

**Perspectives on the Competency-Driven Reform
in British Columbia:
A Case Study of the
Teacher Education Program at SFU**

**By
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Abstract

This case study is situated in the context of the new concept-based competency-driven curriculum implemented by the province of British Columbia. Implicitly embedded in the resurging movement of competency-based education (CBE), the educational reform emphasizes not only the curricular content but also core and curricular competencies. Many studies relate that education stakeholders' theoretical and practical understanding of the reform itself is crucial for a successful implementation. Therefore, interviews were conducted to obtain pre-service teachers', school associates' and teacher educators' theoretical and practical understanding of the reform in the context of the teacher education program at Simon Fraser University. By doing so, this research informs the discussion on BC's redesigned curriculum, and consequently facilitates a successful implementation.

Keywords: teacher education; curriculum change; teacher candidates; student teachers; British Columbia; BC curriculum; competency-based education; mastery-based education; perspectives.

Dedication

This thesis is dedicated to my daughter, for her joyful spirit, and to the child cocooning in my body. May they, one day, also be able to follow their dreams as I did.

Most importantly, words cannot express how grateful I am toward my husband for his unwavering support throughout this master journey. He is my biggest fan and I will never thank him enough for all his encouragements for the best and the worst of this achievement.

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List of Acronyms

ADD	Attention Deficit Disorder
ADHD	Attention Deficit and Hyperactivity Disorder
ATL	Approaches to Learning
CBE	Competency-based Education
DeSeCo	The Definition and Selection of Competencies
ELO	Extended learning opportunities
ESL	English Second Language
FA	Faculty Associate
IB	International Baccalaureate
IEP	Individual Education Plan
MYP	Middle Years Program
NHDOE	New Hampshire Department of Education
OECD	Organisation for Economic Co-operation and Development
PDP	Professional Development Program
PISA	Program for International Student Assessment
PLC	Professional Learning Community
PLO	Prescribed Learning Outcomes
SA	School Associate
SFU	Simon Fraser University
ST	Student Teacher

Chapter 1. Introduction

In 2010, British Columbia started the implementation of an innovative redesigned curriculum that emphasizes not only the curricular content but also competencies. BC's curriculum was influenced by other countries' approach to competency-based education (CBE) such as New Zealand and Australia. The approach can be identified under different terms such as mastery-based, proficiency-based, outcome-based, or performance-based education. For the sake of consistency, I use the term competency-based education in this paper. BC's redesigned curriculum has not been affiliated per se with the CBE movement, but they share mould characteristics rendering BC's curriculum suspiciously similar to a competency-based approach. While it is true that competencies are a key component of the BC curriculum, it is important to acknowledge other key changes which include an integration of broader perspectives such as Indigenous and historically racialized groups. However, the scope of this research will focus mainly on the similarities with CBE.

CBE is prevalent in today's education world. Le, Wolfe, and Steinberg (2014) state that it is "one of the hot 'innovation spaces' in education reform" (p. 20). Many countries, such as Australia, New Zealand, the United States, Canada, and Belgium, have shifted from content-driven curricula to competencies-centred curricula (Bergsmann, Schultes, Winter, Schober, & Spiel, 2015a; Le et al., 2014; Struyven & De Meyst, 2010). Why are competencies so relevant nowadays? Globalization and modernization bring forward many complex collective challenges for our society that require much more than rote memorization (OECD, 2005; Struyven & De Meyst, 2010). Individuals have to learn to think and act reflectively in a more integrated way and commit to lifelong learning. According to the OECD (2005, p. 5), reflectiveness holds a critical place in today's education because it implies much more than the simple application of a formula or method, but "the ability to deal with change, learn from experience and think and act with a critical stance." Nevertheless, although policymakers are jumping enthusiastically on the CBE bandwagon, the approach still comprises areas needing clarification. Indeed, to this day, scholars have yet to agree on a common model of CBE (Bergsmann et al., 2015a; Le et al., 2014; OECD, 2005; Smith, Tinkler, Demink-carthew, & Tinkler, 2017; Spady, 1977).

