stories that go along with all of those things. [If] somebody's not going to be able to do that, [then] they're going to bring in some superficial thing.

Although there may be some urgency to develop curriculum that is inclusive of Indigenous content and perspectives quickly, due to the TRC (2015a), if the people doing this work address Indigenous culture in a superficial way, then the richness and importance of Indigenous culture will be minimized in the curriculum, which might be a worse outcome than not including Indigenous content at all. Alternatively, Indigenous stories could be incorporated throughout the curriculum and have lasting effects upon the lives of the students, according to Charlie (post-secondary instructor):

> I think connecting to stories and pedagogy, that's all about forward-looking responsibility, even if it doesn't benefit somebody right away, there's some that it might. That's the way it's worked all along, I think, is that these stories, these relationships and

> our language and the concepts in our languages, they do kick in right away, there can be realizations later on, and then they say, that's what that story is about and that's why we should make a decision that way.

Jamie, an Indigenous cultural educator, also allowed students to come to realizations about Indigenous stories on their own:

> When we do the storytelling, I don't give them the answer. If they're going to learn about Honesty, I don't say that. I let them figure it out and once they figure it out, I say to them, not to show anyone up, I say, that's exactly why I'm here today, to teach you about Honesty. Then all of a sudden, they get it, they just totally get it, but it comes from them, I don't have to tell them what honesty is, that's just a word.

Sam, a post-secondary instructor, added: "they were telling their inter-generational stories, for me, just the gift and courage and generosity of sharing their knowledge…we don't deserve you here, but their gift of courage and generosity was just fantastic."

Indigenous stories included in the curriculum have the power to be transformative because of the stories themselves, but also because, according to Charlie (Indigenous post-secondary instructor), they would help students to realize the depth of power and knowledge of Indigenous peoples:

> I think that these stories and knowledge are the accumulated knowledge of the people, so it's no accident they've been passed on for thousands of years, so we can have understanding, wisdom, and relationships that we need to look at….So that's part of the story process, and the story, too, all of these stories about plants and animals and monsters and all of that, sometimes we hear, oh, they're superstitious, but we're getting

> beyond that, we're saying, no, we're the plants, we're the animals, we're the water...[and] we're also the stories of our era.

Story has always formed an integral part of Indigenous culture, going back to when oral history was the only history that existed and Indigenous people have continued to use story to help us to connect to who we are and to regain our power in more modern times (Corntassel, 2009). The stories of Indigenous peoples should be a key part of the curriculum at the very least because stories have the power to show what Indigenous cultures were, who we are, and who we might become in the future. Nevertheless, educators have faced a number of obstacles while striving to create culturally relevant curriculum for Indigenous people.

Theme 3: Resistance to Change

The participants in this study identified **i**nadequate curriculum development, pushback from the community, and slow pace of change as barriers to developers of culturally relevant Indigenous education, and were identified nearly 50 years ago in the Indian Control of Indian Education document (Canadian Millenium Scholarship Foundation, 2005; National Indian Brotherhood, 1972; Paquette & Fallon, 2014). Fortunately, the TRC (2015) may be the catalyst for national change in Indigenous education if governments address the calls to action. However, these much-anticipated changes have, for the most part, failed to materialize from either the TRC or from earlier documents, such as the RCAP (1996). This lack of change could be due to a reluctance to change on the part of government, but there may also be reluctance to change from areas outside of government.

3.1: Incorporating Indigenous Content

Many of the trailblazers of Indigenous education were inspired to do their work because of the experiences they had when they were young and went through mainstream education that

did not contain many positive references to Indigenous peoples, as Alex (Indigenous policy leader) recalled:

> So part of it for me is that I've been able to keep that promise I made to myself as a young girl: I'd help make some change, move things along. I did some of that like at the classroom level, working with my own students at a micro level, but I'm now at the macro level, [making] systemic change, which I'm really proud of, and that I can help influence some change [through] various programs, all the way from early childhood to post-secondary education and the workforce.

Alex's mainstream education was not inclusive of Indigenous people, so [their] access to history and culture were limited at [their] school. For Indigenous people who had no connection to their Indigenous culture at home, their ability to learn about who they were was even more limited, according to Bobby (Indigenous cultural educator): "To me, it is important. I was not born and raised with that stuff. I had to learn that when I was older." Some Indigenous people choose to reclaim Indigenous knowledge and would have to do so as adults if mainstream curriculum is not inclusive of Indigenous perspectives.

3.2: Non-Indigenous Response

When Alex tried to implement changes to Indigenous education initiatives, they experienced some pushback from the surrounding urban community because their Indigenous school incorporated Indigenous culture: "It was made really clear that the school had linguistic and cultural perspectives, so if they didn't want that, there were 70 other schools in the division they could go to." Some non-Indigenous students also may feel uncomfortable hearing negative stories about their own people, as Charlie, an Indigenous post-secondary instructor, commented:

> There's also some of the students who, you know, feel that white culture is being attacked and that sort of thing, so they're just going through…because it's a required course, you know, some of those reasons. But that's part of the change, too, so…when I read the teacher evaluations and stuff like that, and they say, oh, it's the worst course I ever took [laughs], if we didn't have some of that, then we wouldn't be connecting to some of those strong emotions.

However, non-Indigenous resentment is not universal. Sydney, a post-secondary instructor has almost never seen that resentment in her non-Indigenous students:

> Maybe one person in all of this time had said something like reverse racism or something…privileging Indigenous over other groups, [such as] immigrants or Muslims, or this one or that one. I read that on one of my course evaluations, but that is only one out of the span of a decade.

It takes time for people to adapt to new situations and while some people may always feel bitter about these changes, these feelings will certainly not be universal, and some people may change their views of Indigenous education over time. It is important to remember that when Indigenous education programs and schools were first developed, there was such resistance from the government that Indigenous people had to resort to public demonstrations in order to achieve their Indigenous education goals:

> I was actually part of a movement marching and meeting with a bunch of people…demand[ing] our own school….That's how [the schools] were established…but it wouldn't have happened if there [weren't] people demanding a change, so it could be better for us as Indigenous people. (Bobby, Indigenous cultural educator).

3.3: Systemic Change

Over a period of decades, the Canadian government repeatedly has acknowledged its obligation to make education accessible for Indigenous peoples, from National Indian Brotherhood's Indian Control of Indian Education (1972), to the Royal Commission on Aboriginal Peoples (1996), to the Truth and Reconciliation Commission (2015). However, systemic changes continue to be elusive, while administration may find it easier to focus upon shorter term goals or upon goals that can appear to be indicators of changes in the education system, as Charlie (Indigenous post-secondary instructor) observed:

> When this college started, there was no acknowledgement of who we are, even though this college carries our name. But there's been no inclusion of our knowledge, our languages, our pedagogy, and the only effort there's been is to increase the brown bums in the seats and get them through the system; that's where all the focus has been recently.

The educational leaders at Charlie's institution might have felt that increasing the number of Indigenous students would show that their institution is a positive place for Indigenous students without actually doing anything to make the institution more inclusive of Indigenous people, beyond increasing Indigenous students. Charlie added that the administration also increased Indigeneity at the institution by other superficial means:

> The administration is a challenge because my analysis is that it's kind of stuck in that deficit and self-esteem kind of notion: okay, let's put up some artwork or let's put up some images here and put in some plants and have an Indigenous garden, and let's take some pictures of some of the chiefs in here, feel good that the numbers of Indigenous grads have increased, but not to have a community and elders viewed as knowledge experts and same as professors and that sort of thing.

In addition, according to Sydney (post-secondary instructor), although student interest in Indigenous issues has been increasing, this has not resulted in post-secondary educators trying to become more knowledgeable and capable educators about Indigenous issues, similar to some of the administrators of these institutions:

> The interest among my students is skyrocketing. It's a real sin that the faculty kind of pay lip service to it [by saying], oh, well, some of my colleagues, they do that. There's not a lot of uptake because a lot of my colleagues are uncomfortable. We have an Indigenous services centre that's outstanding, lots of Indigenous colleagues, so there are ways to do it…we have to get past our own white nervousness, and I've asked my Indigenous students, do you think it's okay to talk about these things, and say that it is.

The apparent philosophy of some of Sydney's colleagues recalls Dion's (2017) "perfect stranger" position, which frees non-Indigenous people from having to learn about Indigenous culture because they are not Indigenous and benefiting from their colonial past without feeling the need to explain how their privilege came to be.

Many of the participants spoke about loss of or disconnection from Indigenous identity, past attempts to include Indigenous content in the curriculum, inclusion of ceremony, and the difficulties they encountered when trying to make these changes to mainstream systems. In the next chapter, I will describe how the current system is changing in order to incorporate Indigenous ways of knowing, how Indigenous people are ensuring that these changes are made in a good way, and the adaptations non-Indigenous people, including administration and government, will have to make in order to be more respectful and inclusive.

CHAPTER 5: FINDINGS

CHANGING CURRENT SYSTEMS

The process of change in universities has been slow in the past, perhaps due in part to the culture of the university, which has remained the same for decades, if not centuries (Godlewska et al., 2014). As more Indigenous people attained positions of power and authority in these universities, Indigenous initiatives began to be seen as more important than they had in the past. Also, while there may have been a reluctance to address Indigenous issues in education due to lack of knowledge about how to proceed, Indigenous staff and faculty were now available to help to shape Indigenous educational policy (Apple & Busas, 2006; Ball, 2012; Universities Canada, n.d.). The lack of willingness to try to understand the importance of inclusion may have been due to a variety of reasons, including racism and hegemony. There is also the aforementioned long history of the institutions themselves, in which only certain types of knowledge produced by certain types of people were deemed to be worth studying or even to be true (Battiste, 2013; Simpson, 2004; Western University, 2018). These underlying barriers to educational reform still need to be addressed in order to increase Indigenous presence meaningfully in these institutions. In this chapter, I will discuss how Indigenous people are working toward this educational reform within institutions and with government to ensure that this inclusion is done in a good way.

Theme 1: Positive Changes

There have been changes in mainstream education with regard to positive representations of Indigenous people and Indigenous presence in mainstream curriculum. The participants commented upon the importance of including Indigenous content and cultural practices in the classroom, which is becoming more common. Indigenous people are now at the centre of these changes.

1.1: Increasing Indigenous Presence

Indigenous scholars and Indigenous organizations on campuses across Canada did a lot of the hard work necessary to begin making changes in order to benefit Indigenous students, and this work was done before national reports such as the RCAP (1996) existed, as Sam (post-secondary instructor), relates:

> I give a lot of credit to those folks on the ground, the Indigenous community, and in the Access programs and the Aboriginal student centres. The work that the early people did was instrumental…and [were] mentors for me to chip away here in the faculty in terms of what we're doing.

Some of these Indigenous initiatives on university campuses across Canada were in response to national and international documents from the Government of Canada and the United Nations, according to Charlie (Indigenous post-secondary instructor):

> I was a part-time instructor there for few years and then the college decided they were going to Indigenize because of the TRC calls and the UN Declaration [on the Rights of Indigenous Peoples]. All of that was getting a lot of media attention, so all of the post-secondary institutions said, we're going to Indigenize, so we were Indigenizing at the college and so I was appointed the Indigenization manager.

Eventually, non-Indigenous people in the academy began to see the benefit and importance of Indigenous education and started to work on changing the curriculum of their own courses, with the help of Indigenous faculty, as Bailey, an Indigenous post-secondary instructor, recalled:

> You know it is changing. When I started 20 years ago, there's no way any professor would consider introducing Indigenous knowledge in the courses. They would say, what

> does that mean, how would we ever do that? How is it relevant? And now, like I said, I do this one talk and I have professors phoning me up, asking can you put this in my course? To me, that's progress. That is really progress.

Charlie, an Indigenous post-secondary instructor, adds that it is important for Indigenous post-secondary educators to work with non-Indigenous instructors to ensure that students are taught information that is correct from an Indigenous perspective:

> You've got a bunch of educators, some Indigenous, some non-Indigenous…and I was thinking that some of us, we're trying to undo and transform the education systems, colonialism and all of that, which have done much to homogenize us, and not distinguish, [so that] there's no difference between [any of us]; we're just Indians.

The concept that Indigenous people are the same no matter what part of the country or the continent they come from is called pan-Indigeneity, and it has been prevalent in curricular documents over the years (Institute on Governance, 2010). This is true not only among different Indigenous nations across Canada, but also within nations of people themselves. We must educate the government and the Canadian public about the truth of Indigenous peoples' history and modern issues so that Indigenous people can be portrayed in educational materials and other curriculum as distinct, modern, and adaptable, rather than simply relics from the past.

1.2: Privileging Indigenous Ways of Knowing

Charlie (Indigenous post-secondary instructor) spoke about the importance of including Indigenous perspectives in mainstream curriculum:

> If we're going to change things, then our trades programs [must include more than] just technical skills. They need to appreciate the ecology and the biodiversity, they need to have a role in taking care of the salmon, you know all of that, that's the change. Some of

> my students were in projects where they're developing aquaponics projects and all kinds of extended family, kinship-based projects…both Indigenous and non-Indigenous students.

It is possible to design curriculum that follows provincial guidelines but still incorporates Indigenous worldviews (Government of Manitoba, 2018), so new curriculum should include or be based upon Indigenous ways of knowing because it is now more possible than ever before to do so. Drew (Indigenous post-secondary instructor) commented that once we can acknowledge that there are other valid forms of knowledge besides written forms, then Indigenous knowledge that is not written down or published could be used as legitimate curriculum and not lesser than written sources:

> Part of the problem with the written word is it gets set down on paper and people see it in that certain way and they can't see anything broader that what they see in those few words that somebody shares, and then they say they've learned it from an elder and don't accept any other teachings.

Sydney, a post-secondary instructor, agreed that academic institutions continue to privilege published information: "We are still a society that looks at knowledge as being written, the written word, and this sort of golden standard of double-blind, peer review, and all that." According to Charlie (Indigenous post-secondary instructor), some institutions value Indigenous knowledge keepers as legitimate faculty members, while others still do not: "There are some good examples…they've got Indigenous professors from different Indigenous peoples that are situated around the college…they hired them and pay them, and they've got it budgeted that they're the same as professors." Sam, a post-secondary instructor describes a similar situation at their institution:

> Our administration recognized community knowledge as valid because typically you need a master's to teach a university course and I made the case that community knowledge is equivalent to a university degree, [so] that was not a barrier. That was one of the first things that really was helpful.

In addition, if the institution recognizes Indigenous knowledges as valid, then knowledge keepers can pass along their own knowledge as they know it, without having to find written texts to support what they have learned through other means, according to Drew (Indigenous post-secondary instructor): "I always feel we're most comfortable with the things we know…we kind of create our own knowledge base, and I think that's the one we're most comfortable with when we're teaching, things that we know."

It is also possible to create physical environments for Indigenous students that are more welcoming and might benefit students who may need help while they are at school, according to Charlie (Indigenous post-secondary instructor):

> One of our Aboriginal workers [has] been just amazing; [they] developed with the elders an Indigenous garden that grows; it's an organic garden. It also has a lot of [food] plants and so it feeds students and the students come and volunteer there; they work with the elders and harvest plants. We've got all kinds of plants, ceremonial ones and medicinal ones, and potatoes and carrots and all that to feed people, so that's bringing together elders and students, in multiple ways.

Sam (post-secondary instructor commented that having an Indigenous person leading Indigenous educational initiatives may lead to positive changes for faculties:

> [We hired] a Metis [person] as the lead for Indigenous engagement…and [they] came in, wrote a strategic plan, and got the Indigenous community involved. We have a beautiful

> strategic plan for Indigenous achievement, and [they] insisted that if we have a plan, we have to have a working group, and we have to set yearly strategic priorities. We have to commit to [those] and check in to see that we are doing everything we should do with the strategic plan. We've been doing that for five years, and there's been tremendous success.

Indigenous people should be responsible for developing Indigenous programming because they are not only familiar with Indigenous culture, but they are also living as Indigenous people every day. Because of this reality, Indigenous people often have a different understanding about Indigeneity than non-Indigenous people do, according to Jamie (Indigenous cultural educator): "And they will never understand, no matter how much you educate yourself, they're never going to be like us. Colour your hair all you want, you're never going to be like we are."

Most Indigenous people have more experience with Indigenous spirituality than non-Indigenous people do, so they would likely be more knowledgeable about the subject and many of the participants commented that Indigenous people should be included in any discussions about adding Indigenous spirituality to the curriculum.

Theme 2: Non-Indigenous Students

While there are more Indigenous students in post-secondary university programs now than there was in the past (Statistics Canada, 2016), they are still greatly outnumbered by non-Indigenous students, so many of the students taking Indigenous curriculum in post-secondary education will be non-Indigenous. Many Indigenous educators believe that all students, not just Indigenous students, would benefit from Indigenous worldviews and ways of knowing if these existed in their educational programs. However, not all non-Indigenous students appreciate this education, particularly if they are forced to take Indigenous-focused courses in order to graduate (McDonald, 2016). Some of these negative feelings toward Indigenous people, including post-

secondary students and instructors, may be based in racism, but it is also possible that ignorance is at the root of these ideas, and well-designed Indigenous education would help to alleviate some of that ignorance.

2.1: Negative Opinions about Indigenous Peoples

Not all non-Indigenous students respect Indigenous university professors or instructors, and rather than examining possible racial undertones to this lack of respect, the blame for this lack of respect often falls upon the Indigenous instructors themselves, as Drew (Indigenous post-secondary instructor) found:

> When I first came here, it was the first time in a lot of years that I had the kind of backlash that went on, [like] students walking out in front of you. It was my first term. I think it's getting better because I'm adapting to this new reality of 240 students…but there was a lot of resistance. I'm seeing less of it now, [but] the problem about talking about it with other people who don't understand it, is that they think you must not be very good, they look at you as being deficient, so after a while you think maybe you should just keep your mouth shut…you don't always get support.

Because Indigenous instructors may not want to draw attention themselves by discussing these student behaviours, sometimes the behaviours continue. Another form of racism, according to Bailey (Indigenous post-secondary instructor), occurs when non-Indigenous students react strongly to Indigenous instructors when they relate stories of Indigenous strength and influence that challenge negative stereotypes of Indigenous peoples:

> I have had situations where students have come after class completely disbelieving. No, you are exaggerating about what actually happened, but there's no exaggeration. We know the tomato, the Incas or the Aztecs…domesticated the tomato; we know that.

> There's no doubt about it. And yet…if you talk to an Italian person, the tomato's theirs. Look what they've done with tomatoes or peppers. No, it couldn't have been [from Indigenous peoples]…because there's peppers in all kinds of food....but there wasn't prior to 1492. Prior to 1492, there was not. Peppers are completely from here in North and South America. And there's this level of disbelief, and they're like, well, that can't be. And I say, well, I don't know what a 14th century man in Europe was eating, but I know it wasn't good [laughs]. It lacked a lot of flavour. (Bailey, Indigenous post-secondary instructor)

It is important that all students learn from balanced curriculum that highlights positive narratives about Indigenous people to offset negative depictions that sometimes appear in curriculum or in the media, especially if this constitutes all of the information some students have about Indigenous peoples, as Drew (Indigenous post-secondary instructor) shared:

> So I think that's what makes it maybe a little more palatable is the fact that you understand that the things you give them, the few things you give them is more than they're ever going to have in their lives, but it might be a necessity for them in understanding other Indigenous students when they get into the field of practice or whatever they're going to do. They don't even know who the Indigenous people of [this area] are, that's how low the knowledge base is…they're basic things but I think they are important for them, in some sense, more than for Indigenous students.

It might be possible to help non-Indigenous students to see Indigenous perspectives by highlighting the potentially shared experience of students being in new and different settings at different times and thinking about the feelings those experiences may have produced in non-Indigenous students, as Drew (Indigenous post-secondary instructor) commented:

> Teaching non-Indigenous students about Indigenous things is different, how they feel about [being] in a ceremony like a smudge…but to turn it back on them, to say to those people, how you [might] feel about participating in a powwow or a smudge, and what you might do wrong and what people might say to you, that's how [Indigenous] students feel every day they come to university, right? That's what university looks like to them.

Non-Indigenous people who participate in Indigenous education programs might develop greater understanding of Indigenous issues than other non-Indigenous people. Non-Indigenous students should be aware that they may learn about Indigenous topics that challenge their own preconceived ideas about race and privilege in an Indigenous-focused program of studies. However, this type of education could potentially benefit all students.

2.2: Benefits of Indigenous Curriculum

Indigenous curriculum benefits non-Indigenous students as well as Indigenous students; younger Indigenous students also share what they learn in class with their parents and the rest of their communities, who also benefit, according to Bobby (Indigenous cultural educator):

> Compared to 30 years ago, when I first started doing whatever it is I do, going to ceremonies, the whole ceremony thing…has just expanded to a wide range, and even to the north communities, which you wouldn't have seen 20 years ago. It's the younger generation that is bringing that up there most of the time.

Indigenous educators have also worked to produce Indigenous curriculum, so more is available for instructors and students than existed in the past, which, as Alex (Indigenous policy leader) related, is an ongoing process:

> I would say times have progressed. I wouldn't say we're at the point where we're really progressed, but I would say that we have in the last 20 or 30 years….We have grade 12

> current topics in the First Nation, Metis, and Inuit interest [curriculum]. I don't like being called an issue, so topics [and] interests around First Nation, Metis, Inuit peoples, and…my understanding is that they were developing grades 9, 10, and 11 curriculum, similar to that grade 12 curriculum.

