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Reconciliatory Action Research: Building Foundations of Allyship Behaviour in a Science 10 Classroom

by

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ABSTRACT

The purpose of this research was to build and implement curriculum that aims to support grade 10 science high school students with building empathy as a foundation of Reconciliation towards allyship behavior. This study hoped to answer the questions: In what ways does a curriculum that aims to foster empathy as a foundation for allyship behaviour impact the developing empathy of science 10 students? Specifically: Is empathy developing? What kinds of empathy are developing? What are the conditions that allow empathy to develop? This qualitative study analyzed data through coding, identifying emergent codes, and thematic analysis. Students appeared to be developing in the four types of empathy considered in the study: cognitive empathy, intercultural cognitive empathy, affective empathy, and intercultural affective empathy through the opportunities offered in the course. Four pillars (identity development, building relationships, safety, and intercultural opportunities) emerged as important conditions to foster empathy development along what the researcher called an empathy arc- the students' empathy (cognitive and affective), and intercultural empathy (cognitive and affective) developmental journey.

Key words: cognitive empathy, affective empathy, intercultural empathy, First Peoples' Principles of Learning, Reconciliation, Reconciliatory action, interculturally sensitive teaching environments, interculturally sensitive learning environments.

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CHAPTER 1 INTRODUCTION

Education has often been used as a weapon to indoctrinate colonized peoples, here specifically Indigenous peoples, with the values, philosophies, ideologies and methodologies of the dominant group. Education, then, is a vital key to sharing the truth of what has happened throughout our Canadian history to the First Peoples. Education in Canada therefore, must be tasked with shifting how we think about each other and addressing the ways in which future generations can make amends for and move forward in a positive way from our difficult shared history. In this introduction, I situate this study within the Calls to Action of the Truth and Reconciliation Commission (2015b), situate myself as an educator within this mandate, and explain the purpose of this action research study.

In order to respectfully address First Nations, Métis and Inuit Peoples throughout this study, I defer to an example from Dr. Jo-ann Archibald (Q'um Q'um Xiiem) (2008) a member of the Sto:lo Nation. She demonstrates how to address the terms used to include all people of Aboriginal ancestry. I, therefore, use "terms such as "First Nations," "Aboriginal," "Indigenous" and "Indian" "interchangeably, as appropriate" (Archibald, 2008, p. xi).

Acknowledgement of past mistakes and the Truth & Reconciliation Commission

It has taken much time, but there is finally movement in the acknowledgment of past mistakes, although it was, and continues to be, a slow approach. In 1991, the Royal Commission on Aboriginal Peoples was appointed by the Canadian government to oversee the examination of Aboriginal issues through hearings held nationwide. After several years of inquiry, a report was released in November of 1996, a portion of which detailed the atrocities endured by Aboriginal People in residential schools across Canada (Aboriginal Healing Foundation, 2002). A statement of Reconciliation to all Aboriginal peoples of Canada for the abuses in residential schools was shared in early 1998 by the Canadian Government, and along with the announcement came funding to begin to address the complex intergenerational healing needs of all those affected by residential schools: First Nations, Inuit and Métis people (Department of Indian Affairs and Northern Development, Ontario, 1997). This acknowledgement evolved into the 2015 report of the Calls to Action

from the Truth and Reconciliation Commission (TRC). By acknowledging and acting upon the Calls to Action put forth by the TRC, Canadian society can begin to make amends and reform important relationships of trust, brotherhood, and sisterhood in working together to move forward. A first step in addressing the TRC Calls to Action is through the actions of teachers in educational settings.

My role as a white settler, educator and researcher

Regan (2010) suggests that situating the self within the work is important for the context of the work. As the primary researcher, I identify as a first-generation white female settler with Portuguese heritage. My interest in reconciliation through empathy and building allyship behaviour comes from my personal work in social justice, my husband and children who have Métis heritage, my counselling and educational training, and my interests in working with high school students to create an empathetic society interested in the action of social justice.

At the beginning of this research project, I knew that I needed to develop connections with Indigenous community members and learn through honest conversations within the relationships we built together. Only then could I implement and act on what I would learn by shifting what I did in the classroom. Strategies would include attending to social injustices and creating the opportunity for empathy development, in order to foster social change towards a more just society (Sue, 2017). This work is therefore a collaboration that could not be achieved without the input of Indigenous people.

I believe that it is of the utmost importance for reconciliatory pedagogy to be developed in all areas of curricula in order to begin to address important Calls to Action in Canada towards reconciliation. Reconciliatory pedagogy is necessary to acknowledge past mistakes, to build relationships and to move forward together. There is a need to carve out space for Indigenous voices within the current context of education, that have been overwritten or silenced. I believe that for all teachers, including all voices have value and Indigenous perspectives are essential to our collective understanding of the world. I believe in the central importance of building relationships with local Indigenous Traditional Knowledge Keepers

(TKK) and Elders to begin to create a knowledge base for facilitating transformative learning in the realm of social justice. For me, I am focusing that transformation on high school students in the sciences. I know that ongoing action is necessary for authentic reconciliation in all curricula. In addition, I understand it is deeply important for our children to gain as much insight as possible into the humanity of all of us to avoid the percolation of resentment and unrest in our society. I find myself asking the question, "If not now, then when?" (Reves & Ferguson, 2018, p. 11)

The Assembly of First Nations (2010) reported that the qualifications of non-Indian teachers and counsellors should be required to include "courses in Indian history and culture" (p 41). These kinds of courses, can greatly shift a teacher's philosophical values they take back to the classroom, helping them have more authentic interactions with Indigenous students and the Indigenous knowledge content (without appropriation) mandated in the curriculum. I believe that through an honest personal commitment in learning about Indigenous cultures, pedagogy, and methodology, teachers are better able to support students' learning. I understand the crucial importance of inviting an Elder or TKK to lessons to be culturally accurate. I believe that, when students see the types of relationships formed between TKKs /Elders and teachers and are able to experience their different teaching methods, they begin to understand the nuances of mutual respect and relationship building.

Unpacking personal privilege: self-reflection of identity and values

Non-indigenous people situated in reconciliatory work must contemplate their own "stake in colonial dominance and reparations" (Cannon, 2012, p. 33) through the disruption of the us/them dichotomy that continues to sustain the inability of effecting change or recompense for colonial grievances. McIntosh (2012) suggested that an honest examination of personal privileges and the power structures that continue to perpetuate these power differentials, is an important piece of understanding oppression and the challenges different groups face. Self-awareness is gained through the analysis of these power structures. Asking "How do you know what you know? What is it that you need to unlearn? What is it that you need to learn?" (Kovach et al., 2015, p. 42) can help individuals to analyze their power and privilege. The awareness of types of privileges, and how individuals or groups can experience

intersectionality of these privileges helps to build empathy and intercultural sensitivity, which are key pieces to this exercise. There is always a danger in the complacency of the dominant group due to a lack of understanding and awareness of how their privileges affect their daily life. Complacency breeds systemic racism, sustainment of imbalanced power systems, and continued oppression of marginalized groups resulting in the stagnation of personal and social evolution towards equity. Through the process and action of the identification and understanding of privilege differentials, oppression, and power systems, individuals are able to foster efficacy and begin to fundamentally change how power systems are perpetuated (McIntosh, 2012).

Just as Ann Bishop (2002) acknowledged both her privileges and oppressions in order to situate herself within her work, so must I as a means to clarify my approach to the work of reconciliation and developing empathy in science 10 curriculum. As a white, first generation, European Canadian female, I must acknowledge how my social location and identity allow me privileges (being white), and in other situations experience oppression (being a woman). My formative years fostered the colonial system of defining and identifying Indigeneity through a colonial lens. This recognition of my position highlights a responsibility to address and work against oppressive systems to decolonize my classroom and the curriculum in order to answer the TRC's Calls to Action. Since I identify mainly from a place of privilege, I acknowledge that I must try to embody empathy and allyship behaviour towards members of groups experiencing oppression. Within the context of this study, this means I must embody allyship behaviour and empathy to those who are engaged in reconciliation through decolonization and indigenization within educational realms.

I began this research project because I felt that this acknowledgement was simply no longer enough and did not begin to answer the TRC's Calls to Action. I realized that critical reflection was only the first step in my personal journey, and I needed to respond to the TRC Calls to Action in my teaching. Teacher action is a point articulated by both Freire (1989) in the praxis of teaching against oppression, and Gorski (2008) in the sociopolitical act of becoming an intercultural educator. Therefore, I must take action and this study is continued attempt in answering the 2015 TRC Calls to Action. I fully recognize that this action is only

the first in a life long series of actions within my teaching career. I decided to focus this study on opportunities for students to build empathy within the context of my science 10 classroom as a basis for moving towards reconciliation, and I wondered how I could develop empathy within my students as a foundation of allyship behaviour.

Developing Empathy as a Foundation of allyship behaviour

Empathy, described as the ability to understand what another person is feeling, has been identified as one of the key human factors that can better our planet (Hunt, 2008; Nussbaum, 2015). These relationships create the space for social action; the beginning of allyship behaviour. Call to Action 63 iii of the TRC report (2015) includes "building students capacity for intercultural understanding, empathy and mutual respect" (TRC, 2015, Call to Action 63. iii). By incorporating this Call to Action into a classroom, the learning shifts to a more student-centered approach where relationships become the main focus. Freeman, McDonald, and Morcom (2018) said "reconciliation is about friendships" (p. 12), and within these relationships shared values are identified that ease defensiveness and promote trust (Gonzalez et al., 2015). Growth of empathy and the opportunity to practice empathy-in-action, within the context of relationships with marginalized people, begins to form the foundation of allyship behaviour.

Washington & Evans (1991) define allies as members of a privileged group who support and advocate for members of an oppressed group. Becoming or being an ally is not an identity, but a behaviour, an ongoing action of equity. It is the role of a behind-the-scenes supporter who understands the nuances of this role, and one that can only be bestowed by marginalized individuals. At times, this role may require active listening and learning from others' experiences. At other times it may require the support and amplification of Indigenous voices. Sometimes, it may require direct intervention when there is social injustice. Yet, other times, it may require one to step back to consider their own personal privileges and unintended actions that cloud the lens through which the world is interpreted. The role is a changing one and there is no single correct way to demonstrate allyship.

Purpose

The purpose of this research is to build and implement curriculum that aims to support grade 10 science high school students with building empathy as a foundation of Reconciliation towards allyship behavior.

Focusing on grade 10 students

Science 10 falls within my specialty area and, due to my school assignment, I focused on the two grade 10 classes I taught in the semester of the study. The act of teaching in and of itself creates power differentials between the teacher and the students. Freire (1989) proposed the use of "dialogic relations" (p. 67) to diminish power differentials, as the act of dialogue where both students and teachers learn from one another through discussion. This is a strategy used often in my classroom to discuss topics and for feedback.

The goal of adolescence, the period between childhood and adulthood, generally from age 12 to 17, was to answer these two questions: Who am I? and Where do I fit in? (Erikson, 1959). Grade 10 students, 14-16 years of age, fall within this developmental stage. Adolescents' social interactions primarily occur within peer groups at this stage, where they begin to develop their personal values and future directions, resulting in identity development. During this stage, adolescents' description of identity expands to also include personality traits and attitudes (Erikson, 1959). Adolescents must decide to which degree their racial or cultural backgrounds will be a part of their identity and they often begin to explore their heritage during this developmental time (Phinney & Kohatsu, 1997). A further aspect of students' identity development is how by "engaging [in] intercultural contact (learning about others) and reflecting on your own cultural heritage (learning about yourself) results in the complementary prerequisites for intercultural understanding" (Schwarzenthal et al., 2017, p. 389). Grade 10 students, aged 15 and 16 years, are in the midst of this development, perhaps a critical time to build these skills, and which is yet another reason why they were selected as the focus of this research.

Empathy has been found to be an important factor linking adolescents' identity development and interpersonal relationships, and these good relationships are foundational for adolescent identity development (Doumen et al., 2012; Klimstra et al., 2013; Meeus et al., 2002; Nawaz,

2011; Rassart et al., 2012). Poor group dynamics in collaborative opportunities has long been an ongoing issue in which students only want to work with their friends, but even this has led to an imbalance of assignment completion by a select few students who do that work of the group. These dynamics also undermines the richness that comes from working with diverse people to learn their diverse perspectives. I wondered how focusing on the development of relationships in the classroom may shift students perceptions, as it is through these relationships with one another that students will be able to shift their behaviour and thinking towards sensitivity, understanding and empathy.

Students at this age are in the midst of identifying how they fit in with their peer groups and in society (Doumen et al., 2012). In my experience, students tend to fall into two categories in their personal development: they are ready to begin thinking for themselves and are developing their own ideas, or they are continuing to perpetuate philosophies that come from the home. To continue to foster student's social emotional learning, students at the grade 10 age must be provided opportunities to be critical thinkers; to step outside of themselves to see from other's perspectives and viewpoints; to listen and understand and accept each other. In this study, I hoped to foster empathy within students' primary social interactions in peer relationships by introducing opportunities for intercultural understanding and mutual respect through learning with Secwepemc Knowledge Keepers and on the land, and ultimately build the foundations for students' allyship behavior.

Research Question

There is not one unique way to foster empathy, allyship behaviour, or personal transformation. Instead, it is through a series of opportunities and skill-building that students can be empowered to make social change a reality; a movement towards authentic reconciliation. I propose to explore how to teach towards reconciliation in a grade 10 science cohort by fostering empathy as a foundation to allyship behaviour. Through literature searches, I identified a gap in the literature with regards to supporting the development of empathy with this particular age group. It is important to note the following studies for their contributions to the work of building empathy and the development of allyship: Gordon (2005) has developed a highly regarded Roots of Empathy program which focuses on

children from preschool to grade 9, and MacMath and Hall (2019) provide insight for teaching reconciliation to grade 3 and 4 students. There is a tradition of research looking at how the fostering of empathy can contribute to the development of allyship amongst university undergraduate (Tanchuk et al., 2018), graduate students (Macdonald & Markides, 2018), and in teacher training programs (Aitken & Radford, 2018; MacMath & Hall, 2019; Madden, 2014; Morcom & Freeman, 2018). I was unable to identify literature on the development of empathy in high school students, aside from a small study of seven grade 10 students who incorporated critical reflection to build critical consciousness towards marginalized Indigenous groups (Stock & Grover, 2013), and I found no other literature on building allyship behaviour in high school students. There were no high school examples of building empathy within a British Columbian context; No past studies have looked at fostering this kind of holistic ensoulment (Katz with Lamoureux, 2018) of the science 10 curriculum in an interior British Columbian context, which is where my research will take place. I have identified a significant gap in the literature.

Keys to my research on building empathy in the science classroom include: attending Indigenous cultural events and participating when appropriate, inviting Elders to the classroom and on field trips, and the inclusion of TKKs in the guide of the methodology as well as to help find and build resources that support reconciliation. There is extreme importance of "[working] with Indigenous people, families and communities rather than continuing to work in a system that speaks for Indigenous people" (Freeman et al., 2018, p. 10) and to take this position seriously to move authentically towards reconciliation.

With these considerations in mind, this research addresses the overarching question: In what ways does a curriculum that aims to fosters empathy as a foundation for allyship behaviour impact the developing empathy of science 10 students? Specifically: *Is Empathy developing? What kinds of empathy are developing? What are the conditions that allow empathy to develop?*

CHAPTER 2 LITERATURE REVIEW

This literature review is divided into two parts. In the first I present and discuss literature related to components that are the basis for the change needed in response to the TRC Calls to Action in education, in order to build empathy as a foundation for allyship behaviour. In the second part I present and discuss literature related to strategies for building empathy in education as a foundation for allyship behaviour, starting with the fundamental and overarching principles, the First Peoples' Principles of learning (The First Nations Education Steering Committee, 2014). Strategies aligned with the First Peoples' Principles of learning include understanding privilege; critical multiculturalism; inclusion and inclusive education; respecting diversity (Katz with Lamoureux, 2018), and universal design for learning (Katz, 2012a).

Part 1: Basis for the Opportunities for Change

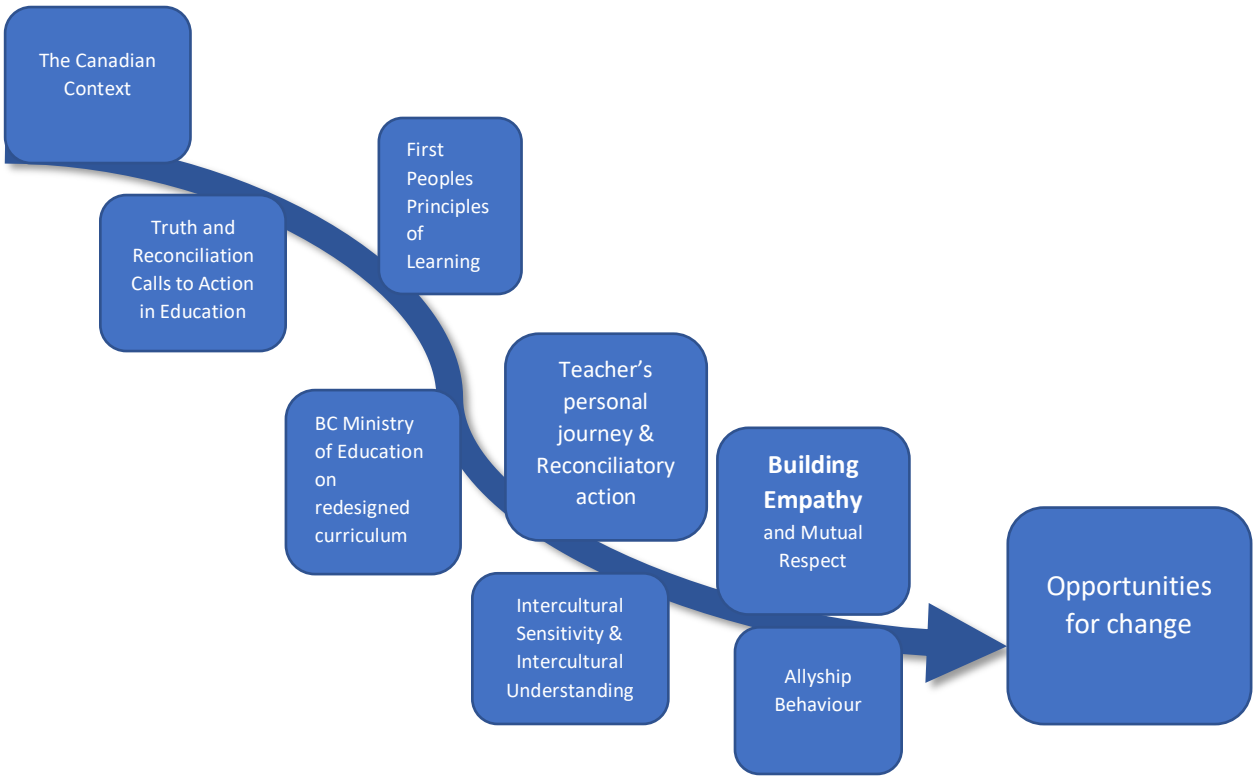

Figure 1. Basis for the Opportunities for Change figure shows the significant past, present and future components that guide the study's literature review within the context of this study.

Canadian Context: A Just Society?

Fifty years ago, Pierre Elliot Trudeau shaped the Canadian contemporary narrative through the incorporation of John Stuart Mill's (1871) notion of the 'just society' (Reindeau, 2000) into Canadian policy. This vision created a path with a humanitarian focus, on which Canadians still continue to evolve and work towards. The Canada that we know of today has been molded by the patriation of our Constitution in 1982 (Canadian Constitution Act, 1982), the entrenchment of the Charter of Rights and Freedoms in 1982 (Canadian Charter of Rights and Freedoms, 1982), the passage of the Multicultural Act in 1988 (Canadian Multicultural Act, 1988), and most recently in the TRC of Canada in 2015 (Truth and Reconciliation Commission, 2015). These are powerful examples of how our country has continued to develop into a more equitable, kind, and welcoming place than it was prior to the appointment of Pierre E. Trudeau as Prime Minister of Canada in 1968. He and his government published the White Paper in 1969 (Chretien, 1969). The White paper replaced the Indian Act (Indian Act, 1876) to eliminate the category of Indian over a five-year period that would result in the loss of rights and traditional lands (Chretien, 1969). There was opposition from several groups including the National Indian Brotherhood (now referred to as the Assembly of First Nations), and its provincial chapters. Rejection of the White paper also came from Harold Cardinal, a Cree leader of the Indian Association of Alberta (IAA) who with IAA, together, wrote *Citizens Plus*, which became known as the Red Paper (Lagace & Sinclair, 2015). Opposition to the White Paper also came from the Union of British Columbia Indian Chiefs who penned A Declaration of Indian Rights: The BC Indian Position Paper, called the Brown Paper (Union of BC Indian Chiefs, 1970). Due to the criticism and activism response from Indigenous peoples and advocacy groups, the White Paper was formally withdrawn by the Trudeau government on March 17, 1971 (Lagace & Sinclair, 2015). What followed was a period of time in which activism against the White Paper continued. In Calder vs. British Columbia, 1973, the Supreme court decided that Aboriginal title to land existed before European colonization of North America. In 1975 the World council of Indigenous Peoples was founded in Port Alberni, BC. This activism continued to the late 1970's when talk of a Canadian constitution began to circulate. Bill Wilson (Hemas Kla-Lee-Lee-Kla), Kwagiulth (Kwakwaka'wakw) hereditary chief) was influential in creating a successful proposal to enshrine Indigenous rights through the

amendment of the Constitution Act, 1982 (Tennant, 2008). The important work of a group of activists led by George Manuel, (then president of the Union of BC Indian Chiefs) approximately 1000 strong travelled to Ottawa from Vancouver to publicize their concerns over the abolishment of Aboriginal rights in the proposed Canadian Constitution (Indigenous Foundations, 2009). And when the peaceful demonstration did not move the Trudeau government's position, delegations moved internationally to spread their message first to the United Nations in New York and then to Europe (Indigenous Foundations, 2009). Elijah Harper (Oji-Cree, Red Sucker Lake Reserve) leader of the Red Sucker Lake First Nation in 1978, was elected in 1981 as the first Aboriginal person to sit on the Manitoban legislature, and then in 1986 joined the Cabinet as minister without portfolio, responsible for Native Affairs. Later, in 1987, he stood fast in light of the lack of First Nations consultation or recognition in the constitutional discussions around the Meech Lake accord (Marshall, 2013). Harry Daniels, of Métis heritage and the president of the Native Council of Canada in 1982, worked tirelessly to have the Métis people recognized in section 35 of the Constitution Act 1982 (Indigenous Corporate Training inc., 2016). All of this work together caused the Trudeau government to reconsider, negotiate, and to agree to demands put forth by Aboriginal organizations. The Canadian government included Section 35 into the "Canadian Constitution to specifically recognize and affirm Aboriginal and treaty rights" (Hanson, 2009, para.10), and later to amend Section 37 which obligated both federal and provincial governments to consult with Aboriginal peoples on any further issues. Many individuals and groups together laid the foundation to implement the Constitution in 1982, the entrenchment of the Charter of Rights and Freedoms in 1982, and the passage of the Multicultural Act in 1988. However, there is still much work to be done. Prejudice still exists in our society and at times it seems to be on the rise. The rise of populism and identity politics throughout Western societies seems to be shifting public perception towards an emphasis on differences rather than on our own common humanity. Judging from the tone of our own political discourse at times, we in Canada are not immune to these influences. As a public-school teacher in our liberal democracy, I am tasked with preparing our students for a future role in civil society- to create our own instance of Mill's just society (1871; Reves & Ferguson, 2018).