In this thesis, I will relate the conceptual framework behind CBE through a literature review. Although CBE has attracted much attention in higher education, this paper focuses on providing a definition that is representative of CBE in a K-12 system. These theoretical delineations offer the groundwork to analyze the current implementation of the competency-driven reform in British Columbia through a case study approach of the perspectives of various members of the teacher education program in regard to this new curriculum change.

1.1. Background and rationale for the study

The implementation of competency-based reforms have been studied in multiple contexts around the world (Berlach & McNaught, 2007; Freeland, 2014; Potvin, Dumont, Boucher-Genesse, & Riopel, 2012; Struyven & De Meyst, 2010), but there is still limited empirical research that examines the possible outcomes of competency-based learning on students and school success (Barnum, 2018; Scheopner Torres, Brett, & Cox, 2015; Shakman, Foster, Khanani, Marcus, & Cox, 2018; Stump & Silvernail, 2014). According to many scholars (Johnson & Stump, 2018; Scheopner Torres et al., 2015; Shakman et al., 2018), more examples and research is critical to ensure a successful implementation of CBE. Nevertheless, CBE is still perceived as a panacea to solve all modern educational challenges. For instance, American policymakers, educational and business leaders view CBE as a promising preparation for America's youth to meet the expectations of college and career (Stump & Silvernail, 2014).

1.1.1. Statement of the problem

In regard to BC's context, the British Columbia Teacher Federation is supportive of the redesigned competency-driven curriculum (BCTF, 2017). One BCTF (2017, p. 33) members even states that "I completely support this new curriculum change. It was overdue." But there are some shortcomings in the way it is being rolled out. The research behind the conceptual framework of the reform has not been shared with teachers hence creating uncertainty around the curricular model (BCTF, 2017; Gacoin, 2018; Gacoin, 2019). On the other hand, the BC Ministry of Education (n.d.-c) emphasized that the curriculum's flexibility enables teachers to innovate. Although flexibility allows adaptability to local circumstances (Tyack & Cuban, 1997), it is essential that hybridization is not made

at the expense of the essence of the reform. Therefore, resources to guide teachers are highly needed (Gacoin, 2019).

Unfortunately, an unintended confusion has already been observed with regard to assessment. According to Gacoin (2017), “the lack of alignment between curriculum and assessment has been a massive source of tension across the province” (p. 12). Two years later, BCTF’s survey findings (2019) shows that the province has yet to solve this issue since only 23% of secondary teachers felt that the guidelines were clear or helpful in relation to student assessment. According to Gacoin (2018; 2019), it is not surprising since implementation aspects were consistently framed as separate from the curriculum development process. The implementation plan and the philosophy behind the reform were not clearly communicated to stakeholders (Gacoin, 2019). In addition, there was also confusion amongst parents and students about new teaching methods such as inquiry (Woo, 2014), and the redesigned curriculum has been perceived by some as an “anti-knowledge approach” (Zwaagstra, 2013, para. 5) that compromises foundational skills (Woo, 2014; Zwaagstra, 2013). Therefore, it is imperative to communicate the purpose and philosophy behind the curriculum to all stakeholders to increase the fidelity of implementation, the rate of adoption, and community buy-in.

A BCTF member highlights that “unless there is a radical turnaround in the way that this is being rolled out, very little will actually change in the next few years” (2017, p. 33). While most teachers are integrating the curriculum, there is still 25% of them who are only using the new curriculum less than occasionally. Again, only 37% of teachers at a secondary level feel that the new curriculum is completely or largely aligned with “what their students need from their education” (Gacoin, 2019, p. 5). As Gacoin (2019) states, there is uneven implementation across the province.

With respect to CBE components within the reform, 80% of BCTF survey participants agree that competencies are an important or very important component of the BC curriculum. Yet, only 25% of teachers feel that they have received clear guidelines regarding Core Competencies (Gacoin, 2019). In that sense, studies (Covarrubias-Papahiu, 2016; Struyven & De Meyst, 2010) outline that competencies tend to be misunderstood by teachers and even by teacher educators themselves. Also, the redesigned curriculum focuses on proficiency scales, but grades (58%) and letter grades (60%) are still more valued at the secondary level (Gacoin, 2019). The BCTF

Implementation Survey (2017; 2019) has also noted a crucial gap in teachers' understanding of the process of curriculum change.