Bobby (Indigenous cultural educator) also commented on the proliferation of powwow clubs, which take place in the community outside of regular class times and accept all students, Indigenous and non-Indigenous:

> Today, in one school division, they have 17 different powwow clubs and they have over 400 participants attending those powwow clubs. That is an option that is given to them, and they make the choice about whether they want to go or not. Everybody that attends that, including non-Indigenous people…East Indians, Pakistanis, Asians, everybody, they're all involved in that, and they have their parents' blessing.

Sydney, a post-secondary instructor, also noted that interest among non-Indigenous students in Indigenous courses has continued to increase over the years: "Every year I see it…they choose their own topics for my courses; I never assign topics…every year, more and more [non-Indigenous students] are wanting to explore different aspects of Indigenous stuff." Post-secondary Indigenous education is becoming more common, which has led to increasing courses and necessitated the having non-Indigenous teachers teaching these courses, at times:

> Oh my God, one million percent yes, [all students benefit from Indigenous curriculum]. There's also lots of different things about resilience and strategies of resistance, and political stuff going on. There's stuff about youth, and why are you talking about Indigenous people as one group…and I have them read about Metis, Inuit, and First Nations. (Sydney, post-secondary instructor)

Robin, an Indigenous post-secondary instructor, also had positive experiences delivering Indigenous curriculum to both Indigenous and non-Indigenous students, who were enthusiastic about Indigenous content and activities:

> From talking with the community schools we go to, they say that the kids light up whenever we go there, even if we usually go once a year based upon budget constraints, because we always find a way to go there so that we don't charge the schools. But they do find there is more of an interest and we have more of an impact with the students. We get 100 times more positive experiences than negative.

However, some criticisms of Indigenous education are that any cultural teachings in the curriculum can be somewhat shallow, depending upon the teacher's experience with Indigenous culture, as Drew (Indigenous post-secondary instructor) relates:

> So that's part of my issue with the curriculum stuff: what are we really bringing in?...I don't think we can ever get to deep levels of instruction and thought because what that says to me is that Indigenous Knowledge is exactly what they have always said, that it's simple stuff that anyone can do.

Lack of Indigenous knowledge on the part of academic administrators and teachers of Indigenous education can be problematic, particularly if neither have the necessary knowledge about Indigenous culture to determine whether the education the students receive from these teachers is acceptable or not. Additionally, administrators and educators may be anxious to incorporate the TRC Calls to Action (2015) as soon as possible, so the quality of Indigenous cultural education they produce may not be acceptable, and will likely also be uneven across different sites of education, depending upon who is teaching the material. However, some instructors, such as Bailey (Indigenous post-secondary instructor), believed that although some

Indigenous education may not be the best, it is still preferable to ignorance: “Some of the education that people get about Indigenous stuff is superficial, but it isn’t completely rejectable just because it’s superficial. For most people, [their information] comes from reading the paper.”

Unfortunately, many, if not most, post-secondary students who benefit from Indigenous curriculum are non-Indigenous because of low numbers of Indigenous enrolment, according to Sam (post-secondary instructor):

> What happened is some of courses strengthened holistic perspectives…and it was used here on our campus as a first-year course for 200 students, but very few Indigenous students….So even though we’re integrating Indigenous curriculum, I always knew I was never completely comfortable because most of the students accessing that curriculum were non-Indigenous, so isn’t it great that we have an Indigenous course, but there are no Indigenous students learning all that.

While so many non-Indigenous students being interested in Indigenous issues is a positive development, it would be even a greater development if more Indigenous students had the opportunity to experience these courses themselves. However, more Indigenous people are accessing post-secondary education than ever before (Statistics Canada, 2016), so the situation has improved, and it will likely continue to improve in the future.

2.3: Non-Indigenous Teachers of Indigenous Students

When Indigenous curriculum is being delivered to Indigenous students by non-Indigenous instructors, these instructors would ideally learn about integrating Indigenous perspectives and curriculum as part of their training, as was recommended in the ICIE document (National Indian Brotherhood, 1972). The process of helping non-Indigenous teachers to learn

Indigenous content and perspectives can be challenging when non-Indigenous people do not take Indigenous culture seriously, as Jamie (Indigenous cultural educator) found:

> I did these workshops with these music teachers from the school division, and…we teach them a song which is a lullaby kind of thing, it's repetitive, like a chant…as they were leaving, I did a smudge for them and I prayed for them….and [one teacher] said, you know, you taught me something about me today, and she said I really respect and value you for what you are doing for others…I realized that I haven't been listening. And then I said, well, you still have time, you're still teaching, you're not retired yet….so you have to create that balance, the trust, and the awareness of the [all] participants.

However, even if non-Indigenous instructors seem to respect ceremony, it does not necessarily mean that they should also be conducting these ceremonies if they have not learned enough about them from Indigenous elders and knowledge keepers, according to Bobby (Indigenous cultural educator):

> But if I were to have non-Indigenous people doing ceremony, then that might be something different. However, we do have [non-Indigenous] people within our community [who do ceremony] and are well-known and respected, but that's what we call adopting each other in a traditional family….so we have [non-Indigenous] people who are being educated and taught by different elders who are First Nation in how to do that, and the only reason that's happening is because they've made a life commitment to themselves to be able to do that.

There can sometimes be a tendency on the part of non-Indigenous people and some Indigenous people to feel they have learned all they need to know about some ceremonies because they have participated in one or two, when in fact really knowing enough about what the ceremonies are so

that a person can conduct them themselves about requires years of commitment to learning. However, some feel the need to brag about these spiritual activities, according to Jamie (Indigenous cultural educator:

> Nobody needs to do that, stand there and say I'm a sundancer, I'm this, I'm that, nobody needs to know that, it's between you and the Creator and at the end of the day when you go to bed at night and how you feel about waking up in the morning and what kind of day you're going to have. Only you can achieve that and you'll know when that balance is not there because things go wrong.

Non-Indigenous instructors and students may also learn new information about Indigenous content, such as historical and contemporary Indigenous contributions to society. Some may be receptive to learning about these contributions, but others may not, according to Bailey, an Indigenous post-secondary instructor:

> So I do this Indigenous technology piece…and I say to them at the end, any one of these slides could be a jumping-off point, like you could take one of these slides and that could be a whole section in your curriculum and here's how it could match up….[but] I'm getting the people who are already interested, who know we're trying to move in this direction. It would be hard maybe to go to a 65-year-old prof here. If I said to them, you need to include this content into your class in some way, then I might have that difficulty….to have to go against that other end, that's a real drain. To come here and have to do that every day, I don't know if I'm up to that now.

Another issue Jamie (Indigenous cultural educator) described, is having to correct non-Indigenous post-secondary instructors about Indigenous content; unfortunately, some consider

themselves already to be experts in the subject, although sometimes they have not asked for any input from the Indigenous community:

> This [person] was a linguist, Japanese, and she was teaching Ojibway, but she didn't say things right….I said, I'm not trying to criticize; I just came in as an observer, and then [a] student said, I've invited an elder to come here and I've asked her to say this phrase...and the linguist says to me, you're doing it wrong. And I just said, maybe where you come from, it's wrong, but in this country, it's right. But I don't like to be that person.

It is difficult to correct people who feel they already have expertise in different areas, even when they are wrong, particularly if they are in positions of power, as Sam (post-secondary educator) commented: "[They] saw [themselves] as a champion of Indigenous ways, but brought some challenging views, with a very working-class approach: work hard, meritocracy, [but not] a very well-developed understanding of structural challenges and racism and colonization and all that." It might sometimes be easier to work with leadership who can admit that they are not experts and are willing to learn, as Alex (Indigenous policy leader), related:

> Some of the teachers were also just learning about our own identity and our own culture, and some even our own languages, so it's not like everyone who came to the school knew our language and knew our culture. The teachers and the staff at the school were also learning alongside the students….what happens with the teacher then is they become more of a facilitator of learning, rather than being the expert.

Another issue is the formal acknowledgement that some of the people who have expertise in Indigenous cultural areas may not have any post-secondary education. However, if Indigenous and non-Indigenous people are going to work together in order to improve Indigenous education, than they will have to learn to acknowledge everyone's abilities, whether or not they are formally

educated. This process may also lead non-Indigenous, educated people to challenge their views about themselves with regard to privilege, as Sam (post-secondary instructor) did:

> I talked about…the deeply-engrained cultures of whiteness that made it very hard for people who were not part of the racialized majority to see themselves reflected in the curriculum or in the teachers who were teaching them or in the cultural ways, cultural norms that organized the classroom or the faculty, the spaces that you're in….I struggled a lot with my own complicity in sustaining the relations of power and the status quo because I couldn't make change and also recognizing my privilege….it's easy to get swept up and forget about the inequities.

It would be easier to negotiate change with administration in educational institutions if everyone felt that it were acceptable to challenge privilege and hegemony while accepting non-Western ways of knowing as valid because working with administration is essential in moving Indigenous education initiatives forward.

Theme 3: Working with Administration

Indigenous initiatives have existed at universities for decades, but, as some of the participants shared, some initiatives have been characterized by difficulties, including lack of support from administration, unclear administrative goals, and the bureaucracy of academic institutions themselves. All of these issues continue to present barriers to making any real change within institutions, and one of the main issues is lack of commitment to funding programs.

3.1: Funding Indigenous Programs

Many of the participants spoke about the challenges they faced when trying to obtain funding for Indigenous initiatives, as Sam (post-secondary instructor) described:

> There aren't resources for equity work, basically because the faculty won't prioritize monies. They talk about it, but they won't fund it…. I have had the experience of the dean investing funding curriculum integration with success, but the dean has to have the confidence and the integrity to realize why it's important.

There often appears to be good intention on the part of universities, but sometimes projects are unfunded or underfunded, or without stable funding going forward, as Sydney (post-secondary instructor) commented: "without that grant, it wouldn't have been nearly the quality of rich experience for participants, because you also have to have food, you have to have a good space, you've got to have honorariums…you've got to do it right." Sometimes the issue is not lack of funding, but the amount of funding. Projects that are delivered off-campus are expensive, particularly those that involve rural Indigenous communities, as Robin (Indigenous post-secondary instructor) found:

> I think some of the challenges are just to coordinate with some of the communities because…I don't really have the budget to meet them face-to-face, so that's one of the challenges, I find. That's the main thing for me, and also we get requests to go to different communities but we don't have funding for those, especially fly-in [communities]. We don't have the money to go to those because of the high cost of shipping and finding someplace for our instructors to stay.

While there is often interest on the part of administration to include Indigenous projects, particularly in this time of reconciliation, there can be reluctance for non-Indigenous instructors to engage in this work (Dion, 2016), leaving the work to fewer people, according to Sydney (post-secondary instructor): "Sometimes I feel that people exoticize us: oh, that's so cool, that's so interesting, that's so innovative. Yeah, well, give me some funding and why don't you try it

too, you know?" Besides administration not funding or under-funding Indigenous education projects another challenge can be administration that seems unwilling to compromise any of their policies and procedures, which leads to needless bureaucracy, as Robin (Indigenous post-secondary instructor) stated: "Sometimes trying to, the steps in order to buy things in order to deliver our program just how the university runs…you need to fill out all of the paperwork, so sometimes it's a bit of a hassle." At this point, some university systems have continued to be resistant to change, so this often results in Indigenous instructors and curriculum developers having to fit their programs into existing systems, rather than these systems changing in order to incorporate Indigenous programming, which is often innovative and difficult to fit into pre-existing categories they may have, as Sam (post-secondary instructor) stated:

> If you want to make change, build relationships in respectful ways with the powers that be, [then you have to] give the university the respect for the authority. The way it's organized is hierarchical, so I give the hierarchy the respect it deserves, sometimes tongue in cheek, but you have to work within the system, but build your relationships outside the system and focus on what can be done….the money will come if you write a really good program.

Ideally, and especially because of the reconciliation era in which administrators find themselves, not much more time will pass before university administrators realize that they will have to make some changes in order to meaningfully incorporate Indigenous perspectives and content into curriculum, since Indigenous people already have been working to make these changes for decades.

3.2: Resistance within Academic Institutions

One of the barriers to progess in Indigenous education is the glacial pace at which these changes sometimes take place within institutions; this leads to difficulties in making meaningful, long-lasting change, according to Drew (Indigenous post-secondary instructor):

> When you look at the Indigeneity of these places, who really remembers the 70s when Native Studies and all of these programs were developing, and they're gone, just faded away, faded out, and no one remembers them and we just replace them. [There is] no longevity, that's part of it, people forget the fights that people fought and they end up having to fight them again because they don't remember what the fight was years ago.

If programs could be developed and implemented more quickly, then it would be more possible to make changes in Indigenous education that would be more permanent, but that would require the development of an ongoing relationship between administration and Indigenous people to achieve any permanent change. Perhaps long-term plans could also be developed in this ongoing relationship so that the work done by people is carried forward for future planning. However, one issue that Sydney, a post-secondary instructor, identified is that administration at times may see Indigenous initiatives as less of a priority, which is problematic for a number of reasons, with the end result being that those projects may take longer to be approved by administration:

> I mean certain things can get passed very quickly [through the] budget or Senate or Ethics or something. Some [programs] can go through with amazing speed and others are on the back burner, so that reinforces their lower status…and it doesn't matter that everyone loves [Indigenous programming]. There is so much research to demonstrate how wonderful it is and how everyone benefits, and it's usually not a million dollars, right? A little goes a long way.

Another issue with the development of Indigenous initiatives is that the administration within the institution may not know enough about Indigenous peoples to be able to develop curriculum or to know whether the curriculum they have is acceptable, according to Drew (Indigenous post-secondary instructor):

> One of the problems is we have people who make these decisions who have no understanding of what they are trying to do, so some non-Indigenous dean might bring in someone to develop curriculum, but they don't really know what they're talking about when they say that, you know? So they're hoping they're going to find answers and I'm not sure they're going to find answers.

One of the difficulties may be that the people in administrative roles may not be willing to work toward finding these answers in a reciprocal relationship with Indigenous peoples. Instead, some might prefer to hold all of the power in that relationship, which has a direct impact upon any Indigenous curriculum they may develop, as well as upon the relationship itself. This often leads to frustration among Indigenous people who are trying to do this work, such as Indigenous people who were hired to make positive changes to the university so that it would be more welcoming to Indigenous people, but the educational leadership may not have been prepared as they thought they had been to make widespread changes, according to Sam (post-secondary instructor): "[They] got hired on here and thought, you've hired me to make change, [so] work with me on the how, but all of [their] time was spent on the why; why do we need this?" Drew (Indigenous post-secondary instructor) voiced similar concerns, remarking that nothing in the institution really changes because of the cyclical nature of discussions about changing Indigenous curriculum and teaching methods within universities: "We keep fighting the same fights over and over and over again. Every time we think we've pulled ahead, we find

that we're in the same place again." Institutional resistance can be frustrating for Indigenous people who are interested in making meaningful, long-lasting change, so some go only to institutions where they have already built relationships with administration and instructors. This then limits their scope to a smaller number of educational environments, as Jamie (Indigenous cultural educator) shared:

> What I do is I deal with people who support us and invite us year after year to come to their class. I respect that because they want to learn about what we know. And that's something that they don't know how to accept because they didn't grow up like that and they don't have that understanding, but they see that others have that understanding, and they try and bring in people to give that influence. And I only go to the [educational institutions] we get invited to.

Jamie's statement suggests that they may have had issues in some educational institutions and so go only to institutions where they feel their contributions are valued, which, again, would limit the number of students in these educational institutions with whom they could share their knowledge. However, it is Indigenous community members such as Jamie who could enrich educational programs everywhere, but have faced institutional resistance to these programs.

Bobby (Indigenous cultural educator) suggested that the opposite of this situation is what should be occurring, which is that Indigenous people from the community should be involved with Indigenous education to a greater extent, and who should be invited to participate in the development and evaluation of Indigenous programs:

> If there's any kind of changes that should be made, I think it should be coming directly from the source, so for example, not coming from an administrator, not coming from the government, but coming from the people who are hands-on workers, working directly

> with people, whether it's kids, adults, families, whoever. Those should be the ones being asked, how can we make things better? How can it work better?

The Indigenous community should have the opportunity to make meaningful contributions to Indigenous programs, and administrators must take these contributions seriously if these programs are going to work. Involving the Indigenous community in Indigenous education is not a new concept (NIB, 1972), but the people should be given the authority to effect change in academic programming, instead of being limited to advisory roles.

3.3: Involving Community

One of the ways to involve the Indigenous community in curriculum planning and delivery is to deliver Indigenous curriculum in the communities themselves. Charlie (post-secondary instructor) described the importance of connecting to the community:

> We need to do stuff for ourselves and our own community and community schools, that sort of thing….wherever there's opportunity to connect to some of the events like feasts…or [the] MMIWG vigil, we make those connections and…those are part of maintaining that throughout each term and throughout each year.

Robin (Indigenous post-secondary instructor) added that they could create community-based curriculum that would still meet governmental curriculum expectations while incorporating Indigenous teaching methods:

> The topics we're doing are already in the curriculum; it's just a more hands-on way for the teachers to use us to enhance the curriculum they are already teaching. It's science, engineering and math, including biology and chemistry. We do all these workshops and camps within Indigenous communities.

Sam (post-secondary instructor) related their experiences about how delivering programming in Indigenous communities potentially could lead to Indigenous students continuing on to university as a result upon completion of their community-based program:

> We basically went to Indigenous community members and hired them to enhance our courses….one is our Indigenous land-based course, first time we ran it here, so we're creating new curriculum, and we hired knowledge keepers to help teach that course. I coordinate with Indigenous communities in order for me to go recruit their students so they can pursue [post-secondary education] once they graduate high school, as well as the adult education programs and community members.

According to Bailey (Indigenous post-secondary instructor), one way to develop curriculum was to work with Indigenous community members within their own communities: "Spend a week going to these places and talking to these people and writing down these notes…because to me, that's the way to do it."

Indigenous community connections can also be made between educational institutions and urban Indigenous communities, as Alex (Indigenous policy leader) described:

> These schools were developed by the community, so to me, they're both very much community schools: they came from the community and are for the community. They brought in a lot of different elders and traditional teachers, people from the community to come and help with the teachings and the learnings.

Sometimes community connections can be made with urban Indigenous populations. Sam (post-secondary instructor) commented upon the importance of working with the urban Indigenous community to develop Indigenous leadership skills:

> [We developed]…this afterschool program where university students work with high school students to develop and deliver an afterschool program for early years students and now it's strengthened toward our goal of getting more Indigenous leadership such that we have strong Indigenous women from the north end as coordinators and most of our staff are Indigenous and newcomers….we have a few of our university students whereas in the past it was mostly our university students working with the high school students.

In urban environments, Indigenous educators often have students who are from diverse cultural groups, so they would have to ensure that those students feel included, as Jamie (Indigenous cultural educator) observed:

> It was a very diverse community, but it wasn't coming together. It wasn't gelling together…and I said, why don't you have a family night, where they showcase their foods and give them an opportunity to talk about this and that, whatever they want to talk about….the last two or three years we've been teaching these Muslim kids. We teach them a song, just a lullaby, and it's open to everyone, it's voluntary, and last year we had about 80 students.

In addition to the benefits that Indigenous education can provide for all students, it is important for all students, not just Indigenous students, to learn about the history and cultures of Indigenous people, so that they can go beyond racist beliefs and negative stereotypes to having more realistic ideas about who Indigenous peoples are. Sam, a post-secondary instructor, described the positive impacts of Indigenous education upon students:

> Indigenous ways, worldviews, and teachings are so incredibly rich and so much richer than Western. We have enriched our faculty and the education of our students by

> enhancing their access to Indigenous knowledges and ways of being. I also think it has been so valuable for our faculty to have been informed by Indigenous people and Indigenous ways….the university is a better place because of Indigenous peoples and its commitment to Indigenous achievement.

However, sharing Indigenous knowledge with non-Indigenous people in post-secondary institutions can be problematic, particularly when there is disagreement among Indigenous people about the knowledge itself or about whether the information is true.

Theme 4: Indigenous Truth in Curriculum

All of the participants in this study have developed curriculum for Indigenous education courses. However, some have different opinions about what constitutes Indigenous knowledge, and some have different opinions about what should and should not be included in curriculum. It can be problematic to establish legitimate curriculum that Indigenous people can agree is true because there are so many varying opinions about what the truth is. This is even more true when curriculum developers proceed without including Indigenous people in the process so that future processes may also exclude Indigenous people. Another issue is that non-Indigenous people may not know enough to distinguish between what is and what is not legitimate Indigenous knowledge.

4.1: Involving Indigenous People

Charlie, an Indigenous post-secondary instructor, found that post-secondary administrators do not always involve Indigenous people in educational reform:

> When we look at transforming our post-secondary institutions, they are really key as sites, key places, where our knowledge gets reproduced. We've been excluded from that,

> and they've been really complicit in erosion, exclusion, marginalization, all of that, so we won't have transformed anything really until those outcomes start shifting and changing.

Since Indigenous people have been excluded from universities, both in terms of collaboration and as students, it would seem obvious that Indigenous faculty members should be involved in Indigenous curriculum development, but as Drew (Indigenous post-secondary instructor) commented, they still often are excluded: "We have a situation right here and now where we're going to bring in somebody to show us how to do Indigenous curriculum, even though they have Indigenous people in the faculty." Although Bobby (Indigenous cultural educator) found that most administrators do accept their guidance, they realize that that their situation is not universal:

> Right now, I'm at a point where administration will follow what I tell them when it comes to protocol, which is nice, but I've heard many, many different stories from Aboriginal educators and people who work in programs, and they have their own stories about how difficult it was for them to get things accomplished because of red tape, I guess you could call it.