Truth and Reconciliation

Most Canadians today are aware of the Truth and Reconciliation Commission (TRC) of Canada and of its Calls to Action published in 2015. In order to achieve an understanding of these Calls to Action, it is helpful to examine some of the historical context that has shaped them.

There is a long, troubled history and heritage of fraught relationships, consultations, reports, official and otherwise and largely ignored by the state, between Indigenous and other peoples in Canada that have occurred going back to first contact. Due to its role in some of the steps that subsequently resulted in the Truth and Reconciliation Councils Calls to Action (2015), we will begin with a closer look at the formation of The Royal Commission on Aboriginal Peoples (RCAP) in 1991, an official examination of Canada's faulty relationship with Aboriginal peoples. This inquiry was tasked with broadly investigating and making specific recommendations to "… restore justice to the relationship between Aboriginal and non-Aboriginal people in Canada and to propose practical solutions to stubborn problems." (RCAP, 1996, p.685). In 1996, the commission released their 4000-page report which concluded that a:

> renewed relationship between Aboriginal and non-Aboriginal people in Canada be established on the basis of justice and fairness…[and t]o begin the process, the federal, provincial and territorial governments, on behalf of the people of Canada, and national Aboriginal organizations, on behalf of the Aboriginal peoples of Canada, commit themselves to building a renewed relationship based on the principles of mutual recognition, mutual respect, sharing and mutual responsibility; these principles to form the ethical basis of relations between Aboriginal and non-Aboriginal societies in the future and to be enshrined in a new Royal Proclamation and its companion legislation (RCAP, 1996, p. 685).

The origins of the TRC are found in this report, in Chapter 10 entitled "Residential Schools" (RCAP, 1996). A reading of Chapter 10 of the RCAP drives home a sickening understanding of the core depravity of government policy as a function of Treaty rights towards Aboriginal people in Canada. From the original vision of the education goals of the residential school

program to "civilize" the "savages" (RCAP, 1996, p. 309), to the implementation of this vision through strategies and policies meant to strip the rights of Indigenous people, to the financial disregard and neglect of the programs through the time of their implementation, to the state-sanctioned violence perpetrated on its wards in both physical and sexual natures, the only reasonable conclusion that can be reached is that Aboriginal people have been considered as 'less than' for most of our country's history. This fundamental Canadian truth laid bare provided all the rationale needed for the commission to formulate the recommendations that would eventually frame the investigation for the TRC (Reves & Ferguson, 2018).

But why not "start afresh" as the RCAP (1996) puts it? Why not put the past behind us and move on? There is much history of this kind of discourse occurring in Canadian history in the late 1970's through to the 1990's as these truths emerged. Indeed, the conditions for this discourse persist today in governmental, social, and educational settings. According to contemporary international thought, attempting to ignore the past and simply move on does not work. Instead, we need to look at reconciliatory attempts made by other countries around the world such as post-war Germany, Ireland, South Africa, Rwanda, Cyprus, Australia, Israel, and Sri Lanka as examples of the normativity and logic of engaging with the past rather than simply moving on (Aitken & Ratford, 2018; Czyzewski, 2011; Eisenberg, 2018; Snyder, 2010). We are proud to consider Canada as a country of social justice, multiculturalism, humanitarianism, and respect. However, the alternatives to reconciliation are the tribalism, violence, and endless economic strife of regions such as the Balkans, central Africa, and the Caucuses, why indeed (Reves & Ferguson, 2018).

The Truth and Reconciliation Council's Calls to Action in Education

The TRC's Calls to Action (2015) were based on the call from Indigenous Elders, communities, and scholars for the need for change to policies governing the many branches of both Federal and Provincial sectors. With a focus on education, in 2012, the Aboriginal Advisory Circle defined Indigenizing education as "the transformation of existing academy by including Indigenous knowledges, voices, critiques, scholars, students and materials" (p. 4) and provides a guideline with which to frame the Indigenization of education. The Calls to

Action take this up and further clarify what this needs to look like in educational realms. The educational Calls to Action are broken into two sections: 1. directed at federal, provincial and territorial governments in consultations and collaboration with Survivors, Aboriginal peoples, and educators to provide opportunities and safe learning environments for Indigenous students where Indigenous history and voice is evident in the kindergarten to grade 12 curriculum and the funding required to support these in teacher education, to Aboriginal schools, and establish senior level governmental positions (assistant deputy minister level or higher) dedicated to Aboriginal educational content (TRC Calls to Action, 62); 2. directed at the Canadian Ministers of Education Council to maintain an annual commitment to Aboriginal education issues to develop and implement the curriculum kindergarten to grade 12 (TRC Calls to Action, 63 i), to share best practice and share information on teaching residential school and Aboriginal history curriculum and learning resources (TRC Calls to Action, 63 ii), to build "student capacity for intercultural understanding, empathy and mutual respect" (TRC Calls to Action, 63, iii), and to "identify teacher training needs related to the above" (TRC Calls to Action, 63 iv).

The TRC Call to Action 63 iii (2015) in its entirety states "We call upon the Council of Ministers of Education, Canada to maintain an annual commitment to Aboriginal education issues, including … iii. Building student capacity for intercultural understanding, empathy, and mutual respect." This is not only a task to be undertaken at the Ministry level, but is a touchstone for educators at the grassroots level. These touchstones help educators foster students who are respectful of their own rights and the rights of others; who are thoughtful in regards to the interdependence of individuals with each other and the environment; and who are empathetic and appreciative of multiple perspectives. But it takes time to implement new policy from a top down approach. TRC Call to Action 63 iii (2015) deeply resonated with me and I could not wait, so I decided to personally take up Call to Action 63 iii, first in building my own capacity for intercultural understanding, empathy and mutual respect as reconciliatory action, so that I could better teach my students the same.

In the consideration of the Call to Action 63 iii (2015) and how one could go about teaching intercultural understanding, empathy and mutual respect, further investigation into the

literature cited of the TRC final report was conducted. In the summary of the final report of the TRC (2015) three studies are cited that add to the interpretation and understanding of empathy within the context of this Call to Action. Specifically, two aspects of empathy emerge, the cognitive as perspective taking, and the affective as emotional connectedness (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007). Developing empathy is the education of the heart and mind. Improving empathy helps students to become critical thinkers who are actively engaged and armed with deep knowledge and understanding of the past. Students who are compassionate citizens, are able to make ethical judgements of past ancestral actions in order to make knowledgeable decisions upon the current responsibilities to right historical injustices (Summary of the TRC, 2015, p. 239-241). This understanding is required to fully conceptualize the depth of the educational Calls to Action from the TRC. This understanding, along with the development of empathy, calls individuals to act upon their learning and understanding, transforming themselves in the process.

First Peoples Principles of Learning

In 2006 and 2007 the First Nations Education Steering Committee (FNESC) and the BC Ministry of Education partnered to create the English 12 First Peoples course. One hundred and eleven members from diverse First Nations communities made up the FNESC, an independent and non-profit organization that works on behalf of First Nations education. This group helped ensure that the course would be authentic in First Peoples' values in both teaching and learning. The diversity of the Indigenous groups represented in the FNESC means that there is no single expression of education related principles. In the development of the British Columbia's English 12 First Peoples' course it became evident that there would need to be a guide with which non-Indigenous teachers could consider the lens through which a course is taught- thinking about how we teach, and beyond what we teach (FNESC, 2008). These principles were developed in 2006-2007 through the work of Indigenous Elders, Scholars and Knowledge-Keepers with the FNESC and the Ministry of Education of BC. In 2014, however, the FNESC published the First Peoples' Principles of learning (FPPOL) more broadly to help guide non-Indigenous BC teachers to teach Indigenous content within other courses (FNESC, 2014). The FFPOL represent the "strong

similarities in the ways of knowing and learning, and commonalities in cultural constructs and worldviews among Indigenous peoples in British Columbia" (Chrona, 2014, para. 1). As these principles were published by the FNESC in 2014 more broadly, so closely to the TRC (2015) Calls to Action, naturally they became the foundation from which to focus more authentically on First Peoples' experiences, values, beliefs and lived realities.

The FPPOL are student-centred, creating space for the inclusion of all students, as they are molded after students' own needs and students' personal potentials. Taking a holistic approach to education, they address the well-being of students, their families, their communities, their history, their ancestors, and their individuality (FNESC, 2014). Supported by the notion that learners create their own knowledge within the social constructs that make up their experiences, they place emphasis on relationships and collaboration (Fosnot, 1996; Steff & Gale, 1995; Dewey, 1938; Hegel 1807/1949; Kant 1781/1946; Vico 1725/1968). The FPPOL advocate for learning that is embedded in memory, history and in stories told by Elders and TKKs (FNESC, 2014). They consider relationships, and interconnectedness of people with the land, themselves and others, and how people fit into the broader concept of society (FNESC, 2014). Students are asked to be reflective in this practice in regards to meaning and connection making for deeper understanding. In order for authentic learning to stem from reflection (an integral piece of students' knowledge-making), educators must be patient and provide dedicated time (FNESC, 2014). The FPPOL provide the opportunity for student autonomy in regards to motivation and ways to gain knowledge so that student learning is personalized and focused around the learner's strengths and talents. Although public education can not truly recreate Indigenous culture authentically, working with Indigenous TKKs to honestly include Indigenous voices, knowledge and ways of knowing into the curriculum can help to create the relationships necessary to seed the development of empathy through shifts in perceptions and understanding, thus creating the space for change.

Ministry of Education redesigned curriculum

In response to the educational calls from the TRC and Indigenous and non-Indigenous educational theorists, and from the FNESC, the Ministry of Education of British Columbia included the infusion of the FPPOL within the 2016-2017 redrafted provincial curriculum

(BC Ministry of Education, 2018a). In addition, it incorporates First Peoples' Indigenous knowledge specific to the course content and the application of First peoples' perspectives and knowledge, their ways of knowing, and local knowledge as sources of information (British Columbia Ministry of Education, 2018a). The FPPOL are highlighted within the core competencies. Social awareness and responsibility is the core competency within personal and social learning that relates specifically to this study. Social awareness and responsibility "[involve] the awareness, understanding, and appreciation of connections among people, including between people and the natural environment" (BC Ministry of Education, 2018b, para. 1) and interacting in these relationships in respectful and caring ways. The FFPOL's and core competencies will be embedded concurrently throughout the course. It must be said that care must be taken by the teacher to incorporate First Peoples' perspectives and knowledge without appropriation.

Teacher's personal journey and Reconciliatory Action

When a teacher undergoes their own journey of unpacking their personal privilege, there must be a shift within their pedagogical approach to teaching. This process can be started through the consideration of the implications of critical multiculturalism, the implementation of meaningful inclusive education in the classroom, and the additional of respectful diversity curricula in response to the TRC Calls to Action. In order for this to take place, two overarching conditions must be met: teachers must want to be allies and that members of marginalized groups must want help. If teachers are to truly work towards being allies, the work must always be "with" members of the marginalized group through the fostering of relationships, a key component of allyship (Freeman et al., 2018). Attending cultural events (Powwow), recognizing important days (Day of Sucwentwecw and Orange shirt day- B.C., Graduation), making connections with Indigenous workers in schools, and building relationships with TKKs and Elders are important foundational components to working with students, families and communities. These relationships provide opportunities for lived experience and lived reality that make allyship work personal and cause shifts in the mental and emotional quadrants (Gonzalez et al., 2015; Sue, 2017). Without a fundamental shift in the teacher's philosophy and pedagogy, reconciliation through decolonization and Indigenization will be only surface level, essentially lip service.

Bear (2000) shared that the basis of Aboriginal philosophy is that "existence consists of energy. [Where] all things are animate, imbued with spirit, and [in constant] motion . . . [and the] interrelationships between all entities are of paramount importance" (p. 78). This was my personal wake up call. It caused me to consider the manner in which I understand my students and the situations in which they exist. It caused me to shift my pedagogy to a more student-centered approach. Bear (2000) goes on to say that "the idea of all things being in constant motion . . . leads to a holistic and cyclical view of the world. . . [and] one has to look at the whole to begin to see patterns" (p. 78). The shift to the holistic consideration of the student then begins to take into account the four dimensions: mental, spiritual, physical and emotional (Katz with Lamoreaux, 2018). Another aspect of shifting to a holistic perspective is the consideration of students' voice in the creation and development of the classroom to fit their needs. The Canadian Council on learning- Aboriginal Learning Knowledge Centre (2007) furthers this line of thinking by sharing the key attributes of Aboriginal learning as holistic, a lifelong process, experiential, rooted in Aboriginal languages and cultures, spiritually oriented, a communal activity, and an integration of Aboriginal and Western knowledge. Elder Mike Arnouse (Secwepemc from Adams Lake band, lives in Kamloops, B.C., personal communication, July 2017) attested to the above when he said "It is time to get out of our heads, as the intellect is taking over and the Eurocentric way of categorizing everything is affecting our connectedness with the Earth and each other" (personal communication, July, 2017). The realignment of our interconnectedness is an important consideration in education. As an educator, I began the search for strategies that could encompass all of the pieces necessary for the holistic development of socially conscientious students who are empathetic in their dealings with others and their world, and that could help students move in a direction towards allyship behaviour and reconciliatory action.

Intercultural sensitivity and understanding towards Intercultural Empathy

Three main ideas arise from the literature in attempting to understand the basis that can move individuals, teachers and students alike, from intercultural sensitivity and understanding towards intercultural empathy. These are the foundations of intercultural sensitivity and

understanding, culturally relevant teaching and interculturally sensitive teaching environments, and critical consciousness.

Intercultural sensitivity and understanding. As a first step in addressing the TRC Calls to Action as mandated through the curricular changes within the new BC curriculum, teachers must build their own intercultural sensitivity and intercultural understanding of Indigenous people in Canada. Intercultural sensitivity is defined as how an individual makes sense of cultural differences in values and beliefs of others and the experience of difference based on these constructions (Paige & Bennett, 2015). Intercultural understanding is defined by the Australian Curriculum, Assessment and Reporting Authority (ACARA) (2019) as: recognising culture and developing respect, interacting and empathising with others, and reflecting on intercultural experiences and taking responsibility. Intercultural sensitivity and intercultural understanding must first be fostered within the teacher for there to be transference to students through shifts in the teaching styles and delivery of course material. Development of teacher's intercultural sensitivity and intercultural understanding require an investment in their own learning journey, the building of relationships, and a shift in pedagogy to a culturally relevant method.

Culturally relevant teaching and culturally sensitive teaching environments. In her work focusing on issues facing African American students, Ladson-Billings (1995) suggests that three criteria must be met to be considered culturally relevant teaching: an ability to develop students academically, a willingness to nurture and support cultural competence, and the development of a sociopolitical or critical consciousness. To better understand Ladson-Billings (1995) work, her criteria definitions must be further clarified. Cultural competence is defined as "a set of skills and developmental experiences constituting an ongoing awareness of important differences among individuals from communities with different backgrounds related to biological, environmental, historical, political, psychological, religious, and other social aspects of heritage." (Piotrowski & Stark, 2019, para 1). Ladson-Billings' (1995) three pillars that foster interculturally sensitive teaching environments by culturally relevant teachers (CRT's) are the conceptions of self and others, the manner in which social relations are structured, and the conceptions of knowledge. CRT's had the

following understanding of self and others: the belief that all students are capable of academic success, see their pedagogy as flexible and unpredictable (responsive to the situation), see themselves as members of a community, and see teaching as a means to give back to this community. CRT's consciously create social environments where they maintain fluid student-teacher relationships, demonstrate a connectedness with all students, developed a community of learners and encouraged students to work collaboratively and be responsible for one another. CRT's also think about knowledge as being malleable- it is shared, recycled and constructed, and must be viewed critically. CRT's are passionate about knowledge and learning and must scaffold to facilitate learning using multifaceted to incorporate multiple forms of excellence (Ladson-Billings, 1995). The interculturally sensitive class environment should foster a community of learners who are respectful of each others' values and beliefs and recognize both the differences and similarities between themselves and their peers. Teachers must be open to the new and continuous learning that comes with engaging in all aspects of culturally relevant teaching and in the creation of culturally sensitive teaching environments (Ladson-Billings, 1995).

Critical consciousness. Critical consciousness is defined by Freire (1973, 2000), is an "individual's awareness of oppressive systemic forces" and the "sense of efficacy and engagement in action against oppression" (Heberle et al., 2020, p. 1). The development of critical consciousness can help individuals in the identification of oppressive systems. Critical consciousness is made up of three parts: critical reflection, critical motivation, and critical action meaning that to fully conceptualize the movement to empathy, and then to allyship behaviour, this idea must be engaged with in all three sections (Watts et al., 2011). Critical reflection can aid in the identification of oppressive systems that can help individuals build their intercultural sensitivity through the experience of difference based on social constructions and the reflection of intercultural experiences (Paige & Bennett, 2015; ACARA, 2019). Critical motivation and critical action go hand in hand as motivation drives the action, together these are important pieces of the development of intercultural understanding through empathizing with others and taking responsibility (ACARA, 2019). Foundational to this above process is empathizing with others to understand their perspectives and see how the system enacts oppression. Through the development of

empathy, observations can be made of how systemic forces continue to perpetuate oppression and start to build motivation for action.

Towards empathy. The studies of Bennett (1993) and Bennett & Castiglioni (2004) note that foundational to the development of intercultural sensitivity is the skill of empathy and empathy development. Recall that Call to Action 63 iii of the TRC report (2015) states that "building students capacity for intercultural understanding, empathy and mutual respect" is a way of working towards reconciliation in schools (TRC, 2015, Call to Action 63.iii). In answering this call, the intricacies of building intercultural empathy must be investigated. In looking for ways to go about expanding empathy in students towards intercultural empathy there is a direct attempt in this study to include Indigenous voice, perspectives and opportunities to learn about Secwepemc culture and teachings, without appropriation. In their work "From Intercultural Awareness to Intercultural Empathy" Zhu (2011) defined intercultural empathy as "the ability to place [the self] into the cultural background of the target [group]" and the "[ability] to effectively communicate [an] understanding of that world" (p. 116).

Empathy is important for putting ourselves in other peoples' shoes, but as Harrison (2017) states, non-Indigenous teachers and students can never truly know what it means to be and feel Indigenous. For this reason, non-Indigenous teachers and students need ways to understand the experiences of others without integrating or re-writing over these stories with their own experiences. It is important to prevent judging of Indigenous stories and ways of knowing that people from outside the culture do not understand (Harrison, 2017). It has been suggested that both students and teachers learn to "listen for other ways of knowing, apart from explanatory and propositional knowledge" (Harrison, 2017, p 278), which is the more common forms of learning in Western schools.

In Hanson's (2019) study of teachers incorporating Indigenous literature in Arts education, a participant made the point that:

> You have to go through it through empathy… Empathy allows you to understand how it's related to you- whether it's because we're all human, whether it's because

> we live in this place called Canada… whatever connection we have. (quote from a teacher, Katherena, in Hanson, 2019).

Concerns have been raised in regard to negative behaviour that can occur from the use of empathy (Breithaupt, 2018). Bloom (2016) shares how a short-term focus on someone who draws attention to themselves can cause an empathizer to miss the big picture and opportunities to find long term solutions having the greatest benefit for the most people. In a science 10 context this means that I will need to be extra vigilant in how students are interaction with one another. As a cause of a possible hyper focus, Bloom (2016) explains how empathy can be manipulated: promoting making judgements and side taking through moral evaluations (Todorovetal, 2009), causing quick interventions that can calm or decide conflicts (Kurzban et al., 2007), as rewarding for the empathizer (Breithaupt, 2018), as empathetic vampirism (Cavell, 2004), and as empathetic cruelty (Young, 2016). Even though there are issues to empathy as a construct, it is real, and people can feel they understand and connect with one another. This connection and understanding can cause shifts in behaviour towards allyship behaviour. These above works (studies, as well as, theoretical and philosophical arguments) further highlight that empathy cannot be simply an emotional response to a situation, but can be a starting point as "an emotion for working across differences," (Todd, 2003, p.43). Empathy then needs to be part of a tool set curated for building relationships.

Building empathy

The foundation of allyship behaviour is seen to be the development of empathy in the cognitive and affective realms. However, as my research progressed a broader definition of these definitions of empathy began to evolve.

Evolution of the definition of empathy for the context of the study. To begin the consideration of the data collected, I began with the definitions from the Vossen et al. (2015) study on adolescent empathy. However, during the study, it became evident that these definitions of cognitive empathy and affective empathy would need to be broadened to the

specific context as the student responses are dynamic and I needed to also account for empathy with intercultural nuances.

Cognitive empathy from Vossen et al. (2015) study is defined as "the comprehension/understanding of another person's emotion" (Hogan, 1969), and from multiple sources this definition was created: the ability to take another's perspective and understand another's emotions (Gordon, 2005; Hogan, 1969; Immordino-Yang & Domasio, 2007; Schonert-Reichl & Hymel, 2007). Considering cognitive empathy in this context, the term cognitive implies that there is a mental action in the acquisition of knowledge about others, understanding others and in perspective taking through students' thoughts, experiences and, perhaps, their senses. Building from these definitions, to include different nuances and to account for the context and the developmental stages of adolescents in the study, cognitive empathy was defined as: the mental action of connecting with others in listening, thinking about, and understanding others' perspectives. The nuances in intercultural cognitive empathy must also be accounted for within the wider definition of cognitive empathy. Intercultural cognitive empathy is defined as understanding, listening, and perspective taking from the point of view of other cultures.

Similarly, affective empathy definitions also needed broadening for the specific context of this study. From the Vossen et al. (2015) study, affective empathy is defined as "the experience of another person's emotion" (Mehabrian & Epstein, 1972). From multiple sources affective empathy is defined as: emotional connectedness in the experiencing of another person's emotional state (Gordon, 2005; Immordino-Yang & Domasio, 2007, Mehabrian & Epstein, 1972; Schonert-Reichl & Hymel, 2007). Another consideration of affective empathy comes from studies conducted with adolescent participants on conflict resolution and its dependence on affective empathy development. de Wied et al. (2007) shared that adolescent's affective empathy is "positively linked to problem solving" (p. 53). Building from these definitions to include different nuances and to account for the context and the developmental stages of adolescents in the study, I defined affective empathy as: emotional connectedness with others, feeling with others, the internalization of emotional connections felt with others, and a better ability to problem solve within relationships.

Another aspect of intercultural affective empathy used here, comes from research on allyship in prejudice reduction (Gonzalez et al., 2015). Gonzalez et al. (2015) suggests that evidence for empathy can be seen when there is alignment of core values between individuals that possibly reduces conflict and prejudice. Then, to account for the intercultural nuances of affective empathy, intercultural affective empathy is defined as emotional connectedness with the traditions, values, beliefs and people's experiences of other cultures and alignment of core values.

An important point to touch upon is the differentiation of affective empathy from sympathy. While both are emotional reactions to the perceived emotions of others, in the case of affective empathy there is emotional congruence, while with sympathy, the experience of emotions are ones of concerns and sorrow (Vossen et al., 2015). This study was not focused on sympathy, and so data is not included.

From empathy to allyship behaviour. Empathy can help us take action through prosocial activism, in the words of Hoffman (1989) prosocial activism is "sustained action in the service of improving another person's or group's life condition either by working with them or by trying to change society on their behalf" (p.65). Empathy education must promote the growth of the skills that enable critical analysis and the critical reflection needed to learn and act appropriately for reconciliation and social justice, as called for by the 2015 TRC holistic perspective of empathy.

Allyship behaviour. The commonly accepted definition of an ally is a person whose personal identity classifies them as members of a majority or dominant socially constructed group who actively supports and advocates for members of a minority group (Washington & Evans, 1991). The development of social justice allies has been extensively researched in the past thirty years (Broido, 2000; Duhigg et al., 2000; Gonzalez et al., 2015; Tatum, 1994; Washington & Evans, 1991). Allyship then, can be considered to be the practice of being an ally.