Indeed, BC is at a critical point where over 50% of teachers support the reform (Gacoin, 2019), but it is imperative that further research provide insights on BC's implementation process. Consequently, this study intends to contribute to the already limited number of published articles on this context-specific subject.

1.1.2. Significance of the study

Since the redesigned curriculum in BC is partly founded on competencies, it is especially important that this concept is understood and "owned" by all educational stakeholders (Santos, 2012). While the BCTF is concentrating on gathering the perspectives of its members, this study will contribute to the discussion on the subject by focusing on the source of teachers' professional development; the teacher education program. "Research on educational change [...] convincingly shows us that 'ownership' by the member of [the institution], and in particular by the teachers who teach courses in this program and by the students who experience learning through these courses and programs, is a prerequisite for successful change" (Fullan, 2003; as cited in Stuyven & De Meyst, 2010, p. 1499). Thus, the way CBE is addressed in teacher education directly influences how effectively a new competency-based curriculum is implemented (Covarrubias-Papahiu, 2016; Le et al., 2014; Struyven & De Meyst, 2010). A reform's success depends on the extent to which it is compatible with teachers' views of what is worthwhile in education (Pantić & Wubbels, 2012; Santos, 2012). Therefore, I believe my research will be significant for teachers, members of the Faculty of Education, and policymakers because there is a correlation between the meaning conferred by teacher educators to the reform and the extent to which real educational change occurs (Covarrubias-Papahiu, 2016).

Consequently, when considering the implementation of CBE in BC, important insights may be gained by examining the conceptual framework of teacher education, the extent to which CBE is actually embedded in the pedagogical practices of teacher education, and the beliefs and attitudes of student teachers. After all, preservice teachers will be the next generation of professionals justifying the application of competencies in the profession. Because students' perceptions might differ from their teachers' perceptions

(Das, ElSabban & Bener, 1996; Fisher, Alder & Avasalu, 1998; Liow, Betts & Kok Leong Lit, 1993; in Struyven & De Meyst, 2010), it is important to assess faculty and school associates' perspectives as well. Besides, for this study to be able to contribute to teacher education, discourses from representing members from both universities and schools are paramount (Dawson, 1995).

1.1.3. Research questions

In this research, I propose to answer the following research question: How is the recent competency-driven curriculum in British Columbia addressed in the teacher education program at SFU? This research question will be answered through the following sub-questions:

1. How are competency-related concepts and teaching practices addressed in the teacher education program, according to faculty personnel and student teachers?
2. What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum?
3. What aspects of CBE are manifested in the design and practice of the teacher education program, or in the school settings experienced by student teachers?

1.2. Methodological stance

This research has been built around an instrumental case study approach to allow the emergence of perspectives on the new curriculum by various stakeholders of the teacher education program at SFU. Multiple points of view were gathered from student teachers, faculty associates, and school associates via open-ended interviews. Considering that many quantitative surveys were already conducted with different education stakeholders (Struyven & De Meyst, 2010; Giampaolo, Surian, Batini & Bartolucsi, 2015), the qualitative approach provides concrete and significant insights. It is conducive to a deeper understanding of the subtle comprehension variances of the reform itself.

1.3. Researcher's positionality

Knowledge and learning are automatically bounded to our own experiences. Before embarking on this research journey, I knew I would be confronted with many aspects of my own schooling/socialization/professional experiences. Indeed, we are highly influenced by our own social situation and previous experiences (Van Den Hoonaard, 2015). Also, being a science teacher within the context I am studying can raise some ethical considerations. This is why it is important for me to reflect on my stance as a researcher, but also as a former student and current teacher. I will share my schooling story to demonstrate how it has constructed the person that I am.