One of the reasons administration might choose to exclude Indigenous people from the curriculum development process could be that they continue to see Indigenous people as incapable of doing this work on their own and therefore requiring the assistance of non-Indigenous people. However, as Charlie (Indigenous post-secondary instructor) related, Indigenous people do have a great deal to contribute to these processes:

> Successful initiatives go beyond deficit and self-esteem theory…where there is a confidence and taken-for-granted notion that who we are and our knowledge systems are legitimate….it's important to have deficit theory, but it doesn't look at the system being changed, so in self-esteem theory, it is good to have Indigenous peoples in positions [of

> power]…that's what a healthy Indigenization process is for me. What characterizes us is that confidence, that place, being very much a part of contributing to that dynamic.

4.2: Determining Truth

One negative result of non-inclusion or under-inclusion of Indigenous perspectives is that sometimes people believe something is completely true when in fact it may be only partially true. Sometimes the partially true belief becomes so common that it seems to become a universal Indigenous truth, so that the original truth behind that commonly held belief becomes lost or greatly changed, as has happened to some extent with the seven teachings, according to Drew (Indigenous post-secondary instructor): "So let's say the seven teachings, everybody thinks the seven teachings are generic to all Indigenous peoples of Canada now because they're getting passed on here, there, and everywhere else." When the seven teachings became commodified, they also lost the larger meaning of those teachings, which were not actually limited to seven, as Jamie (Indigenous cultural educator) knew them: "We didn't stop at seven key words; it was beyond that. So if you have their seven words that people go by, what about those other traits?" Indigenous truth can also become commodified when some decide what is important information to teach students, but then this could lead to privileging some knowledges over others.

An unintended consequence of the TRC (2015) is the current educational interest in the residential school experience, which has increased demand for elders to speak about their experiences at residential school, to the exclusion of other knowledge they may also have, as Drew (Indigenous post-secondary instructor) found:

> It's interesting to me…at one time, before the TRC and everything, we wanted to have elders [come to classrooms] because of their knowledge. Now it's about getting

> residential school elders to come and speak, you know, it's like an interesting twist, how that went, the interest in what people had lost because of residential school.

Some elders would likely would have had much more to say about the experiences in their lives, but the experiences that people are most interested in listening to at this time are those related to residential school. One result of this is that we are not learning about some of the breadth of Indigenous knowledge because we are focusing upon only one aspect of these elders' stories to the near exclusion of the rest of their first-hand knowledge of history.

Similarly, some Indigenous people are losing parts of their own histories and cultures because they believe that what they know is the entire truth, which they may then pass on to others as what they know to be the only truth. This then can perpetuate misconceptions or omissions about Indigenous history and culture, as Drew (Indigenous post-secondary educator) described:

> I look at culture, how it's evolved and changed over time, which some people don't like to hear…there's a certain aspect out there of people involved in culture who prefer the history that we wish we had rather than the real history that we have....a lot of people in communities in Quebec will say we're Haudenosaunee. Haudenosaunee means you're part of a confederacy of six nations, but the confederacy no longer exists. But it gives you a certain sense of identity, that you are not part of the colonial mindset, so it's a response to colonialism, but it's based upon a false premise of what is reality today.

Culture is constantly changing and people might have different traditions than they did in the past; as well, cultural beliefs can be different from community to community. It is therefore not surprising that different people have their own truths, however, sometimes people's beliefs are in conflict with the beliefs of others:

> They say, that's not true, you can't teach that…and says I attend sweatlodges with certain people. I said, well, I attend sweatlodges. [They] say I'm a sundancer, and I say, I'm a sundancer, and that was just the whole point. That's what you got taught, that's fine, but don't tell me I'm wrong because I've learned something else from what you've learned. There are people who just participate in ceremonies to have the honour of doing so without having the preparation or doing it properly. But you can't say those things in certain places because they don't want to hear it…I think I always look at it as not going back to the past but bringing the past forward to what we have today, so I think it has value, but I think it's also good to be critical…and not just take things because someone says what it is. (Drew, Indigenous post-secondary instructor)

It might be possible for Indigenous people to reach some kind of consensus about what should be included in curriculum and what should not; which forms of knowledge are true and which are constructed or created in modern times, and how to address the inclusion of spiritual topics in the curriculum. What is essential, according to the participants, is that Indigenous people should be at the centre of this discussion and should be making the decisions about what to include in curriculum, which would necessitate hiring more Indigenous people in institutions.

4.3: Increasing Indigenous Presence

Many of the participants spoke about increasing the presence of Indigenous peoples in educational institutions by increasing Indigenous presence in institutions, updating curriculum, and encouraging respect of Indigenous peoples and belief systems. In addition, the participants spoke about working with administration in order to facilitate Indigenous programming and funding these programs, as well as involving the Indigenous community in these activities and decision-making processes. In the next chapter, I will describe how Indigenous curriculum and

perspectives can be incorporated into mainstream education on their own or through curriculum integration processes such as STEM and STEAM, and how mainstream and Indigenous education could benefit from Indigenous curriculum integration as well as Indigenous arts integration.

CHAPTER 6: FINDINGS

INDIGENOUS CURRICULUM INTEGRATION

One of the most commonly held beliefs among the participants was the idea that Indigenous curriculum should be integrated as part of a more wholistic approach to Indigenous education. If the courses in an Indigenous education program remain the same as they are in mainstream education, for example, science, technology, and mathematics, then the curriculum of these courses should be related to each other. In addition, all of these mainstream courses should incorporate Indigenous content, teaching methods, and Indigenous perspectives, including Indigenous music and art. The results of this curriculum integration would be that Indigenous students could see themselves reflected in the curriculum, that this curriculum could represent Indigenous peoples in positive ways, and that Indigenous cultural activities and ways of knowing could be present in the curriculum. In this chapter, I will discuss the benefits of Indigenous curriculum integration, Indigenous arts integration, mainstream curriculum integration, and the possibilities of combining aspects of all of these to create programs that include Indigenous arts as part of mainstream curriculum integration.

Theme 1: Indigenous Curriculum Integration

In the past, Indigenous knowledge was not valued because it was primarily passed on from generation to generation by word of mouth, without being written down, which may have been one of the main reasons that this knowledge was eventually not taken seriously by Western researchers (Battiste et al., 2002; Beeds, 2013; Chartrand, 2012; Young, 2015). Ironically, when Europeans first arrived, Indigenous knowledge was taken very seriously, because Europeans needed it to survive and to live on the land. However, over time, greater numbers of Europeans arrived and eventually built permanent settlements. It was during this process that Europeans

first seemed to forget that without the technological, scientific, and land-based knowledge of Indigenous peoples, they would not have survived on Indigenous land at all (Carter, 1999; Dickason, 1997). Indigenous perspectives about science, technology, language, physical education, and land-based education should be included in Indigenous curriculum because we have made important contributions in all these areas, even if they have been forgotten or discarded as unimportant over time. Including Indigenous knowledge and perspectives in mainstream subject areas will also help Indigenous students to succeed because they will see themselves portrayed positively in the curriculum.

Charlie (Indigenous post-secondary instructor) described from an Indigenous perspective how Indigenous knowledge could be incorporated into educational practice:

> When Coyote gets destroyed and all of his bits are all over the place and Fox comes along and gathers up those bits, reaches into the pile, steps over it four times and then Coyote comes back to life, that stepping over four times is one of the important parts; that's what we ritualize into practice. [We] make a practice of our everyday lives….Indigenous education methods are important. Reviewing or renewing our imagination to restore things to learn things from our past experiences and aspirations…we have dialogue, we do research, but doing research isn't enough, we have to ritualize, step over the pile four times to bring it into being and practice into our lives.

In order to improve Indigenous education, we need to ensure that we have used what we have learned from the past in order to provide the best education we can in the future. Two-eyed seeing incorporates both Indigenous and non-Indigenous perspectives (Martin, 2012), but instructors should ensure that Indigenous perspectives remain a part of any educational programs they design.

1.1: Two-Eyed Seeing

Elder Albert Marshall describes the principle of two-eyed seeing (*Etuaptmumk*), as the ability to:

> Learn to see from your one eye with the best or the strengths in the Indigenous knowledges and ways of knowing…and learn to see from your other eye with the best or the strengths in the mainstream (Western or Eurocentric) knowledge and ways of knowing…but most importantly, learn to see with both these eyes together, for the benefit of all. (Bartlett et al., 2012, p. 8)

Some of the participants agreed that two-eyed seeing could be a useful idea for Indigenous curriculum integration; for example, Bobby (Indigenous cultural educator) commented that both Indigenous and mainstream education were important for Indigenous students: "There are a lot of things in education that have nothing to do with our culture and being Indigenous, but it's still good to know everything you need to know when it comes to academics." However, according to Sydney (post-secondary instructor), some Indigenous post-secondary instructors believe that the principle of two-eyed seeing is flawed: "Well, it's become all the rage; it's been adopted by CIHR and other places. I think it sounds fabulous and I think the people who developed it make it sound interesting, but a number of my Indigenous colleagues think it's kind of limited." However, Alex (Indigenous policy leader) agreed that Indigenous education should prepare Indigenous students for mainstream education, particularly at the post-secondary level:

> The staff they have there now in the schools [is] preparing them for their post-secondary studies if that's the route students want to go or if they want to go into the workforce….One young lady was an award recipient, [and she] is aspiring to be a

> medical doctor, and that was very encouraging. The school, I believe, is doing its part to help the students to achieve… to meet not only curricular outcomes, but to help shape the students' identity in terms of their language and culture, which is unique from other schools.

Alex added that Indigenous culture and mainstream society are linked together and have been for a very long time. In order to survive, most Indigenous people will need to function in both in order to survive because Indigenous people are unlikely to return completely to traditional lifestyles:

> I would like to see that that [integration] continues to happen in the school system and in the provincial system, and also that we have high expectations for our students, that [they] can excel academically, that they would be able to survive both in a Western context and in our own Indigenous ways of knowing, being, and doing, and that they have the choice to do either….No one's going to give up their Netflix, and so we can survive in modern-day society, but still have those traditional teachings and learnings and ways. My vision is that students would be able to walk in both worlds: that they have very strong identity and that they'd have the skills, the knowledge, and the strength to be able to survive in today's society.

Incorporating the ideas of two-eyed seeing might help instructors to give more equal time to Indigenous and mainstream cultures and ways of knowing in mainstream classes, while ensuring that instructors continue to meet mainstream curriculum outcomes. Planning curriculum using a two-eyed seeing approach also might help non-Indigenous teachers to feel less apprehensive about teaching Indigenous curriculum.

1.2: STEM Courses: Science, Technology, Engineering, Math

When Europeans came here and began to settle upon Indigenous land, they did not know anything about Indigenous culture, and because it was so different from that of Europeans, they did not recognize what they were seeing. However, they had to incorporate Indigenous technology and lifestyles into their own so that they could survive here, according to Bailey (Indigenous post-secondary instructor):

> The Europeans came here, but because it wasn't Western math and science that they saw, because it wasn't Western farming, they didn't understand what was going on. Within one generation, every colonist was using local herbs and knowledge to cure diseases that they were coming across with, that they brought from Europe and Asia, and they were trading for that information with the local elders, the local knowledge keepers, [and] with the local Indigenous groups, who said, here's what you brew when you're sick, and they were incorporating that into their pharmacology….Indigenous people were the go-to for this knowledge.

As their numbers increased and they began to create permanent settlements, Europeans began to have less use for Indigenous people and to focus upon their differences, which in those times might have immediately meant to some that Indigenous peoples were inferior. Unfortunately, many Indigenous people were also made to believe this and it was reinforced by colonial systems, including the education system. Consequently, many Indigenous people began to see themselves as inferior, and these feelings persist for some to this day. However, many, if not all, of these Western myths could be dispelled and replaced with truth in the curriculum by including Indigenous contributions to the world and history from Indigenous perspectives as part of the curriculum, according to Bailey (Indigenous post-secondary instructor):

> I have done lots of presentations to students…tied to my interest in Indigenous technologies. I talk about the three sisters, corn, squash, and beans, [I talk to teachers] about how to make a lesson plan of the three sisters, and all these different lesson plans we can do. I did the same thing with the birchbark canoe, so again, this grew out of this idea that you're going into communities or you're talking to Indigenous kids because there's this disconnect between them and science.

Science is a subject at which many Indigenous students have not necessarily excelled in the past, but helping them to see themselves in curriculum might help. Drew (Indigenous post-secondary instructor) shared that in addition to developing curriculum for classes, Indigenous people have written resources that could be used in the classroom: "I wrote a book for a Native Studies course…an Indigenous Science Manual and all of that is curriculum that I used for my courses and a lot of other things as well." Indigenous resources, especially those developed by Indigenous people, might be more relevant to Indigenous people, which could then help students to connect to the material. Although all students benefit from learning from curriculum that is relevant to their real lives, research has shown that Indigenous students benefit from hands-on learning activities (Axworthy et al., 2016; Newhouse, 2008; Pool et al., 2011), which Robin (Indigenous post-secondary instructor) employed when teaching science to Indigenous students:

> The topics we're doing are already in the curriculum; it's just a more hands-on way for the teachers to use us to enhance the curriculum they are already teaching. It's science, engineering and math, including biology and chemistry. We do all these workshops and camps within Indigenous communities.

In addition to meeting mainstream curriculum requirements, this program incorporates hands-on learning and community-based learning, which are both important characteristics of Indigenous

education. Including historical contributions to technology could also be an important part of STEM education.

Indigenous, as well as Western, technologies could be given space in the curriculum, in order to have positive depictions of Indigenous people by highlighting Indigenous contributions to modern society. An example of this would be domestication of vegetables by Indigenous peoples, according to Bailey (Indigenous post-secondary educator):

> South America and North America was literally the Garden of Eden of the world. In 3,000 years they managed to domesticate two or three different sorts of crops in Europe and in that time, they domesticated literally hundreds of different wild ancestors here. Their understanding of biology was second to nobody in the world. And that doesn't happen without math and science. It's not Western math and science, but it doesn't have to be.

Bailey goes on further to say that Europeans were so impacted by the arrival of Indigenous foods and technologies that these events helped to ignite the Renaissance in Europe:

> The European agricultural revolution had a profound impact upon Europe when they were actually able to feed their people and allow their populations to expand from basically the starvation diets. [They now had] legumes and…potatoes, which all came from South America. Basically, it was a stolen exchange…and they were bringing back artifacts which were done with designs that people in the Old World had not thought of. [They were] subconsciously incorporating what they saw from these Indigenous cultures in the New World into what they were doing, and in my mind, creating the Renaissance in Europe….North and South America brought Europe out of the Dark Ages.

In addition to focusing upon Indigenous technological contributions to modern society, educators could also discuss Indigenous contributions to engineering, as Bailey (Indigenous post-secondary instructor) commented:

> They find these structures that date back several thousands of years and of course it's constructed; they built these fish weirs in the water, posts and beams and everything else, so it's a constructive work, it's an engineered work, and they built it to trap fish so that they can harvest the fish.

Indigenous students who learned about these early accomplishments of Indigenous people would help Indigenous students to be proud of their ancestors and help non-Indigenous students challenge ideas they may have had about how Indigenous peoples lived prior to contact. In addition to local Indigenous history, it might also be interesting to learn about engineering accomplishments such as those of the Indigenous peoples in Central and South America:

> You can talk about these huge structures in the jungle in South America because they're beautifully engineered. Europeans saw civilization as bricks, mortar on mortar, that's what they understand, so you can point to those quite easily, but what I've realized is that every Indigenous group in North and South America had their own technology, right? If you really want to do it justice, you've got to talk about that group's technology, you've got to talk about that specific group and what they do. (Bailey, Indigenous post-secondary instructor)

A local example of Indigenous contributions to engineering would be the canoe, which is still used by Indigenous and non-Indigenous people today and which was also adopted by non-Indigenous settlers when they arrived here:

> What set off my inquiry was this [birchbark canoe]. This is Indigenous engineering, Indigenous ingenuity, but look at it. It's incredibly beautiful. I've seen lots of Western engineering things that are incredibly ugly. Canoes, basically as a structure, were completely unknown in Europe. They weren't getting around in this fashion. The shape, everything, this is all engineering design. But until we can engineer like this, the world is going to a dark place. (Bailey, Indigenous post-secondary instructor)

In addition to educating all students about the contributions of Indigenous peoples to engineering, educators should include Indigenous contributions to math, and these contributions can also be local because they vary from community to community, as Bailey (Indigenous post-secondary instructor) found:

> So every group had…their own counting system, and everyone indicated that they understood all this math. So, right there, there's ways of introducing Indigenous concepts into counting systems….in most of their counting systems, you quickly look at it and you realize that they understood multiplication because whatever number it was, say 40 was 4 times 10, that's how they said the word 40…the variety of counting systems is amazing. They use everything from binary, which is our computer language now, all the way up to some based on 20s and 50s.

It would be ideal if Indigenous community schools would have all-Indigenous teaching staff who might be more likely to include Indigenous contributions in their curriculum, but it is difficult for administration in Indigenous communities to hire and retain any science and math instructors because of financial constraints, as Robin (Indigenous post-secondary instructor) found:

> What I've heard from principals is that the teachers they're trying to hire, actual science and math teachers, in their communities [is] extremely difficult because they can't afford to pay them what they should be paid. So that's the main thing that I have heard and I've talked to principals; they've told me about this because then can go in and deliver those key curriculum outcomes that the students need.

One of the activities Robin has included in these visits to Indigenous communities is a hands-on activity based upon the canoe:

> I also go to communities to deliver some workshops….a few weeks ago I went up to [three Indigenous communities]. I did our hands-on activity with kids from grades 7-9 called the tinfoil canoe activity, and so it was getting them to think about things like certain material, like literally a sheet of tin foil, how are they going to shape it and when it's placed in water, how many marbles will it be able to hold until it sinks.

This activity is another example of how educators can use hands-on activities to teach a mainstream curriculum concept such as math, while integrating Indigenous culture. It could also provide an opportunity for educators to talk about the significance of the design of the canoe and its historic and contemporary use. Another important curricular subject in Indigenous education is language.

1.3: Language

Indigenous languages across Canada are in danger of disappearing over the next few decades because the generations of people who are fluent speakers are passing away in large numbers, as Charlie (Indigenous post-secondary instructor) commented:

> We've only got fewer than 200 fully fluent first language-speaking elders. We've got quite a few language programs and there's much more of an understanding that who we

> are is important…but we're at a place where we can disappear, or we can come back and be as strong as we ever were.

Languages are important on their own, but they are also tied so closely to culture that language loss would also represent culture loss, according to Alex (Indigenous policy leader):

> To me languages and culture are intertwined, so when we talk about culture, we're also talking about our languages and also Indigenous ways of knowing and being and doing. So when we talk about culture, that's really what we're talking about because culture's really how you live your life every day….Their language is also part of their identity as students. They need to know where they come from [and] have their language. When you have the language, then you have some of the cultural and historical cultural understandings. The language is not the language on its own because within the language there are teachings [within it].

One way to incorporate Indigenous languages into curriculum is through Indigenous content, as Alex described: "They used the provincial curriculum and curricular outcomes, but what we did is we infused Indigenous perspectives, so the literature I taught in English language arts was all Indigenous authors or Indigenous content." There are many books and other curriculum written by Indigenous people available now, especially when compared to what was available in the past.

One of the ways to ensure that Indigenous students have access to Indigenous curriculum such as language and cultural teachings is if they have their own educational institutions, as Charlie (Indigenous post-secondary instructor) suggested:

> We'll have to do it ourselves. For our kids to be fluent, we have to develop our own top-notch immersion programs, and we should also expect [those] to be in public schools, so

> that our language doesn't disappear there. Our knowledge and pedagogy have a place. We've got an immersion school, we've got language nests, we've got community language, several programs that are full, and we've got women's groups who get together and learn songs.

Alex (Indigenous policy leader) agreed that Indigenous languages could be part of mainstream curriculum or that Indigenous people might benefit from having our own institutions:

> I think First Nations have always wanted to govern their own education system…and I think they should, if that's their prerogative, similar to Metis wanting to have Metis ways of knowing in the curriculum. If they want to totally teach from a First Nations perspective and have the institution support that, I think that's part of their strategic development, and I know we work closely with [Indigenous and government educational organizations]…[if] First Nations want to have their own First Nations university and school system, I think that's great.

Sam (post-secondary instructor) also agreed that separate academic institutions for Indigenous people might be the only way for Indigenous people to access de-colonized education, and referred to past failed attempts to change university systems in order to make them more inclusive of Indigenous perspectives:

> Should we just recognize that it can't be done? We can't decolonize this institution, but we can try to make it a more welcoming space for Indigenous students, staff, and faculty. So do we need an Indigenous university, you know? I could write a lot in support of that, 100%.

Alex imagined Indigenous schools as an ideal, and one of their potential roles would be to help Indigenous peoples to recover their languages to levels of fluency they had had in the past:

> It's similar to the French; we don't have immersion schools yet here, either in Cree or our [other] languages, but they have French immersion schools. We have bilingual schools in some of our school divisions, but we don't have immersion schools yet. I think that would be a dream to be able to have an immersion school where all the staff and everyone is speaking the language fluently. I'm hoping that I get to see that in my day.