My feelings about what it is to be an ally come from the work of Morcom and Freeman's (2018) paper "Niinwi-Kiinwa-Kiinwi: Building Non-Indigenous Allies in Education through

Indigenous pedagogy". Morcom is of Anishinaabe heritage and Freeman has spent much of her professional life working within an Anishinaabe context. Freeman is an invited ally of the Anishinaabe people. An ally is invited by the nation with whom they are working. An ally is specific to a particular Nation and particular First Nations philosophies and heritage. Allies are committed to reconciliatory action informed by the particular Indigenous philosophy of the people with whom they work. Allies actively support social justice issues and offer support through the establishment of meaningful relationships with the Indigenous peoples and communities where they live and work. Allies are accountable to the communities with whom they live and work. Allyship is a journey, a continuous process of self-reflexivity, learning, and acting in a de-colonizing manner. The right of a person to be identified as an ally comes from the particular invitation. Therefore, being identified as an ally is limited to the specific context of that invitation. Allyship is an ongoing action and is not universal. It will change community to community, person to person, and classroom to classroom. Only Indigenous persons can claim allies within the context of reconciliation. "Indigenous Peoples are the only ones that can deem a non-Indigenous person an ally" (Smith et al., 2016, p.6).

In a personal communication from Shelly Johnson (Keeseekoose First Nation, Kamloops, B. C.,), she restated that "no one gets to self claim allyship. That identifier is for others to bestow on someone. It is ongoing in that one day they may see one as being an ally and the next day as not. It's not a one-time identifier that covers the rest of your life" (personal communication, August 2019). This study is focused on the Secwepemc philosophies and heritage because we live and work on the unceded territory of the Secwepemc people. I hope to work with my students and help to be an ally builder with Secwepemc people. I hope for a future where my students can work alongside me in reconciliatory actions.

In working together towards reconciliation, these definitions must be considered within this work, and one the researcher must be continually reflective and cognizant of. Another revelation is that a teacher can not create allies, but can, perhaps, develop allyship behaviour within the cohort of students with which they work by focusing on providing opportunities for students to build empathy as one of the components of allyship behaviour.

A number of studies have suggested that fostering allyship behaviour in our students will enable us to facilitate a change in attitudes, beliefs, and behaviours towards minority groups. For example, Broido (2000) reported that allyship behaviour seems to promote the self-reflection of one's own identity and core values that lead to a greater understanding and desirability for fairness and equity for others. The further alignment of core values between groups promote a focus on the positives between groups which can reduce conflict and prejudice (Gonzalez et al., 2015) and according to Munin and Speight (2010), allies report higher levels of empathy and compassion for others who are not like them. Allyship behaviour must be learned through self-reflection and transformation. Transformational learning, described as the forming and reforming of meaning that requires the acquisition of new information, upsetting prior knowledge and triggering a change in perceptions and ideas (Mezirow, 1997). Transformation occurs when learning touches a deep part of your being. Relationships are the key to building allies and allyship behaviour. This component underpins critical reflection, building allyship behaviour, and ultimately in a fundamental shift of being that will result in authentic and lasting reconciliation. The strategies implemented in the science classroom may simply provide opportunities for the planting of the seeds for personal transformation and allyship behaviour.

Part 2: Strategies for Change: Towards building empathy as a fundamental component of allyship behaviour

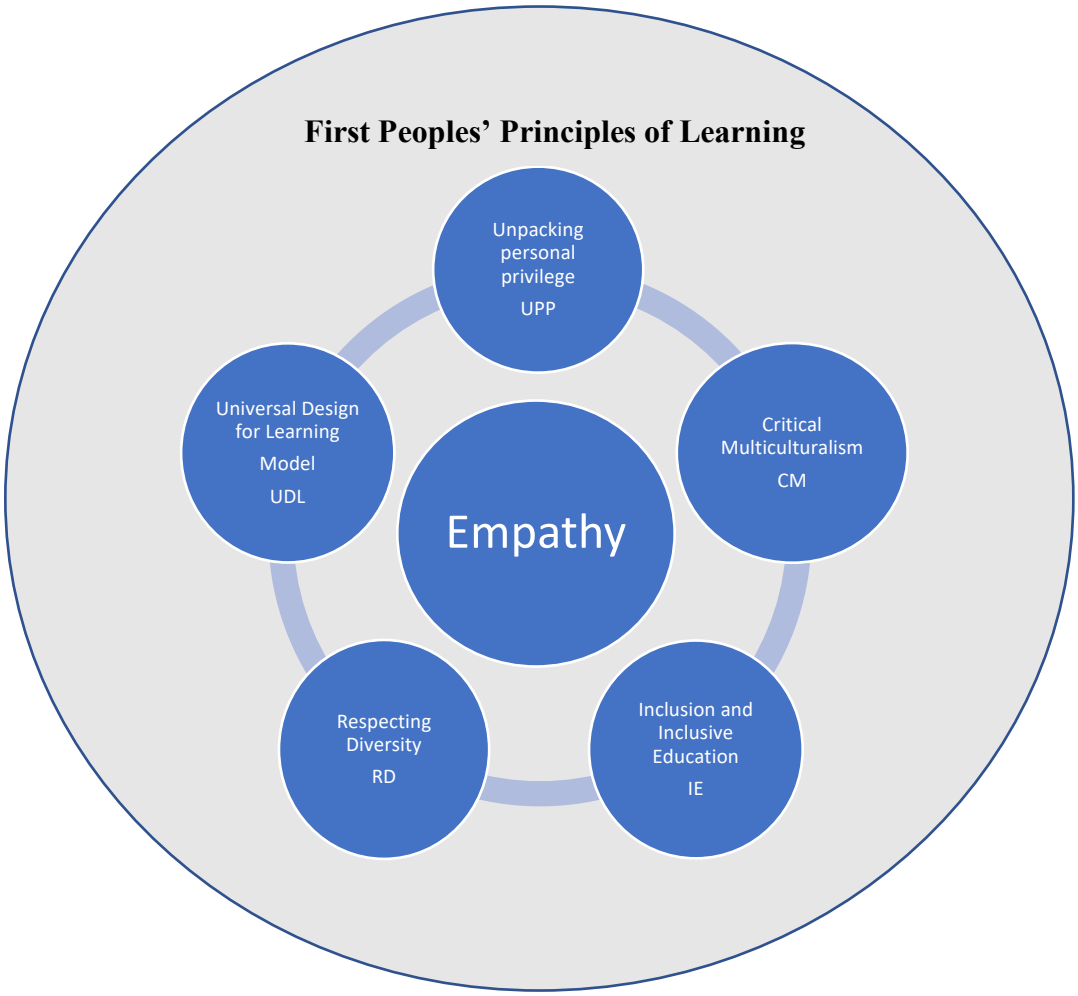

Figure 2. Strategies for change: towards building empathy as a fundamental component to allyship behaviour. Highlighted are the five strategies implemented in the course that put the First Peoples' Principles of Learning into action. All five strategies help to develop empathy.

The strategies for change discussed in this section (figure 2) of the literature review are the classroom strategies that the teacher can use to implement the First Peoples' Principles of Learning. These strategies are, unpacking person privilege (UPP), critical multiculturalism (CM), inclusion and inclusive education (IE), respecting diversity (RD) (Katz with Lamoureux, 2018), universal design for learning (UDL) (Katz, 2012a).

First Peoples' Principles of Learning in action

The First Peoples' Principles of learning are the overarching principles that guide educators in our response to the Calls to Action in education. They are grounded in the theories of the social construction of knowledge. They show us that when we empower the students, they can perpetuate a micro-society within the classroom that fosters inclusion, respect, empathy and relational understanding of one another. The FPPOL suggests that a student centered, experiential approach to the curriculum that fosters the building of a classroom community, where peer learning is a main method of meaning making, can result in the most meaningful learning.

Fostering the capacity for empathy, mutual respect, intercultural understanding and an appreciation of place, which are elements of social justice, may help to develop allyship behaviour in our grade 10 science students. From the science 10 curricular competencies, the following relate directly to social justice and reconciliation: 1) in processing and analyzing data and information that there be application of First Peoples' perspectives and knowledge, other ways of knowing, and local knowledge as informational resources, and 2) in communication, that students be able to express and reflect on a variety of experiences, perspectives, and worldviews through place (BC Ministry of Education, 2018).
Below Table 1 describes how the FPPOL's relate to the strategies to be discussed:

Table 1.

Connections between strategies. Table 1 shows the connections between FPPOL, First Peoples' Principles of Learning; and each of the five strategies used to in create the curriculum that was implemented in this study. These five strategies are: UPP, Unpacking personal privilege; CM Critical Multiculturalism; IE, Inclusion and inclusive education; RD, Respecting Diversity (Katz with Lamoureux, 2018); UDL, Universal Design for Learning (Katz, 2012a). They are described below.

FPPOL	UPP	CM	IE	RD (Katz with Lamoureux, 2018)	UDL (Katz, 2012a) Model

Learning ultimately supports the wellbeing of the self, the family, the community, the land, the spirits, and the ancestors		✓	✓	✓	✓
Learning is holistic, reflexive, reflective (focused on connectedness, on reciprocal relationships, and a sense of place)	✓	✓	✓	✓	✓
Learning involves recognizing the consequences of one's actions	✓	✓	✓	✓	✓
Learning involves generational roles and responsibilities	✓	✓			✓
Learning involves patience and time		✓	✓	✓	✓
Learning recognizes the role of Indigenous knowledge	✓	✓		✓	✓
Learning is embedded in memory, history and story.	✓	✓		✓	✓
Learning requires exploration of one's identity	✓	✓	✓	✓	✓
Learning involves recognizing that some knowledge is sacred and only shared with permissions and/or in certain situations	✓	✓	✓	✓	✓

By implementing these strategies, it is my hope that teachers will support students in building intercultural sensitivity, intercultural understanding, and empathy and mutual respect which are the foundations for responding to the TRC Calls to Action and building allyship behaviour, as discussed in part one of this literature review.

Unpacking personal privilege (UPP)- the teacher's role

The teacher must be cognizant of their role in perpetuating or breaking down of privileges that exist in their classroom and in their curriculum and making these known to students. Hyslop (2016) stated that one purpose of implementing Indigenous content in school systems is for the dominant group to unpack their assumptions and to begin analyzing how power and privilege affect education. This must be done in an authentic way, with Indigenous education partners. Gonzalez, Riggle, and Rotosky (2015), Sue (2017), Stock (2013), Pete (2016), and Freeman, McDonald, and Morcom (2018) all call for individuals to undergo a process of recognition of self and privileges in the work of reconciliation to critically reflect upon the impacts of these on personal social location. Sue's (2017) article supports this notion of critical reflection in the characteristics embodied by a white ally:

> (a) nuanced understanding of institutional racism and white privilege, (b) continual self-reflection of one's own racism, and (c) commitment to using privilege to promote equity, (d) engagement and participation in actions that interrupt and challenge racism, (e) active participation in coalition building with [marginalized individuals], (f) overcoming societal forces that attempt to silence white allies (p. 709).

These characteristics address the behaviours and cultural competency required for individuals to work towards allyship behaviour or becoming an ally. Empathy-in-action, within the context of relationships with marginalized people, begins to set a foundation of allyship behaviour. Freeman et al. (2018) highlight that allyship behaviour is best learned through opportunities to build relationships, as these create the space for social action and are the bridge between ally behaviour and transformation towards reconciliation. Teachers are tasked with undergoing this process themselves to approach educational reconciliation in the ways necessary for students to explore their own personal heritage, as a means of exploring their personal identity and biases.

Critical Multiculturalism (CM)

St. Denis (2011) points out that when Indigenous content and perspectives are subsumed into the broad umbrella of multiculturalism, these voices are quietened and lost within yet another colonial framework. Multiculturalism is used to trivialize Indigenous issues and "collapse Aboriginal rights into ethnic and minority issues" (St. Denis, 2011, p. 315). Implicated in education, is that although teachers are obligated to engage with multiculturalism, there are no specific mandated manifestations of multiculturalism within the classroom. St. Denis (2011) suggests that when Canadian multiculturalism and diversity are discussed in schools, that Indigenous content and perspectives must be honored first and separately. This is a complicating factor in reference to Trudeau Sr's 'Just Society' in its attempt to lump all cultures together within the multicultural act of 1988. St. Denis calls Canadian teachers to find a way to specifically honor Indigenous knowledge outside of the multicultural lens.

Another way forward is the consideration of May & Sleeter's (2010) proposal of critical multiculturalism as a very important perspective within the classroom. Specifically, that critical multiculturalism has a much more lasting effect for students and teachers when learning is used "to identify the material, political, and ideological underpinnings of inequality" (May & Sleeter, 2010, p. 10) in all areas of education. Although this is a tall order, teaching students to be critical thinkers raises their abilities to process information at higher levels and to question the structures of their world for transformative action. This echoes the important work began by Freire (1970) where he discusses education as the starting place for critical pedagogy and critical consciousness. Freire (1970) asserts that through social critique and action, oppression can be alleviated. It can again be reiterated that education is a place that can foster a first step towards reconciliation for students.

Inclusion and inclusive education (IE)

A globally recognized goal of educational systems has been inclusion and inclusive education (Curcic, 2009; Katz, 2012b). According to Katz[1] (2013) there are two types of inclusion: academic inclusion and social inclusion. Academic inclusion addresses the need for students to have the opportunity to interact within the academic context of a regular classroom. Social inclusion as it relates to education looks like a learning community that fosters a sense of belonging and individual acceptance. The Royal Commission of Aboriginal Peoples (1996b) stated that the child is born with integrity and worth, and as such, demands acknowledgement and respect. Those children that do not receive respect "cannot become what is meant to be" (p. 404), showing the relationship between a positive sense of self and a safe place to learn. Markus and Kitayama (1991) describe the formation of positive self worth through interdependent relationships. When acknowledgement of each child's unique gifts is made, then students will become intrinsically motivated to learn. This is of particular interest to Katz (2013) who explored how student development in social and emotional realms is affected by social inclusion, and how these directly relate to student's resiliency, citizenship and mental health, as well as, positively influencing academic motivation and achievement. Utilizing this question as her inquiry, Katz with Lamoureux (2018) developed a respecting diversity (RD) lesson set and a concurrent universal design for education model.

Respecting Diversity (RD) and Universal Design for Learning (UDL) (Katz with Lamoureux, 2018; Katz method, 2012a).

The Katz with Lamoureaux (2018) work in "Ensouling our schools" brings together Indigenous knowledge and universal design for learning together in a manner that celebrates and weaves these philosophies together. Pidgeon (2008) called for an educational "wholistic model that incorporates the inter-connectedness of the physical, emotional, spiritual, and intellectual realms" (p. 354). The Katz with Lameroux[2] method proposed in *Ensouling our*

[1] Jennifer Katz Ph. D. is an Associate Professor in the Faculty of Education at the University of British Columbia. She previously held an associate professor position at the University of Manitoba in Inclusive Education. Dr. Katz works extensively with First Nation Elders and communities in Manitoba, Alberta and Quebec. Katz works extensively with Lamoureux of Anishnabeg heritage (Katz with Lamoureux, 2018). See footnote 2.

[2] Kevin Lamoureaux, Anishnabeg, currently serves as the Education Lead for the National Centre for Truth and Reconciliation while on leave from the position of Associate Vice-President, Indigenous Affairs at the University of Winnipeg. Lamoureaux has served as a

schools, 2018, reveals the connections between UDL (Katz, 2012a) and Indigenous teachings. One Elder (unidentified) said about the Katz three block method "[Jennifer Katz has] formalized the teachings of our Elders… [to the audience] I want you to listen and hear the whispers of your grandmothers speaking to you," (Katz, 2012, p. 197). In the three-block system, Katz created a system intended to meet the need of diverse learners, but this system also deeply connects with Indigenous culture and beliefs. The more engaged and connected students become in their learning, through their lives and world events, the more they begin to react in emotional and passionate ways towards what they are learning.

This study draws upon the theoretical foundation of Universal Design for Learning particularly the work of Katz with Lamoureux (2018). From Katz (2012a), there are three blocks or bases to fostering intercultural sensitivity, intercultural understanding, empathy and mutual respect. The first block, social and emotional learning, is addressed by building caring communities of learners through a RD (Katz with Lamoureux, 2018) program. The second block, inclusive instructional practice, considers the physical and instructional environments and teacher planning incorporating evidence-based practice on Understanding by Design (Brown, 2004; Wiggins & McTighe, 2005), Differentiated Instruction (Beecher & Sweeny, 2008; Tomlinson & Imbeau, 2010), Curriculum Integration (Drake & Burns, 2004), Inquiry (Brusca-Vega, & Yasutake, 2011), and Assessment for Learning (William et al., 2004). The third block, an increase in student engagement and achievement and the development of higher order and deeper thinking has been shown to come from student autonomy (Hafen et al., 2012; You & Sharkey, 2009). This last block matches with motivation theory from Maslow's (1943) hierarchy of needs, where there is a pattern of basic human needs: physiological, safety; psychological needs: social needs, esteem; and self fulfillment needs: self-actualization. The most basic foundation is of physiological needs that require having access to air, food, drink and shelter. Then, safety needs mean the protection from elements, security, law, order, stability. Then, love and belonging which includes

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faculty member at the University of Winnipeg and the University of Manitoba, and is a well known national public speaker. He has served as a co-chair for the Manitoba Provincial Task Force of Educational Outcomes for Children in Care, scholar-in residence for several school divisions, and education consultant throughout Manitoba and across Canada. (Katz with Lamoureux, 2018).

friendship, trust and acceptance, and being part of a group. Then, self-esteem is thought of as mastery, independence, responsibility and fulfillment of cognitive and aesthetic needs. And lastly, self-actualization is the ability to realize personal potential, and seek personal growth and higher-level experiences. These stages all build upon one another in a particular fashion to enable an individual to move on to the next level (Maslow, 1943). A classroom environment where all student's needs can be met provides the place where students will be able to empathize more easily with others. The RD (Katz with Lamoureux, 2018) lesson set is set up so that basic needs are satisfied first in creating a safe environment in the class, second psychological needs of belonging are created through the opportunities to begin to build relationships and through the act of celebrating individual's unique contributions through the multiple intelligences. Lastly, the self-fulfillment stage is reached through the opportunities provided through the implementation of the UDL (Katz, 2012a) model for the remainder of the year, as students are able to engage with class members in varying projects and discussions, and create final products that celebrate all group members abilities.

These strategies hope to answer this call to work within the curricular and core constraints in an ever-evolving pedagogy, where elements from UDL (Katz, 2012a) have been incorporated. These strategies will address challenges students face both academically and socially with in the classroom. The RD (Katz with Lamoureux, 2018) lesson set highlights the uniqueness of each student in the classroom and celebrates their particular set of strengths. Students complete a multiple intelligence survey from Katz with Lamoureux (2018) to determine areas of strength and areas to work on. Within the RD (Katz with Lamoureux, 2018) program students are asked to compare working with a group made up of only students who share their particular strength with a group made up of a diverse strength set (Katz with Lamoureux, 2018). Shifting the classroom to allow for different ways of demonstrating learning, both individually and in group work, offered all students the opportunity to showcase their strengths, while continuing to work on other areas. To be truly moving towards reconciliation, UDL (Katz, 2012a) was chosen as it contains the foundational elements for building empathy, self-reflection, RD (Katz with Lamoureux, 2018) lessons, and increasing opportunities for relationships within the classroom. Katz and

St. Denise (1991) share that both "the spirit and the heart are essential ways of knowing" (p.31) in Indigenous ways of being in the world.

Teachers are tasked with the most important responsibility of teaching future generations. This means that education's best practice is built on the needs of society at the time of the curriculum changes. The new BC curriculum, however, attempts to shift the focus from the content to the students, which aligns with the RD (Katz with Lamoureux, 2018) lesson set and UDL (Katz, 2012a) models. These strategies can help foster socially conscientious students, who are concerned about each other and the world around them. As a researcher, there was much to chose from in terms of what I could implement in my classroom. Ultimately, the three strategies that overlap and that I could chose to explore in science 10 are 1) RD lesson set, 2) Universal Design for Learning and 3) Application of the First Peoples' Principles of Learning.

Universal Design for Learning

Universal design comes from the architectural world of accessibility where the goal of the design is to create "environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Quote from Ron Mace in Connell at al., 1997, para 1). Taken into an educational context, UDL (Katz, 2012a) is the ability for all students to find success in the classroom through the access of the material at their level based on student's personal ability, their full participation and engagement in their own learning, and personal progress in the curriculum. This method, which employs a cognitive psychology basis, is the understanding that learning comes from cognitive and developmental psychology where "the key principle . . . is that people learn best by actively constructing their own understanding" (Mixon, 2009, p. 23). This is well-suited to the needs of both Indigenous and non-Indigenous students, as they build knowledge within a pre-existing framework of experience. This idea was further supported by Roxane Letterlough (St'at'imc Nation, Tsalalh Band, Kamloops, B.C.), when she shared that in educational arenas "what is good for all, is not necessarily good for First Nations people, but what is good for First Nations people, is good for all" (personal communication, March 2017).

The UDL (Katz, 2012a) model requires reflective teaching practices, in which the tasks created consider the students in the class. This method employs the student's engagement through their ability to manage learning activities and to help each other in reaching personal goals. Relevant, meaningful learning promotes students to take responsibility for their own learning and creates a safe learning environment where they are self-motivated to reach their potential through problem solving relevant issues affecting the world around them (Mixon, 2009).

The UDL (Katz, 2012a) model is designed to build empathy, mutual respect, intercultural understanding, intercultural sensitivity and be inclusive of all learners. Therefore, using UDL (Katz, 2012a) as a strategy can build these skills in our students. Katz with Lamoureux (2018) book "Ensouling our schools" weaves together UDL (Katz, 2012a) and Indigenous approaches, such as the First Peoples' Principles of Learning, guided by the medicine wheel (health in the realms of mental, emotional, spiritual and physical), while developing higher order thinking and critical analysis skills.

It is hoped that through the implementation of the strategies discussed here in part two of the literature review, the action components of the First Peoples' Principles of Learning, will help students to foster empathy and mutual respect through building intercultural sensitivity and intercultural understanding. These are the components for allyship behavior, in response to the Calls to Action of the TRC.

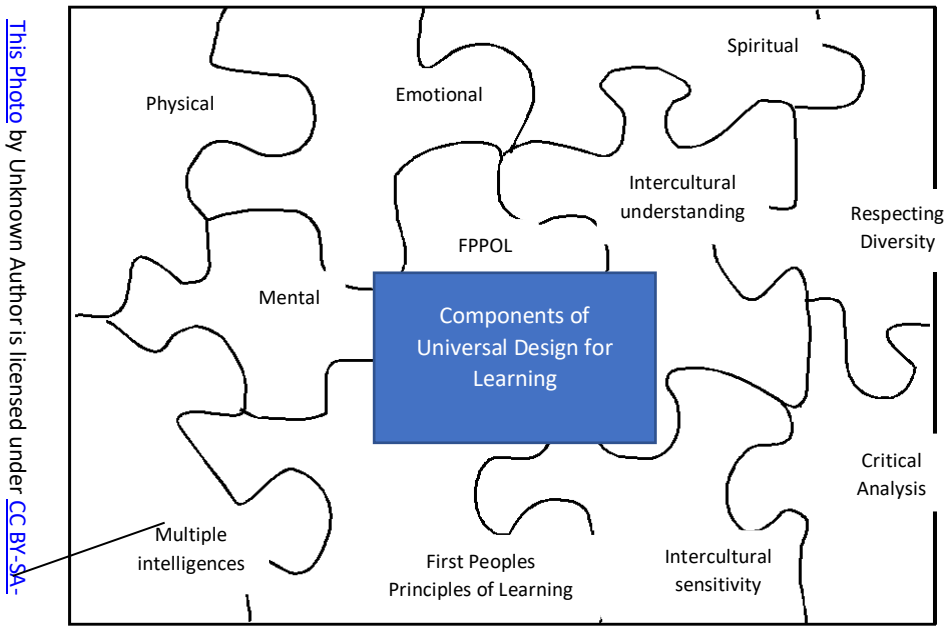


Figure 3. Components of Universal design for learning model by Katz with Lamoureaux (2018) in "ensouling our schools."