First, as an elementary and secondary student, I was mostly expected in school to memorize and recite. Before the arrival of internet in the educational world, teachers were perceived as sole knowledge holders and everything they said was interpreted as the truth. Reflectiveness and critical thinking were somewhat present, but it wasn't particularly valued. Students who were able to reproduce the more accurate version of what was told in class received better grades. In terms of sciences courses, most of the time we learned the theory, reproduced prescribed laboratories and then, completed exercises on the subject. This pattern was replicated throughout most of my post-secondary schooling as well.

Second, I did my teacher training in Québec (Canada) where it is very different than the program offered by the PDP at SFU. Instead of participating in a two years program after a bachelor's degree (or an equivalent), the program in Québec involves four years of education and subject specific (biology in my case) courses intertwined with four practicums. Thanks to the latter, I was able to work alongside various school associates, in different schools, and different grade levels. These aspects contributed to my practice by allowing me to experience a vast array of teaching methods. Thus, this was conducive in making me feel more confident when building my own teaching identity.

It is only at the start of my career that I was able to reflect upon my schooling. Indeed, when I started to have my own students, I had to reflect on what I expected of them. What did I consider relevant for my students? At the time, the arrival of more and more technologies in the classroom was opening further the classroom walls. Internet held more answers than I did, and students were realizing it. Did I want them to be able to recite

and memorize while they were soon going to be able to access all the information they needed and much more in a heartbeat? Was it more relevant for them to learn how to access the right information and make sense of it? How to solve “real-world” problems instead of pre-made exercises that they cannot relate to? Much of these realizations shaped the teacher that I became and are still part of my reflections today.

After graduating, I was fortunate to work in various socio-economical school settings which allowed me to gain a better understanding of the context of education in Québec. I worked in public schools within less fortunate catchment areas, in a religious school, and in a private school. Also, Québec had already rolled out a massive reform emphasizing competencies from 2000 to 2010 (Potvin et al., 2012). In essence, “teachers were encouraged to foster learning within rich and authentic situations instead of concentrating their efforts on the quality of their lectures and on pencil-and-paper exercises” (p. 55). It is important to mention that I, as a student, had never been taught within that system. I only experienced it as a teacher. However, the extent to which the core of the reform was actually implemented is unclear and goes beyond the scope of this paper. Nevertheless, it gives a sense of the context I came from hence I was already familiar with competencies from my prior teaching experiences before moving to British Columbia.

Upon my arrival in 2015, I was hired as a secondary science teacher in a francophone school for grades 7, 8, 10 and chemistry 11 and 12. I entered the system during the optional implementation phase when both the old curriculum and the new curriculum coexisted. It was a fortunate time for me since, as an observer and practitioner, I was able to compare the existing curriculum with the redesigned reform. At the time, multiple-choice ministerial exams were still mandatory for Grade 10 science students, which bounded me a lot to the old curriculum for these students. However, I was able to fully immerse myself in the new curriculum for my grades 7 and 8 students. It is also important to mention that my school offers solely International Baccalaureate (IB) and Middle Years Program (MYP) courses even though we are a fully public school.

Finally, I embarked on this master program journey because I remained puzzled about many issues in education and the university setting was conducive to lively discussions on those subjects. Being able to take the time to reflect on my own practice and on education in general allowed me to push my understanding of educational

practices deeper. For instance, I was able to find concrete answers and provide arguments for my usage of certain teaching methods. Not only did I learn so much from a practical standpoint, but most importantly, this master has opened the door to the wonders of academia. I realized that, genuinely, there is so little that I know hence generating an inexhaustible proportion of interrogations. This is why I remain humble and open-minded as an investigator thus allowing me to feed my constant desire to learn.

When reflecting upon my position as a researcher within the BC schooling system, I consider myself both as an outsider and an insider. The former because of my foreign training and my experience with other reforms that I can use to critically compare; the latter because of my current teacher status, and my total immersion in the redesigned curriculum. Therefore, I constantly subscribed to both objectivity and subjectivity during this study. Instead of seeing it as a flaw or a bias to my research, I see it as a strength.