Indigenous immersion schools might be the best way to help Indigenous peoples to recover their languages, especially if Indigenous languages were also spoken in the homes of students.

Another course in the curriculum that could be improved by adding Indigenous content is physical education.

1.4: Physical Education

Sam, a post-secondary instructor, related that in the recent past there were not many Indigenous students getting degrees in physical education, so they attempted to increase recruitment by consulting the Indigenous community for guidance:

> I had a real commitment to the young people I'd worked with over the years and I thought they should be in the physical education degree here, becoming physical education educators or recreation people. They were so skilled and had such a love of movement and physical activity….so [I asked Indigenous people [for] advice, because they knew the faculty and worked in the community, and they said to get an Aboriginal activities and games course going, so I phoned a few different places and I kept getting the [same name], and so we hired [them] to come in and teach that first year…we started teaching Indigenous games and activities and we kept that going forward and it was so successful.

Sam also saw the importance of including Indigenous history in the curriculum: "We had a curriculum meeting early on in our faculty here and we talked about the need to get Indigenous history into our curriculum, [because] if our students are going to become physical education teachers, they need to take Introduction to Native Studies." Bailey, an Indigenous post-secondary instructor, also commented upon the importance of Indigenous contributions to sport, which could be included in physical education:

> They come here and they see rubber…which was created by the Olmecs 1,500 years ago, and all of a sudden, you have rubber in the ball games, so think of all the games that rely on the rubber ball or any game that relies on a racquet, [which] came from lacrosse, and came from here….that's transferred into Europe. All of a sudden after colonization, you start to see tennis being played and all these racquet games that didn't exist prior to colonization. That all grew out of what they saw of the Indigenous people here.

Again, this is an area of curriculum where instructors could highlight the contribution of Indigenous people. However, instructors should be careful to ensure that they include Indigenous contributions to sport in a meaningful way, as Drew (Indigenous post-secondary instructor) described:

> I think there are certain things that we can add to our curriculum because we are sports-oriented, like Tewaarato, that had specific cultural meanings that have changed because they have become sport. We can understand those things, but that's Indigenizing the curriculum just by understanding why people did certain things. To really Indigenize the curriculum, I don't know…it's not a simple thing to do, you can't just bring someone in, sit there for an hour and then could say yeah, now I know what I'm going to do.

Also, often the instructor who will be teaching Indigenous courses, not just in physical education, but in all program areas, will often be non-Indigenous. This is an issue of which Sam (post-secondary instructor) was always aware:

> I was very careful that if I'm teaching in the gym, I've had some teachings gifted to me that I acknowledge where that knowledge comes from, the people who have given that to me. I'm not Indigenous, I'm very careful not to appropriate knowledge, I'm very aware of my privilege as a white person in the academy, that I have a job that allows me to teach these different practices. For me it's just about teaching holistic physical education, [so] I've tried to use my privilege to create space for more Indigenous instructors and professors.

If non-Indigenous instructors of Indigenous curriculum included Indigenous people in curriculum development, it may help to alleviate some of these concerns, as well Indigenous instructors of some content, such as land-based education, may have different ideas than non-Indigenous instructors about what is important to include in curriculum.

1.5: Indigenous Peoples and the Land

Some believe that the purpose of education is to prepare for a career in the Western world, but education could also have a deeper purpose, such as renewing relationships with the Earth, according to Charlie (Indigenous post-secondary instructor):

> There's a perception that there's a real world and we're going to be warriors, we're going to get into law, business, or economics: that's the real world. It's not about these Indigenous stories and language and that sort of thing, but I think that, you know, it's back to that reality that this is the real world and the real-world relationships between peoples and the ecology, the water, and all the plants and animals and all of that needs to

> inform all of those other areas, economics, business, law, and I can see it's starting to get there.

Charlie added that having lived sustainably with the land for thousands of years, if not longer, Indigenous peoples could contribute to discussions about environmental sustainability for the long term:

> There are more opportunities to have that space and partnerships because everybody else is worrying about floods or fire, and mudslides and water degradation, and pending ecological crises…but there's still room for optimism and to be proactive….how did we manage this place sustainably, everybody tended to eat pretty well, and eat pretty healthy, so, how did we do that….we want to make sure that in 50 years, 100 years, 500 years, that there's a good healthy biodiversity there, we'll have clean water, [and we won't] have to worry about starving.

One way Indigenous peoples could add to this discussion would be to share their knowledge about preserving the environment, as Bailey (Indigenous post-secondary instructor) described:

> I fished there for 10 years and that first year I noticed there was this blue fiberglass canoe there, abandoned; [it] must have had a hole in it. 10 years on, that canoe was still there; it had not deteriorated. If I'd gone after 100 years, it still would not have deteriorated. This, you leave this [wooden canoe] in the woods for a year, it's gone back to nature, right? This is what we want to do, what we need to be doing.

Charlie explained that a reciprocal relationship with the land such as Bailey described could be found throughout Indigenous ways of knowing, including story:

> And when we look at our concepts and our language and we look at our language and our knowledge stories, then it's clear that a pattern forms…our communal lifeways with each

> other and with our ecology, so what our knowledge stories and concepts are about…restoring that balance between us, so that, I think, is in all of our concepts and our stories.

One of the most important aspects of this relationship with the land is the relationship of human beings to the land, so Jamie (Indigenous cultural educator) acknowledges this relationship often:

> This is what we do right off when we go somewhere, the first opportunity we have, we go to the water and make an offering to the land, to acknowledge our arrival, that's what we always do, no matter where we go, and then when they asked us to do the ceremony…so we talked about the land, acknowledged the people, acknowledged the hosts and that kind of thing, and we prayed in our language…we had our singers and then [we] said, to show our honour and respect to all the people we'll sing a song to all the people that are here to see this ceremony, to honour each and every one of you.

Bailey (Indigenous post-secondary instructor) also shared his beliefs about the sacredness of the land, and that Indigenous teachings about water should be included in university curriculum so that people would understand that sacredness and behave accordingly whenever they work with the land or if their future work has impacts upon the land:

> Non-Indigenous people need to understand this. That's why we're doing this, because the Indigenous people have a lot to offer that we'll need to understand in order to go forward into the 21st century: the knowledge about the land, the knowledge about the sacredness or water, the sacredness of animals, the sacredness of water. We need to understand that. We need to get a hold on that; we need to change this idea of the capitalistic model….that would that inform them now when they are doing these large design water treatment plants or waste water treatment plants and/or mines and/or whatever. If they had that, if

> in some way, you gave them respect they need to have for water because we won't teach that here; we teach how to commodify water, how to use water. We don't teach them the value of water.

According to Jamie (Indigenous cultural educator), one way that some Indigenous people teach about respecting the environment is through story, through which students can learn about respect of the natural world and of everything else, because everything is related:

> I always talk about protocols, and now is the time to be telling those Nanabush stories, and those stories about sharing, respecting the land, respecting animals, respecting each other. I still do that…I talk about the geese and Nanabush and things like that, the spirit of winter, how the four seasons started; it takes about 40 minutes to tell that story.

Indigenous education which includes knowledge about the relationships among the land, the people, and Indigenous stories and philosophy about these issues could be an essential part of Indigenous education, as Charlie described:

> Our communal lifeways with each other and with our ecology, so what our knowledge stories and concepts are about, are about [is] restoring that balance between us, so in all of our concepts and stories…there's a keen understanding of human relationships as part of the natural world, and human social patterns, cultural patterns, restoring our responsibilities, renewing our imagination, and transforming any kind of practices. This consumerism, food security and sovereignty, we can transform those so that they're not monsters that threaten our children, but that they can work for us….So the stories of our era are right now, they're about violence against women, they're about ecological crises, they're about species extinction, the salmon extinction, all of the homogenization of biodiversity.

Indigenous teachings about the land could add richness to any curriculum about land-based teachings, as long as they are included in the curriculum. Land-based activities are important and engaging for students, but instructors should also include deeper engagement with Indigenous ways of knowing and the meaning of relationship with the land in order to meaningfully incorporate Indigenous knowledges in curriculum, which would require deeper engagement with the Indigenous community.

Theme 2: Indigenous Arts Integration

2.1: Historical Indigenous Music and Art Education

The Indian Act banned Indigenous ceremony for decades, which resulted not only in reduction in ceremony, which then moved underground, but also in music and art which had been connected to those ceremonies (Government of Canada, 2017). However, some of this music and art began to re-emerge in the 1970s, according to Bobby (Indigenous cultural educator):

> Powwow clubs started a long time ago with the Friendship Centre. There used to be people from [Indigenous communities] and they would hang out at the Friendship Centre. They used to have a dance group in the early 70s called the First Nations dance group, and they used to do different events throughout Manitoba and showcase singing and dancing.

Eventually, Indigenous people who knew the music began teaching it to others, so that led to Indigenous music being played more in the community outside of ceremony and cultural events such as powwows.

> I was approached by somebody and asked if I would be able to teach how to sing and how to dance, and because I was going to powwows already for a few years, I said I

> would do it. That was 25 or 26 years ago….they have a big drum there, and someone approached me about it, [because] it was sitting there doing nothing, and [they had] a group of men who would be willing to learn….so I said, sure, and that's where it all started…it all started with the big drum. (Bobby, Indigenous cultural educator)

As Indigenous people began to re-connect to culture, they also began to make mainstream society aware of Indigenous contributions to music and art, according to Ashley (Indigenous cultural educator):

> I think any culture [has] timeline imprints…and so there's this mainstream, and I consider our culture very similar, but more unique and distinct, way more colourful, which is one of my thesis statements of my life. I want to share this cool, unique, colourful culture with you. In the Indigenous world, we have our artists, and their canvases are incredibly second-to-none artists, like the Aboriginal Group of Seven, [who are] second to none. You look at that colour, and it's really unique, distinct, and world-class.

Bobby (Indigenous cultural educator) added that Indigenous peoples often have made their own contributions to Western music, but these are for the most part unknown, unacknowledged, or both:

> Well, let's take a look at Indigenous arts, music, and culture. How much stuff do we do that has been influenced by First Nations people when it comes to music? Take a look at the blues, rock and roll, and where did that come from? Why does that soulful feeling come out of it?

It is important, as was mentioned earlier, to acknowledge Indigenous contributions in all areas, including those made to music and art, of which many people, including Indigenous and non-Indigenous students, may be unaware.

2.2: Indigenous Knowledges and the Arts

Charlie, an Indigenous post-secondary instructor, discussed how Indigenous knowledge, as well as Indigenous peoples themselves, must be respected:

> It's important to position ourselves as we know who we are, we know we speak from a place of knowledge in the world….renewing our Indigenous imagination or connecting others to the potential of an Indigenous imagination through art, creativity, and storytelling…our knowledge and creativity can really change things up. That's the essence, the spark that for sure is there.

This Indigenous knowledge includes both practical knowledge and spiritual knowledge, which is an essential part of life for many Indigenous people. Bobby (Indigenous cultural educator) described the importance of music and art education, in particular:

> As a musician, as a singer-songwriter, and composer, music is medicine. It's healing. That's one particular reason why we should never get rid of it. You can have the worst day in your life, and then go out and play guitar, sing a song, dance, pull out my drum and sing a song, and that heavy feeling you had on your chest when you started just for whatever reason, starts to come out…it does a lot more for you than just being a musician, depending on how you look at it. And that all comes from your spirit. Each individual has a spirit, and for us as First Nations people, we've got to do what we can for ourselves because that spirit is something that is ours, and if we can follow that spirit, that's going to help us to move forward. So I think it's very important, when it comes to

> drawing, painting, you ask any artist what it does for you, they're going to tell you the same thing. It's therapeutic for them, it puts them in a good place, it makes them feel good; it just takes everything away when they're in that moment.

Music and art has been shown to have positive effects upon people (Pool et al., 2011), so it makes sense that Indigenous music and art would also have these positive effects, although some might not recognize similarities between the two.

2.3: Indigenous and Non-Indigenous Music

Charlie spoke about the importance of Indigenous students learning about some aspects of Western music, in addition to Indigenous music:

> So, I've been in school development, [and] I've made it something to be included, that we need for kids to have a whole bunch of guitars, and they have guitar lessons and they get flute lessons, and they can all drum and that sort of thing, but having some of the theory…but you know it's really important to get in a rhythm together, sing together, get some harmony going, really good for their brain development, good for their community kind of notions and emotions, and all of that; I don't think that it's any different than any of the story pedagogy; they do similar things….it's not either/or; Western and Indigenous [perspectives] both have something to offer.

Classrooms will likely continue to have Indigenous and non-Indigenous students in the classroom, so Indigenous music and art classes will have to accommodate everyone, as Jamie (Indigenous cultural educator) commented:

> You have to bring all of the participants to the same level, [so] I make them close their eyes and then I start talking about our heartbeat, our heartbeat of our nation. And what you do is you take your right hand and you put it over their heart. That's how I bring

> them to the same level…and all of a sudden, they're nodding their heads to the sound of the drum. When they've all been to that level, then I wave my hand to my drummer for him to start singing and then he starts singing a song and all of a sudden I say, now open your eyes, and of course they all have their hands on their hearts and some of them are actually drumming to their hearts. [Then] we sing and then we talk about different tunes and the different kind of songs, and then we teach them a song which is a lullaby kind of thing…it's repetitive, like a chant, and they just go from high to low.

Jamie also mentioned that their multicultural students learned all of the songs, how to play the hand drums they had made themselves, and performed these Indigenous songs at their school's annual powwow:

> We taught them how to sing a song, and we used to go to the classroom…and teach 20 kids, then the other 20 kids, and then the other 20 kids, so we would do two or three sessions per week. We did about six sessions in all and then we brought them together…and then they'd do a presentation at their annual powwow in early June, and last year we brought them all in in the Grand Entry and they all carried their hand drums. I acknowledged the territory, the teachers, and the administration, and I was able to do this with the children of different races, and then they sang their song, and everybody just stopped and watched the kids sing their song….all these years I've been doing this type of thing in the classroom…[and] they'll develop their whole new being after that; they're developing the art of listening.

Some Indigenous instructors incorporated Western music into their teaching about Indigenous music in the classroom and then combined both Western and Indigenous music together:

> I tried to bring music to them that was kind of relevant, so we did a…song and some had shakers for rhythm, and we sang the song with them. They all liked it, really liked it, they were participating and singing and some of them learned the harmony on top of that. So that was one of the successes; they really liked that. And then we talked about songs that we learned, and I said whatever song you guys want to do, write it down and then we'll learn it the next day and they brought Metallica, so it was pretty interesting. (Ashley, Indigenous cultural educator)

Ashley also spoke about changing Indigenous music for students and combining Indigenous and mainstream music into new forms of music:

> Well, I tried to speak our language culturally. We used key words like powwow, community, tribal, hip-hop, or Crow Hop beat, so there are some dances with different beats, and not everyone could do it. What you could do with that beat is turn it around and make a reggae beat. [We] were doing music that sometimes incorporated some [powwow] songs…what I was getting at is the unique and distinct beauty of our art; I think it's really important…it's [been] becoming more and more part of mainstream for decades now, so people are [say], that's an Indigenous artist or musician. There's a lot of Indigenous artists now than there was before in the mainstream.

In addition to Indigenous music in the classroom, Sydney (post-secondary instructor) spoke about how art can be used in the classroom to address difficult issues students may have because it may be easier for some students to approach these issues from an artistic perspective:

> Body mapping, which is a really intensive arts-based approach, you know, anything to do with the body is triggering, right? It's in-depth, complicated, sensitive, also super-evocative….I also incorporate things like graphic novels…I do that in my mandatory

> course so they all have to take it and they all have to read this book, [and] it's very, very powerful. It's about intergenerational trauma, the 60s scoop, child welfare, you know, it's about healing and the context of prisons for men….it's a beautiful, beautiful book. [We also] did some projects that involved Indigenous art and healing.

Indigenous music and art can help students who may be going through difficult times or who have survived difficult events because people who engage in artistic practices can help themselves and others, as Jamie (Indigenous cultural educator) has found: "For me, those are little things. If I can touch someone in that way, through music, through understanding or developing that trust or that respect, I always feel good… then you know you did something right." Bobby (Indigenous cultural educator) also spoke about the power of music for the musicians themselves. This would extend to all students, Indigenous and non-Indigenous, who would benefit from learning music:

> What does matter is that you're doing it and it's helping you, so it's almost like a meditation kind of thing for myself, and I don't think I would be where I am today if I didn't find that place, [when] I'm singing. I always do it to best of my ability every time, even when I'm sick. I've tried singing when I was sick; I did it anyway and it still works, it makes me feel better. It is definitely something that should never be taken away because of what it can do for a human being and for their spirit.

Learning about and performing Indigenous music might have positive impacts upon both Indigenous and non-Indigenous students, even in mainstream educational settings.

2.4: Indigenous Arts in Mainstream Curriculum

Taylor (post-secondary instructor) spoke about the importance of arts education in helping Indigenous people and others to find or reconstruct their own identities:

> You can make people do anything if you give them a great narrative. You can sell anything. So that thing of aesthetics and making and content-driven art practice is about story very much, and it's built into the way we understand how we fit into the world. When we take those things away, we rob people of the skill to navigate where they fit. So it's important that we re-integrate all the arts because they're all different ways of understanding how we fit.

Part of helping people to find out where they fit in the world is to have them find their voice through writing, according to Charlie (Indigenous post-secondary instructor):

> [I went to] an Indigenous writing school, and learned about creative writing, stories, poetry, writing novels and all of that….they really nurtured a new generation of Indigenous writers and storytellers, also educators, and all of that has always been connected to ecology, schooling, science, restorative justice, and publishing.

Some participants talked about how they integrated Indigenous music and dance curriculum with mainstream courses, as Alex (Indigenous policy leader) did:

> What's happening is a lot of people are integrating. So for example, if you're teaching in science or ELA, then you can incorporate music and art in with the core subject areas. Even in physical education, you can teach music and dance: powwow dancing, jigging, and all the different games.

Sam (post-secondary instructor) spoke about integrating Indigenous song and dance into physical education:

> We created a 3-credit hour course and then we integrated song and dance into that course…so you're only getting 4-6 hours of song and dance in a 36-hour course, and then we did games and outdoor activities. We [got] the instructors of the song and dance to

> develop the background and protocol for the proposal for the Indigenous song and dance course and then again went out to find out who we could get to teach this.

Morgan (post-secondary instructor) related his experiences with integrating Indigenous arts with mathematics:

> That [project] was successful because they needed to apply math. Probably the students who would not benefit, it was because they already knew the math content, so they didn't learn something they didn't know [already], which is not a bad thing. They benefit in the sense that they were able to create and participate in the celebration and create something from the arts perspective.

Sydney (post-secondary instructor) suggested that art could be a pathway through which all students could explore some of the more difficult experiences of their lives:

> It was kind of hard for them, but also super-illuminating, and most of them shared different aspects as a group. It's about therapeutic processes, making sure people feel safe, but also pushing them a bit. And it was transformative. It's different, but the [students] loved it….it's a safe lead-in to approach complicated relationships, trauma, and uncertainties, through the art. We can all do it; we don't have to be artists to appreciate it and to produce anything. Art can be like an end thing almost, right? We can access it in a safer way through art….and it's a beautiful way to teach them about complicated things that are kind of hard to talk about, like colonization, because you know, it is not over, let me tell you.

One of the difficult issues that Indigenous students might be able to begin resolving through Indigenous music and art, according to Charlie (Indigenous post-secondary instructor) is loss of connection to their Indigenous identity:

> That's actually one of the most rewarding things for me, is that [for] lots of my students in post-secondary, many of them, it's their first attempt to start reconnecting to who they are. Some have been in the foster system, and it's kind of tentative, and saying well, I kind of took this class because I found out I have this connection to this reserve, or have found out that my mom is Indigenous and she never admitted it, and making all of these connections, [which are] actually re-connections. But that's one of the key things that I think is so valuable for Indigenous students that come into a place and say, hey, this isn't just a feel-good thing; we've actually got our knowledge in ways that have a place and you can look at it critically and say this stuff is really useful and really does have application now and in the future.

Incorporation of Indigenous music and art into mainstream curriculum has been shown to benefit Indigenous and non-Indigenous students alike, but sometimes when either non-Indigenous or Indigenous instructors want to incorporate Indigenous music and art into mainstream curriculum, issues of cultural appropriation may arise.

2.5: Cultural Appropriation

Although non-Indigenous instructors are well-intentioned, sometimes they may unintentionally use music and art inappropriately in the classroom, as Taylor (post-secondary instructor) found:

> We've had such pushback from Native Studies that I decided that I would not, that I didn't know how to do it, because I really wanted to not be okay, this is an Indigenous thing, and this is non-Indigenous. But I wanted to say, we all have a drum within our bodies called our heart, so let's make drums and talk about physics and biology, and how you can change someone's heartbeat by the rhythm of drumming. So I had this idea that I

> thought sounded great and I approached Native Studies about it because I wanted to get four different kinds of drum makers to make drums with kids, and I wasn't thinking of it as the ceremonial drum or the rite of passage, I was really just thinking of the drum inside our bodies, the heart, and how much we're influenced by rhythm. But I got such a dressing down, basically, that I thought, ok, it was seen as incredible appropriation and manipulation, and lots of things.