Theoretical Underpinnings

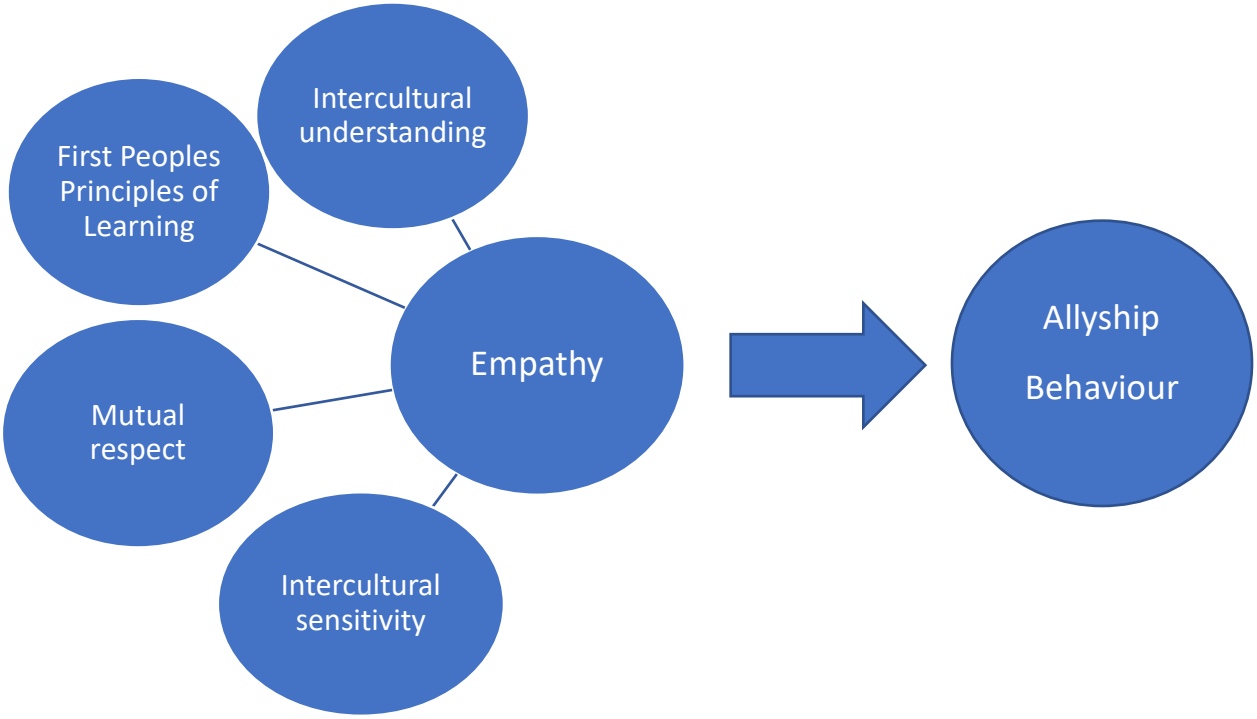


Figure 4. This study aims to develop the foundations of allyship behaviour through building empathy. Empathy as an inclusive term includes literature that draws upon: intercultural understanding, First Peoples' Principles of Learning, mutual respect, and intercultural sensitivity can contribute to empathy. These theories are related and are necessary for building allyship behaviour.

This study is founded on the understanding that empathy plays a central role in the development of adolescents' social behavior (Vosen et al., 2015), in this case allyship behavior (Denis & Bailey, 2016). Teachers have a responsibility to help build students' empathy, in conjunction with understanding and respect for Indigenous peoples, as a step towards the building of allyship behavior. In the words of a white settler teacher in Denis & Bailey's (2016) study "our main responsibility is to come out of the ignorance and give future generations a better education that builds empathy, understanding, and respect" (p. 149). Ghosh and Abdi (2013) state that "knowledge is socially constructed," (p. 75) meaning that it is through engaging with community members and each other that students can come to know and build empathy understanding and respect, the foundations of allyship behaviour.

Empathy is not isolated; it develops in conjunction with growing understanding. Teachers need to create curriculum that is interculturally sensitive and builds intercultural understanding and mutual respect so that students can develop empathy as the foundation for allyship behaviour. First Peoples' Principles provide the overarching guidelines for curriculum development that is interculturally sensitive and builds intercultural understanding (FNESC, 2014). By following these guidelines and developing such curriculum, empathy can develop and build the foundation for allyship behaviour.

CHAPTER 3 METHODOLOGY

Study Design

This study is a transformative action research design in which the teacher is also the researcher**.** The study is transformative in that it aims to bring about positive change. The qualitative method can provide more in-depth knowledge of the ways that students' empathy developed. The qualitative nature of the study will allow for deeper investigation and will explore students' and teachers' impressions.

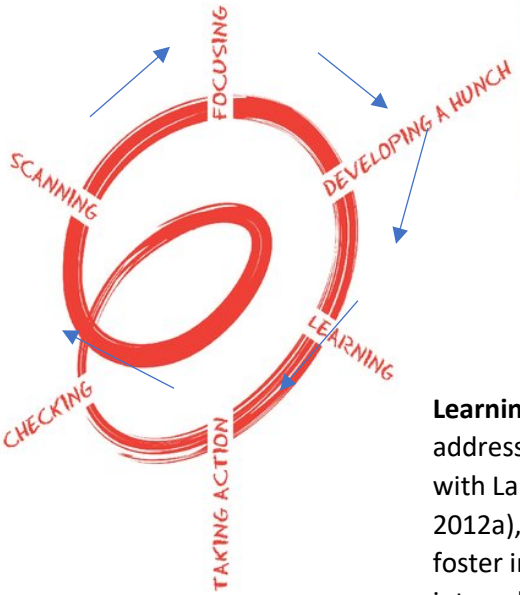
To help in thinking about this research the PR used the spirals of inquiry handbook (Kaser & Halbert, 2017). Process below, beginning at the ✸ sign.

Focusing
Learners at the centre:
-All students need to feel included and that they belong
Horizontal connections:
-how are students connecting with one another, their school and their community?

✸
Scanning at the school level: May 2018 identified 2 main theses within the student responses when compared to the OECD Principles of Learning:

- Learners at the centre

-horizontal connections



Developing a hunch: My hunch is that developing empathy is the key for building intercultural understanding, intercultural sensitivity, and mutual respect, allyship behaviour and addressing the calls to action.

Checking: Data analysis completed after the end of the course

Learning: Learn new strategies that will address hunch. Implement RD (Katz with Lamoureux, 2018) and UDL (Katz, 2012a), and FPPOL in science 10 to foster intercultural understanding, intercultural sensitivity, empathy and mutual respect.

Taking Action: Implement RD and UDL (Katz, 2012a), FPPOL, CM, IS concurrently. Gather Data.

Figure 5: Steps in spirals of inquiry specific to this study. Graphic credit: (Halberg & Kaser, 2013).

Spirals of inquiry is an action research model that allows for the continual refining of the needs of our students. This strategy also allows for reflective professional practice that Schon (1983) proposed as a means of continually developing teaching practices. Schon (1983) proposed two levels of reflection: reflection-in-action and reflections-on-action. Reflection-in-action is characterized by "continual interpretation, investigation and reflective conversations with oneself about the problem while employing the information gained from past experiences to inform and guide new actions," (Sellars, 2013, p 5) in other words, problem solving in the moment with relevant experience to guide the teacher's decisions. While reflection-on-action is reflection after the problem, situation or event, to analyze the decisions made and their appropriateness. This reflection is an ongoing process of refining my teaching practice and in this context, helped to shape the study.

This is an action research study as it is an interactive design where the researcher introduces the changes and interventions (actions) to observe and record how her actions influences the outcomes (Susman & Evered, 1978). The study aims to find out how students' empathy develops through curriculum that engages students in mutual respect, intercultural sensitivity and intercultural understanding, to support them towards allyship behaviour and ultimately to help address the Calls to Action of the TRC (2015). An action research study is a systematic procedure that gathers information to improve practice.

It is expected that implementation of "Strategies in Action," including the RD (Katz with Lamoureux, 2018) and Universal Design for Learning model (Katz, 2012a) alongside of the FPPOL will help to build students' empathy as a foundation of allyship behaviour within this cohort of science 10.

Strategies in Action- a step by step guide to curricular activities and Data collection

Table 2.

Teaching strategies over a period of one semester (September - January)

Strategies in Action
Week 1:

-Acknowledgement of the land

-Research study introduction (paper work sent home)- due back in one week

-Parental/Guardian and Student Consent

-Respecting diversity lesson set (Katz with Lamoureux, 2018), multiple intelligences, diversity

Weeks 1- 6: Chemistry

- Curricular tasks, group work, weekly seating change
- Student reflective Journals
- Indigenous connection lessons
- Presentation about chemical processes from local Indigenous TKK

Week 7-10: Energy

- Curricular tasks, group/collaborative work, seating changes
- Indigenous connections lessons
- Week 11- Field trip organized in partnership with MJ Johnson.
    - Presenters: Peter Michel, Kenthen Thomas and Trudi Nielsen.
    - Theme: Indigenous understanding of energy and interconnectedness.
        - Welcome and acknowledgement
        - opportunity to participate in a smudge
        - Intercultural Learning activities
        - Lunch prepared by Roberta and MJ
        - Intercultural Learning activities
        - student video reflections at the end of the day

Week 10-16: Biology

- Curricular tasks, seating changes
- Indigenous connection lessons
- Group discussion about personal genetic history
- Peer and self-review after group projects

○ Week 15: Group Project Reflections - Ethical science debate Week 17 – 18: Space - Indigenous connections lessons - Student centered inquiry Week 19: Final Exam week/wrap up

Table 3.

Student Reflection Questions for Analysis

Week	**Student Reflection Questions Addressed**	**Other Data Collected**
1	Why is diversity important?	
6	After a Secwepemc Traditional Knowledge Keeper Mrs. Bernice Jensen visit: • What are some of your overall impressions from the Knowledge Keeper's presentation on Secwepemc cultural understanding of chemical processes and energy transfer? • How does a Secwepemc Knowledge Keeper's visits help us better understand Secwepemcul'ecw (the land) and Secwepemc culture? What importance does this have to you?	
11	Student Reflections from the Field trip[3] Themed: Indigenous views on Energy and interconnectedness	

[3] Field trip: Planning for this field trip event began in September with the teacher's learning partner, MJ Johnson (Carrier from Dene First Nation), with input from Roberta Regnier (Deh Gah Got'ie Dene First Nation in the Northwest Territories), both Aboriginal Education workers (AEW) at the school where the study was conducted. MJ Johnson and the teacher

15	Student reflections collected from group projects and working together	
19	These questions were posed in week 19 as wrap up questions at the end-of-course. • Student reflection on core and curricular competencies • Medicine wheel activity[4] considering four quadrants of learning. Thinking about Science 10 curriculum (what we learned) and core competencies (how we learned) to describe your personal growth in: - Mental quadrant (assignments) - Spiritual quadrant (connection with your heart) - Physical quadrant (physical things we did) - Emotional quadrant (how you felt about science and how you dealt with any struggles you encountered	End-of-course discussions

Context

School context

The study was conducted in an urban, 50-year-old high school, with approximately 1000 students. The average class size in the school is 28 students. The school sits upon unceded Secwepemc territory. The school is situated in a middle-sized city in the interior of British Columbia, and serves students with a wide range of socioeconomic and racial backgrounds.

developed a field trip themed Energy and Interconnectedness with SD73 TKKs Peter Michel, Kenthen Thomas, and Trudi Nielsen.

[4] Medicine Wheel Activity: Developed in partnership between MJ Johnson and the teacher Serena Reves, with input from Brandy Turner (another science teacher) to gain a better understanding of how students developed over the course in the four realms: mental, emotional, physical and spiritual. See Appendix 1: Medicine Wheel Activity: Science 10 Reflection

Classroom context

Over the course of one semester, all students in Grade 10 Science, whether participating in the study or not, participated in all 'Strategies for Action' (Table 2) activities in the classroom. Students did not know who consented to be part of the study and who had not, unless they have themselves discussed or shared that information. All data collected (Table 2) from participants in the study was embedded within the curriculum and was not separate from the learning outcomes of the course. Qualitative data came from student reflective journals, an end-of- course discussion (video recorded), and a teacher's recollections journal.

Curricular Framework

The classroom curricular frame work is woven together using the overarching First Peoples' Principles of Learning, and including the Katz three block model of Universal Design for Learning, Respecting Diversity (Katz with Lamoureux, 2018), Inclusive education, and Critical Multiculturalism. Using these curricular approaches to inform each other, shapes what and how the course is delivered and the tasks the students are asked to accomplish to achieve the learning outcomes of the course and the core curriculum. These strategies foster an environment that is culturally responsive to Indigenous knowledge (without appropriation) and perspectives that are embedded throughout the curriculum.

Informed consent invitations

To ensure that students do not feel coerced to join the study because of the power differential between the teacher and students, the supervisor, Dr. Carol Rees, invited students to participate through informed consent. The invitation began with Dr. Rees explaining the study and providing the introduction letter, parental consent and student assent documentation to go home for parent/guardian approval (Appendix 1). No incentives for participation were offered or given. As participants are adolescents, a group with a particular set of needs, they must be active participants in this process and their consent is vital for this process to be successful. Both the letter of parental consent and student assent were received for that student to be included in the study. There were 53 permission forms provided to enrolled students in the two science 10 classes taught by the principal researcher. Three parent information sessions (one during the day and one in the evening held at the school,

and another evening session was held on the local reserve at a popular coffee shop) were offered for parents and guardians to meet with the principal researcher, her supervisor and one member of her thesis committee. Unfortunately, these information sessions were only attended by one parent in the morning session.

This study has been approved concurrently by the governing ethics board at Thompson Rivers University and the Superintendent of the school district, and on-site permission from the Principal was received to conduct the research study. Permission letters are provided in the appendix. All participants received parental permission to participate, and participant assent was required before the collection of data commenced. No participants were excluded from the analyses.

Participants and Demographics

Twenty-six students initially accepted the invitation to participate, one student withdrew from the class at the end of the first week, and another student withdrew from the class prior to the end of the study. No data was used from these students in the data set. Therefore, there are 24 participants in this study. In the class, there were students with a range of abilities including students with: learning disabilities, chronic health issues, autism spectrum disorder, mental health issues, and English language learners. Table 4 shows the pseudonyms for the participants, their demographics, the activities they participated in, and submitted responses.

Table 4.

Study Participants. Demographics and Participation

Pseud-onym	Age	Ethnic self-identity	Student participation in activities and data collection

			RD Lessons Set	TKK Presentation	Field trip	Group Reflections	Competency reflection	Medicine Wheel Activity
Caleb	16	Korean	✓	✓	✓	✓	✓	✓
Cathy	14	Japanese, Scottish, English	✓	✓		✓	✓	✓
Corey	15	Secwepemc, Navajo, Austrian, French	✓			✓	✓	✓
Daisy	15	Canadian, German	✓	✓		✓	✓	✓
Ella	16	*absent*	✓	✓		✓	✓	✓
Gwen	14	Hispanic, Scottish	✓	✓	✓	✓	✓	✓
Holly	15	Scottish, Welsh, Ukrainian	✓	✓		✓	✓	✓
Jed	15	Canadian	✓	✓		✓	✓	✓
Jean	15	Scottish, German, French	✓	✓		✓	✓	✓
Judy	15	English, French, Métis, Scottish, German	✓	✓	✓	✓	✓	✓
Kelly	15	Canadian, Irish, Norwegian	✓		✓	✓	✓	✓
Lana	15	Italian, American, Dutch, Canadian	✓	✓		✓	✓	✓
Linda	14	*Absent*	✓	✓		✓	✓	✓
Lynn	15	Italian, Canadian	✓	✓		✓	✓	✓
Maria	15	Canadian	✓	✓		✓	✓	✓
Matt	15	Canadian, French	✓	✓		✓	✓	✓
May	14	Japanese, Scottish, English	✓	✓		✓	✓	✓
Pearl	15	English	✓	✓		✓	✓	✓
Philip	15	Russian, Israeli	✓	✓		✓	✓	✓
Rose	14	Canadian, American	✓	✓	✓	✓	✓	✓
Ruby	14	Dutch, British, Italian	✓			✓	✓	✓
Steve	15	Dutch and Canadian	✓	✓		✓	✓	✓
Teri	15	*absent*	✓	✓		✓	✓	✓

Theresa	15	Canadian	✓	✓	✓	✓	✓	✓

Overview of Data collection

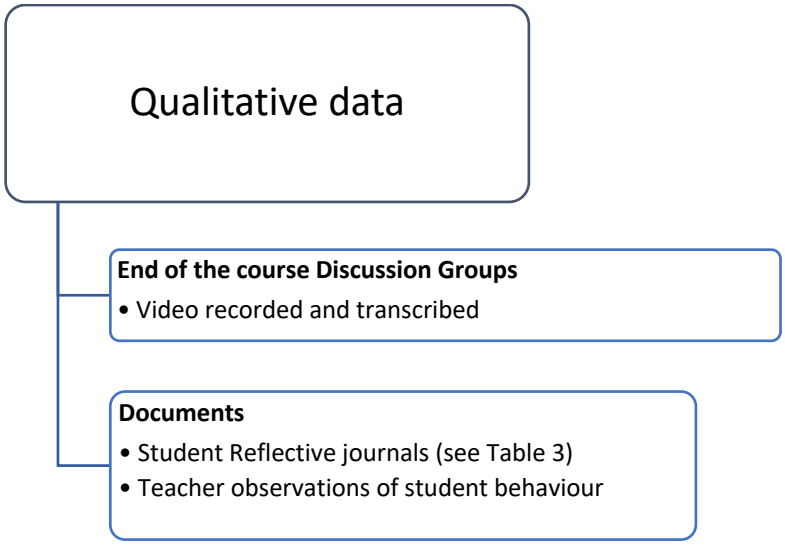


Figure 6. Data collection tools for the study are shown.

Qualitative data (Table 5)

Table 5 below shows the Qualitative data collection of the study. The Qualitative data used the students' reflective journals responses (see table 3 for the questions posed), end-of-course discussion groups, and teacher observations of student's behaviour from the teacher journal. The discussions were conducted in both the middle and the end of the semester. The middle of the semester video discussion was for demographic information only, where as the end-of-course discussion was analyzed for the development of empathy over the course. These were video recorded and transcribed. Students' reflective journals were used throughout the semester, wherein students respond to teacher reflective questions. The teacher journal informed the study as to the observed students' behaviour and if there were changes that occur throughout the semester.

Table 5.

Data to be collected

Data Set	**Qualitative data: Document Name**	**Description of data collected**
1	***End of semester discussion groups (semi-structured)***	Transcriptions of end-of-course discussions.
2	***Students' reflective journals***	These reflections were collected throughout the semester.
3	***Teacher observations of student behaviour***	Teacher's observations of students' behaviour from teacher journal.

Qualitative data analysis

To address the first research questions: *Is Empathy developing? What kinds of empathy are developing?* qualitative data analysis was used to look for evidence of development of types of empathy, in the students' reflective journals collected throughout the semester and in the transcripts of the end of semester discussions conducted. Table 6 below shows the broadened definitions used for coding students' data.

Table 6.

Codes: Descriptive words for different types of empathy.

Type of Empathy	**Cognitive Empathy**	**Affective Empathy**
Descriptive words	Thinking about and listening to others, understanding perspectives of others	Emotional connections and feeling with others Internalization of emotional connections

	Intercultural Cognitive Empathy Understanding, listening, and perspective taking from the point of view of other cultures (Hogan, 1969; Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007; ACARA, 2019)	**Intercultural Affective Empathy** emotional connectedness with the traditions, values, beliefs and people's experiences of other cultures and alignment of core values (Mehabrian & Epstein, 1972; Gordon, 2005; de Wied et al., 2007; Immordino-Yang & Domasio, 2007; Schonert-Reichl & Hymel, 2007; Gonzalez et al., 2015; Paige & Bennett, 2015)

The student's reflective journals were analyzed chronologically to see if there was empathy development over the time in the course. This data set was triangulated against the end of the semester discussions and the teacher journal, which were embedded at the end of each section to demonstrate how students were feeling, and what they were experiencing during that time, and then again at the end-of-course for their reflections of specific activities.

In addition, the teacher journal was analyzed for teacher's impressions of student's actions and behaviours throughout the course in the development of types of empathy.

The student journals were analyzed first using the codes above for the different kinds of empathy shown in the Table 6. Part way into the analysis, it became evident that there were sub-categories of cognitive and affective empathy emerging, that are referred to as Intercultural cognitive or affective empathy (Table 6, p. 49). The codes used are indicated in Table 6. These same codes were then applied to the video transcripts.

To address the research question *What are the conditions that allow empathy to develop?* students' journal responses, students' end-of-course discussion responses were again

analyzed and codes emerged from the data. Through multiple readings and consolidation, codes were consolidated into themes.

Finally, the teacher journal was used to triangulate claims with other observations made by the teacher about students' behaviour and interactions with one another.

Trustworthiness. Trustworthiness will be found using triangulation across the end-of-course discussions and the student reflections data sets, and using thick descriptions of student responses from the data. In addition, triangulation occured through considering the comments in the teacher journal.

CHAPTER 4 FINDINGS

In chapter 4 I speak in the 3rd person as it makes it helpful for the reader to better understand when the students are speaking.

This thesis aims to address the research question: In what ways does a curriculum that aims to foster empathy as a foundation for allyship behaviour impact the developing empathy of science 10 students? Specifically, we want to know: *Is Empathy developing? What kinds of empathy are developing? What are the conditions that allow empathy to develop?*

To address the research questions: *Is Empathy developing? What kinds of empathy are developing? What are the conditions that allow empathy to develop?* A qualitative approach was used**.** Three data sets were analyzed: 1. Students' journal entries in response to ten questions asked over the course of the semester, after key learning activities, 2. Transcripts of discussions conducted at the end of the semester, and 3. Teacher's reflective journal.

Part 1: Exploration of Empathy development

Is empathy developing? What kinds of empathy are developing?

In general, evidence from the students' journal responses and transcripts from teacher-student discussions' responses at the end-of-course suggests that students' empathy was developing throughout the course. This finding is supported by reported observations in the teacher's reflective journal.

In the journal responses and end-of-course discussions, cognitive empathy (the mental action of connecting with others in listening, thinking about, and understanding others' perspectives) and affective empathy (emotional connectedness with others, feeling with others, aligning of values with others and the internalization of emotional connections felt with others) responses far outnumbered those of sympathy. From the students' journal responses data set, there were 69 empathic responses in all; 38 responses (55%) demonstrated cognitive empathy, 29 responses (42%) demonstrated affective empathy

whereas only two responses (3%) demonstrated sympathy. There were 49 responses showing empathy in the end-of-course discussions, 16 (32%) of students' responses demonstrated cognitive empathy, 31 (63%) demonstrated affective empathy and two responses (4%) demonstrated sympathy.