Many educational studies are conducted by outsiders who do not necessarily understand the context in which their participants operate. While it is true that the experimenter's perspective can influence the results (Van Den Hoonaard, 2015), I consider that my own experiences allowed me to better comprehend my participants' point of view and relate it in an accurate way. Indeed, Van Den Hoonaard (2015) advocates that investigators should strive to attain a sympathetic level of understanding by putting themselves in their subjects' shoes. "Most qualitative researchers share an understanding that they must pay attention to how participants perceive and interpret their situation within their social context" (p. 19). It is with that respect that I intended to avoid bias and expose rich and diverse perspectives.

1.4. Thesis overview

This thesis is organized into 5 chapters. In the light of the lack of consistency with respect to defining the CBE model in the K-12 context, chapter one sheds some light on its theoretical foundations through an extensive literature review. Then, parallels between CBE and the BC redesigned curriculum are drawn thanks to a deep investigation of the purpose and characteristics of the reform. BC being in a critical phase in its implementation process, a better knowledge of how the reform is understood by its stakeholders is essential to foster a successful implementation. To allow deeper analysis of the level of application of BC's new curriculum, educational change theories are presented. Thus, this

theoretical framework corroborates that the meaning of the reform conferred by teacher educators is strongly correlated with true educational change. Since this study was exploring the perception of participants facing an innovation, this chapter also reviews the literature related to innovations. Teacher change and teacher education issues are also presented hence establishing the groundwork to analyze perspectives of the reform from the standpoint of members of the teacher education program.

Chapter 2 discusses methodological procedures including the context of study and data collection information of participants. Chapter 3 analyses the qualitative data obtained from interviews with participants and field notes and presents the study's results. In chapter 4, I discuss the results further in the light of the presented theoretical framework. Chapter 5 offers a summary of the study, which also outlines the implications and recommendations for sustainable curriculum change and further research.

Chapter 2. Literature review

2.1. Competency-based education

2.1.1. Background

Competency-based education (CBE) is not a new concept. Its origin dates back to Dewey and the progressive education scholars of the early 1900s (Le, Wolfe & Steinberg, 2014). At the time, Dewey was emphasizing the importance of learning by doing and relating students' interests and experiences to the curriculum to develop a whole individual (Dewey, 1902). In 1919, the "Winnetka Plan" introduced by Carleton Washburne was one of the first attempts at an individualized-paced instruction by allowing students to work partly on "common essentials" at their own pace and partly on creative content (Le et al., 2014).

Several influential educators followed this introduction to the mastery-based movement by emphasizing instruction that is student-centred and competency-based. In 1949, Ralph W. Tyler, an educator, challenged the static curriculum by advocating for constant evaluation through the actions of students rather than the teacher. Tyler (1949) suggests that objectives should be "more than knowledge, skills, and habits; they involve modes of thinking, or critical interpretation, emotional reactions, interests and the like" (p. 80). Tyler's reform principles—the emphasis on students' interests, the elaboration of clear learning objectives, and the dynamic curriculum—remain some of the foundations of the CBE movement. Nevertheless, instead of emphasizing Tyler's view about practical preparation for a profession, the competency-based approach adheres partly by focusing on Tyler's concept of applying theory in practice hence distancing itself from "a functional, behavioural and labour perspective" (Covarrubias-Papahiu, 2016, p. 127).

Another major influence is John Carroll who promoted the idea that each student is able to succeed given enough time and appropriate opportunity to learn. He argues that "not all students achieve mastery at the same time", another central tenet of CBE (Le et al., 2014, p. 10). In the late '60s and early '70s, the concept of "open classrooms" gained popularity by advocating that students learn best by directing their own learning. "Competency education borrows much of the theory about increased time and student-centred approaches from the open classroom ideals, while simultaneously placing far

greater emphasis on achieving mastery of clearly defined and rigorous knowledge and skills” (Le et al., 2014, p. 10).

In 1968, Benjamin Bloom (1968) published ‘Learning for mastery’, which challenged the prevailing views that one third of students will fail. He argues that perhaps over 90 percent of students will achieve mastery of learning if provided sufficient time and appropriate learning conditions. At the same time, Fred Keller (1968), a theorist and behavioural psychologist, contributed to the movement by developing the concept of self-paced learning modules that break down learning objectives into specific activities where students will only advance upon demonstration of mastery (Gervais, 2016).