If initial experiences with incorporating Indigenous culture in mainstream curriculum are somewhat negative, as in Taylor's case, non-Indigenous instructors may be reluctant to do so in the future, as Taylor found:

> I am the person who is tasked often with doing Indigenous outreach, but I am totally ready to say, okay, let's do it, but from the get-go, I say I'm just going to bring a bunch of materials, and it's outreach, but I don't know how to think of it in an Indigenous way, so we just use the materials to make things, or spin wool, do something with music, ask questions, or do something with microbiology. I don't really make a specific effort because I'm worried about tokenizing and appropriation. So, I also wanted to do this thing with beading because I did a beading workshop and recognized how strong woven beading is, and I wanted to relate it to engineering and bridge-making, and again, as a non-Indigenous person using Indigenous technology and ingenuity to demonstrate something about engineering, then I don't want to be appropriating this, it's not intended to be appropriating.

Robin, who is an Indigenous post-secondary instructor, found this same reluctance on the part of instructors who teach Indigenous cultural curriculum to students:

> Sometimes our instructors, not many of them are Indigenous, so they're not very comfortable with telling [students] about the connections to Indigenous culture because they feel it would be appropriation. But then we also say, maybe they don't know this anymore, or even ask them how they would connect to it, but they don't feel comfortable asking that.

Taylor believed that non-Indigenous people should be able to advocate for non-Indigenous people because by doing so, they would be bringing more attention to Indigenous issues:

> I don't want to wait until someone's community is empowered enough for them to speak about this issue because I have the opportunity right now to be a good ally by pointing to that issue. It doesn't mean I'm speaking for them, it means I'm giving that issue room so that more voices can come to it, and I really appreciate it when white people stand up for non-white issues, because I think it's important that I'm not the only one constantly raising my hand. I appreciate it when someone else stands up and says that is not an appropriate thing to do. I don't think that we should always have to bear everything. In art, we're still worried about appropriation, but for a lot of it, moving forward, we don't know what to do.

One of the ways that Robin found to have non-Indigenous instructors incorporate Indigenous culture is to ensure that what they were sharing in the classroom did not involve ceremony, unless they had the required teachings themselves:

> We do professional development sessions with teachers and we did an Indigenous one with middle and early years teachers…we told the teachers you can incorporate this; just don't do ceremonies. You have to do it in an appropriate manner, but I could tell from the faces of the crowd that they still weren't very comfortable enough to talk about it. There

> were maybe two or three who attended in total of the two sessions we did who were First Nations or Metis teachers. I did tell the teachers not to lead smudging because it is a ceremony and if they don't know how to properly conduct it, don't do it, because you don't want something done inappropriately.

As in this case, non-Indigenous instructors may feel more at ease going into a classroom if the person advising them is Indigenous, although there is some debate about whether or not Indigenous artists have at times appropriated from Indigenous music themselves, according to Ashley (Indigenous cultural educator):

> But now some artists are doing a fusion of music, which, interestingly enough, [has] turned into a discussion on cultural appropriation with singing, quote-style singing. [A non-Inuit Indigenous singer] was doing throat-style singing, but not singing throat-singing songs; only trying to create the beauty of throat-style singing…another Inuit artist [is] celebrated and her music is very engaging and emotional and passionate and she gets criticism from within for not necessarily singing on the tundra, to say it a certain way, but in her conviction, she feels she has a right to. Another group has taken music samples...so there was an interesting thought about the cultural appropriation discussion, [also]…they're Mohawk maybe, but they're [sampling] music from Cree artists. Our music seems to be becoming Indigen-ish a bit…but then we also want to evolve music and culture. If we didn't, then we would still be playing 1950s rock and roll, [and even that] evolved from blues music.

Cultural appropriation will likely become more of an issue as Indigenous music and art become more prominent in mainstream curriculum, so it might be important to start developing some cultural protocols and policies so that the lines between infusing curriculum with

Indigenous arts and cultural appropriation can be made to be more distinct. Part of Indigenous music becoming more prominent in the curriculum could involve including Indigenous music and art in any systemic integration.

Theme 3: STEM and STEAM

Administrators, teachers, and students can work together collaboratively in order to facilitate STEM and STEAM, because in addition to curriculum integration, creating STEM and STEAM programs lead to other collaborations.

Charlie (Indigenous post-secondary educator, related the importance of curriculum integration at the post-secondary level: “In post-secondary places, we need to have a specific pedagogy, knowledge, courses, programming, and Access, and all of that, and we also need all of the horizontal development, across subject areas, you know, cross-curricular.” The design process of this cross-curricular design involves should involve collaboration among the instructors of those courses in STEM programs.

3.1: Collaborating with Instructors

One of the beneficial aspects of STEM is that instructors collaborate as a team to contribute content, which helps to ensure the interdisciplinarity of projects. One of the first decisions Morgan (post-secondary instructor) and his team found helpful was defining STEM and how it would inform their collaborations:

> Well, there were operational challenges, basically, that we just learned to do by communicating with the instructors. For example, we did not have a common definition of STEM education, so we worked through different resources and at the end a group of professors created a book, which is kind of one of the main readings for the course, and that provides a common ground for what we mean by STEM education. So one of the

> main things about integration is, it's not STEM, science, tech, engineering, and math as separate things, [because] the integration is what is relevant. If it is not integrated, I would say that we would not consider that as STEM. We used to say that STEM is not S+T+E+M; it's the integration we are looking at.

Morgan found that one of the challenges of STEM is instructors having the time to collaborate in order to create these projects, so in order to be effective, administration would have to ensure that STEM teams are given the necessary time to plan STEM projects.

> From the perspective of the instructors, the challenge for that is that it requires a lot of planning and fortunately at that school we have a lot of time for planning among teachers. Part of that was because we had lunch together, so one of the challenges to integration projects is that they require collaboration among teachers, and [that] requires this time for teachers to sit down and plan for it. And there is a lot of small things that have to be figured out.

Another important aspect of STEM planning is that the instructors have to be given time to become familiar with the material they are teaching students or the materials they will need to use while teaching students, particularly if the project involves technology, according to Morgan:

> I would probably start with instructors, again to have this common approach. And, just the instructors should learn a little bit and get that in advance, so something very important as well, is in the course, the students have access and work with the Lego EV3 set, which is a robotics kit. The faculty was able to provide 500 kits, enough for students to work in teams of three, so that investment agreement was relevant. Now STEM could be about many other things, not necessarily robotics. Robotics was a connection to technology, but we could easily have done this without robotics; robotics is attractive and

> the Lego kits are already in schools all over the world. So that was interesting. We think it was important for teachers to have access, at least play with it a little bit and know what is there in the kit and what are the potentials for using the robot. So I would say, it was important to invest in time for instructors, but also money for equipment.

In the early development of STEM programs, instructors would collaborate more often in order to design the programs and decide how the various components of the program would fit together. As time goes on, the instructors would not have to meet as often, as Morgan outlined:

> The instructors appreciate that, because we're all teaching a section of the same course, so it helps to have some homogeneity among the sections and also some ideas. My colleagues have some great ideas and I love to hear what they are doing, and we have different levels of expertise as well, so those conversations help a lot for me to learn individually and a few things I apply in my classroom that actually work. So I think it's important, probably it's good to have. This year, I said the time I was there every week, but I didn't ask the instructors to be there unless it was necessary for something specific we may need to decide as a group. But certainly in the beginning, when we were starting to implement the new thing, it was very important.

Collaboration among instructors from different disciplines is important when planning STEM programs, and the instructors found the collaboration to be beneficial, according to Morgan:

> The instructors appreciate [collaboration] because we're all teaching a section of the same course, so it helps to have some homogeneity among the sections and also some ideas. My colleagues have some great ideas and I love to hear what they are doing. We have different levels of expertise as well, so those conversations help me a lot to learn

> individually and a few things I apply in my classroom that actually work. So I think it's important. This year, I set the time [and] I was there every week, but I didn't ask the instructors to be there unless it was necessary for something specific that we may need to decide as a group. But certainly in the beginning, when we were starting to implement the new thing, [weekly meetings] were very important.

The instructors focused upon integrating the project at all levels, including discussions about the projects and upon curriculum.

> We focused on integration. Now the integration could be done at different levels, very often in math and science [because] it's an application; it's something you learn somewhere else, in math class, let's say, and then you're able to apply it to the project. Another level of integration which is more difficult is when we want to introduce the actual concept through the activity or through the project. That requires I would say more planning and instructors need to know the math concepts deeply, which is very challenging at the elementary level, where teachers are generalists…I would say [it would be easier] at the post-secondary level because teachers would have the expertise in the subject area. (Morgan, post-secondary instructor)

Another important aspect of integration is the connection between learning the content within the STEM project and serving the community, the latter of which Morgan considers to actually be more important:

> I think integration is very important in different senses. One is [that] the basic application has to be very targeted to what is relevant, but I [think] more important than that is the participatory approach to education. When you focus on the project, it's about participation, it's not about learning just because you need to complete the assignment. It

> has to do with participating in the community. I think they see that [real-world application]….I keep stressing that something that is not obvious is the participatory approach, that they have a chance and the students have a chance to actually participate in the community. I think that's not that evident. The connection to [the] real-world is there, it's physical, but the participatory approach is not as visible...but it is more important. For example, in the design process, I say why is it relevant? I ask them to do some research about why their project would be relevant. Often, I encourage them to look at some social issues, so the student project can actually contribute to address social issues.

3.2: Collaborating with Students

Taylor (post-secondary instructor) also focused her students' projects upon real-life issues that students could find out about by doing research:

> The science has to be real, based in a real concern, a real bit of research, a real thing that people do. And then the way we're going to look at it, however we normally look at that science, we're going to magnify the delightful, playful, whatever other kind of experience we can have around that and make it something that the kids can walk away with feeling like they really engaged.

Taylor also described another real-world student project that used STEM to address the concern of birds flying into windows on their campus and the students' solution:

> One [is] about birds, birds hitting windows and migratory birds in the fall and the spring…upwards of 25 million per year who die from hitting windows, and what is that all about? So [the students] talk about it, they look at windows, they look at how light works, and then they draw on windows, to actually do something about it. Those ways of approaching the problem are really useful because they get incorporated through physical

> means, not just through your eyes, and then there's also a response to it where you could say, here's a problem, let's approach the problem and not just talk about the fact that we have a problem. So there's a whole bunch of different things, very physically based.

As in the above example, Taylor described another classroom activity in which the students brainstormed solutions instead of being given solutions to problems by the instructor:

> So there was one point when we were making a giant woollen pod and I needed it to purr when I would pet it, so I have a little bit of engineering background and I know about building circuits. So I said wool is an insulator, it's not conductive, so we can't use the usual methods that we would to make this thing purr. We can't use a capacitive field, we can't put certain kinds of sensors in it, none of that is going to work. We tried all kinds of things. And then I think I was talking about sound with one of them one day, and I said something about what if we could hear somebody petting it? And we came up with microphone sensors and they built microphone sensors that allowed for the way people would pet the pod. They would take that sound whether it was soft or aggressive, and then they set thresholds in the frequency and used a specific input...it was sort of amazing, and it came just from having these weird conversations about the senses that are being activated when we do this motion.

The students were involved in a solution to the problem using their own knowledge and creativity, which is an important aspect of STEM. STEM can be used not only to connect curriculum in different subjects, but to connect to Indigenous communities, who may not have as much access to STEM concepts as others. Robin (Indigenous post-secondary instructor) described their STEM camps, which they do within Indigenous communities:

> We deliver our STEM camps in the classrooms in the community during the summer. Again, there is more interest and they're really excited to see the different things we do with the kids, because we do change up our theme days every year for our camp curriculum…we just do different activities revolving around a [different] theme per day.

Students are encouraged to provide their own ideas about what they think is important to study and to make their own contributions as the project proceeds. Students can be more empowered in the STEM process than they may be in mainstream education.

Morgan spoke about students contributing to their STEM programs and how instructors need to ensure they have modern technology in the classroom:

> Something else we learned is the instructor has great ideas and the students have great ideas, so on the way sometimes, we changed a few things based on the feedback. And some instructors come with amazing ideas, and they wanted, for example, to buy new sensors to [test] pH in the water...of course the technology always has to be up to date.

In addition to having modern technology available for STEM programs, another budgetary concern could be ensuring that curriculum planners leave extra room for innovative ideas that may develop during the course of the project:

> The kind of thing…that's also valuable, is to keep some kind of budget for these things that may come. This is not the initial purchase and not just for maintaining things, but for the few things on the way that not everybody may use but that some of them may use. I don't know what perspective you have, but in our case, activity and students coming up with their own ideas played a big role (Morgan, post-secondary instructor).

Instructors can collaborate with students in order to design STEM programs that incorporate aspects such as science and math appropriately so that they are relevant to the project:

> My students, often they say, this could be connected to this, and then I say, can [you] engage in the process without knowing that piece of science or mathematics, and if the answer is yes, that means it's not relevant. One of the things we stress is it has to be relevant…we have to find a good fit, otherwise if doesn't feel natural, why do you need to do this if it's not helping with the project? (Morgan, post-secondary instructor)

Students can contribute a great deal to STEM projects, which can be an empowering experience for them, as it usually is when students have the opportunity to participate meaningfully in their own education. Teachers also can contribute by working together across disciplines, so that they can share their separate expertise with each other.

3.3: Connections Between Science and Arts

Science and art may seem to be very different from each other, with science occupying a different status in the curriculum than art. However, Taylor (post-secondary instructor) commented that there is a connection between these disciplines and that incorporating art into mainstream education would benefit students:

> I believe strongly in the connection between the arts and sciences and that the division between those things is something arbitrary and something that has really thwarted our ability to engage our full intelligence as humans, and that we have a lot of different kinds of intelligences, and basically the education system that we have is based in the Industrial Revolution, and it existed to produce a certain kind of person for that economy and structure, and that we've neglected the fact that we've moved on from there, and we need a different kind of education that incorporates and respects the many kinds of intelligence that we have as humans, so that we can be better at solving problems. I think that the open-mindedness is what's going to move things forward and that however the

> curriculum develops, that thing of opening up questions instead of closing them down is really what's needed.

The scientific approach to problem-solving involves finding similarities among large numbers of samples, according to Taylor:

> I always feel that artists and scientists have a lot more in common than we realize because they both look at the problems of the world, but they look at them from very different perspectives. The perspective of the scientist, normally, is to try to find a whole bunch of samples, a whole bunch of individual pieces, and then you try to find a unifying theory that will allow you to make a statement that says something about that whole group. So you re-class the individual into a larger set, and we look at whatever that problem might be, whether that's a flock of birds or whether that's a mathematics thing, whatever, so it has to apply for everything.

Alternatively, arts projects might look at the larger picture and distil it down to individuals, as Taylor described:

> Artists go the other way. Artists look at something that's really big, like a societal ill of some kind, like climate change or something terrifying, and they try to bring it back to the individual, so they try to have a personal experience take place for the person who's dealing with, experiencing, or participating in, that thing. So they're really two ends of the same string, in my mind. And bringing those things together, even just letting people know that they're on two ends of the same string, that they both need creativity, that they both start from a place where we ask questions, we don't have answers, or we follow a character down a blind alley and we don't know what's going to happen, all of those kinds of things, understanding that they're extremely connected. I think that's

> fundamental to bringing them back together and realizing that those two, I'm distilling it down to say there are two ways of thinking, but obviously there are many ways of thinking, that putting those things back together will allow people to come up with different overlapping knowledge and different ways of seeing the world and finding new ways.

However, if instructors look beyond the structures that limit creativity in both science and art, and instead try to examine the content itself, without classifying it as either scientific or artistic, then they could approach these issues using a combination of both perspectives:

> So, how do you bring those two things together? I think you bring them together by not trying so hard to follow the rules of either one. So artists tend to be codified within the material structures that they're in, not within the content, and scientists again seem to be codified within the material structure. So it's like, we're doing science, chemistry means we're measuring things and we're mixing fluids together, and we're doing art, so we're looking at colours and seeing how colours look together, but those are just materials. The real questions are how does an acid eat through this material? Or the question might be, what is the emotional content of knitting? It's actually the content that drives whether something is art or science, it's not the activity. (Taylor, post-secondary instructor)

In order to approach science differently, people would need to see past the formality of science to see the creativity within it, also, people would need to see the arts as more important in curriculum, which would be another reason to try to combine science and arts, according to Taylor:

> Science is extremely creative, but it's only creative once you get past a certain level, so students spend a really long time learning the language of science, and the language of

> science is quite restrictive and very formal, it's got a lot of grid structure, [and] it's very neat and tidy. But science itself is not neat and tidy; science is full of accidents and happenstance, and leaps of faith, and being distracted by something that doesn't look right. And it's exciting. I think that would be amazing if we could [combine art and science], and that's the kind of thing that I try to do in the weird structures that I propose…to bring those things back together as much as possible and to think really about content. It's very hard because people are really used to regulating the arts into something benign.

However, Taylor described the arts as being necessary to human beings because if they were not, then there would not be so many examples of art from thousands of years ago, and human beings would not continue to produce it in modern times:

> Human beings need the aesthetic experience and if we weren't artists, if we didn't do stuff and make stuff and have instruments, and have these creative experiences that are built within aesthetics, and not just creative experiences of problem solving, we wouldn't be humans because in terms of evolutionary theory, we only carry along things that are adaptive. Things that are not adaptive, we discard because they take energy, so the fact that humans have been making art for a really long time, maybe 20,000 years, has to mean something.

3.4: STEM and STEAM Programs

Taylor began their work in STEAM by working with students to integrate art into their computer science and engineering projects, which was an innovative approach for the students:

> It started with doing individual projects with students, so I would work with a computer science student and we would come up with a project that was part science, or I would

> work with engineering students, start with the physical realities, so coming from it from the art side. So I would propose things, and inevitably, they were weird for them. So I was asking them questions that were really far outside what would have been offered within their discipline, but they needed their discipline in order to solve the problem….it was interesting for them and useful and the profs were ok with it because it was asking the student to think in strange ways.

Over time the program became much larger, introducing thousands of students to STEAM:

> So the STEAM program started very small and then I took over the running of the big art, science, and engineering festival that runs…at the university. It used to just be a little thing and now we anticipate 8,000 people coming in and it's run by 800 volunteers….we have a school day program that brings 2,500 students [here] over a period of two days, and it's all STEAM-based…one of the things they get to do is an activity with either a grad student or faculty member that is a science, STEM-based thing, but it's done in a STEAM way. (Taylor, post-secondary instructor)

In addition to events such as this, instructors have been integrating STEM and STEAM into mainstream courses, such as physical education, science, and math.

The participants related their past experiences with curriculum integration in different program areas. Mainly these experiences consisted of trying to make subject areas that some students have found difficult in the past, such as science and math, more accessible so that those students could be more successful and so that the content of these disciplines would become more meaningful for the students.

Robin, an Indigenous post-secondary educator, spoke about using art to help to make technology easier to learn about as well as more fun for the students:

> This summer we're doing biology day, construction, forensic science, gaming, and STEAM, so this is actually the first year we'll be doing gaming and STEAM. It's all about using technology as well as art, and having them see those connections, not right in their faces, but subtly, where we're like let's create a game, but they don't realize they're learning about STEM and STEAM because we make it fun.

Taylor also suggested that complicated science concepts may be easier for students to understand if an artistic component were added to regular science curriculum:

> But instead of saying, here's a subject, like quantum physics, which is complicated and makes people's brains explode, we could talk about quantum physics through some math, but we could also talk about it visually, through how things are moving and physically, through dance, we could turn it into a game, we could turn it into a narrative where a character moves back and forth through time, we could create metaphors where we say different colours to represent different times and try to mix those colour together. I think the issue is that we try to separate our ways of understanding things and flatten them rather than building them up.

One way to make arts integration more meaningful to students is to create an art project that requires knowledge of technology, according to Taylor (post-secondary instructor):

> Some things do end up being technology and engineering, like when they do a little circuitry project and a little badge and how to build. They solder all the circuitry and they end up with a little badge that blinks and they get to take it home. And it's a not a big deal to teach someone how to solder, but it's a lot more fun if they're turning it into an aesthetic object that they're going to wander away with and be able to be proud of.

Taylor also believed that science and art should be related because of the creativity people require in order to solve scientific problems; she cited Da Vinci as an example:

> Da Vinci is always the poster boy of STEAM because that's the person we say, see, you can do anything you want, you just have to dream and light yourself. What I find increasingly is that it's somewhere along the way there was a teacher who turned them off or someone who said, well, you can't do everything, you can't do both, and I was told that for years, too….it's pretty absurd to think that they're separate things, and I think the failure of STEM is removing the "A" because you cannot have good science and good engineering really without the leaps of creative thinking that are very lateral and we need that if we want to approach any of our problems.

Integrating arts with science and technology through STEAM is beneficial for students because instructors could potentially make the curriculum more interesting for students, which would increase the potential for success for those students; in addition, succeeding in potentially intimidating courses would be beneficial for students; self-esteem. Another way instructors can make this often challenging curriculum more accessible for students is to add the physical dimension to STEAM activities.

One of the ways to help students relate to curriculum is to engage them physically while they are learning the content, according to Taylor:

> The grad student who developed the activity turned it into a relay race, so it became this completely physical experience. The kids have to run around, they have to gather different things, they incorporate it into their body in a way that's not really dance, but it's got this content that is not taken in by the usual thing, which is pictures and notes, where we look at slides and say this is what the bird looks like, and here's the map. So

> instead of looking at a map, which is a very abstract concept, there's a space that they have to traverse and they have to do things while they're traversing.