The teacher's reflection journal entries concerning students' interactions support the suggestion that their empathy was developing throughout the course. For example, relative to other years, the students worked especially well in groups, listening to each other and compromising on tasks and organizational components. There were only two instances in the entire semester, of over 100 different group opportunities, that required teacher intervention to assist with partner challenges. Students began to build relationships outside of their regular social circles within the class, with some percolating out of the class as new friendships. By the end of the course, students seemed to feel very comfortable sharing their ideas and thoughts about different topics in class discussions and debates. The next section looks at how empathy was developing through the course.

How is Empathy developing?

Students' journal responses were written on five occasions throughout the course in response to specific learning experiences and guided by specific questions (see Table 3, p. 55) and their responses at the end of course discussions often concerned these experiences. To describe how students' empathy was developing throughout the course, a chronological approach was used. In this chronology, the sub-headings indicate the week number and learning experience (in parenthesis) that students are reflecting on in their journals and discussing at the end of course discussions. These were week 1 (RD (Katz with Lamoureux, 2018) lesson set); week 6 (TKK visit); week 11 (field trip); week 15 (reflections on group work); week 19 (competency reflection) and week 19 (medicine wheel activity: see Appendix 1). Within each sub-section, for each of the weeks (learning experiences), findings from student journal responses were first shared followed by comments from the end of course discussions, when students reflect back on their experiences.

Week 1 (Respecting Diversity Lesson Set)

The course began with the RD lesson set (Katz with Lamoureux, 2018), see Table 2, p. 54. At the end of the lesson set the students were asked to reflect on the question: Why is diversity important? This is directly related to cognitive empathy because acknowledging diversity is the first step in understanding the importance of different perspectives. Student responses showed cognitive empathy in their description of the importance that diversity plays in their lives.

From Students' Reflective Journals. The students' responses show cognitive empathy in their appreciation of the importance of understanding different perspectives. This is exemplified in Caleb's response "every single intelligence contributes to our life .... They are all essential parts…[without diversity] our society will lack of something." Philip's comment goes further when he showed his understanding that we are all one people. Philip stated: "diversity is necessary for us to learn from each other's abilities, opinions, and cultures, to understand who we are as a human race." Students also showed their appreciation that everyone's contribution is special and unique. For example, Pearl describes how "diversity is necessary because everyone has their own skills and their own gifts that make our reality a reality."

Theresa takes her understanding to the next level where she appreciates the value of divergent ideas or perspectives, she says: "Diversity means that everyone would have different ideas to bring to the table, it encourages curiosity and growth in areas that you aren't familiar with." Philip offers another understanding: "[Without diversity] we would be like a hive mind all thinking one way without reflecting or going back and saying why."

No responses collected in student journals at this point contained examples of affective empathy.

From End-of- Course Discussions. In the end of course discussions, in comments where students were reflecting back on the RD (Katz with Lamoureux, 2018) Lesson Set, students demonstrated ways their work on the lesson set helped their developing cognitive empathy

when they spoke about the importance of understanding different perspectives. Daisy says: "So, I have actually liked how we first, in the beginning, went over the different [multiple intelligences] ... It just made it so that you were working with different people and you got different perspectives on things." Judy describes how the work with RD Lesson Set (Katz with Lamoureux, 2018) at the beginning of the course, contributes to her developing cognitive empathy by being open to others' ways of working and learning. She said, "Without doing [MI]... it was super awkward working with one another. But I feel since we understand where, how other people work and learn differently we're more open to those options and can find a way to work." May talked about the importance of not only understanding different perspectives, but valuing them: "I feel like everyone learns differently and has a different level of smarts, and it could be like one person has book smarts and another has street smarts, and when you put them together– it's just super powerful."

Week 6. (Traditional Knowledge Keeper visit)

On week 6 (end of the chemistry unit and as an introduction to the energy unit) a TKK, Mrs. Bernice Jensen, was invited to visit the class and present on Secwepemc understanding of chemical processes and energy transfer. Students watched a slide presentation and then had the opportunity to see and feel artifacts, as well as, taste some dried berries important in Secwepemc culture. In their journal responses following Mrs. Bernice Jensen's visit, Students were asked to reflect on two questions: What are some of your overall impressions from the TKKs presentation of Secwepemc cultural understanding of chemical processes and energy transfer? Why is it important for students to understand Secwepemcul'ecw (the ancestral land) and Secwepemc culture?

When analyzing the students' journal responses and their comments in the end-of-course discussions, considering Mrs. Bernice Jensen's presentation their developing intercultural empathy can be seen in the way they attempt to understand Secwepemc culture and Secwepemc worldviews, and communicate a developing understanding of that world (Zhu, 2011). It is important to emphasize that: of course, it is impossible for students to truly put

themselves in the shoes of Secwepemc people (Harrison, 2017). In the next section evidence of students' developing intercultural empathy is shared.

From Students' Reflective Journals. In their journal responses to Mrs. Bernice Jensen's visit, students demonstrated their developing intercultural cognitive empathy when they (a) show their interest and developing understanding of Secwepemc culture, and made personal connections with their own lives, (b) show their understanding of the importance of learning about Secwepemc culture because this land is the land of the Secwepemc people, (c) show understanding of the benefits for everyone of developing understanding of Secwepemc perspectives on present day issues.

(a) Matt shows his interest, developing understanding and personal connections to the plants being discussed, as he has some of these in his own backyard: "I was pretty amazed with how [the Secwepemc] used to cook food and how some plants are used for medical use (wild plants/trees). Because I have some of the trees and plants, like the Ponderosa." Holly connected personally with Mrs. Bernice Jensen in some of the experiences they share, demonstrating her affective empathy in her comment: "I also made several connections from my own experience to hers." Ella acknowledged the feelings of interest of others towards the presentation, "other classmates felt the same way and I think some wanted to learn more." Caleb connected personally with the information presented during Mrs. Bernice Jensen's visit when he says "Nowadays, we don't really have to think about survival in the woods … and nature, but Secwepemc People did for thousands of years…One thing I could say about the knowledge of the Secwepemc and my ancestors is that they have amazing and incredible understanding of Nature and all scientific processes."

(b) students showed their ability to understand and share perspectives of the Secwepemc people towards the land and indicated the importance of respect for Secwepemc perspectives of the land. Holly shares: [TKK visits] help us understand by explaining why their teachings and ways are important. It helped us understand how important it is to respect the land and everything on it". And Matt provides the context

demonstrating his developing cognitive empathy when he said: “It's very important to learn and understand what [Secwepemc people] had to go through dozens to hundreds of years ago.” Students show that they understand the importance of learning about Secwepemc culture as we all live in Secwepemc territory, referring to this land as belonging to the Secwepemc people (when students referred to “their” land). For example, May says, “It's important to me to learn about their culture because we have lived on their land for so many years.” And Maria states “I feel that it is respectful to understand and show that I care about the culture, especially because we are always on their land.” Cathy shares “I live on Secwepemc territory, and learning about their culture … helps me learn new information, and become knowledgeable about the land I live on.” And Jean “The Knowledge Keepers really help us understand different ways to do things and give us information... I think it's extremely important to understand the land that we live on.” Caleb further processes his developing understanding when he acknowledges past mistakes “we always have to learn from the past and mistakes to proceed forward successfully.”

(c) Students also showed understanding of the benefits for everyone of developing understanding of Secwepemc perspectives on present day issues. Daisy said: “[Secwepemc people] also have different perspectives on things, so they share their way from their own experiences.” Jed shared: “having these visits is the best way for us to understand … that there are multiple ways things can be done”. Philip’s response adds to this: “[TKK visits] show us from an alternative perspective how [Secwepemc] people deal with issues that are present in modern society.” Additionally, key quotes important for the discussion of the emerging conditions highlighted by the students must be included here. Maria shared of the presentation: “I think it was a cool way to teach kids about the Secwepemc culture and… lifestyles.”

From End-of- Course Discussions. Analysis of end of course discussions support the view that students are developing their intercultural cognitive empathy. Specifically, students showed their appreciation of Secwepemc science knowledge. Daisy shares,

> "It's like when [Secwepemc people] see like a plant it means something to them and they have all [this knowledge] for why it's here. But for us when we walk it's like oh, this is a plant, and we don't realize what it can be used for."

May showed her value of Secwepemc science when she added, "It made me realize that science is in everything, it's kind of a big part of [Secwepemc culture] and like being able to understand how different plants and natural things can be used in a scientific way."

Week 11 (Field trip)

On week 11, the students went on a field trip with three SD73 Traditional Knowledge Keepers who were invited to share their understandings around the theme Energy and Interconnectedness. Supporting this trip were MJ Johnson and Roberta Regnier (both AEWs) and two non-Indigenous teachers, including the PR. The field trip theme and organization were put together by MJ Johnson and the teacher principal researcher. Students participated in a number of activities selected by the TKKs throughout the day. Students were asked to record a video reflection for their journal on the day responding to the question: What are your takeaways from the day? (Refer to the day's layout in the methods, Table 2, p. 54.)

From Students' Reflective Journals. Of the group of students who attended the optional field trip, six were participants in this study. Students' journal responses to the field trip questions show that their cognitive and affective empathy were continuing to develop through this experiential learning opportunity. Caleb described connections between the Indigenous teachings and his own culture:

> "I learned about First Nations understanding of interconnectedness of mother nature and of other things. And I found those learnings are quite similar to Chi in East Asian cultures. And like medicines they use similar methods to make medicines back in the days in Korea as well. So, I found those really interesting."

Theresa shows her developing affective intercultural empathy in the internalization in her comment:

> "I just feel like it was a really cool experience to learn about all the different ways that energy is used in First Nations culture especially. And it just opened my eyes to different ways that we can look at the world and think of how everyone and

> everything is connected, internally and externally. Now I just feel like I can go about the rest of my day and the rest of my week just thinking about this and looking around my life for different opportunities to see energy and just the way that everything is connected."

From End-of-Course Discussions. Students' comments at the end-of-course discussions supported the findings from the journals. Students showed evidence of developing intercultural cognitive empathy when they shared their developing intercultural understanding, and when they made personal connections to Secwepemc culture. For example, Caleb felt personal connections to his own cultural history,

> For the First Nations [field trip] I thought it was really interesting because I know [my cultural] history. Which is 13 hours away with a plane, but it is quite similar, like the making of drums too. So, it's really similar, so I found it really interesting.

The field trip also prompted students to think about interconnectedness and energy, which reflects a wholistic Secwepemc perspective. For example, Gwen said,

> I was going to say my take on [the string and drum lesson]. I knew it was about the drum, but I was thinking um about the tie to the middle because we are all connected somehow. And he was talking about the fires and the water and Earth and …how it was all connected somehow. So just I took it in the way that we are all connected somehow.

The teacher notes in the teacher's reflective journal that there was continued development of cognitive and affective intercultural empathy as all students who attended the field trip spoke about their experiences upon their return, sharing their perspectives of the day and the activities with others. From the teacher journal, it was noted that Judy's affective empathy was also demonstrated through her ability to speak with most other participants and in her statement: "I've made so many new friends."

Week 15 (Reflections from Group Projects)

In week 15, to the wrap up of the genetics unit in which a number of group projects were completed. Students' work-groups were created with members each having strengths in

different multiple intelligences. The teacher journal describes how students showed cognitive empathy when they shared understanding of the importance of the different strengths that each individual brings to the group and their understanding of the importance of every individual to the work of the collective. From her journal, the teacher recalls a conversation that was overheard demonstrating how students were taking their personal strengths into consideration when assigning individual tasks. For example, Lynn stated, “Linda is not here today, but she is great at drawing, so she can draw that when she gets back.”

Students had the opportunity to describe their interactions with other group members in their reflections. Students’ journal reflections show cognitive and affective empathy-in-action when students explained their interactions in their groups. For example, Cathy wrote, “Our group took the time to hear everyone's ideas and then as a group we decided how we were going to do the assignment.” Two students also showed their developing cognitive empathy when writing about their group’s method of peer assessment, both students commented on what kinds of criteria they used and described their considerations. In both cases the students were showing consideration of other peoples’ perspectives and personal situations and how they valued their contributions to the group projects. Caleb said: “Mark was absent a lot of times, but when present paid his best attention to the task and produced a great outcome” and Philip stated: “Students' peer assessment marks were based on the days that they actually attended the class and not on their contributions to the group's assignment.”

The teacher journal provides further insights into empathy-in-action. Apart from Lynn’s conversation above, other groups of students showed their cognitive and affective empathy when they were overheard in their first meetings sharing their multiple intelligences and then discussing how to go about completing the assignment using these different strengths, in the task division process.

The teacher did note that groups had their challenges, but that speedy solutions were found by the students themselves and students were able to move along in their task completion without teacher intervention. Students solutions included: group behaviour and expectation contracts, contacting their friend who was absent that day and letting each other know if they

were going to be absent and planning around each other's schedules. The teacher noted that "students are willing to work with each other in any way asked or assigned, with no complaints or requests for changes" demonstrating how students' cognitive and affective empathy were developing. Students also demonstrated cognitive and affective empathy through consideration of different perspectives in discussion and compromise on how the information was to be presented in the final project. Many students chose to highlight and celebrate each other's strengths in finding creative ways to best showcase their learning. The overall effect of students developing cognitive and affective empathy was that final projects were of a higher quality, on average, than had been received in previous years.

From End-of-Course Discussions. Findings from the end of course discussions support the findings from the journal responses. Looking back on the group work, Cathy shows her appreciation of the diversity of her group and the value of different perspectives when she says,

> "I liked how, for example, [in] the genetics unit and the DNA, we got into small groups and then did work together and, how we had the different multiple intelligences. Because I feel like, at least from my group, I feel like we worked really well because we all had different ideas that we could share."

Theresa's comment about the same project supports this,

> "The projects I feel I liked the most this entire year were the ones [where] you got into your groups, with people from the other intelligences: interpersonal, musical and then you had to do the stations, like building the DNA structure, the alien one, and the hybrid. I really liked that one because, you all help each other out. Like you are never stuck on one thing. Like, it always made sense in the end."

Pearl and Holly are two students who had the opportunity to work together on group projects, but who are 'not friends' outside of the class. Their contribution demonstrates how the mixing of multiple intelligences contributed to their understanding of the value of different perspectives,

> Pearl- So I actually, kind of really liked when you mixed [us] up [according to] our intelligences, cause normally I work with people I think I'm similar with. Except that

> I got to work with a whole bunch of different people. And we all put our ideas out and make kind of like…
> Holly- an ultimate team
> Pearl- yeah!

Week 19 (Student's final thoughts on the course)

In week 19, the final week of the course, the students were asked to write reflectively on two topics: reflection on the core and curricular competencies and a medicine wheel reflective writing activity (see Appendix 1).

Core and Curricular Competency Reflection. In the core and curricular competency reflection, students demonstrated their developing cognitive and affective empathy by acknowledging the importance of multiple intelligences and diversity generally and acknowledging the benefits of understanding different perspectives. They also showed their developing intercultural empathy by acknowledging the need for understanding Secwepemc culture specifically. In this section examples will be shared.

Matt shows his developing affective empathy when he shares the importance of working well together through building connections with group members,

> "One thing I'm very good at is being involved in student activities and groups with others. I can really get the job done if I put my mind to it, and have a really good connection with my group members."

Judy writes about how one of her greatest areas of growth has been learning about other's perspectives, "learning others different points of views." Holly acknowledges the positive effects that working with others had, "I think one of the main things that will stick with me is the fact that working with new people might be great and that it's worth it to see." Corey shows how her intercultural empathy is developing when she said: "everyone learns in their own ways. And some people having a liking for things more so than others. I think it's really cool to be able to look at the different learning and understanding of my peers."

Students showed their developing intercultural empathy when they spoke about how important the course was for developing understanding of other cultures, and more specifically Secwepemc culture. For example, Cathy shared that "science is a large part of indigenous culture, [and] multiple intelligences encouraged me to try new learning styles. And Caleb reflected on the field trip, "I am never going to forget the trip to McQueen lake and all the First Nations practices and knowledge I have learned."

Medicine Wheel Reflections. Students demonstrated their developing empathy in relation to their growth in all four quadrants (mental, physical, emotional and spiritual) explored in this activity. On the mental growth quadrant Caleb said, "Mentally this year in science 10 I think I grew in [the] ability to understand other people's opinion and collectively word them or express them positively, like in our ethical science portion." From the physical growth quadrant Theresa showed how her intercultural cognitive empathy was developing through the TKKs visit, "When [Mrs. Bernice Jensen] came and spoke to us, and helped me to get to know the First Nations culture better, with the tangible [materials] that she brought."

From the spiritual growth quadrant students showed their developing cognitive empathy when they talked about their developing perspectives of Secwepemc culture throughout the course. For example, Maria said, "I did like the [Traditional Knowledge Keeper's] presentations because it gave me a sense of their perspective and that it does affect people". Gwen recalls the field trip and what has stayed with her, "On the field trip to McQueen lake, talking about nature and other communities and beliefs really showed me how different everyone's [perspective] really is– I never thought about it before."

Students showed their developing affective empathy in their responses in the spiritual and emotional growth quadrants of the medicine wheel activity (see Appendix 1). Students remembered the portions of the class that they deeply connected with, or that had an impact on them. Theresa shared how she feels about the connections she has made in the class with classmates and the teacher when she said,

> "I got to know my classmates and teacher on a more intimate level than other classes, that helped me understand the topics in science better. I found some parts of this class difficult to understand, but when I asked about it, many people would offer help."

Pearl describes her growing cognitive and affective empathy when she says, "I think that this class made me more open and in tune with myself in a way. It definitely got me thinking more about culture and diversity and things like that. So, I think I did improve in this." Caleb adds,

> "I loved how I could connect to different cultures and learning through this course. I usually have this mindset that separates myself and things here, because of my ethnicity, but I grew to find similarities and connections this year. This [has] been a really valuable experience this year."

Linda sums up her developing intercultural affective empathy when she says, "Learning about First Peoples' cultures, learning about different learning styles, [and] having my own opinion…" Cathy shared her construction of intercultural cognitive and affective empathy within the context of science in her sharing,

> "Learning about Indigenous culture and the way they use science in their daily life connected with me. I realize science is not only technical and complicated, but it is a part of a greater meaning and brings people together through many different aspects and over many years of learning."

From the emotional growth quadrant, Rose describes her affective empathy development during the field trip, "One of the things that stuck with me was the field trip to McQueen Lake. I liked learning about all of that and having a huge snowball fight was also fun." From the teacher journal:

> "Now, the school frowns upon snowball fights, so I might get in trouble for sharing this, but, the connections with the land and each other that day would have been shattered if the adults had stepped in. The snowball fight did not last very long and adults were present, no students got out of hand, and they were respectful when anyone said 'enough' or 'I'm out' further demonstrating their ability and

> development of affective empathy towards one another. The theme of the field trip was Energy and interconnectedness- how much more connected could students be with the environment and each other?"

Theresa shared the lasting effects of attending the field trip to McQueen lake, how it opened her up to opportunity and the feelings she has about the class, the people in it, and different cultures demonstrating her cognitive and affective empathy development: "Going to McQueen Lake as a field trip open my heart and mind to how different cultures used different practices, and how they thought about things. This class feels like we are all best friends/family."

In the teacher's reflective journal, she noted that the field trip offered experiential learning opportunities that cannot be replicated in the class. The field trip to McQueen Lake was brought up repeatedly in class discussions by students who attended, and the manner in which students discuss this trip showed that they have been changed by their participation in this opportunity.

To sum up, at the end of the course, in the teacher's reflective journal she wrote "the students' empathy development is clear in their interactions with one another. The ease in which they are in the classroom, the friendly classroom banter, ability to have group discussions where everyone shares their opinions, and the way in which they interact with the adults in the classroom all demonstrate how their "empathy-in-action" is developing." It seemed this was happening because the students, along with the teacher had co-created an environment that had the right conditions. In the next section these conditions are explored.

Part 2: What are the Conditions that allow Empathy to Develop?

Two major themes emerged from students' journal responses and their responses in discussions, as being important underlying conditions for empathy development. These emerging themes were: building relationships; and a safe, non-judgmental classroom environment.

Building Relationships

Getting to know each other

Many different kinds of relationships developed over the course when students' put their empathy development into action, as they branched out of their isolated social circles to begin engaging with others. Matt and Rose note that making new connections in the class impacted their development of empathy: Matt shared "I have made new connections with friends, and teachers. I did way better in chemistry this year than I did last year and that makes me slightly happy knowing chemistry is my least favourite." Rose said: "Science class was fun, I liked that I had friends in it and was able to make new friends as well."

In the class, the teacher continually mixed the students when she changed desk partners and heterogeneous groups (bringing together students with different multiple intelligences) so that all students in the class had opportunities to work alongside each other. In end-of-course discussions students talked about how this helped them get to know each other and feel more comfortable in the class. Kelly said,

> I feel since we [learned about multiple intelligences and worked with different people], it's not awkward working with each other. Cause [before] when you go into class … you stick to your friends, but now you can work with anyone and you get along.

Theresa shares how she feels about the class,

> I feel like this class more than other science classes- it was way more together and like getting to know people and we had a lot of those kind of discussions. And although they weren't super science related, like, it kind of helped to get to know everybody.

Pearl makes a direct reference to the classroom environment and shows how this helped her to feel safe,

> This year, I feel like, I felt like kind of better than other years. Because we were all more close, I guess in a way. And we got to know each other, kind of like what Theresa said, and it felt more safe.

Holly explained:

> I don't really know, like, what exactly it was- it had something to do with multiple

> intelligences stuff, but we all know each other better now. So, at the beginning of the year it was kind of group discussions and there was two people that would talk. And then by the end of the year we've all said something in group discussions at some point.

Jed talked about how he had got to know everyone's name. "I know everybody's name in the class….I'm horrible with names, but I remember (there was lots of agreement from other students when Jed made this comment)." In a journal response, Philip shares how the mixing of students made him feel, "The extra movement and interaction between students led the classroom to make it feel like we were back in elementary. This feeling makes a classroom more welcoming and friendly." Judy shared how she experienced the class, as a student new to the school:

> I guess with … me being new to the school, I found it … really easy to get to know everyone, because of … how you were always … changing the seating arrangement and stuff and how you were always making us do group stuff. So, it was just really easy to get to know everyone and work with them in that way. And learn everyone else's way of learning.

Getting to know the teacher- Intergenerational classroom relationships

In the end-of-course discussions, students share the importance of getting to know the teacher. Theresa shares,

> "At the start of the class and the start of the semester I kind of like didn't know you at all. Wow, like I've never seen this girl before. And like I thought that you were like, like I thought like wow, she's not like a normal teacher. Like I assumed it would be more like structured academic kind of style, and it was kind of unorganized and like willy wonky everywhere. But then I got to know you and then I got to know your teaching style and it was different. It was, yeah, like more like talking and class discussions and not like textbooks and like all that."

In the end-of-course discussion an exchange happened where Judy shared her recollection of something from the first week of school that helped to create an environment that fostered empathy.

Judy- This has nothing to do with anything but I thought it was really cool how everyone wished your kid happy birthday at the beginning of the year – I just remembered how we did that.

PR- oh down the hall, right- there was a kid down the hall?

Holly- No your daughter

Judy- no when your children were on the phone and we wished them a happy birthday

over the phone

Kelly- That was so cool

Theresa- That was cute

Jed- a cool connection

PR- thank you, I totally forgot about that.

Jed further explains his development of cognitive and affective empathy in the development of his student-teacher relationship when he said:

> "I was going to say that we got to kind of know [the teacher] as a person as well. Cause I mean that it was more than just a science class in some parts. [The teacher] took the effort to get to know us, and [the teacher was] polite. [The teacher] talked about [her] family and we talked about our family, what was going on. Wasn't like just do this because I am your teacher. There was more to it than that."