Throughout the 20th and 21st centuries, the progressive education movement resurges on multiple occasions. Tyack and Cuban (1997) highlight that policy talk occurs in a cyclical pattern, but each time in a different context making it more or less likely to be adopted. Considering Tyack and Cuban’s three phases of educational change—policy talks, policy action, and implementation—not every mention of competency-based practices resulted in full implementation. “Policy talk does cycle, but long-term trends follow their own different timetables” (Tyack & Cuban, 1997, p. 47). CBE, as an innovation, is part of the institutional trend of student-centred and personalized learning. Yet, CBE remains on the sidelines, never being widely adopted until the last decades when an impressive revival of interest for CBE in the K-12 context and higher education can be observed worldwide.

What caused the recent revival of interest for CBE? According to Schleicher (2007), this shift can be attributed to a greater emphasis on whether students can extrapolate their knowledge and apply competencies in novel situations instead of assessing if students can reproduce the learned content. CBE is addressing the need to prepare students to face a rapidly changing economy and graduate with the required skills and knowledge necessary to operate in that future (OECD, 2005; Scheopner Torres et al., 2015; Stump & Silvernail, 2014). In that sense, multiple countries have adopted policies allowing flexibility in graduation standards to promote competency-based approaches (Malan, 2011; Stump, Doykos, & Rios Brache, 2018).

Although policymakers are jumping enthusiastically on the CBE bandwagon, the approach still comprises areas needing clarification. Indeed, to this day, scholars still do

not agree on a common model of CBE (Bergsmann et al., 2015a; Le et al., 2014; OECD, 2005; Smith et al., 2017; Spady, 1977). The lack of agreement extends onto the theoretical roots of the movement (Spady, 1977). For instance, O'Connell and Moomaw (1975, p. 22) argue that "unlike the behavioural objectives movement, the competency-based model adopts the stance that learning should be cumulative and additive, leading to the development of the 'whole' or 'competent' person the institution would like to produce" (as cited in Gervais, 2016, p. 100). Consequently, constructivism holds an important place within the movement, but Covarrubias-Papahiu (2016, p. 126) specifies that it "emerges from the impacts on education as a reflection of the global era of the education systems, not from the market needs," tracing its origins back to Piagetian and Vygotskian approaches. However, others recognized that CBE has alternative roots such as functionalistic, humanistic (Gervais, 2016) and cognitive (Baartman, Bastiaens, Kirschner, & van der Vleuten, 2007; Casey & Sturgis, 2018; Le et al., 2014). Arguably, the CBE movement lacks conformity in terms of theoretical framework, which explains partly its eclectic implementation (Gervais, 2016).

2.1.2. Defining competency

It could be beneficial at this point to define further the term competency considering it is at the core of CBE (Spady, 1977). However, it appears that scholars struggle to find agreement (Ananiadou & Claro, 2009; Bergsmann et al., 2015a; Le et al., 2014; O'Sullivan & Bruce, 2014; OECD, 2005; Smith et al., 2017). Competencies are often associated with skills, but the OECD (2005, p. 4) specifies that "a competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context." On the other hand, The European Commission's Cedefop glossary (Cedefop, 2008; in Ananiadou & Claro, 2009) distinguishes the term skills and competency: skills are "the ability to perform tasks and solve problems, while a competency is the ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development" (p. 8).

The predominant understanding of the term is greatly influenced by the constructive perspective elaborated in The Definition and Selection of Competencies (DeSeCo) project (OECD, 2005). The DeSeCo project was launched in late 1997 to provide a selection of the competencies students require to face the complex demands of

our always-evolving world and to strengthen international standardized surveys from Program for International Student Assessment (PISA). In the context of inconsistent definitions of the term in the literature, this project provides an overarching framework clarifying the concept of competencies. Key competencies were not only determined as a consensus of the definitions of competencies formulated by the OECD countries, but they were also in accordance with their shared values, and with the scholarly literature understood by experts from various disciplines. “Key competencies are not determined by arbitrary decisions about what personal qualities and cognitive skills are desirable, but by careful consideration of the psychosocial prerequisites for a successful life and a well-functioning society” (OECD, 2005, p. 6). The selection was based on the following criteria:

- Contribute to valued outcomes for societies and individuals;
- Help individuals meet important demands in a wide variety of contexts; and
- Be important not just for specialists but for all individuals (p. 4).