The physical aspect of this curriculum would help students to connect to the content because they engaged more than one aspect of themselves during the process. Sam (post-secondary instructor) created a community-based physical education program that was multi-disciplinary and designed for Indigenous students:

> We worked very hard to create the first Indigenous scholar in physical activity, hoping that [they] would bring [their] knowledges and feel comfortable enough to help guide us, recognizing it's not their responsibility to shift the whole curriculum of the faculty, but our faculty got on board…so we run a STEM program out of our [physical education program]. We bring the STEM folks from here from Science. We created [it] to try and get more Indigenous students into our Physical Education program through leadership development.

One of the benefits of STEM and STEAM for all students, and Indigenous students in particular, is the wholistic approach to curriculum, which instructors achieve by making connections among courses where possible.

Morgan (post-secondary instructor) spoke about connections between music and math in a STEAM project with which he was involved:

> So the art students had to create some sort of sculpture and what we did is they have to create the blueprint and work out the proper scale so they can plan, design, and create their final products. And that worked pretty well because actually they needed to know [how] to be able to move from their blueprints into their actual thing they built. That was

> a real example of something that worked pretty well because the math was important and was relevant to the project.

Sometimes the connections between arts and math were not easy to make, and in those cases Morgan believed that sometimes it was better not to make the connection if it did not occur naturally:

> Well, something I learned and I noticed…is very often we cannot force the content, especially math, which is my specialization. I was involved in some art projects with the art teacher; there were some good connections we were able to take advantage of, but very often that's not possible or it's not appropriate.

Taylor (post-secondary instructor) proposed that the arts should be included in curriculum whenever possible because of how important appearance is in Western society:

> It's so funny when someone says, we don't need the art, we don't need design or aesthetics, because we're driven by them. If you are in a room of 50 people and you say, who here has an Apple phone? And then you ask those people, would you ever change? They would say no, because of the design of the phone, [which] is what they appreciate, and design influences whether or not we accept or adopt things or enjoy things....we're so governed, almost, by what we see and it's so much a part of our culture.

Instructors can use STEAM to combine science and arts so that each is more accessible to students, as Taylor (post-secondary educator) commented:

> I got involved in it right from the beginning; I'm the first STEAM person they've had. I've always been a person who walked between arts and science. And then the other way, with artists, science looks really intimidating…because I'm someone who's always been

> in between, I've never understood why they're not connected more and why they're taught as separate things, because they're actually extremely connected.

This wholistic approach to education benefits students, as do the hands-on activities and student agency that characterize many STEAM programs.

Theme 4: Indigenous Education and STEAM

The participants related that Indigenous education and STEAM have some common characteristics, such as the interrelatedness of different content areas of curriculum, the experiential nature of education, developing connections to community, and education that benefits both individuals and the community. The participants related how their educational experiences with STEAM in the classroom involved students in the educational process in meaningful ways, as well as the wholistic nature of STEAM programming and the benefits of hands-on activities within those programs.

4.1: Student-Directed Activities

Taylor (post-secondary instructor) described how creating an experiential learning STEAM project in science helped students to engage their curiosity while having a fun, engaging experience:

> We made a giant trough, maybe 11 feet long, full of cornstarch and water mixed together, about 500 litres. And we can talk about that as a non-Newtonian fluid and say okay, here's a fluid that when you hold it in your hand, it will become soft, but when you punch it, it will become hard. Usually people make that in school and they mix it in a little bowl, and it's this tiny little thing, but when you make 500 litres of it, you can run across it and it turns into this magical mess because of its scale, but it's only someone who works in understanding what scale does to our bodies and our brains that's going to say, let's make

> it that big, because the scale of this is what's impressive. When it's so little, we learn the chemistry no matter what, but those kids that come and run across the pond of cornstarch and water, they'll never forget that for the rest of their lives.

This experiential learning experience would benefit all students, not just Indigenous students, but there are benefits to all children of this type of learning (Institute for Arts Education and STEAM, 2020). As well, this type of immersive experience might lead to students creating their own inquiries about what they are learning while they are participating in the project, which would also be beneficial to all students:

> They stop running halfway and they want to sink, they want to test it, because kids are naturally curious, and if we let that curiosity guide us a bit more, and not stop it, like when a kid says, hey, what if I did this instead, instead of saying no, this is what the experiment is meant to do, if we said, yes, what if you did that instead? We would let two things come together. (Taylor, post-secondary instructor)

In this way the students could ask their own questions instead and then find out where their own questions might lead, as opposed to answering questions from the teacher or a textbook, which could be an aspect of self-directed learning, which again, would benefit all students, Indigenous and non-Indigenous alike, according to Taylor (post-secondary instructor):

> So if your experiment didn't work out, you could fudge your data and make it work on your lab report so that you could hand it in and get the right grade, and say, this is what was supposed to happen, and it all get written down in a very specific way. But I always wondered when the experiment went awry, what actually happened? If instead of saying, these are all the places where the errors occurred, we said, okay, it didn't go the way it was supposed to, but this is what happened instead and why? What was going on?

> Chemistry is never taught that way; it's always taught in this really linear kind of structure because you're trying to get kids to learn if you keep this molecule going to this molecule, to that molecule, but it seems so far removed from the experience of life.

Instructors who use STEAM would engage in curriculum integration of various courses when designing programs, which is a wholistic approach to curriculum design that is also a feature of Indigenous education (Atleo & Fitznor, 2010; Battiste, 2000; Battiste, 2013; Episkenew, 2012; Iseke, 2010; Kanu, 2011; Young, 2015), which is another reason STEAM would fit well with Indigenous education.

4.2: Wholistic Approach to Curriculum

Charlie (Indigenous post-secondary instructor) described how colonialism has disconnected everyone from each other, both Indigenous and non-Indigenous:

> It's not just Indigenous peoples who have mind power that is destructive to each other and to extended family or to society or to the environment or ecology; it's all of us. And a lot of the colonial stuff that's happened has disconnected Indigenous kids and families from their own knowledge and practices that are good and sustaining. It's also disconnected everybody else from that as well.

Wholistic education that also has an eye to environmental issues might help Indigenous people to reconnect with each other and with the land, as well as to non-Indigenous people; according to Taylor (post-secondary educator), part of STEAM education is to be able to see that all of its components are mixed together throughout our world and we can work to provide education that has this diversity within it:

> I think they have to respect all those areas; I also think we all do have them, but we deny in ourselves that we're part of science and technology and engineering and arts and math,

> because all of civilization is dependent upon all of those things mixed together and we wouldn't even be alive without them. Science is in everything. And technology is in everything, too. We have incredible facility with it. We can give a kid a jar and he will figure out how to open it before we will, and engineering is about putting things together in order to make something else happen. Engineering is not usually very novel, it's taking things that already exist and re-positioning [them] in a new way. The art is that side of doing things like, maybe this has no purpose in the functional world, but of course it does. It helps us to understand how the world works. And in terms of math, humans are the only animals that do math, so math is extremely natural. So when we think about ourselves and we ask people what do we do, how do we fit in the world and we define ourselves in this really narrow way, I think maybe it's because our definitions of those other things are also really narrow.

Morgan (post-secondary instructor) also characterized STEM as being an educational area in which instructors could contribute more of themselves than they might to more mainstream curriculum, which could be time-consuming, but valuable:

> The integration part of the STEM provides an enrichment. So the program of studies [is] designed by people who think that that's the information that people should know, and there's important value in that, but they don't go beyond that. [It is], I think, important, relevant, to go beyond the program of studies whenever possible. Teachers have different experiences and expertise and we can contribute to that in our individual ways. So, that's not necessarily a bad thing, but certainly because it's time-consuming. It would be a challenge when we have to plan for projects.

These contributions would also include those from Indigenous people, which might involve making connections between Indigenous curriculum and ways of knowing with mainstream, according to Taylor:

> I asked him a bunch of questions about it and a particular story, the relationship between the animal and a particular food, how the coyote relates to the food, and he said, that's how we should be told about the coyote, it doesn't exist on its own, it exists in this really big web, and it made me…extremely aware of how contemporary science is all categorizing, separating, and labeling everything, but not to put it into its web, even though we have the whole discipline of ecology, which is how to put everything back into the web, but we haven't figured out how to teach it that way. I think that in terms of looking at STEAM and incorporating Indigenous science or Indigenous knowledge and also contemporary science, connecting those two, because they are extremely connected, if we went into it at that level, it's a whole story of this thing, not just a single story, that would allow us to make better progress on everything we do. The main problem in all of society is that we try to categorize things and separate them, and that's even the problem of having the five letters of STEAM.

If educators incorporated Indigenous knowledges and ways of knowing into STEAM curriculum, Indigenous people would be more likely to succeed because they would see their knowledge privileged in the curriculum, ideally, because doing so would also benefit all students (Government of Manitoba, 2003).

However, according to Morgan, it is also important that instructors assemble the components of STEAM organically, otherwise the integration would not work as well, which is also true for Indigenous education. The curriculum must integrate Indigenous content in ways

that make sense, otherwise it will not work, which is why it is important to include Indigenous people in the process.

> Working with other teachers…I realized we don't do a good service if we try to impose the interdisciplinarity, it has to actually kind of flow naturally, otherwise it doesn't work as well, because maybe math is not necessary for the project and it feels like an extra thing which is just there because we want to complete the curriculum…so there was kind of, it was connected, but it's not relevant to the culture at all.

Another reason for using STEAM integration, according to Taylor, is that it allows educators and students to try to solve larger problems instead of focusing upon small gestures instead of real issues:

> It has to be personal, and I think that's the great potential of STEAM, because the personal comes back to that idea of narrative, so we can find our own narrative and say, our real problem is, for me, climate change…so I can focus upon planting trees, but what's the real problem? Well, talking about trees, the real problem is logging, and where does that come from? And if I trace it back far enough, I can get to globalization, and if I get to globalization, I can understand that the real problem is the distance between where things are produced and where things are consumed. And we can try to approach the causality as opposed to all these symptoms. It's great that we're going out and planting trees, but that's not actually going to save us from the situation we're in. So looking at things more deeply and finding a personal connection to them will allow all those other elements to come forward, but we have to let them come forward.

Besides focusing upon large issues in order to make improvements through STEAM, another commonality between STEAM and Indigenous education is the use of hands-on learning.

4.3: Hands-on Activities

Hands-on learning activities might be the most engaging and entertaining for students, and can also be among the easiest to design and execute, according to Taylor:

> I think what's required is to understand that each of those disciplines has its own magic and usually when people teach STEM or STEAM, what they reach for is the technology and the engineering because those are the easiest ones, the off-the-shelf ones. So it's really easy for me to buy staff circuits and it's really easy for me to buy a maki-maki and plug it into a bunch of bananas and make a banana keyboard, and I do that. So when I do outreach stuff, I totally reach for the tech sometimes, because it's the simplest thing for me to do, but it's not the smartest thing for me to do.

Although activities such as this are very interesting for students, who would likely be very engaged, an alternative might be to focus upon a project that is more meaningful, especially if it is an issue to which students are connected. This is also true in Indigenous education, where students connect better to projects that are centred around local issues in their communities (Riecken et al., 2006). Taylor related their experiences with students:

> The smartest thing is to come up with a real problem and work from a centred point around a problem and then have everything else come out of it, so if we said, ok, in this area, for this number of days per year, what's the amount of energy we've got here? How can we do this? What can we do with it? And get the kids to start thinking about, oh, let's design a wind turbine, how does wind function? How do we have wind on the planet…. And we could just be fooling around, and you could expand from the centre of a problem where it would be engaging for the kids and meaningful for them, as opposed to trying to bring a bunch of shining, interesting, but not connected to anything, stuff. I can go and

> build a circuit that's fun and makes music, and for that moment, they might be really interested in circuitry, but if we were actually working on a problem they were connected to, they would remember it forever and they would get a lot more out of it.

Taylor did have experiences in the classroom with students who appeared not to be interested in hands-on activities, but this was an exception to the norm:

> It was really interesting because some students were super-excited and really keen and they did some of the most amazing things I've ever seen students do. We built this crazy circuit and we did drawings and then you could get sound out of the drawing by moving around on the circuit, and there were students who took it and ran with it, and it was students who were already into music, so they were keen on it. I didn't really understand that, I didn't anticipate that, and there were a bunch of students who were just curious because they don't usually get to build circuits, and then there were a few that just wanted to check their phones.

Taylor believed that hands-on learning in STEAM was also good pedagogy because of neuroscience, where the physical affects how well students are able to learn something; as well, hands-on activities are more memorable:

> The students love it, no matter what it is. It's the physical stuff because we make kids sit still all the time and I think we make them not learn through their hands, and so I'm a really big proponent of understanding how neurobiology is also related to the tactile, and that we learn a lot through touch and actually develop neuropathways. There's an expression in neuroscience: the neurons that fire together, wire together. So you can build habits because it makes your neuropathways stronger, and the more you do them, the deeper those neuropathways go….I honestly don't know how much they'll remember

> about the spiel I gave about the molecular structure of wool, but they understand wool by the end and the connection of the material in their hands to the rest of the system. So I've never had the experience where students don't get into it. They don't always understand it, but they're doing something, and they'll remember it.

Experiential learning in STEAM programs, such as Taylor's above example, would benefit all students, as experiential learning in Indigenous education would also benefit all students. If STEAM programs incorporated Indigenous music and art, this would certainly benefit many Indigenous students to connect to culture, and it might also benefit non-Indigenous students who could learn something about Indigenous culture.

Theme 5: indigenous Arts Integration and STEAM

Taylor (post-secondary instructor) makes special efforts to include Indigenous students in their campus-based, urban STEAM program:

> Well we tried to make sure that…we invite Indigenous schools specifically to our [STEAM] program, so we try to increase the rural and Indigenous school attendance and we provide financial support for them to come and we provide lunch to make sure the students who come from two hours away don't have to worry about food for that day. And it's pretty interesting, they really like coming to the university and seeing what's here and seeing that they can be part of it…. we have lots of different people being guides so that there's this really strong representation of women, and many cultures, and Indigenous students, you know, just to show all people are part of this, everyone's invited. The students from the Indigenous schools that come, I think they're having a pretty good time, we've gotten very good teacher feedback, mostly it's about finding

> different ways to teach subjects that they talk about, and the students are enjoying everything, they're engaged.

Robin, an Indigenous post-secondary instructor, talked about introducing Indigenous students to beading using wampum, which is not from her area, but that will also be explained to the students:

> This upcoming summer, [for our] STEAM day….I'm a beader, I've been doing it for seven years now, so [I'll be] incorporating that into binary beading [with students]. I did research on the wampum belt and how beadwork was used in order to make agreements between different communities…so get the instructors to highlight that with the students because maybe some of them never heard of the Wampum belt because it's not an Anishinaabe or Cree thing; it's more Mohawk.

Alex (Indigenous policy leader) spoke about teaching students singing and drumming while speaking about ceremonies where the music would be used:

> I liked using drumming, hand drums and you can teach the students the songs that are sung in a variety of ceremonies, like when you're having a pipe ceremony, water song, [or] the pipe song…there's honour songs, so there's all kinds of songs you can teach the children at different grade levels, and then there's other ceremonies, like the sweat lodge, [and] different songs that you can learn there in those schools.

Sam (post-secondary instructor) spoke about how here degree program eventually included Indigenous ways of knowing throughout, in an effort to ensure Indigenous students felt more comfortable in the university environment:

> We've integrated Indigenous ways throughout our degree program…the land-based courses, there's science, STEM, all the integrated knowledge comes into a lot of land-

> based learning, we use STEM as part of the curriculum in [another program], so I think within our faculty…we've been working hard to change the culture of this place so that when they come on campus they can see themselves in who's teaching them and in the curriculum they are being taught, in the courses they take, and hopefully in the culture that we try to create in the faculty.

Alex also related that efforts have been made by instructors in the past to include Indigenous artistic content in the curriculum, which should be made a permanent part of mainstream curriculum:

> I remember there was an art teacher…and I remember seeing him teaching about different artists and helping students to understand that we have a very rich artistic history and helping students to know who some of those artists are….to me, that's what students can and should be learning about and that we have our own styles of art, there's not only one style, but many styles of art, that we have traditional art and also contemporary art.

In addition to Indigenous STEAM curriculum being culturally relevant, it must, according to Morgan (post-secondary instructor), have some relevance to the overall STEAM project design, as well as have a real-world application:

> For example, they wanted to connect the idea of volume of cones with tipis, and then in that conversation we had, we said, why would that be important….so in one of the conversations, we say, there should be a relevant question. Let's say you wanted to find out how many people could fit inside a tipi, [which] has to do more with the area of the circle in the base, and that's something that maybe is relevant If they need to design something, they need to at least know the surface area of the base, but that would be

> relevant, and that's a nice connection with STEM. One of the main focuses we have in STEM education here is the design process, and it's about creating something and going through the design process….I think that's an example of how the integration in STEM might work, so math, science, engineering, how it can inform the whole project. One of the common issues I see in students for the STEM course, which are pre-service teachers, so we ask them to design something for the classroom. Very often in trying to find the connection to the curriculum, they find the connection, but it's not relevant for the design process, and I think the example of the tipi is a good example. If you focus on the volume of the tipi, unless you use that, the volume is not relevant for the design, whereas the area would be relevant if we needed to make a decision about how many people would fit into the tipi.

Too often, Indigenous content is incorporated into curriculum in ways that are not culturally relevant, and in ways that serve no purpose in the curriculum, but exist only so that instructors can feel that they have accomplished their goal of integrating Indigenous content into their curriculum. This is one reason why collaboration with Indigenous people is so important in developing culturally respectful curriculum which also serves pedagogical purposes. This integration must be mindful and serve a purpose, otherwise it is itself without purpose.

The participants in this study were passionate about their ideas of meaningful Indigenous curriculum integration, whether it was done through the arts or not. All of the participants had worked in Indigenous curriculum integration and successfully achieved this integration to varying degrees. STEM and STEAM programs have similar benefits as Indigenous education and Indigenous arts integration, such as wholistic education, involving students in the curriculum design, integrating hands-on activities into curriculum, and designing curriculum that has real-

world applications. Indigenous education that is wholistic, designed by Indigenous and non-Indigenous educators working together toward common goals, that is also respectful of Indigenous peoples, could fulfill many objectives of mainstream and Indigenous curricular integration programs. As well, the work will have been done in a good way, to the benefit of all students.

CHAPTER 7: DISCUSSION

The purpose of this study was to investigate the experiences of Indigenous and non-Indigenous instructors who had worked with mainstream, Indigenous, and arts-based curriculum integration in order to determine how to integrate Indigenous arts-based curriculum into mainstream curriculum. In this chapter I discuss the major findings of this study, including increasing Indigenous involvement in planning, delivering, and evaluating Indigenous programs; improving collaboration between non-Indigenous people and governmental and institutional administration, and the benefits of this Indigenous curriculum for all students, and the benefits of curriculum integration for all students, including STEM, STEAM, and Indigenous arts integration. I then discuss the limitations of the study and areas for future research.

In this chapter I also address the research questions of this study:

1. To what extent does incorporating arts integration into mainstream education programs benefit students? What are the challenges and benefits to incorporating arts education in an integrated curriculum?
2. How does incorporating Indigenous perspectives and worldviews into mainstream education programs improve the experiences of students in the program? What are the challenges and benefits to incorporating Indigenous arts into integrated curriculum?
3. What are the positive or negative effects of Indigenous arts integration upon post-secondary students?
4. What are the structural and pedagogical changes that administrators and instructors need to make within existing mainstream systems in order to facilitate curriculum integration?

I will discuss five major components of curriculum integration that incorporates STEM and STEAM, arts integration, and Indigenous arts integration: (a) that Indigenous education program development must involve Indigenous people meaningfully at all stages; (b) that Indigenous culture and history should be privileged in mainstream and Indigenous curriculum; (c) that government and educational institution administration need to be more agile in order to make changes required to implement Indigenous educational programming; (d) that Indigenous educational practices and curricula benefit all students; and (e) that mainstream and Indigenous curriculum integration should include Indigenous arts as part of the integration. Indigenous education that incorporated these characteristics would benefit Indigenous and non-Indigenous students and improve their educational experience.

Interpretation of Findings

Although the participants in this study were diverse in terms of identity and roles in post-secondary institutions, there were many commonalities in their interview responses, which I categorized into five main themes.

Meaningful Involvement of Indigenous People

In order for Indigenous education to be culturally relevant for Indigenous people, the participants agreed that Indigenous people would have to be involved in the development and design of Indigenous education programs. One of the best ways to increase Indigenous programming in post-secondary institutions, according to the researchers, is to ensure that there is more presence of Indigenous people in those institutions (MacLellan, 2013; Pidgeon, 2014). To this end, university administrators across Canada have made efforts to include more Indigenous professors in their faculties, particularly since the TRC calls to action were released

(Treleaven, 2018); although at many institutions, this change is slower than may have been expected following the TRC (Martens, 2019).