Relationships between students in different science classes, taught by the same teacher

One of the interesting outcomes was that students from the two classes involved in the study were also creating relationships in speaking about their experiences together. This following exchange shows how the development of cognitive and affective empathy in students is beginning to permeate out of the class and into the school.

Jed- I definitely talked about this class the most like of all the classes I have right now.

And its funny cause I know there is a different block and I think, like you teach a different block right now, right?

PR- yes

> Jed- Yeah and there's people in that class that I was talking, like we would talk together, even though we aren't in the same class. And we found ways to connect just talk about what we were doing and stuff. So, it was interesting.

A safe non-judgmental classroom environment

Students talked about how the classroom helped them feel safe in sharing their opinions or asking questions, and how the students and the teacher were involved in creating this safe environment together. Ella demonstrated how using the multiple intelligences gave her confidence in her group presentations when she said: "we can use certain multiple intelligences that define who we are so it was kind of easier to do our presentations in a comfortable spot." Judy shared:

> I'm normally a really shy person, but I noticed that … in this class I'm not … super afraid to speak up. So …, I thought that was really cool cause normally I'm afraid I would … be judged afterwards. But I don't feel that here, so that's really cool."

Jed continued,

> like out of all the classes, you are right, this is the one where I, 'cause I have people that are, and not everybody, but there are certain people they will just be judgey for everybody. And it's not nice, because you see them bring other people down. They are saying mean things, and its harder to learn, you don't feel as good. It's not, It's not bullying but it's very, it's tough on you, Right? – kind of gets to that point. And, I know you said its us, but there's a lot of teacher's that don't even focus on that, they don't give time for that opportunity. Or some of them will just ignore it, you know. Like if I said something really mean and you heard me, you wouldn't just pretend you didn't hear it.

During end-of-course discussions, students were comfortable enough to engage in courageous conversations and share their discomfort as shown in this example from Jed:

> I think, it's funny how we get a lot of people, we talk about judgement and all that, and a lot of people would just immediately shut down another culture. Like I know people that if they went [on the field trip], they would just immediately be like oh,

> that's just a waste of time. And they just say really terrible things about it. But if you look at every culture there's a lot of similarities. We just, it's hard to find them because we think we are like better cause we have this kind of view, or like it's really hard for people to understand a different way of doing things. But we've had lots of different opportunities to figure out other cultures this year. So, it was good.

And in this example from Linda,

> One thing that I wasn't like huge on was like, students and [you], there were like arguments … over like, things in science that we were like learning about and stuff. From my point of view, it's just my own opinion, Sometimes I felt like we were getting… into a conflict … about something that wasn't really like a big deal- from like my point of view. Not saying that anyone didn't have like a good reason.

Students shared how the teacher's approach to the class fostered a safe environment for their development. For example, Daisy said "And then I feel like [the teacher] made the classroom a safe environment for people to ... come, and thanks for that, and it didn't feel like unsafe or anything or judged if you were smart enough."

Students' described how the teacher recognized and honoured diversity by including choice in the kind of projects or the way they could present. Judy describes how this made her feel: "I really like, … the choices of the projects we got to do, like chose something that interested us or something that runs in our family. I thought that was really cool. It was like the options that you gave us instead of just … here's your thing and do it, right? So, I really liked that." Jed shares how this flexibility in the project's final product demonstrated the teacher's empathy-in-action: "we always kind of had a choice for all of our projects and stuff. It was never just like oh you have to do a slideshow and a second slide show that you have to do, … you could have written a song, or an interpretive dance. It doesn't matter because… just whatever works."

The PR followed up on discussion points raised by students and asked:

> "So, we talked about multiple intelligences, and we talked about different groups together [on projects]. How has working with different people in the class affected how you come to class, or has it. So, what impact has that had on your approach to when it's, you know, [our] block science?"

Jed response comments on how multiple intelligences, classroom design, and group assignments all combine to create a unique environment that fosters the development of cognitive and affective empathy: "I was going to say, like, all of this, created a supportive environment."

CHAPTER 5 DISCUSSION

This study was guided by the Truth and Reconciliation Commission of Canada's Call to Action 63 iii: building student capacity for intercultural understanding, empathy, and mutual respect (2015). The opportunities offered to students follows from the idea that learners create their own knowledge within the social constructs that make up their experiences (Fosnot, 1996; Steff & Gale, 1995; Dewey, 1938; Hegel 1807/1949; Kant 1781/1946; Vico 1725/1968). This study focused on the development of empathy as foundational in answering the above Call to Action. In this study the working definitions of cognitive and affective empathy were cognitive empathy (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007)– thinking about others, listening to others, understanding perspectives of others; affective empathy (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007) – emotional connections with others, feeling with others, internalization of emotional connections.

Data collected from the study suggest that the curriculum and strategies implemented in this course empowered students to develop their empathy. Specifically, intercultural empathy which is the key to moving towards allyship behaviour. The definitions of intercultural empathy developed in this study included intercultural cognitive empathy – understanding, listening, and perspective taking from the point of view of another culture and intercultural affective empathy – emotional connectedness with the traditions, values, beliefs and people's experiences of another culture and alignment of core values. It is important to note, as Harrison (2017) states, non-Indigenous teachers and students can never truly know what it means to be and feel Indigenous.

Intercultural empathy is made up of two components: Intercultural understanding and intercultural sensitivity. Intercultural understanding, a key component of the curriculum at all school levels, is defined as "recognizing culture and developing respect, interacting and empathizing with others, and reflecting on intercultural experiences and taking responsibility" (Australian Curriculum, Assessment and Reporting Authority, 2019). Intercultural sensitivity is defined as how an individual makes sense of cultural differences in

values and beliefs of others and the experience of difference based on these constructions (Paige & Bennett, 2015). Below, Figure. 7 shows the connections between the definitions of intercultural understanding and intercultural sensitivity with intercultural cognitive and affective empathy. Data suggests that students developed their cognitive and affective empathy, and intercultural cognitive and affective empathy over the course.

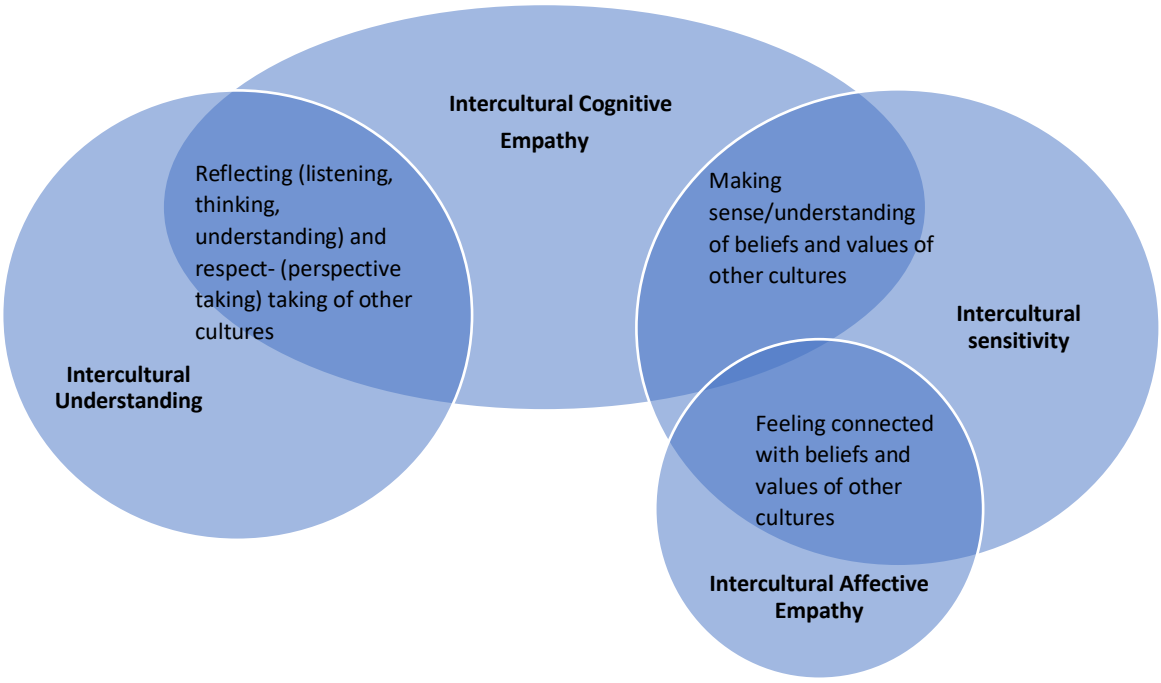


Figure 7. Connections between the definitions of intercultural understanding, intercultural sensitivity, intercultural cognitive, and affective empathy.

In this chapter, part one will discuss the students developing empathy in relation to the literature and part two of the discussion will focus on the conditions necessary for the development of empathy to occur.

Part 1: Students developing empathy

In part 1, students' developing empathy is discussed in relation to the literature, to address the first two questions of the study: Did empathy develop? and How did empathy develop?

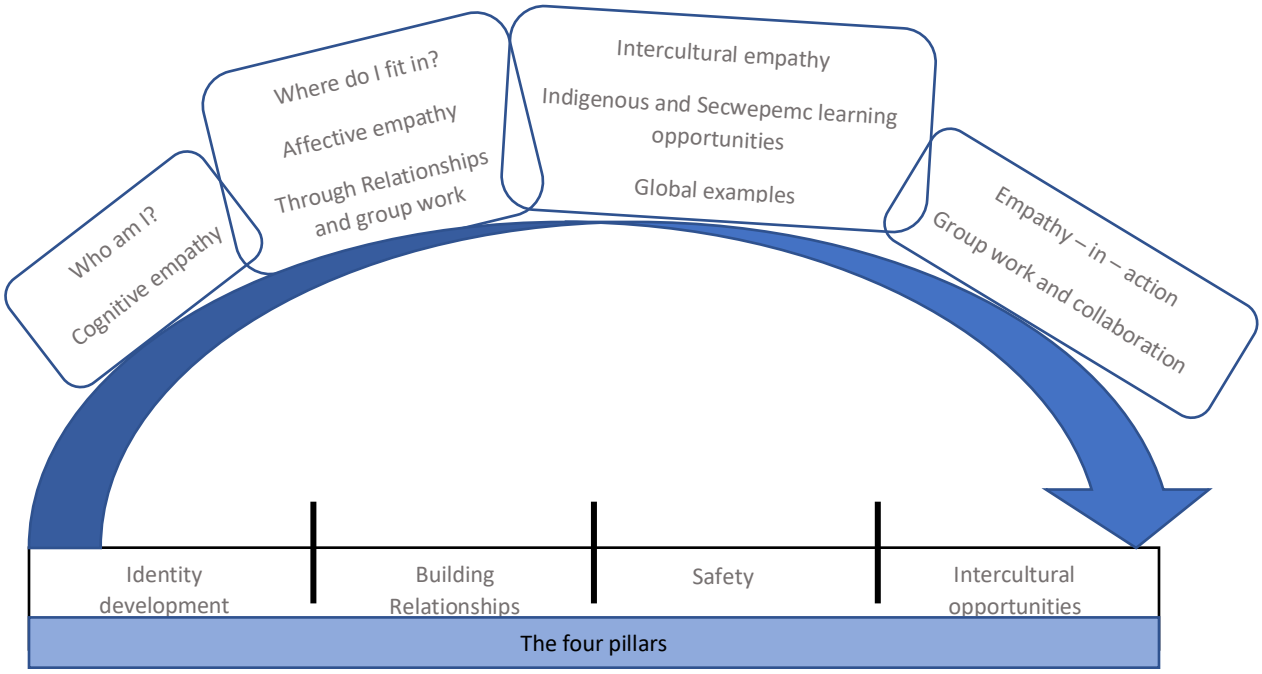


Figure 8. The Empathy Arc. This diagram shows the progression students seemed to follow in their empathy development this year. There is overlap in the movement through the empathy arc. Supported by the conditions the students identified in their responses.

Did Empathy Develop? How did empathy develop?

There appeared to be a progression of empathy development through the course, I term this an empathy arc (Figure 8). First students developed their cognitive empathy through the respecting diversity lesson set and UDL (Katz, 2012a). They further developed their affective empathy through their relationships with each other in group work and with the teacher. They developed their intercultural empathy through their intercultural experiences. These laid the foundations for their empathy in action, the beginnings of which can be seen

in their group work. This empathy arc is founded upon the students' responses and in this section, it is described and related to the literature.

Recalling Hanson's (2019) study of teachers, one of the teacher-participants in that study stated that in order to build empathy "you have to go through it, through empathy...to understand how it's related to you" (quote from a teacher, Katherena, in Hanson, 2019, p. 317). In this study, students demonstrate how they have gone through empathy, and how they have come to understand how it is related to them.

At the beginning of the course, through the respecting diversity lesson set (Katz with Lamoureux, 2018), students developed their cognitive empathy, defined as perspective taking (Gordon, 2005; Immordino-Yang & Domasio, 2007; and Schonert-Reichl & Hymel, 2007). Through the Respecting Diversity lesson set (Katz with Lamoureux, 2018), students, including Caleb, Phillip, Pearl and Theresa (on page 55) came to appreciate their own uniqueness and different ways of learning (multiple intelligences) and those of their classmates, and to appreciate different perspectives. Students comments are supported by the FPPOLs tell us that learning ultimately supports the wellbeing of the self; is holistic and relational; and that learning requires the exploration of one's identity (FNESC, 2014).

In their group work, students were beginning to act on their developing cognitive empathy, considering each other's uniqueness and perspectives, while working in diverse strategically created groups on different projects. Looking back on the course in the end-of-course discussions they talked about how they were able to work together by listening to everyone's perspectives and ideas. Students' affective empathy, defined by Gordon (2005), Immordino-Yang & Domasio (2007), and Schonert-Reichl & Hymel (2007) as emotional connectedness, appeared to be developing through the decisions of a group on how to proceed in the assignment after identifying everyone's strengths. Students responses supported the strategies embedded from the FPPOL's of learning as holistic, relational, involving the recognition of the consequences of one's actions and that learning involves patience and time (FNESC, 2014). The teacher's reflective journal notes that the end products created in group projects were, on average, of a very high standard due to the ability for students to work

together through differences and challenges, and create a product that showcased each of the students' strengths.

de Wied et al. (2007) describe how the development of affective empathy is linked positively with the ability to problem solve, which can be seen in the student responses and the teacher's reflective journal. Students' responses also suggested cognitive and affective empathy development when they talk about how groups came up with their own ways of managing themselves, their tasks, and how they responded to challenges. The teacher's reflective journal notes only 2 instances in the semester of required intervention in groups, much less than usually required in previous years. These responses support the FPPOL that learning involves generational roles and responsibilities (FNESC, 2014).

Students also showed the progression of their developing empathy along the empathy arc when, at the end of the course in their core and curricular reflections, they reflected back on the activities in the course, beginning with the celebration of their uniqueness as multiple intelligences, then extending that celebration to other students (cognitive empathy) and their individual contributions through group-work (affective empathy), then to other cultures (intercultural empathy) through their experiences in TKK presentations and field trips (Katz, 2012a). Their development along the empathy arc aligns with the FPPOLs that learning requires exploration of one's identity, is holistic and relational and takes time and patience (FNESC, 2014). For example, Philip (p. 58, 61) and Matt (p. 67) both demonstrated their developing cognitive and affective empathy in their reflections on how students' diversity of learning styles and expression of knowledge allowed for personalization of the experience, as they worked with different partners in various capacities throughout the course. The finding that students developed this appreciation of others' perspectives through their group projects aligns with the FPPOLs is demonstrated in the above responses as they describe how their learning is both experiential and based on their connections with others (FNESC, 2014). Cathy's intercultural empathy development allowed her to see that science is a part of Indigenous culture supporting both Zhu's (2011) definition of intercultural empathy, and the FPPOL's tenet that learning recognizes the role of Indigenous knowledge (FNESC, 2014). She also shared insights into the relationships between building cognitive empathy through

multiple intelligences, and how that enabled and encouraged her to try new learning styles (p. 62). Corey's response suggests the growth of intercultural empathy in the way she looks at and considers her peers' different ways of learning and understanding (p. 63).

End-of-course discussions. The end of the course discussions shed light on how the students' empathy developed over the course with different opportunities to build cognitive and affective empathy along with intercultural cognitive and affective empathy with peers and with other cultures perspectives embedded throughout the course.

A few students recounted their experiences from the field trip including their understanding of a story. This connects with many studies on how learners make sense of the world within the social constructs that make up their experiences (Fosnot, 1996; Steff & Gale, 1995; Dewey, 1938; Hegel 1807/1949; Kant 1781/1946; Vico 1725/1968). Students who are developing intercultural empathy are still in the process of creating their own intercultural understanding. Although Jed did not attend the field trip, he was eager to learn about and understand what other students had experienced. Students responses align with the FPPOL's statements on how learning is holistic, experiential, recognizes the role of indigenous knowledge and that learning takes time and patience (FNESC, 2014). Nuanced in the reluctance to share specifics of stories or teachings from the field trips with others in the class, but instead sharing their take aways acknowledges that some students recognize that some knowledge is sacred and only shared with permission and or in certain situations (FNESC, 2014).

Jed's response (p. 70) supports McIntosh's (2012) work in the unpacking of white privilege which requires individuals to first acknowledge that privilege, oppressions and power systems exist, so that power systems that perpetuate these can be changed. As a first step on this journey, Jed demonstrates the beginning of privilege unpacking in his acknowledgment of how his privilege leads him and his peers to have a particular view, sometimes making it difficult for his peers "to understand different ways of doing things" (p. 71). He goes on to say how this year, in this class, the students had been given the opportunity to develop understandings of different cultures (develop intercultural empathy) based on the

experiences provided, and that this was a good experience. This connects back to the FPPOL's in that learning is experiential (FNESC, 2014). Studies conducted by Bennett (1993) and Bennett & Castiglioni (2004) show that empathy and empathy development are foundational components to the development of intercultural sensitivity (leading to intercultural empathy). Jed appears to be developing empathy in his responses throughout the course, aligning with the FPPOL that learning takes time and patience (FNESC, 2014). Paige & Bennett (2015) defined intercultural sensitivity (leading to intercultural empathy) as the individual's attempt to make sense of the experience of difference based on the constructions of value and beliefs. Jed demonstrates this in his attempt to make sense of the cultural differences of Indigenous beliefs and the experience of this difference. His response also supports the FPPOL's tenet in the recognition of the role of Indigenous knowledge. Cognitive and affective empathy development appears to be occurring in the reflections from the end-of-course discussions. Katz with Lamoureux (2018) RD lesson set provides the foundation through which students can begin to understand others perspectives. Daisy, Judy and May's responses all attest to the development of cognitive empathy and the creation of the foundation that enabled them to work together through challenges to create exemplary products of understanding, connecting to the FFPOL that learning is relational (FNESC, 2014). de Wied et al. (2007) describe how conflict resolution is dependent on the development of affective empathy, and the student responses align with this.

The medicine wheel activity (see Appendix 1), co-created by MJ Johnson and the teacher, asked the students to consider the four quadrants of their learning: mental, emotional, spiritual and physical (Sue, 2017) by reflecting on their learning throughout the course. Asking students to reflect at the end of the course on their learning recognizes the FPPOL's point that "learning involves patience and time" (FNESC, 2014). Data collection from all four quadrants suggests that all types of empathy are developing. In the mental quadrant, Caleb describes how he can understand his peers' perspectives and then communicate this understanding to others, this supports Zhu's (2011) description of intercultural empathy as the "[ability] to effectively communicate [an] understanding" (p. 116). From the physical quadrant of her medicine wheel activity, Theresa (p. 64) shared how the hands-on opportunities provided in the Indigenous presentation and field trip helped her to better

understand different cultures, as hands-on learning aligns with the way she learns best (Katz with Lamoureux, 2018; FNESC, 2014). From the emotional quadrant, Theresa shares how the development of empathy in the classroom manifested as her personal ability to know both the teacher and other students on a level that she has not before experienced in any other classes, and how those relationships, highlighted by FNESC (2014) to be a key component of learning, helped her better understand topics, and to seek out help when she needed it. Theresa's comment supports Erikson's (1959) theories suggesting the importance of building good relationships as a key to finding the answer to 'Where do I fit in?' Rose further supports how relationships support the development of empathy of many students in the class in her description of the non-judgmental discussions when students offer their perspectives on different topics. In support of Gordon (2005), Immordino-Yang & Domasio (2007), Schonert-Reichl & Hymel's (2007) definition of cognitive empathy, we see Maria and Gwen's comments (p. 64) from the spiritual quadrant suggest a development of empathy in their descriptions of thinking about and understanding different perspectives and in their appreciation of diversity. From her spiritual quadrant, Theresa, also shares the lasting effects of attending the field trip to McQueen lake, how it changed her perspectives on different cultures, and how she feels about this class being as close as a family (p. 66) connecting to the FNESC (2014) emphasis on the well-being of the self, the intercultural experiences and relationship development as vehicles for learning.

Pearl, Caleb, Linda and Cathy all share how the opportunity to learn about different cultures, specifically Indigenous cultures, diversity, and the connections to science impacted them by pushing them to think about other cultures and diversity. This shows that they are improving their intercultural empathy. The development the students refer to corresponds to their growth in their personal empathy arc. Students described the process of making sense of intercultural teachings and how the intercultural experiences provided in the classroom allowed them to experience different perspectives. This aligns with Paige & Bennett's (2015) understanding of intercultural sensitivity (leading to intercultural empathy) in how an individual makes sense of and experiences differences. Students' understanding became clearer as the course went on, with one culminating activity being this medicine wheel activity. When provided with multiple reflective activities, students responses showed

clearer intercultural understanding, a stepping stone to intercultural empathy, in their recognition of, empathizing with and reflection on their intercultural experiences supporting the ACARA's (2019) definition of intercultural understanding.

Part 2: Conditions of Empathy Development

From the analysis of students' responses in this study, emerged the conditions that allowed empathy to develop. The two conditions identified were providing opportunities to get to know everyone in the class and a safe non-judgmental classroom environment. In the model developed for the empathy arc (Figure 8), these conditions have been expanded into four pillars. The first is identity development which emerged as part of learning about diversity, the second is providing opportunities for building relationships, the third is the creation of a safe environment within which students do not feel judged, and the fourth is the creation of the Indigenous cultural learning opportunities (with MJ).

Pillar 1: Identity development in adolescence and its connection to empathy

There is much research on the development of teacher empathy in teacher training programs (Aitken & Radford, 2018; MacMath & Hall, 2019; Madden, 2014; Morcom & Freeman, 2018), but there is little research on the embedding of opportunities to develop student empathy within the context of science curriculum. Recall that grade 10 students, 14-16 years old, are in the midst of identity development attempting to answer the questions: Who am I? and Where do I fit in? (Erikson, 1959). One might wonder: what do identity development and the development of empathy have in common? At first, identity development, with its internal focus, and empathy development, with its outward focus, may not seem connected. However, studies show that identity development (Who am I?) and interpersonal relationships (Where do I fit in?) are not dealt with separately, but at the same time during adolescent development, and that empathy is the factor that connects them (Doumen et al., 2012; Klimstra et al., 2013; Meeus et al., 2002; Nawaz, 2011; Rassart et al.,2012). The RD (Katz with Lamoureux, 2018) lesson set helps adolescents to answer their own question and

understand themselves first, Who am I? by considering their personal strengths through the multiple intelligence tool (Erikson, 1959; Katz with Lamoureux, 2018).

Who am I? This point aligns with the First Peoples' principles of learning in that "learning requires exploration of one's identity" (FNESC, 2014). The RD (Katz with Lamoureux, 2018) lesson set helps students answer this question first by asking students to identify their own personal strengths through a multiple intelligence tool (Erikson, 1959; Katz with Lamoureux, 2018). The ability to begin the class from a place of celebration of student's uniqueness and appreciation of the gifts they already possess, sets up an ability to develop students academically from where they are, the first criteria for culturally relevant teaching (Ladson-Billings, 1995). This is evident in Ella's quote from page 70 because she talks about how multiple intelligences helped her identify her own personal strengths, which she could then use to demonstrate her understanding on a project. Showing how cognitive empathy and its development also have an effect on shaping students' identities, Theresa describes how her curiosity and personal growth benefit, as she is encouraged in both areas through the exposure to diversity in others. Understanding and developing the concept of the self by answering first 'who am I?' and then having the ability to celebrate diversity in further discovery of 'where do I fit in?' satisfy Ladson-Billings' (1995) first pillar of interculturally sensitive teaching environments (Erikson, 1959).

Within this important time frame of adolescence identity development focusing on Who am I? Phinney and Kohatsu (1997) found that adolescents must decide to which degree their racial or cultural backgrounds will be a part of their identity, and that this time is when there is an exploration of their heritage. Caleb does this often in his responses as he attempts to come to an intercultural understanding of his own Korean heritage alongside learning about Indigenous culture. It must be said that, although it is gratifying to see Caleb making connections between Korean and Secwepemc cultures, and Caleb obviously meant no disrespect, it is important to make clear for students the uniqueness of each culture. Also demonstrated in the above comment, is Schwarzenthal et al.'s (2017) description of how intercultural understanding is created through reflection on personal culture and the learning

about other cultures concurrently in Caleb's description of his and other cultures in his responses (p. 68 and 75).

Pillar 2: Building Relationships

Relationships are the key to: the alignment of values (Gonzalez et al., 2015), empathy development (Doumen et al., 2012), adolescent identity development (Klimstra et al., 2013; Nawaz, 2011; and Rassart et al., 2012), reconciliation (Freeman et al., 2018), conflict resolution (de Wied et al., 2007) and are the foundation of allyship behaviour development (Freeman et al., 2018). In response to the TRC Calls to Action (2015), and aligned with Maslow's (1943) hierarchy of needs, and Erikson (1959) theory of adolescent identity development theory, the RD (Katz with Lamoureux, 2018) lesson set and UDL (Katz, 2012a) were chosen for this curriculum as these programs contain the elements for building empathy for others through the celebration of diversity and create the basis for building relationships within the class (Katz with Lamoureux, 2018). The following identifies the parts of this journey from the inward gaze of adolescence (Erikson, 1959) to a more outward gaze where others' diverse gifts are celebrated and others' perspectives are considered

Where do I fit in?

The RD lesson set (Katz with Lamoureux, 2018) further helps students to make connections with others, in a community of learners, to satisfy the second question of Where do I fit in? (Erikson, 1959; Ladson-Billings, 1995). Students began to discover where they belonged in the classroom community, within their social relationships, and the creation of relationships to gain a better understanding of themselves within the context of a greater world and their place within this world (Ladson -Billings, 1995; BC Ministry of Education, 2018). Philip (p. 55) supports this understanding in his discussion about how learning about diversity is needed to be able to see beyond difference to the commonalities between all people of the "human race."

In end-of-course discussions, Jed acknowledged that he got to know everyone's name in the class (p. 79), and he emphasized that it was unusual to know everyone's name, and his response was met with many students agreeing to his comment. This revelation further supports Erikson's (1959) claim that relationships help to answer students' question of Where do I fit in? (Erikson, 1943; Doumen et al., 2012; Klimstra et al., 2013; Meeus et al., 2002; Nawaz, 2011; Rassart et al., 2012). Philip further supports these claims when he described the conditions of the classroom that allowed for the ability to get to know one another in his response on p. 68 that states how moving around the class to talk with each other, made the class feel more welcoming and friendly. Judy also supports the above claims in her response that due to the regular changes in seating and group work made it easy to get to know her peers and to work with everyone, especially helpful as she was new to the school. If empathy is the link between identity development and interpersonal relationships, then it is through these relationships that students will have the opportunity to start to shift their behaviour and thinking in more sensitive, understanding and empathetic ways (Doumen et al., 2012; Klimstra et al., 2013; Meeus et al., 2002; Nawaz, 2011; Rassart et al., 2012).

Freire (1989) proposed "dialogical relations" (p. 67), or teaching through dialogue whereby there is an even distribution of power through all participants and there is reciprocal learning between all participants. To achieve this even distribution of power in the classroom, the teacher needed to act with "intellectual humility" (Spiegel, 2012), meaning a kind of open-mindedness that sets her on the same level as her students. This strategy was commonly used in the classroom by the teacher to provide an atmosphere where she could better understand students' conceptualization of curriculum and gain valuable feedback on tasks, assignments or general information about how students were feeling about the work in the classroom.

Although the pillars of the empathy arc described separates, they are actually interconnected. This interconnection of pillars is indicated in the students' comments. Theresa, p. 67, identifies how belonging to a class that implements teaching through dialogue results in a learning environment that she described as "more together" and that these discussions allowed students to get to know each other better. Holly's response adds to this p. 63 where she connects the strengths found through the multiple intelligence activity celebrating

individuals for the gifts they have, to the relationships where students were honored for their individual strengths and to a safe environment to express themselves. Many times, high school can be a place where students do not feel like they belong, or that they do not have the ability to be successful, and the RD (Katz with Lamoureux, 2018) lesson set creates opportunity for further consideration and a change of perspective.

On page 56, May discusses how the ability to combine personal strengths in collaborative group work results in positively surprising outcomes, supporting the idea of social inclusion that students at this age yearn for (Katz, 2012a). Collaboration provided students the opportunity to develop their social relationships within the community of learners (Ladson-Billings, 1995).

Answering Where do I fit in? also begins to open students up to the development of affective empathy, where students can begin to shift their thinking to understanding others (Doumen et al., 2012; Klimstra et al., 2013; Meeus et al., 2002; Nawaz, 2011; Rassartet al., 2012).

Another emergent condition in pillar 2 was intergenerational classroom relationships. Theresa shares on p. 68 how she was unsure at first about the course and the tasks being asked in the beginning with the RD (Katz with Lamoureux, 2018) lesson set, but that once she got to know the teacher (through developing of an intergenerational relationship) and her teaching style, which was more dialogue based, she felt more comfortable. Judy, then Holly, then the rest of the discussion participants, recalled something from the first week of the year that had stuck with them. It was the occasion when the teacher was on the phone talking with her daughter. The teacher had told the class that it was her daughter's birthday and the class had wished her a happy birthday over the phone. Due to happenstance, this occasion had helped to support the development of students' affective empathy, and create the opportunity for the alignment of shared values (Gonzalez et al., 2015). Jed also shares that the relationships created in the class were not only with other students, but just as importantly, with the teacher. This idea supports how relationships are the foundation of many classroom aspects: creating a safe environment, mutual respect, space for trust to be built, and a safe place to be vulnerable. His response on p. 81 can be interpreted that due to

the building of trust and vulnerability in a reciprocal relationship with the teacher, that he was more willing to participate in learning opportunities.

Another interesting part of relationship building extended beyond the class. Students began to build relationships with students in the other science 10 class taught by the same teacher. As Jed describes on p. 81 students discussed the learning and discussions occurring in the two different classes. This demonstrates how students were able to take what they were learning outside of the classroom, extending their developing empathy into the school.

A number of students describe how safety and building relationships are so closely tied together. Kelly sums up how the role of relationship creation is fundamental for the feeling of safety when she described on p. 67 that by learning about multiple intelligences and then provided with the opportunities to get to know other students through seating changes and group activities she could work with anyone in the class and get along. Pearl perfectly sums up how identity development, opportunities for relationships creation and a safe environment all combine to create an ideal classroom setting where empathy can be developed in her statement describing how she felt different this year as the class was closer because everyone got to know each other which created a safe environment. It appears that through the opportunities to get to know each other the students put empathy into action, helping to create a safe environment together.

Pillar 3: Safe environment

The first important aspect of the safe environment was that the teacher was open to feedback from students, and the students felt comfortable enough to engage in difficult or courageous conversations. Freire's (1970) described the development of a safe environment as the beginning place for critical pedagogy and critical consciousness. Jed, p. 70, describes how in this class students had the opportunity to consider how their points of view and privileges get in students' way of considering different ways of doing things and of finding similarities between cultures. This supports May and Sleeter's (2010) work on critical multiculturalism

and its lasting effects on both students and teachers when underpinnings of inequality are identified in educational opportunities.

Linda takes the opportunity to express how she personally felt about when challenging conversations would come up in class and the teacher and students would conflict over opinions and topics. Her ability to express herself, and her comment on how differing opinions were dealt with in the class demonstrates how the class environment follows Freire (1989) "dialogical relations" (p. 67) with an equal sharing of power in the class between the student and the teacher which helps to create a safe and judgment free environment. These safe environments are supported by Maslow's (1943) hierarchy of needs in which safety is a fundamental piece of the hierarchy, and adolescent and child psychology tells us that students can only learn in safe environments. If students do not feel safe, they cannot learn. Daisy, p. 83, further supports this when she thanks the teacher for creating a safe environment free from academic judgement. One other outcome of using Freire's (1989) "dialogical relations" (p. 67) was that class discussions, as a strategy for knowledge construction, resulted in the sharing, recycling, and critiquing of information.

Judy, p. 70, shares how she feels safe enough in the classroom to share her opinions free from the judgement of others creating a sense of belonging and fulfilling self-esteem needs. Jed, p. 70, further supports his when he indicates he knows the teacher would intervene in issues of "mean behaviour" on the part of other students. Judy and Jed also shared how important to them it was that the teacher provided choice in assignment selection and options for displaying their learning.

Pillar 4: Opportunities to build intercultural empathy

To answer the Call to Action 63 iii "building students capacity for intercultural understanding, empathy and mutual respect" (TRC, 2015, Call to Action 63.iii) there was a direct attempt to include Indigenous voice, perspectives and opportunities in the curriculum to learn about Indigenous, and sometimes specifically Secwepemc, culture and teachings. The classroom structure, tasks, presentations and field trips were also developed as

reconciliatory action to begin to address the Truth and Reconciliation Commission's (2015) Call to Action 63. iii. The course was structured so that there were ongoing opportunities for:

> 1. Building intercultural sensitivity, defined "how an individual makes sense of cultural differences in values and beliefs of others and the experience of difference based on these constructions" (Paige & Bennett, 2015) and
>
> 2. Building intercultural understanding defined as "recognizing culture and developing respect, interacting and empathizing with others, and reflecting on intercultural experiences and taking responsibility" (ACARA, 2019).
>
> 3. Building intercultural empathy defined as "the ability to place [the self] into the cultural background of the target [group] and [the ability] to effectively communicate [an] understanding of that world" (Zhu, 2011, p.116).

The intercultural Indigenous opportunities presented in the class would not have been authentic without MJ Johnson, the teacher's learning partner, as work must always be *with* Indigenous people (Freeman et al., 2018). This partnership helped to guide the Indigenous content presented in the course and many courageous conversations were had about proper protocols and appropriate ways to introduce and discuss materials. MJ would also visit the class often to connect with the members of the class and participate alongside the students and the teacher. Mrs. Bernice Jensen's presentation and the field trip were important events in the class to move students towards building intercultural empathy through the development of relationships (Freeman et al., 2018), where values are found to align (Gonzalez et al., 2015), and the act of learning is experiential (FNESC, 2014) in its very nature.

Of course, the presentations from TKKs were, in themselves, conditions of building intercultural empathy development embedded throughout the semester. Without these interactions there can be no intercultural sensitivity (experiencing of difference and making sense of cultural differences in values and beliefs) or understanding (reflecting on

experiences) authentically created within the class (Paige & Bennett, 2015; ACARA, 2019). These opportunities to be with TKKs and learn from them provides the opportunity to see that "learning is embedded in memory, history, and story" (FNESC, 2014).
As well as building opportunities for Indigenous intercultural experiences with TKKs, throughout the course there was also encouragement given to the students to consider different cultures and their perspectives whenever possible in assignments, discussions, and lesson and video material presented. The attempt of the teacher to develop within herself and the students a set of skills and experiences to develop awareness of intercultural differences, is supported by Ladson-Billings' (1995) second criteria of a teacher's willingness to nurture and support cultural competence for culturally relevant teaching.

Although non-Indigenous students and teachers can never truly know what it means to be and feel Indigenous (Harrison, 2017), students were provided opportunities to build their intercultural empathy through listening and building understanding of different perspectives by participating in a presentation and a field trip. Opportunities for students to be with and spend time learning from knowledge keepers creates the basis for the relationships required for reconciliation (Freeman et al., 2018) where students and knowledge keepers can begin to identify shared values (Gonzalez et al., 2015) that are necessary for building intercultural empathy.

Mrs. Bernice Jensen's presentation. The following examples of intercultural empathy suggest that students were beginning to understand the importance of why we learned about other cultures and why it is important to have other perspectives than their own, an integral component of the development of empathy (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007). The students demonstrated their intercultural cognitive empathy when they listened and were respectful with Mrs. Bernice Jensen and the artifacts that she brought with her, supporting Zhu's (2011) definition of intercultural empathy.

Just as Canada and its citizens have acknowledged past mistakes in a statement of Reconciliation to all Aboriginal peoples of Canada and engaged in active acts of

Reconciliation, Matt (p. 57) acknowledges that it is important to understand the history of Indigenous cultures and what Indigenous people have gone through to appreciate why we are learning about Indigenous and Secwepemc culture in our classrooms (Department of Indian Affairs and Northern Development, Ontario. (1997; Truth and Reconciliation Commission, 2015). Caleb, p. 58, also supports the above acknowledgement and action in his description of how acknowledging past mistakes is the key to moving forward successfully and that this is why learning about Secwepemc history and culture is important to him demonstrating his development of affective empathy. It could be that Matt and Caleb are beginning to address the need to take responsibility which directly connects with the development of intercultural understanding (ACARA, 2019).

Jed's comment from page 58 demonstrates his intercultural cognitive empathy in his ability to communicate his beginning understanding of Indigenous understanding of the processes at work. In Harrison's (2017) words, Jed had "listen[ed] for other ways of knowing, apart from explanatory and propositional knowledge" (Harrison, 2017, p 278) when he talked about how Indigenous people understood how different processes worked, without a scientific explanation, but because Secwepemc People had figured it out through different ways. Jed seems to be grasping the idea that Indigenous understanding of how processes work comes from a different kind of thinking than is used in Western science.

Gonzalez et al.'s (2015) definition of intercultural affective empathy in the alignment of core values was demonstrated by students in their discussions about how they feel about the land we share with the Secwepemc people. Cathy and Maria, p 58, both describe how they personally connect with the Secwepemc culture's respect of the land, and how continuing to learn about Secwepemc culture helps them learn new information about where we live. Jean (p. 58) further supports the alignment of her values about the importance of understanding the land with those of the Secwepemc people, when she discussed how Mrs. Bernice Jensen's presentation helped her to understand the land we live on better (Gonzalez et al., 2015). All three students' responses reflect the intent of the BC science 10 curricular competencies in "express[ing] and reflect[ing] on a variety of experiences, perspectives, and worldviews through place" (BC Ministry of Education, 2018).

The opportunity for students to experience these intercultural interactions is foundational in building intercultural understanding as demonstrated in Matt's response from p. 57 where he highlights the importance of learning about local Secwepemc people and their experiences on this land. Maria's response from p. 58 highlights how intercultural experiences between Indigenous people and students help to make learning about cultures accessible, and helping to build their intercultural understanding and sensitivity through opportunities to interact with people of different cultures (Paige & Bennett, 2015; Australian Curriculum, Assessment and Reporting Authority, 2019). The teacher journal notes that students who attended the field trip learning experience had a profound change in their intercultural understanding and intercultural empathy (both cognitive and affective empathy).

The value of providing opportunities for lived experience with members of other cultures, as suggested by Gonzalez et al. (2015) and Sue (2017), is shown in Jed's comment that acknowledges that authentic visits from Indigenous presenters is the best way to learn about other cultures practices to understand that there are different ways of doing things. He goes on to explain that having multiple cultural understandings is beneficial to everyone (p. 58) supporting his development of intercultural empathy within the context that lived experiences and lived reality are what makes learning personal and cause shifts within (Gonzalez et al., 2015; Sue 2017).

Field trip. The Canadian Council on learning- Aboriginal Learning Knowledge Centre (2007) suggests that, among other things, learning is experiential, rooted in Aboriginal languages and culture, spiritually oriented, and a communal activity. The field trip was a strategy implemented as a response to this suggestion and was co-created by MJ Johnson and the teacher in bringing together TKKs that could present on the topics of Energy and interconnectedness. Students and adults had the opportunity to share a meal together and pass the day engaging with Indigenous stories and ways of knowing.

Students seemed to demonstrate their developing intercultural empathy in their deep connections with the field trip experiences. In Theresa's, p. 59, response, her intercultural cognitive empathy is exemplified in her experience of learning about others and how it opened her eyes to looking at the world through a different lens in new ways. Caleb's, p. 59,

60, responses demonstrates his intercultural understanding in how his learning is related to his own culture, supporting Schwarzenthal et al. (2017) work that learning about others and reflecting on personal cultural heritage are "complimentary prerequisites for intercultural understanding" (p. 389).

The students that attended the field trip began to display intercultural empathy in different ways than students that did not attend, supporting FPPOLs a) "ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors", b) "is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place)" (FNESC, 2014). Although we can never get into "the shoes of another" (Harrison, 2017, p. 270) culture, we know that getting students to a point of appreciation, as much as they can, is the start of allyship behaviour.

Students also had the chance to share and celebrate their own cultural heritages in different aspects of the course, providing the opportunity to reflect on their own cultures and the cultures of others which are necessary for intercultural empathy (Schwarzenthal et al. (2017). Schwarzenthal et al. (2017) share that learning about different cultures alongside reflecting about your personal cultural heritage are "complementary prerequisites for intercultural understanding" (p. 389). Caleb (p. 65) comments how connecting with a variety of different cultures throughout the course impacted him, changing his mindset from one of separating himself from others, to finding similarities and connections between different cultures, making his learning a valuable experience this semester.

Summing up: The conditions for Intercultural Empathy to develop

This research is telling us that there needs to be a foundation built for the development of intercultural empathy. Just as Maslow (1943) in his hierarchy of needs proposed, that basic (physiological and safety needs), psychological (social and self-esteem needs), be in place before students can reach self-fulfillment (self-actualization needs), this research suggests that students' self-esteem, belonging and safety needs must be satisfied before they can develop intercultural empathy. For example, Theresa (p. 66) comments on how the class felt to her in the way that her heart and mind were opened to intercultural experiences offered throughout the course, satisfies this when she talks about safety, unconditional acceptance

and belonging, and highlights how a safe environment with these components makes her feel like the class is relationally as close as "best friends/family".

Through opportunities provided for students to identify shared values (Gonzalez et al., 2015), build intercultural friendships as the foundation for Reconciliation (Freeman et al., 2018), and build higher levels of empathy (Munin & Speight, 2010) students can begin to work towards allyship behaviour. Adolescents, at this age, can develop empathy given the right experiences in the classroom, through multiple perspectives, through the RD (Katz with Lamoureux, 2018) program at the outset of the course, and maintaining that celebration of difference through the use of the UDL (Katz, 2012a) model, group projects, intercultural presentations and field trips throughout the course.

Looking through different lenses

In this section the findings from this study will be examined through two different lenses; Ladson-Billings (1995) culturally relevant teaching and the First Peoples' Principles of Learning (FPPOLs).

Ladson-Billings (1995)

Ladson-Billings (1995) tells us that there are two important factors in intercultural education: culturally relevant teaching and interculturally sensitive teaching environments. Culturally relevant teaching has three criteria: the teacher must be able to support students' academic development, have a willingness to nurture and support cultural competence, and be able to develop sociopolitical or critical consciousness. Interculturally sensitive teaching environments by culturally relevant teachers are supported by three pillars: conceptions of the self and others, the manner in which social relations are structured, and the conceptions of knowledge. The four pillars identified through this study align well with the Ladson-Billings model. In this section these alignments will be discussed.

In Ladson-Billings' (1995) work there are three main criteria must be satisfied for there to be culturally relevant teaching.

a) supporting students' academic development. Recall that the course started with the RD (Katz with Lamoureux, 2018) lesson set and then continued with a UDL (Katz, 2012) model. By starting with these lessons, students were celebrated on their unique gifts right from the beginning of the course, celebrating their identity and creating a safe place. This allowed for learning and academic achievement to progress from where each student was academically. Implementing the UDL (Katz, 2012a) model allowed the freedom for students to choose the manner comfortable for their learning style in which to represent their knowledge and conceptual understandings. The teacher's reflective journal reports that there were half the number of failures in this class, as in previous years. The teacher's reflective journal also perceived higher student engagement through an increase in attendance and participation in class activities. The teacher's reflective journal also notes that the curriculum at times was complex and stretched students, and that these assignments were accomplished within diverse groups.

b) Willingness to nurture and support cultural competency (set of skills and experiences for ongoing awareness of important differences from communities of different backgrounds (biological, environmental, historical, political, psychological, religious, and other social aspects of heritage). By incorporating the RD (Katz with Lamoureux, 2018) lesson set, the teacher was able to celebrate diversity within the class community first, and then to incorporate that celebration of diversity out towards other groups. The teacher working together with MJ, incorporated many different intercultural experiences (presentations and field trips), tasks, and supports within the curriculum to support students developing their (inter)cultural competency.

c) Develop socio-political or critical consciousness. Critical consciousness defined as the awareness of oppressive systemic forces, a sense of efficacy and an action. Critical consciousness has three components; critical reflection (analysis of inequality), critical motivation (perceived capacity to affect change), critical action (engagement in activities for change). With regard to affecting change, the students

did demonstrate their efficacy as they felt empowered in their ability to provide honest and timely feedback to the teacher, as opportunities happened regularly throughout the course, to affect change. There were also some students who, in their responses, began to identify cultural inequities, where they identify an imbalance of power in different cultural beliefs and ways of knowing. This is an area that will require more development in the future.