In this study, Indigenous post-secondary faculty called for changes such as including Indigenous perspectives in mainstream curriculum, but also recommended that the people who worked to develop this curriculum should also be Indigenous and that they would require enough knowledge to know whether the developed Indigenous curriculum was acceptable or not. This is aligned with recommendations of the ICIE (National Indian Brotherhood) 1972, which stated that Indigenous community members should be involved in curriculum development. Indigenous research has also shown that involving Indigenous people in curriculum development has positive impacts upon the curriculum and whether or not the Indigenous curriculum is culturally appropriate (Anuik et al., 2010; Kanu, 2011; Iseke-Barnes, 2008; Ragoonaden & Mueller, 2017; Battiste, 2000; Battiste et al., 2002; Castellano et al., 2000). Some provinces have moved to include Indigenous educators in mainstream curriculum development, which is another good sign of the willingness to include Indigenous perspectives in curriculum (Province of Manitoba, 2017). Involving Indigenous people in curriculum development could also extend to the Indigenous community outside of academic institutions, who would be important allies in ensuring that Indigenous curriculum is connected to the local Indigenous community and is culturally respectful (Abbotsford School, 2020). Another positive aspect of involving Indigenous people in program development is that Indigenous culture and history could occupy positions of privilege within mainstream curriculum.

It is important to involve Indigenous people in the development of new curriculum because then there is a greater chance that Indigenous curriculum will be privileged and that Indigenous culture can be included in deeper, more meaningful ways. One of the participants

spoke at length about how Indigenous culture may be addressed in mainstream classrooms as part of making curriculum more culturally relevant, but who makes the decisions about which aspects of culture are included and whether that cultural information is true or not? It is important that Indigenous people with this knowledge are included in decision-making processes about curriculum, because they may be able to provide insight that other faculty and leadership cannot. It is important that Indigenous people who are already in faculties be seen as resources who might be able to strengthen Indigenous education within their faculties.

Privileging Indigenous Culture and History in the Curriculum

The participants in this study agreed that one of the factors in Indigenous students becoming disconnected from curriculum was the white hegemony that characterized mainstream curriculum and that they felt it was their role to confront this long-standing issue in Indigenous education. Indigenous research has also shown that mainstream government has had an assimilationist agenda with regard to Indigenous people (Anuik et al., 2010; Battiste, 2013; Carpenter, 2017; Iseke, 2010; Milloy, 2017; TRC, 2015a). One of ways the participants chose to resist colonial behaviour in Indigenous education was to include positive representations of Indigenous peoples in curriculum, but to do so in ways that were also as accurate as possible and that included Indigenous contributions to modern society. Some Indigenous students also may not have been aware of these contributions (Antone, 2005; Ray & Cormier, 2012; Schick & St. Denis, 2005; Smith, 1999). Including positive portrayals of Indigenous peoples in modern context could also help to address past practices of developing curriculum which only included historical Indigenous curriculum, which could make it seem as though Indigenous peoples are relics of that past (Battiste, 2013).

In addition, some of the participants included curriculum that addressed white privilege and the resulting privileging of Western knowledge in curriculum (Anderson et al., 2016; Atleo & Fitznor, 2010; Blyth, 2008; RCAP (1996), Trudeau & Cherubini, 2010; TRC (2015a). Antone (2005) commented that despite all of these attempts by the government and mainstream education to assimilate them, Indigenous cultures were preserved by Indigenous people through practices such as the potlatch, hunting, gathering, trapping, games, lifestyle, cultural norms, and stories. Some of the participants commented that Indigenous culture that had survived would also be of great benefit to the earth and to all peoples. Another benefit of privileging Indigenous curriculum is that doing so often lead to greater success of Indigenous students, which Indigenous education researchers have also found (Battiste, 2000; Battiste, 2013; Battiste et al., 2002; Gallop, 2016; Iseke-Barnes, 2008; Malatest, 2005; Pidgeon et al., 2013). Privileging Indigenous content was important to the participants, but most encountered challenges from the educational institutions where they were trying to make these changes.

Some of this challenge or opposition might be the result of those in power feeling threatened by the idea of including curriculum with which they are unfamiliar but with which others are familiar. Some of the participants commented upon the difficulties they had with administration when trying to implement more Indigenous-focused curriculum, and that in some cases, the resistance came from administration. One contributing factor to this reluctance might be the long-standing resistance to giving up or sharing control over curriculum with Indigenous peoples (Cote-Meek, 2019; Daniels, 2019). It would be helpful to interrogate why the resistance remains after 50 years and more of Indigenous efforts to adapt mainstream curriculum to be more inclusive of their own peoples and cultures and what we could do collaboratively to challenge this resistance for the future. In some ways, the issue is trust. The provincial and

federal governments have recently made moves toward mandating new relationships with Indigenous communities that are more equal than they have been in the past (Fontaine, 2015; Government of Manitoba, 2018; MFNERC, 2018; Prime Minister of Canada, 2017), which may be a positive sign that they might be developing this trust, at least to a greater extent than before.

Adaptation of Government and Institutional Processes

Two of the biggest challenges to changing educational systems is lack of agility in academic institutions and within government to make changes in order to accommodate Indigenous perspectives and content in curriculum. One of the changes that all of the participants believed needs to happen is the inclusion of Indigenous curriculum and perspectives at the post-secondary level in order to foster Indigenous student success, an idea which researchers have also found to be true (Anuik et al., 2010; Adler & Greyeyes-Brant, 2011; Gordon & White, 2013; Preston, 2008; Ray & Cormier, 2012; Scowcroft, 2015; TRC, 2015b). However, in order for post-secondary institutions to accommodate these changes, as Manitoban educational institutions also agreed to do in the Manitoba Blueprint (Government of Manitoba, 2015), administrators need to change the way they interact with Indigenous people trying to make these changes within those institutions. Issues such difficulties in securing funding for Indigenous initiatives, adapting projects in order to satisfy institutional regulations instead of changing those institutional regulations to satisfy Indigenous requirements, and power sharing between Indigenous peoples and institutions, need to be addressed meaningfully if any progress is going to be made in incorporating Indigenous perspectives at the post-secondary level (Cote-Meek, 2018; Jenkins, 2008; Universities Canada, n.d.). Without these changes, it will be difficult, if not impossible, to make the administrative changes required to implement Indigenous education initiatives.

The participants universally commented upon a potential root cause for educational institutional and government reluctance to implement Indigenous education initiatives, which was because higher levels of power may not be willing to share power or commit to long-term solutions, as has also been outlined by Indigenous researchers (Debassige, 2010; Drawson et al., 2017; Fallon & Paquette, 2012; Iseke, 2010). As well, government and university administration often is not willing to commit long-term solutions and instead focuses on individual projects, which makes permanent solutions difficult to achieve (Battiste, 2002; Mackh, 2015; Milke, 2020; Restoule, 2008).

Participants also offered that if collaboration would not work, that Indigenous people could develop Indigenous education in their own institutions, which has happened across Canada: First Nations University of Canada, University College of the North, Yellowquill College, and Seven Generations Education Institute are some examples of these (First Nations University of Canada, 2020; Seven Generations Education Institute, 2021; UCN, n.d.; Yellowquill College, 2020). Although it might be easier in some ways to incorporate Indigenous education without the involvement of mainstream administration in a segregated education system, non-Indigenous students would lose the opportunity to benefit from Indigenous education principles and curriculum.

Benefits to All Students of Indigenous Educational Practices and Curricula

One of the characteristics of Indigenous education is interdisciplinarity (Breiner et al., 2012; Holley, 2017), which the participants indicated was also a defining characteristic of STEM and STEAM in mainstream curriculum. The benefits of curriculum integration are that all students, Indigenous and non-Indigenous, build understandings of curriculum by making connections between curricular subjects and how different problems can sometimes be related to

each other (Brown et al., 2007; Burnaford et al., 2007). As well, all students would benefit from two-eyed seeing, which incorporates both Indigenous and non-Indigenous perspectives in curriculum (Bartlett et al., 2012). Arts integration is also interdisciplinary because it would be infused throughout the curriculum, which would benefit all students (Burnaford et al., 2007; Rieger & Chernomas, 2013; Riley, 2012; Smilan & Miraglia, 2009), so STEM and arts integration could be implemented together because they have similar characteristics, and STEM already includes arts integration (Biin & Weston, 2015; Institution for Arts Integration and STEAM, 2020), as does Indigenous education (Bell, 2013; Cook-Lynn, 1997; James, 2018; Ohnesorge, 2008; White Shield, 2003). Most importantly, the Indigenous wholistic approach must be paramount in any discussions of Indigenous education or curriculum integration that involves Indigenous people. Absolon (2016) writes that "balance is achieved by being mindful of all directions together to create a wholistic and ethical approach" (p. 48). Indigenous ways of seeing must be present not only in Indigenous curriculum, but must also inform the planning process, delivery, and evaluation of these program. As well, non-Indigenous students who benefit from curriculum integration such as STEM and STEAM, arts integration, might also benefit from Indigenous arts integration, which would incorporate principles of STEAM and of mainstream arts integration, because of the content but also because of the incorporation of wholism throughout the program.

The participants spoke about how STEM and STEAM could incorporate Indigenous perspectives and include Indigenous contributions to science and technology, especially to highlight that Indigenous peoples had technologies to which non-Indigenous peoples had to adapt when they came to North America in order to survive. The benefit of including this information in mainstream curriculum is the same for Indigenous and non-Indigenous students: it

provides evidence that Indigenous were not savages who needed to be civilized by non-Indigenous peoples; on the contrary, non-Indigenous peoples needed to incorporate Indigenous technologies about accessing food, transportation, and shelter into their own lives in order to survive. Indigenous students who learned about Indigenous science and math from this perspective would see themselves reflected positively in curriculum, which is not always the case, and non-Indigenous students might learn to have more respect for and greater understanding of Indigenous peoples (Aikenhead & Mitchell, 2010; Axworthy et al., 2012; Episkenew, 2012; Kirkness, 2013). The participants also universally commented that privileging or including Indigenous curriculum as part of mainstream and Indigenous education in meaningful, culturally appropriate ways also would be a more equitable and respectful approach to Indigenous education, and would help to combat stereotypes and false narratives in past educational practices, which researchers have also found (Atleo & Fitznor, 2010; Blythe, 2008; ; Lester-Smith & Price, 2010; Marsh, 2012; Mashford-Pringle & Nardozi, 2013). In addition to mainstream curriculum integration, Indigenous education could also incorporate Indigenous arts as part of the integration.

Including Indigenous Arts in Mainstream, Indigenous, and Arts Curriculum Integration

Indigenous arts integration would incorporate all of the other forms of curriculum integration the participants spoke about in this study, including STEM and STEAM, arts integration, and Indigenous curriculum integration. Including Indigenous arts in curriculum integration benefits Indigenous peoples not only because their perspectives, cultures, and ways of knowing will be privileged in the integration, but that the Indigenous perspectives on wholistic curriculum will also be incorporated into the program. This Indigenous curriculum will also benefit non-Indigenous students. This is because Indigenous arts curriculum, as described by the

participants, can help all students to understand Indigenous cultures and worldviews; help restore balance and positivity in difficult times; participate actively in curriculum; see the connections between arts and other curricular subjects, including Indigenous curriculum; and reclaim identity through language, songs, and ceremony, which are all important aspects of Indigenous education (Anuik et al., 2010; Berti et al., 2014; Hydo et al., 2007; Matilpi, 2012; Ohnesorge, 2008; Pacini-Ketchabaw & Pence, 2011;).

Indigenous arts integration helps students to connect to their own histories, cultures, and communities and pass what they have learned on to the next generation, which all participants agreed was an important component in Indigenous education (cultural continuity). Researchers also agree that cultural continuity is important to Indigenous education (Anuik et al., 2010; Auger et al., 2016; Barajas-Lopez & Bang, 2018; Battiste, 2000; Battiste et al., 2002; Castellano et al., 2000; Iseke-Barnes, 2008; Ragoonaden & Mueller, 2017; Reading & Wien, 2009). Cultural continuity is an important aspect of Indigenous arts integration because people need to preserve performed culture from the past and the present future generations (Battiste, 2013; Chandler & Lalonde, 2008; Reading & Wien, 2009; White Shield, 2009). There are similarities between STEAM and Indigenous arts integration, which makes their integration more feasible.

The participants identified characteristics of STEAM and Indigenous arts integration, and the two types of curriculum integration do have similarities, such as wholistic approach to curriculum, collaborative learning, hands-on activities, cultural and social relevance of activities, student participation, and finding solutions to real-life situations and concerns in the community. The Manitoba Blueprint (2015) and the TRC (2015b) both called for more culturally respectful curriculum and higher positioning of Indigenous curriculum in mainstream education, both of which could be addressed in Indigenous arts integration programs that included STEAM.

Indigenous arts integration could also help Indigenous people to reconnect with their culture and help all students to connect to each other (Curwen Doige, 2003; Episkenew, 2012; Lashua & Fox, 2006; Marsh, 2012; University of Minnesota, 2018) and to the land (Bartlett et al., 2012; Little Bear, 2009; Ray & Cormier, 2012; Young, 2015). One of the most important ways that Indigenous arts integration would contribute to curriculum integration is in the incorporation of spirituality into the curriculum.

Some participants felt that spirituality was so entwined with culture that the two were inseparable, so that any Indigenous cultural content would necessarily include Indigenous spirituality, while others believed that spiritual activities should be separate from main curriculum and that students should choose whether or not to participate in those activities. All Indigenous spiritual practices involve music, art, or both (Goudreau et al., 2008), so spirituality would likely always involve music and/or art if it were incorporated into curriculum. In addition, Indigenous spiritual activities help Indigenous students in other important ways and are considered by many Indigenous educators to be an important part of a wholistic education, in addition to *mino-pimaatisiwin*, or living life in a good way (Curwen Doige, 2003; Gaudry & Hancock, 2012; Groen, 2009; Trudeau & Cherubini, 2010; White Shield, 2009). However, many of the participants agreed that any engagement with spirituality in the classroom would have to be agreed upon by everyone involved in the program, including teachers, administrators, and community members (Pettigrew, 2017; Rodriguez de France et al., 2017; Wood, 2019).

These five aspects of Indigenous curriculum integration, involving Indigenous people at all stages of the program, privileging Indigenous culture and history, needed changes to government and administration, the benefits of Indigenous arts integration programs for all

students, and mainstream and Indigenous curriculum integration programs having to include Indigenous arts, should all be included in any Indigenous post-secondary programming.

Limitations of the Study

One of the issues I encountered during recruitment was trying to find Indigenous post-secondary instructors who had also worked with curriculum integration or arts integration. As a result, the only participants who had incorporated STEM and STEAM into their instruction at the post-secondary level were non-Indigenous and the Indigenous musicians and artists who had worked with Indigenous arts integration were not post-secondary instructors.

Another issue was that although all of my participants had worked in curriculum integration at the post-secondary level, they worked with stand-alone projects and not with degree programs were designed as curriculum-integrated programs throughout. It would have been preferable to examine degree programs that had completely integrated curriculum, particularly those that included Indigenous arts integration as part of the integration.

It might be difficult to implement this type of integrated curriculum at the post-secondary level for a variety of reasons, such as collaboration among instructors, who would need time release from their other courses in order to work on a new program and would need to be able to collaborate effectively for a number of years while developing the program on an ongoing basis. The leadership of the faculty would also have to support the initiative and facilitate the collaboration among instructors through time release, hiring of elders and other cultural knowledge keepers, and facilitating these over a number of years. In addition, government and institutional leadership would also have to be financially supportive of the project. In order to implement a STEAM program incorporating IAI, there would have to be a great deal of collaboration.

Indigenous voices would have to be privileged when developing and delivering the program because theirs would be the voices of experience and expertise, so other collaborators would need to defer to them even though many would be uneducated, at least in Western terms. There may also be issues with privileging Indigenous content and ways of knowing over mainstream in an institution such as a university. This might be problematic for highly educated instructors as well as for Indigenous people, particularly if this type of collaboration were a new venture for either group. The most important component of this collaboration would be that Indigenous contributions, perspectives, and worldviews would be honoured in the process of curriculum development, as well as in the curriculum itself. Indigenous voices must be privileged from the beginning and on an ongoing basis because collaborations of this type often result in the diminishment or silencing of Indigenous voices (Antone, 2000; Battiste, 2000; Christensen, 2011; Julien et al., 2011).

Recommendations for Future Research

In the future, curriculum designers and instructors could design and implement a pilot program that would incorporate Indigenous arts integration as well as instructor collaboration in the process. In addition, Indigenous and non-Indigenous students and instructors could be involved in this process and together could help to determine best practices for future collaborations. Indigenous curriculum developers should be privileged in this process, so that they can be involved in designing curriculum that is culturally respectful of Indigenous ways of knowing, but also so that they can develop curriculum that has greater depth. This would also necessitate the involvement of the Indigenous community, whether they be rural or urban, to help curriculum developers with local knowledge and issues in the local community.

Researchers could also investigate the experiences of students who had completed a degree program that incorporated elements of curriculum integration such as STEM or STEAM

that also incorporated Indigenous arts. Future programs could then be informed by the student experiences in these programs. As well, researchers could compare the Indigenous student experiences in STEAM and Indigenous arts integration programs; conversely, researchers could compare the non-Indigenous student experiences in these programs.

Indigenous education should be incorporated into or form the basis of curriculum integration because it is good pedagogy for all students, incorporating practices such as a wholistic approach to curriculum development and design, arts integration, student empowerment, cultural relevance to local Indigenous communities, and collaborative in the sense that students, instructors, and administration work toward shared goals. If administration, instructors, students, and the community were able to collaborate to develop this curriculum, it would be of benefit to all students, Indigenous and non-Indigenous.

CHAPTER 8: CONCLUSION

Past Indigenous education was not respectful of Indigenous worldviews or teaching practices because Indigenous people were not considered in the process of developing those educational systems, such as during the residential school era and the continuing colonial education that followed. Throughout these years of colonial education, the purpose has been the assimilation of Indigenous people, who are still expected to abandon their cultures and beliefs in order to succeed in the mainstream education system and in mainstream society. Although assimilation is not an explicit goal of education, the content and education systems themselves are assimilative and, for the most part, not inclusive of Indigenous content and ways of knowing, even now. As a result, some Indigenous people continue to feel disconnected from their identities as Indigenous people and do not have the opportunities in mainstream education to re-establish these connections to who they are. Sometimes Indigenous people have no connection at all to their Indigeneity due to a number of factors, such as being adopted out, being born and raised in mainstream communities, or having parents who may have felt compelled to sever their ties to Indigenous culture, perhaps after having been brainwashed against it in their own residential school experiences or after displacing Indigenous connections to spirituality with Western beliefs.

If Indigenous students do not learn about their Indigeneity at home, then perhaps they could learn about Indigenous culture and identity at school. Some institutions have tried to incorporate two-eyed seeing into curriculum, so all students could have access to both forms of knowledge. In addition, mainstream curriculum integration could be useful for students to see the relationship among disparate types of content, and Indigenous education would incorporate aspects that mainstream education may not, such as a deeper relationship with content, for

example, working with the Indigenous community to ensure the curriculum has local knowledge that is respectful of Indigenous worldviews.

Indigenous curriculum integration should be a central characteristic of all Indigenous education programs for a number of reasons: Indigenous education itself is wholistic, the curriculum would privilege Indigenous perspectives, Indigenous peoples would have control of curriculum, and Indigenous arts, which are excellent pathways for engaging with Indigenous cultures, would be a central feature of integrated curriculum. As well, Indigenous curriculum would be accessible to all students, to the extent that non-Indigenous students are willing to participate in Indigenous activities such as spirituality. Indigenous curriculum should also be designed so that all students would learn about the positive contributions of Indigenous peoples, and this information could be incorporated in different courses across the curriculum. Indigenous curriculum integration could also be beneficial in building understanding among members of the Indigenous community, students, instructors, and administrators because they would work together to build Indigenous integrated curriculum.

Indigenous curriculum should be supported by administration, both at the institutional and governmental level, not just in the interests of reconciliation, but because Indigenous curriculum incorporates so many aspects of pedagogy that are beneficial for all students, such as curriculum integration, wholism, hands-on activities, community involvement, and collaboration among students, instructors, administration, and the Indigenous community. This collaboration would also help to eliminate barriers to the development of Indigenous curriculum because these different groups would also build relationships with each other, which would help to alleviate "perfect stranger" aspects of identity and lead to further collaborations, so that over time these collaborations would become normalized in academic institutions.

Indigenous education, arts integration, and STEM and STEAM share common characteristics besides the integration of curriculum. Common features include curriculum integration, arts integration, wholistic approach to curriculum, collaboration, student involvement in curriculum development, hands-on student experiences, community involvement, and relevance of curriculum to real-world issues.

Indigenous arts integration would incorporate all of these features of curriculum integration with an added focus upon Indigenous issues and pedagogy, including Indigenous-specific content; real-world applications of Indigenous content, Indigenous-led educational processes, privileging of Indigenous cultural knowledge, Indigenous arts and music, and connections among aspects of Indigenous culture such as spiritual beliefs, land, and education, which are all related. As well, Indigenous arts integration would be directed by Indigenous peoples, who have unique perspectives on the content and delivery of Indigenous arts as well as other aspects of Indigenous cultures, so their voices must be privileged in the curriculum development process, particularly considering the wholistic curriculum which might be produced when Indigenous peoples are in control of that process (Indigenous arts integration would be different from other forms of curriculum integration because of the respectful, community-based relationship with curriculum and the privileging of Indigenous curriculum in mainstream and Indigenous education. The main features of this curriculum integration would be privileging of Indigenous worldviews and beliefs and empowerment of Indigenous students and communities in the educational process, which would form the basis of a new relationship with educational processes in which Indigenous peoples would control content and pedagogy in a system which acknowledges and privileges Indigenous voices. Indigenous arts integration would be an anti-

colonial response to mainstream curriculum, through which mainstream society unsuccessfully attempted to assimilate Indigenous peoples in Canada.