Interculturally sensitive teaching environments by culturally relevant teachers are supported by three pillars (x, y, z below) from Ladson-Billings' (1995) work:

x) Conceptions of the self and others. I began the first class with an acknowledgment of the land on which the school is located to bring this information to the forefront as important to the collective learning taking place. By starting with this, I was able to create for students a beginning understanding that this course and the curriculum found within would contain a purposeful intercultural component. Through implementing the RD (Katz with Lamoureux, 2018) lesson set, and then the UDL (Katz, 2012a) model I not only set up the foundation for success for all students, but also engaged the students in creating a community of learners that due to the aspects of the lessons had created relationships and reliance on one another. One other aspect that the teacher ensured that classroom assistants and herself also became equal in this community, sharing our own multiple intelligences and participating as equals. One aspect of this is that the teacher was flexible and responsive in her pedagogy, and the teacher was constantly problem solving in creative and unique ways. The teacher would wish to think that in their attempt to bring intercultural learning opportunities into the classroom they were able to give something back to the community in which They live, which is one of the components within the conceptions of self and others.

y) The manner in which social relations are structured. The class was structured to have many discussions about topics through "dialogical relations" (Freire, 1989, p. 67) in which there is an equal dispersal of power. This allowed students the ability to

share and be honest with their learning, and address issues as they came up. This further created a safe, non-judgmental environment where students felt free to ask all of their questions without fear of ridicule. There was a fluid teacher-student relationship where the teacher was sure to connect with all students daily, discussing curricular topics and common interests further building trusting relationships. Through the implementation of the RD lesson set and the UDL (Katz, 2012a) model the teacher was able to create a community of learners who collaborated often on group projects. Students were very good at including each other's strengths on group assignments, celebrating each other's gifts within the groups, taking responsibility for one another in group settings, and providing information when students were absent.

z) The conceptions of knowledge. Ladson-Billings (1995) said that knowledge is malleable as in it is shared, recycled and constructed, and must be viewed critically. The teacher used the strategy of "dialogical relations" (Freire, 1989, p. 67), and through these discussions typically in a think, pair, share strategy, students were able to reflect on and solidify their learning in many different topics. The ability to recycle their thinking came about by the implementation of reflective practices in the course. Ladson-Billings (1995) also suggests a scaffolding to facilitate learning and multifaceted assessment including within the course to provide opportunities for students to demonstrate excellence in understanding and ability. The teacher uses the UDL (Katz, 2012a) model so students are able to access information at their level and demonstrate their learning in whatever way they choose. Lastly, Ladson-Billings (1995) said that conceptions of knowledge also foster a community of learners respectful of each other's values, beliefs, recognizing differences and similarities between themselves and their peers. Through the continued offering of opportunities for collaborative group work, intercultural learning opportunities and the students' ability to reflect on their growth of empathy throughout the course, they show how they have achieved this community of learners respectful of one another.

One aspect that Ladson-Billings did not take into account was the role of the student in interculturally sensitive (teaching) environments. Even though the teacher is foundational in

creating this environment, the students themselves need to co-construct the environment for learning to be successful in the long term. Most teachers are well aware that learning environments are co-constructed between students and their teachers. Even though interculturally sensitive teaching environments can be created by teachers, in order to maintain these environments, the students must be willing participants and co-create the learning environment together with the teacher. The co-construction of the interculturally sensitive learning environment ensures that even when the teacher is not present that the class continues to maintain this environment. This was seen in the teacher's reflective journal notes that teachers teaching on call (TTOC) when called to the classroom, as the teacher was out sick, always made a point to tell the teacher how kind and friendly the students were, and how pleasant it was to teach them.

First Peoples' Principles of Learning

Although the FPPOL's were an embedded strategy throughout the course, it is interesting to note that the students identified many of the components in their responses throughout the course:

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits and the ancestors. Students reflected on how their learning made them feel when they described using the multiple intelligences to firstly celebrate the gifts they already possess. One student described how the relationships built between the students and the teacher is built upon commonalities and alignment of values within their respective families. Another piece of the above learning principle is that the students took special interest when talking about the significance of learning about the land during Mrs. Bernice Jensen‘s presentation. It was hoped that through their experience students would be able to make connections with their communities and share their learning to their homes. In the end-of-course discussions, students shared that they had discussed this class at home more than other classes, and had even shared some of the videos watched in class with people at home and that rich conversations followed. This tenet aligns with the first pillar of the empathy arc: identity development.

- Learning is holistic, reflexive, reflective, experiential and relational (focused on connectedness, on reciprocal relationships and a sense of place). The teacher acknowledged the land as the first thing on the first day of school to ensure that students understood a sense of place, to situate the learning before it began. The teacher must create an environment that is flexible to accommodate students' needs at the moment, to be reflexive to current events. Another piece is that a safe environment in which "dialogical relations" (Freire, 1989, p. 67) are used to disperse power during group discussions helps to build reciprocal relationships and a sense of belonging in students. The opportunities provided in the presentations the field trip, and all curricular tasks created with an intercultural intent, align with the experiential nature of learning. This tenet aligns with the empathy arc pillars 1) identity development, and 2) safety.
- Learning involves recognizing the consequences of one's actions. Through reciprocal relationships, group work and collaboration students were able to learn about consequences of their actions through clear and natural consequences. Another emergent data point was how students discussed looking back at history to acknowledge past mistakes. This tenet aligns with empathy arc pillar 2: safety.
- Learning involves generational roles and responsibilities. The role of the teacher is in creating a safe environment that is an interculturally sensitive teaching environment. Students, however, also have a role in that they will co-create the environment in which the course exists. This co-construction of the environment means that should the teacher need to be absent, the environment continues to be maintained because the students take ownership and maintain the established environment. Which was seen in both of the classes in the study from notes in the teacher's reflective learning journal that describes teachers teaching on call experiences. This tenet aligns with the empathy arc pillar 2: safety.
- Learning recognizes the roles of indigenous knowledge. Students made reference to science being a part of indigenous culture. Showing that this particular student understood that science exists in all cultures regardless of any intercultural

explanation of that understanding. This tenet aligns with empathy arc pillar 3: intercultural opportunities.

- Learning is embedded in memory, history and story. Much of the field trip activities revolved around learning through story, which was new to a few students and it stretched their abilities to make sense of information as it was presented. This tenet is aligned with all four pillars of the empathy arc 1) identity development, 2) safety, 3) intercultural opportunities, and 4) empathy-in-action.
- Learning involves patience and time. For many students the empathy arc will continue past the end of this course. For some students we saw development in their responses throughout reflective activities in the class. Aligning with the above FPPOL in that all students have their own learning journey and they all take different time to learn different things, and that the construct of a semester system course does not always fit the patience and time needed for individual students to achieve their self-actualization within the course. This tenet is aligned with all four pillars of the empathy arc 1) identity development, 2) safety, 3) intercultural opportunities, and 4) empathy-in-action.
- Learning requires exploration of one's identity. Erikson (1959) proposed that adolescent development answered two questions: Who am I? and Where do I fit in? The ability for students to address both of these questions through the RD lesson set from Katz with Lamoureux (2018) created a foundation from which students could grow. Having a foundation where students were already celebrated for the gifts they personally possessed, had set them up for success. They came to class already having something. Too often, classes and assessments are organized in ways that continually point out deficits within academics, or skills, or abilities. But the RD (Katz with Lamoureux, 2018) program does not. We saw the development of Schwarzenthal et al.'s (2017) description on the creation of intercultural understanding through the reflection of personal culture, and learning about other cultures concurrently. This tenet is aligned with all four pillars of the empathy arc 1) identity development, 2) safety, 3) intercultural opportunities, and 4) empathy-in-action.

- Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations. While on the field trip one of the presenters TKKs stated and then reiterated that the learning being presented was for educational purposes only. He made this extremely clear. However, I am not sure that the students fully grasped what the presenter TKK was implying: that in this particular case the knowledge being shared was with permission and to be shared for this particular situation only. This tenet is aligned with all four pillars of the empathy arc 3) intercultural opportunities, and 4) empathy-in-action. These strategies, in places, need more focus and attention to more fully develop them within the course.

List of recommendations

- If the teacher is non-Indigenous, it is imperative to find an Indigenous learning partner with whom you can engage in your own "dialogic relations" (Freire, 1989, p. 67) to have courageous conversations and build a strong relationship. Within this relationship the integration of Indigenous content can be discussed and TKKs can be invited to help support different curricular aspects.
- Important to build relationships with local Indigenous people and community
- There needs to be purposeful implementation of the four pillars found in this study: identity development, building relationships, safety, and intercultural opportunities
- Implementation of a safe, respectful, friendly environment that considers Maslow's hierarchy of needs and attempts to create an environment for the satisfaction of those needs. The satisfaction of these needs are fundamental for adolescent identity development and provide the base from which students can develop intercultural empathy, the foundation of allyship behaviour.
- There must be purposeful implementation of FFPOL, RD (Katz with Lamoureux, 2018) and UDL (Katz, 2012a) as the basis for the pillars and empathy arc as shown in the empathy arc diagram.
- Regardless of cultural heritage- Find a learning partner who will engage in honest conversations about curriculum, who you can co-create with and share ideas. Your practice, curricular strategies, and student experiences will be enriched.

- Listening and Acting on Students' voices to become co-creators of the learning environment.

Limitations and Future Work

- As a non-Indigenous teacher, although provided with resources, it does not feel appropriate at times to teach Indigenous perspectives. TKKs, Aboriginal Education Workers and school district staff are few and far between and the ability to have an Aboriginal Education Worker in the classroom in a district of our size is a special day. Unfortunately, the work still falls on the shoulders of Indigenous people within this realm. I am not sure how I can help to alleviate this within my context. BUT, I believe that doing something is better than doing nothing. I still have much to learn and far to go.
- Time. Time to create the relationships necessary for this work and time to develop and implement this curriculum.
- Having Supportive administration who recognize the importance of this work
- Student buy in and engagement. This is why relationships are key to empathy development as students very much affect the classroom environment.
- Finding learning partners. I was extremely lucky to have found such a gracious learning partner in MJ Johnson, and in support from Roberta Regnier Aboriginal Education workers from the school. Having strong foundational relationships are key to this work. For a variety of reasons AEW's are not around for long at the same school.
- Indigenous student's experiences from the course? Inappropriate to continue without proper ethics and band approval.
- This was a small study with twenty-four participants and in the future, it would be interesting to extend the study to a larger group.
- In future studies it would be interesting to investigate why parents and guardians did not attend the information sessions.
- This was a qualitative study and, in the future, it would be interesting to develop a quantitative study with a larger group to further support findings.

- In the future it would be interesting to investigate individual students' empathy arc development.
- Within the classroom there must be more opportunities built in to discuss and explore critical consciousness, to take a closer look at personal privileges and how that affects our perceptions when learning about different ways of knowing and different cultures.
- In the future, it would be interesting to investigate empathy development of the same students in a longitudinal study.
- I will be sharing my completed thesis and findings with the people who helped to create the opportunities for intercultural learning and understanding.
- I must find a way to give back to the school community through sharing my findings with students and parents through a presentation.
- I must find ways to give back to the broader community through presenting at professional development days and to pre-service teacher candidates
- I plan to share my findings widely in future publishing opportunities

A Teacher's Reflection: What did I learn?

The curriculum designed by the teacher supported the development of empathy.

Students need scaffolding to develop empathy, much like they would to build any other skill. The scaffolding needed to build empathy included the implementation of the RD and UDL programs (Katz with Lamoureux, 2018; Katz, 2012a), opportunities for collaborative groupings, followed by the introduction of intercultural experiences, and then tasks that blend intercultural learning with group assignments on topics in science.

For non-Indigenous teachers, Indigenous learning opportunities and experiences must be developed with Indigenous colleagues and community members. Through working with MJ Johnson, I was able to go forward with planning. It was through our work together with TKKs from the community that we were able to create these learning opportunities for the students. These opportunities must be embedded throughout the course strategically.

Looking at my work that I drew upon in this study. I can see that the students talked about how the RD (Katz with Lamoureux, 2018) lesson set and the UDL model (Katz, 2012a) allowed them to respect, build empathy for, and act upon their developed empathy for each other in their group work. I can also see that they built intercultural understanding and mutual respect through the opportunities provided.

"Dialogic relations" (Freire, 1989, p. 67) through class discussions are a strategy that students mentioned often in their responses in the data collection. These discussions enabled them to shape their thinking through dialogue either with a partner, in a small group, or the entire class. As a teacher, I often use reflective practices to think about many aspects of what I do. We know that learning is social, and the use of "dialogic relations" (Freire, 1989, p. 67) as reflective practises in the classroom as a teaching strategy for students to develop their thinking in dialogue resulted in interesting conversations. Students were able to grapple with their understanding, listen and question each other, and able to share without the fear of judgement. By listening and acting on students' voices areas requiring attention, discussion, and clarification were identified and addressed in the moment. Also in hearing students and being flexible in teaching, allows students to feel empowered in their education. Feeling power over one's own destiny can be a motivating factor for students.

Indigenous knowledge and ways of knowing must be first highlighted within the curriculum due to the Canadian context. One other aspect that came out of the discussion responses was that there is room for other cultural infusions as a strategy to help support the development of intercultural understanding (Schwarzenthal et al., 2017). When students were able to think about their own cultural heritages, they seemed to be more open to learning about Indigenous culture through the consideration of commonalities, and the discussion that although there may be commonalities, that there are very different experiences and nuances specific to each culture.

Learning is experiential, so as a teacher I must continue to find ways for students to engage with the material in multiple ways, to bring in Indigenous TKKs, as well as offer other opportunities for students to continue to build their intercultural empathy on a global scale.

What I know was reaffirmed by the study: that my practice must continue to evolve and shift as the role in reconciliatory action needs to be responsive and reflective.

Although the learning environment, in this case an interculturally sensitive learning environment, is initially created by the teacher, at some point there needs to be the transference of shared responsibility in the co-creation of the environment to both students and teachers- the cocreation of this environment is needed for empathy development and Reconciliatory action. This co-construction can continue to perpetuate a positive intercultural learning environment without the teacher.

All students are engaged in their own journey within the empathy arc and they must be provided time and patience to build this skill.

Since students' empathy developed through this work, and empathy is a foundation for allyship behaviour, this study suggests that these students are moving along a continuum towards allyship behaviour.

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APPENDIX 1: DEFINITIONS

Allies: members of a privileged group who support and advocate for members of an oppressed group (Washington & Evans, 1991).

White Ally: (a) nuanced understanding of institutional racism and white privilege, (b) continual self-reflection of one's own racism, and (c) commitment to using privilege to promote equity, (d) engagement and participation in actions that interrupt and challenge racism, (e) active participation in coalition building with [marginalized individuals], (f) overcoming societal forces that attempt to silence white allies (p. 709).

Allyship behavior: Allyship (is) an active, consistent, and arduous practice of unlearning and re-evaluating, in which a person of privilege seeks to operate in solidarity with a marginalized group of people. Allyship is not an identity—it is a lifelong process of

building relationships based on trust, consistency, and accountability with marginalized individuals and/or groups of people. Allyship is not self-defined—our work and our efforts must be recognized by the people we seek to ally ourselves with (BCTF, 2016).

Calls to Action- TRC: The calls for change from the Truth and Reconciliation Council of Canada to address ways in which individuals and groups can shift towards reconciliation with the Indigenous peoples of Canada.

Core Competencies: "The Core Competencies are sets of intellectual, personal, and social and emotional proficiencies that all students need in order to engage in deep, lifelong learning" (British Columbia Ministry of Education, 2018b).

Critical Multiculturalism: is a pedagogy focused on the intersection of power, identity and knowledge. Race, gender and class are linked forms of oppression rooted in social and economic structures. These oppressive forces play out in the classroom, where students construct their own understanding, identity and goals.

Critical Reflection (teacher): the act of being open to change and novelty in thinking about current practice, which will benefit their future practice, and further develop the teacher's theoretical understanding of their purpose as educators. (Freire, 1998)

Culturally relevant teaching: considers the systems of oppression related to race, faith, sexual orientation, gender, and class, with a particular focus on the advantages and disadvantages students experience in educational settings. Additionally, it is concerned with how these systems of oppression are maintained by educational systems and methods of instruction, which fail to challenge the social status quo. (Ladson-Billings, 1995)

Curricular Competencies: "The curricular competencies are the skills, strategies, and processes that students develop over time" (British Columbia Ministry of Education, 2018b).

Empathy: Empathy is described as the ability to understand what another person is feeling, and has been identified as one of the key human factors that can better our planet (Hunt, 2008; Nussbaum, 2015).

Affective empathy: as emotional connectedness (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007). The working definition used in this study included emotional connections with others, feeling with others, internalization of emotional connections.

Cognitive Empathy: as perspective taking (Gordon, 2005; Immordino-Yang & Domasio, 2007, Schonert-Reichl & Hymel, 2007). The working definition in this study included thinking about others, listening to others, understanding perspectives of others.

First Peoples' Principles of Learning: a set of learning principles specific to First peoples' of Canada, articulated by Indigenous Elders, scholars, and Knowledge Keepers to guide the development of the curriculum and teaching. (Chrona, 2014).

Inclusion:
Academic inclusion: the need for students to have the opportunity to interact within the academic context of a regular classroom (Katz, 2013).
Social inclusion: a learning community that fosters a sense of belonging and individual acceptance (Katz, 2013).

Inclusive Education: All students should have equitable access to learning, opportunities for achievement, and the pursuit of excellence in all aspects of their educational programs. (British Columbia Ministry of Education, 2020).

Intercultural Empathy: the ability to place [the self] into the cultural background of [another cultural group] and the ability to effectively communicate [a developing] understanding of that world (Zhu, 2011, p.116). Note: as Harrison (2017) states, non-

Indigenous teachers and students can never truly know what it means to be and feel Indigenous.

Intercultural Cognitive Empathy: Understanding, listening, and perspective taking from the point of view of other cultures.

Intercultural Affective Empathy
emotional connectedness with the traditions, values, beliefs and people's experiences of other cultures and alignment of core values.

Intercultural understanding: recognising culture and developing respect, interacting and empathising with others, and reflecting on intercultural experiences and taking responsibility (Australian Curriculum, Assessment and Reporting Authority, 2019).

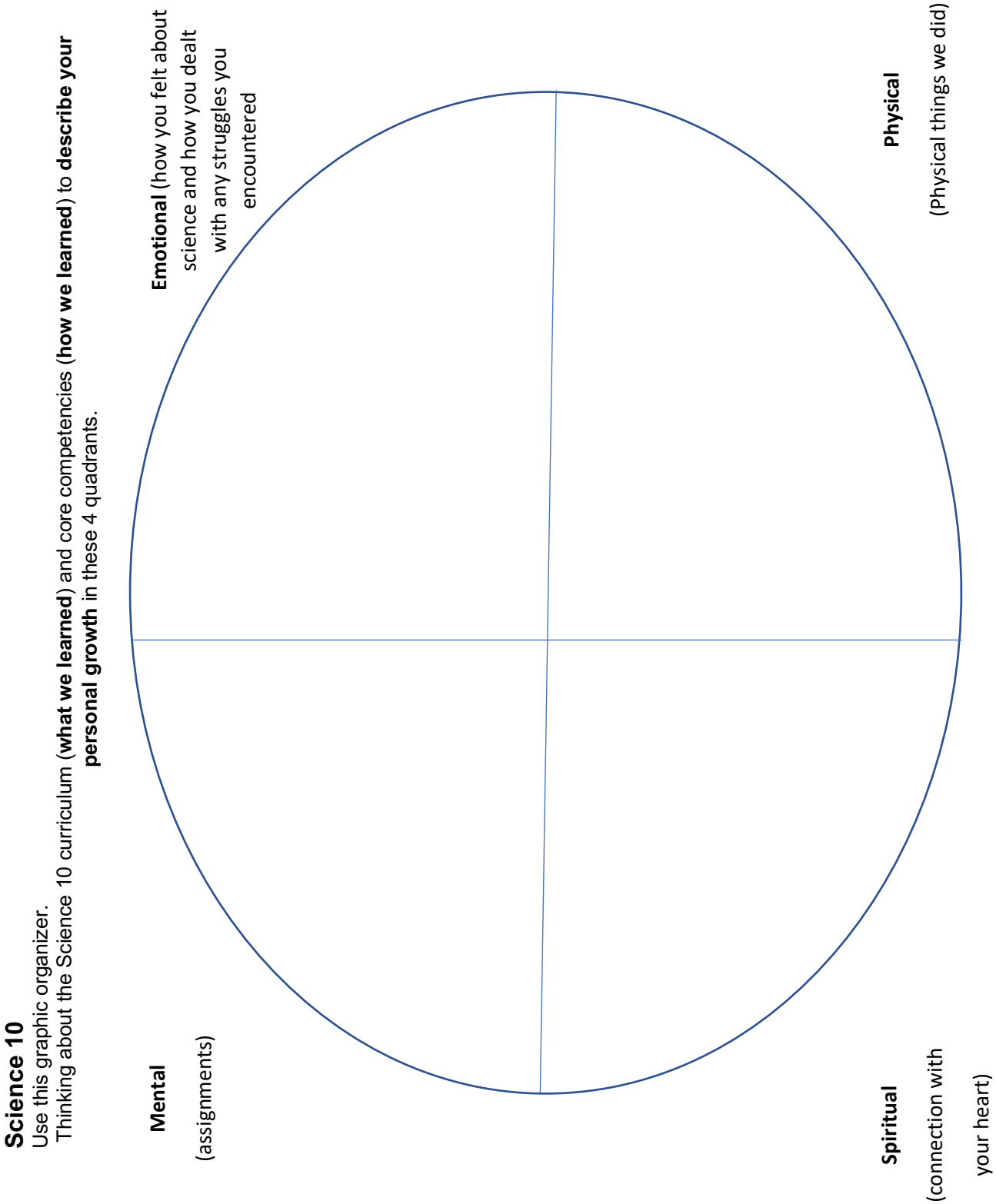
Intercultural sensitivity: how an individual makes sense of cultural differences in values and beliefs of others and the experience of difference based on these constructions (Paige & Bennett, 2015).

Micro-aggressions: unintended and unconscious acts, or thoughts, of marginalization and exclusion by a member of one group towards a member of another group that affect our interpersonal interactions (Brookfield, 2014).

Personal Privilege: The power structures that a person enjoys that perpetuate power differentials between groups of people (MacIntosh, 2012).

Universal Design for Learning (Katz Method): Katz's three-block model of universal design for learning which includes: social and emotional learning, inclusive instructional practices, and systems and structures. (Katz, 2012a).

Appendix 2: Medicine Wheel Activity: Science 10 Reflection Activity



Co-created by Johnson, M. J., Reves, S. J.. and Turner, B. P. (2020). Science 10 reflection.

Appendix 2: Study Approval

August 13, 2019

Mrs. Serena Reves
Faculty of Education and Social Work\Education
Thompson Rivers University

File Number: 102204
Approval Date: September 02, 2019
Expiry Date: September 01, 2020

Dear Mrs. Serena Reves,

The Research Ethics Board has reviewed your application titled 'Fostering allyship through empathy and critical reflection in science 10'. Your application has been approved with recommended minor revisions. You may begin the proposed research. This REB approval, dated September 02, 2019, is valid for one year less a day: Sept 1, 2020

Reviewers noted:

Very detailed and well done! Also the 'informed written consent' needs to include most the info from info letter such as risk/benefits, storage and disposal of data and so on.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal. To continue your proposed research beyond , you must submit a Renewal Form before . If your research ends before, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Research Ethics Office via 250.852.7122. If you encounter any issues when working in the Research Portal, please contact the Research Office at 250.371.5586.

Sincerely,

Joyce O'Mahony
Chair, Research Ethics Board

SCHOOL DISTRICT NO. 73 (Kamloops-Thompson)
1383 - 9th Avenue, Kamloops, BC V2C 3X7 | Tel: 250-374-0679 Fax: 250-372-1180 | www.sc73.bc.ca

August 19, 2019

Via Email: revess16@mytru.ca

Ms. Serena Reves
Thompson Rivers University
Faculty of Education and Social Work/Education
805 TRU Way
Kamloops, BC V2C 0C8

Dear Ms. Reves;

Re: Research Project: Fostering allyship through empathy and critical reflection In Science 10

This letter is to acknowledge that School District No. 73 (Kamloops-Thompson) approves your research project to promote the development of allyship using an action research design that increases empathy and cultural competency as an act of reconciliation amongst a cohort of grade 10 science students, using the BC science 10 curricular and core competencies as a framework.

The district supports that research participants are strictly voluntary and that parents will be advised of the project during two information sessions in September, 2019. We look forward to reviewing the results of your research once concluded.

I have attached Board Policy 809.1 for your review prior to conducting this research. Please feel free to contact me should you have any further questions or concerns.

Sincerely,

Alison Sidow
Superintendent of Schools

AS:dh
Attach.

cc: Bill Hamblett, Assistant Superintendent – Secondary Education
Barb Hamblett, Principal, Valleyview Secondary School