Future Directions of Indigenous Education

Educators, government, and Indigenous peoples have been discussing Indigenous education reform for decades (NIB, 1972), usually with the best of intentions (Anderson & Fleming, 2014; Kirkness, 2003; Pidgeon, 2014; Prime Minister of Canada (2017), but in 2020, Indigenous inclusion in curriculum remains an issue.

What are the barriers to curriculum integration that includes Indigenous curriculum, including cultural curriculum? One of the main issues is that Indigenous peoples are often not given an to participate equally when these discussions take place and also do not have the ability to create their own curriculum because of government control and lack of their own funds to do so (Paquette & Fallon, 2010). We are not seen as trustworthy enough to develop our own curriculum for our own people, especially in formal education settings or our curriculum is given the position of being an add-on to existing, legitimate curriculum (Battiste, 2013; Battiste et al., 2002; Bell, 2013; Blythe, 2008; Kirkness, 2003; March, 2012; Robertson, 2003). Often, these issues are difficult to confront, especially if doing so might also involve people examining their own reasons for not wanting to do so (Carr-Stewart, 2001; Hogarth & Fletcher, 2018). Indigenous and non-Indigenous instructors, administrators, and institutional governance must collaborate as equals in this process, otherwise nothing will change.

Another major issue is curriculum, which as mentioned above, should be developed by Indigenous people or which should involve Indigenous people heavily in the process (Anuik et al., 2010; Battiste, 2000; Battiste, 2013; Battiste et al., 2002; Castellano et al., 2000; Gallop, 2016; ICIE, 1972; Iseke-Barnes, 2008; Kanu, 2011; Pidgeon et al., 2013). Even when Indigenous

people develop curriculum, not all would agree on what constitutes truth in Indigenous spirituality, for example, and without working together to determine what those truths are, the curriculum may engage with this knowledge only in shallow ways or maybe in incorrect ways (Anderson et al., 2016; Davis, 2012; Flicker et al., 2016; Godlewska et al., 2013). This is particularly true when the educational leaders hiring Indigenous curriculum developers or Indigenous instructors are not aware themselves of what the truth is in order to evaluate whether it is being represented accurately in the curriculum (Henry, 2012; Louis, 2017; Pidgeon, 2014).

Collaboration among equals would help to mitigate some of these issues in Indigenous curriculum integration, and since this collaboration would be necessary in order to develop the curriculum, it seems to be a logical starting point for these discussions. Some questions to guide these discussions might involve defining what curriculum integration involving mainstream arts integration such as STEAM and Indigenous arts integration could exist together without privileging mainstream over Indigenous curriculum. If anything, Indigenous voices should be privileged in the discussion due to past and present harmful educational practices of the mainstream (Aikenhead, 2001; Ermine, 1995; Hogue, 2016; Mack et al., 2012; TRC, 2015). One way to collaborate would be to form multidisciplinary teams to develop these programs and then guide the program development as the programs run. This type of egalitarian collaboration is more possible now than at any other time because we are in a time of change and reconciliation. Indigenous and non-Indigenous educators can collaborate to develop education that honours the contributions, perspectives, and knowledges of Indigenous peoples that have been ignored in the curriculum for so long.

APPENDIX A: ETHICS APPROVAL

UNIVERSITY OF MANITOBA | Research Ethics and Compliance

Human Ethics
208-194 Dafoe Road
Winnipeg, MB
Canada R3T 2N2
Phone +204-474-7122
Email: humanethics@umanitoba.ca

PROTOCOL APPROVAL

TO: **Karen Favell** **(Advisor: Laara Fitznor)**
Principal Investigator

FROM: **Zana Lutfiyya, Chair**
Education/Nursing Research Ethics Board (ENREB)

Re: **Protocol #E2019:076 (HS23130)**
Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education

Effective: October 2, 2019 **Expiry:** October 2, 2020

Education/Nursing Research Ethics Board (ENREB) has reviewed and approved the above research. ENREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.*

This approval is subject to the following conditions:

1. Approval is granted for the research and purposes described in the application only.
2. Any modification to the research or research materials must be submitted to ENREB for approval before implementation.
3. Any deviations to the research or adverse events must be submitted to ENREB as soon as possible.
4. This approval is valid for one year only and a Renewal Request must be submitted and approved by the above expiry date.
5. A Study Closure form must be submitted to ENREB when the research is complete or terminated.
6. The University of Manitoba may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

Funded Protocols:
- **Please e-mail a copy of this Approval, identifying the related UM Project Number, to the Research Grants Officer at researchgrants@umanitoba.ca**

APPENDIX B: ETHICS AMENDMENT

University of Manitoba | Research Ethics and Compliance

Human Ethics - Fort Garry
208-194 Dafoe Road
Winnipeg, MB R3T 2N2
T: 204 474 8872
humanethics@umanitoba.ca

AMENDMENT APPROVAL

February 6, 2020

TO: **Karen Favell** **(Advisor: Laara Fitznor)**
Principal Investigator

FROM: **Zana Lutfiyya, Chair**
Education/Nursing Research Ethics Board (ENREB)

Re: **Protocol #E2019:076 (HS23130)**
Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education

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Education/Nursing Research Ethics Board (ENREB) has reviewed and approved your Amendment Request received on **February 4, 2020** to the above-noted protocol. ENREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.*

This approval is subject to the following conditions:

1. Approval is given for this amendment only. Any further changes to the protocol must be reported to the Human Ethics Coordinator in advance of implementation.
2. Any deviations to the research or adverse events must be submitted to ENREB as soon as possible.
3. Amendment Approvals do not change the protocol expiry date. Please refer to the original Protocol Approval or subsequent Renewal Approvals for the protocol expiry date.

APPENDIX C: LETTER OF INFORMATION



UNIVERSITY OF MANITOBA

Letter of Information

October 1, 2019

RE: Research Project Title: "Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education".

Researcher:
Karen Favell, PhD candidate, University of Manitoba
Email: karen.favell@umanitoba.ca
Phone: 204.474.7227

Hello,

My name is Karen Favell, and I am a PhD candidate in the Faculty of Education at the University of Manitoba. I am interested in learning more about the experiences of Indigenous and non-Indigenous instructors who have incorporated STEM, STEAM, and Indigenous arts into their instructional practice. STEM is an interdisciplinary system of curriculum integration that combines science, technology, engineering, and mathematics. STEAM also combines science technology, engineering, and mathematics, but also includes integrating the arts into curriculum. My study is titled: "Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education". This study is a constituent part of my PhD thesis, which is one component of my degree.

The purpose of the study will be to determine which factors may have lead to the success of programs which incorporate curriculum integration into their pedagogy, such as STEM, STEAM, and Indigenous arts, and the extent to which these programs may have been infused with

Indigenous music and art. The secondary purpose of this study is to determine whether or not the success of Indigenous post-secondary programs abroad can be achieved here in Canada.

In order to conduct my research, I am looking to recruit 8-10 Indigenous and non-Indigenous instructors who have incorporated curriculum integration with their Indigenous and non-Indigenous students, in mainstream education or Indigenous education. I anticipate that 2/3 of the participants will be Indigenous. I will stop searching for participants when I have confirmed that 10 will participate. I am interested in conducting individual one-hour interviews with each person to better understand their experiences working in curriculum integration. I anticipate that the interview will last approximately one hour. We will hold the interviews at a time and place (if in person) of the interviewee's choosing.

We will use the telephone, Skype, FaceTime, WhatsApp, or whichever method of communication the interviewee wishes to use when in-person interviews are not possible. I will record the audio only of these interviews; there will be no video recording.

Before we conduct the interview, I will give you a consent form to read, consider, and sign. I will go over this form with you. If you have any questions during that time, I will do my best to address your questions and/or concerns. I will audio record the interview using a digital recording device, and later I will transcribe what was said verbatim. I will also take written notes. These notes will help me to recall the discussion and also serve as a back-up in case the recording malfunctions or is inaudible in any way. These notes will be incorporated into my analysis if and as necessary. After the interview, I will go over the major points with you to make sure I have not misunderstood or misstated anything you have said. I will send you a copy of these transcribed notes one week after our interview so that you can review them again for accuracy, which should take less than an hour of your time.

Your confidentiality will be maintained, as I will not refer to you by name. I will assign you a pseudonym. I will also refrain from identifying any organizations, groups, or individuals you may mention during the course of the interview by omitting the reference or assigning a pseudonym. This means that I will not share any information from the interview with anyone else besides my advisor, except as anonymized data with my thesis committee. If you choose to participate in this study, you may refuse to answer any questions, end the interview, or withdraw from the study completely at any time before the data analysis phase of the study, which will be in November 2019.

Once I have transcribed the interview, likely within one week, I will send a copy to you, in case you want to clarify something you said or provide any more feedback. If I do not hear from you, I will assume that you are satisfied with the transcription. Once my analysis of all of the interviews is complete, I will also send you a brief summary of my findings. I anticipate sending the summary within three months of the data collection period, by November 1 at the latest. You

will be offered the opportunity to receive the transcript and summary either by regular mail or by electronic mail.

My advisor and I will be the only people who have access to the raw data with identifying information. In any written materials I compose using this data, I will refer to you by using a pseudonym. The transcribed electronic data will be stored on an encrypted USB flash drive and also stored in a locked drawer in my locked office. After five years (August 2024), I will re-format and then physically destroy the USB flash drive and dispose of any printed material in a locked shredding bin in the Faculty of Education at the University of Manitoba. Should you withdraw from the study, any electronic data you had provided will also be destroyed in the encrypted flash drive and by the shredding of any hard copy data you had provided.

I anticipate potential minor risk to you as a result of participating in this study. This minor risk may result because of negative memories that may emerge as a result of remembering past potentially difficult experiences in curriculum integration. Should you feel uncomfortable during the interview, you may stop the process. There is no penalty if you decide not to participate. However, you may feel this kind of discussion is relevant and important to have.

This research has been approved by the Human Ethics Office at the University of Manitoba. If you have any concerns or complaints about this project you may contact the Human Ethics Office at 204.474.7122 or Dr. Laara Fitznor.

If you would like more information or if you would like to take part in this research project, you can email me or call me. My contact information is at the end of this letter.

Thank you,

Karen Favell, PhD candidate, Faculty of Education

karen.favell@umanitoba.ca

204.474.7227

APPENDIX D: LETTER OF CONSENT



UNIVERSITY OF MANITOBA

Letter of Consent

October 1, 2019

RE: Research Project Title: "Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education".

Researcher:
Karen Favell, PhD candidate, University of Manitoba
Email: karen.favell@umanitoba.ca
Phone: 204.474.7227

Advisor:
Laara Fitznor, PhD, University of Manitoba
Email: laara.fitznor@umanitoba.ca
Phone: 204.951.0990

This consent form, a copy of which will be left with you for your records and reference, is only 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. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of the Research

I am a PhD candidate at the University of Manitoba. I am interested in learning more about the experiences of Indigenous and non-Indigenous instructors who have incorporated STEM, STEAM, and Indigenous arts into their instructional practice. My study is called: "Reconciliation through Indigenous Music and Art: Indigenous Arts Integration in Teacher Education". This study will inform my PhD thesis, which is one component of my degree.

The purpose of the study will be to determine which factors may have lead to the success of programs which incorporate curriculum integration into their pedagogy, such as STEM, STEAM, and Indigenous arts, and the extent to which these programs may have been infused with Indigenous music and art (removed "content"). The secondary purpose of this study is to determine whether or not the success of Indigenous post-secondary programs abroad can be achieved here in Canada.

In order to conduct my research, I am looking to recruit 8-10 Indigenous and non-Indigenous instructors who have incorporated curriculum integration with their Indigenous and non-Indigenous students, in mainstream education or Indigenous education. I anticipate that 2/3 of the participants will be Indigenous. I will stop searching for participants when I have confirmed that 10 will participate. I am interested in conducting individual one-hour interviews with each person to better understand their experiences working in curriculum integration. I anticipate that the interview will last approximately one hour. We will hold the interviews at a time and place (if in person) of the interviewee's choosing. We will use the telephone, Skype, FaceTime, WhatsApp, or whichever method of communication the interviewee wishes to use.

Research Procedures and Recording

In order to conduct my research, I will interview you for approximately one hour and I will record the interview using a digital recorder. I will then transcribe the interview and send you a copy of the transcript approximately one week after the interview so that you can review it for accuracy, which will likely take 20-30 minutes. I will examine the data in order to determine if any themes emerge and then organize the data into these themes. Once the study is complete, I will provide you with a copy of it.

Risks and Benefits

I anticipate potential minor risk to you as a result of participating in this study. This risk may result because of negative memories that may emerge as a result of remembering past potentially difficult experiences in curriculum integration.

Anonymity and Confidentiality

I will record your interview using a digital recorder. Following the interview, I will remove the audio file from the digital recorder and store the data from your interview on an encrypted USB flash drive. I will also transcribe these data into a document which I will store on the same encrypted USB flash drive. I will store this USB flash drive in a locked cabinet in my office, which is also locked. I will also store any hard-copy data generated from the study in the same locked cabinet in my office. Only my advisor and I will have access to this non-anonymized data; my thesis committee will have access to anonymized data only. I will identify you using only a pseudonym in any documents I produce from this study. I will destroy the data from this

study after five years by physically destroying the USB flash drive and shredding any hard copy data. If you should choose to withdraw from the study, any electronic or hard-copy data will be destroyed in the same way as participant data.

Compensation and Participation

There are no direct benefits to taking part in this study, however, you may derive indirect benefits by taking part. You may experience satisfaction by being able to contribute to the study. In order to thank you for taking the time to share your experiences with me, I will give

you a $25 gift card from Tim Horton's or from a bookstore at your campus or in your city, whichever you prefer.

Feedback and Debriefing

You will have an opportunity to review our transcribed interview approximately one week after our interview. I will send you a copy of the transcript so that you will be able to review it for accuracy, which should take approximately 20-30 minutes, in case you want to clarify something you said or provide any more feedback. If I do not hear from you, I will assume that you are satisfied with the transcription. Should you have any problems or wish to add or change anything you have said, you can call or email me with changes. I will also send you a brief summary of my findings once all of the interviews have taken place and all the data have been analyzed. I anticipate sending the summary within three months of the data collection period. You will be offered the opportunity to receive the transcript and summary either by regular mail or electronic mail.

Dissemination of Results

Since I am conducting this study as part of my PhD thesis, the data generated from this study will be published in the thesis and, potentially, journal articles in the future. I will also be presenting these findings at academic conferences in the future. My thesis committee will see only anonymized data and any publications which include this data will also be anonymized. You will receive a summary of the data by October 31, 2019.

Destruction of the Data

My advisor and I are the only people who will have access to the raw data with identifying information. Raw electronic data will be collected on a digital recorder. Following the interview, I will transfer the data to a password-protected USB flash drive and the digital recorder will then be erased (wiped clean). The transcribed interviews will be stored on this password-protected USB flash drive and stored in a locked cabinet in my locked office. The flash drive will be re-formatted and then physically destroyed after five years, in August 2024. Hard copy data will be deposited in a locked container in the Faculty of Education at the

University of Manitoba for professional shredding. All electronic data will be destroyed by destroying the USB flash drive on which the data will be stored.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time before the start of data analysis, which will be November 2019. You may refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way.

This research has been approved by the Human Ethics Office at the University of Manitoba. If you have any concerns or complaints about this project you may contact the Human Ethics Office at 204.474.7122 or Dr. Laara Fitznor.

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

☐ I wish to receive the summary by regular mail. My address is:

☐ I wish to receive the summary by email. My address is:

☐ I wish to receive the interview transcript by regular mail. My address is:

☐ I wish to receive the interview transcript by email. My address is:

APPENDIX E: INTERVIEW GUIDE



UNIVERSITY OF MANITOBA

October 1, 2019

Interview Guide

Hello and thank you for agreeing to talk to me today. I anticipate that this interview will take approximately one hour.

Thank you for reviewing the consent form and agreeing to participate in this study. My academic research involves the integration of STEM, STEAM, and Indigenous arts-based curriculum into mainstream curriculum in order to determine how instructors have achieved this integration in post-secondary and other academic settings.

I have designed the research questions for this study in order to investigate the experiences of Indigenous and non-Indigenous instructors who have worked with integration of curriculum in order to determine how best to integrate Indigenous arts-based curriculum into mainstream curriculum. Specifically, the participants in the study will be instructors who have worked with STEM, STEAM, and the integration of Indigenous arts.

I am here to talk about your experiences working to achieve this curriculum integration. I am attempting to learn more about perspectives of instructors and their experiences with integrating curriculum and incorporating Indigenous curriculum. Since STEM, STEAM, and Indigenous education have become more prominent in recent years, I think it is important to hear the voices of people who have been working toward this curriculum integration.

Do you have any questions before we begin?

Can we start by having you tell us a bit about yourself?

- What do you do?
- How did you get involved with curriculum integration?
- How long were you/have you been involved with curriculum integration?

Can you tell me about your experiences in integrating curriculum?

- What was your role in the education system? Were you an instructor, a musician, an artist, or any combination of these?
- Did you find that curriculum integration benefited students?
- Did you find that the students did not benefit from curriculum integration?
- Did you find the curriculum integration process challenging? What were some of these challenges?

Can you tell me about your experiences with Indigenous arts integration?

- Did the Indigenous students in the classroom appear to benefit from the integration of Indigenous arts into mainstream curriculum, or did the integration of this curriculum not benefit students?
- What were the experiences of the non-Indigenous students in the classroom who had Indigenous arts integrated into their curriculum?
- What were some of the challenges you encountered when trying to integrate this curriculum?
- What were some of the positive aspects to Indigenous arts integration?

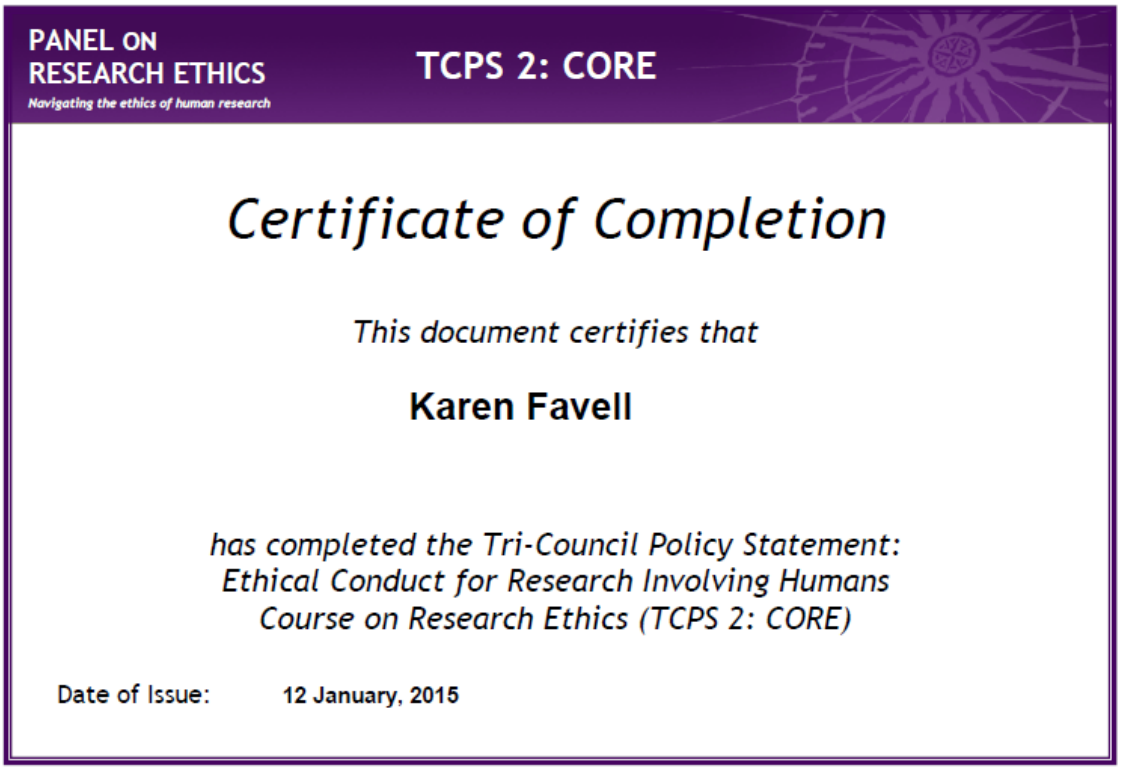
Can you tell me about any administrative or pedagogical challenges you encountered when integrating curriculum?

- Was the administration supportive of the changes you were making to the curriculum?
- What were some of the challenges you encountered when adapting mainstream curriculum in order to incorporate curriculum integration or Indigenous arts integration?
- How did the students respond to the integrated curriculum?
- What changes would need to happen in the system in which you work to make the curriculum integration process easier?

We have talked a lot about your experiences working in curriculum integration today. Is there anything you want to say that we have not already talked about?

Thank you for your help with my research.

APPENDIX F: TCPS2 CERTIFICATE



PANEL ON RESEARCH ETHICS
Navigating the ethics of human research

TCPS 2: CORE

Certificate of Completion

This document certifies that

Karen Favell

has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)

Date of Issue: 12 January, 2015

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