The key competencies that were selected were organized into three broad categories; using tools interactively, interacting in heterogeneous groups, and act autonomously (OECD, 2005). These competencies became the starting point for many curriculum experts in their task to include competencies in their educational context.

As a consensus, many scholars agree that a competency is a holistic amalgam of these three interrelated components: a behavioural component (skills), an understanding component (knowledge), and a value component (values, attitudes, motivation, and beliefs) (Baartman et al., 2007; Giampaolo, Batini, & Bartolucci, 2015; Iowa Department of Education, 2016; Jobs for the Future & the Council of Chief State School Officers, 2015; O’Sullivan & Bruce, 2014; OECD, 2005; Struyven & De Meyst, 2010). Competencies should be applicable and transferable to various meaningful problems and contexts (Casey & Sturgis, 2018; O’Sullivan & Bruce, 2014) and stimulate lifelong learning (Ananiadou & Claro, 2009; Casey & Sturgis, 2018; O’Sullivan & Bruce, 2014; Struyven & De Meyst, 2010). For instance, PISA is committed to assessing students not only on curricular and cross-curricular competencies, but also on “their own motivation to learn, their beliefs about themselves, and their learning strategies” (Ananiadou & Claro, 2009, p. 7).

Another term that might be confusing is *21st-century skills*. Ananiadou and Claro (2009) define the latter as “as those skills and competencies young people will be required to have in order to be effective workers and citizens in the knowledge society of the 21st century” (p. 8). In tune with the rest of the world, the new BC curriculum is auto-proclaiming itself as “education for the 21st century” (BC curriculum, n.d.).

Nevertheless, Covarrubias-Papahiu (2016, p. 109) addresses the issue of the polysemy of the term due to its various assigned meanings assigned. Thus, it is preferred to refer to the *notion* of competencies instead of a *concept*.

2.1.3. Definition of CBE

Well aware that the lack of an overarching definition was causing harm to the movement, advocates launched the website *CompetencyWorks* to give resources to promote competency-based initiatives. In 2011, a hundred innovators in CBE elaborated a working definition of what constitutes a high-quality CBE system through five criteria:

- Students advance upon demonstrated mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.
- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions. (Competency Works, 2011)

Although this definition provides clarity, it is important to consider its limitations. Considering the title *CompetencyWorks* and the glorification of the movement on their platform, their work is inherently biased toward CBE and despite *CompetencyWorks*' best attempts at providing a common definition for the movement, all actors in the field have not embraced it.

To increase clarity about CBE, Gervais (2016) elaborated a working definition based on a literature review and interviews with key informants:

CBE is defined as an outcome-based approach to education that incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviours required for the degree sought. (p. 99)

This definition also resonates with the previously elaborated definition of competency and with the definition provided by Le *et al.* (2014, p. 3) where they refer to it as "educational approaches that prioritize the mastery of learning objectives regardless of how long it takes." Practically speaking, Scheopner Torres et al. (2015) report from their field study that there are four common elements that emerge recurrently in a CBE system.

- 1) Students must demonstrate mastery of all required competencies to earn credit or graduate.
- 2) Students advance once they have demonstrated mastery, and students receive more time, and possibly personalized instruction, to demonstrate mastery if needed.
- 3) Students are assessed using multiple measures to determine mastery, usually requiring that students apply their knowledge, not just repeat facts.
- 4) Students can earn credit toward graduation in ways other than seat time, including apprenticeships, blended learning, dual enrollment, career and technical education programs, and other learning opportunities outside the traditional classroom setting. (p. i)

Arguably, the main distinguishing component of CBE is that it measures *learning* instead of *time* (O'Sullivan & Bruce, 2014). This element is intended to address learning gaps that are created when students are permitted to move on to the next grade without mastering the essential (Casey & Sturgis, 2018). Jobs for the Future and the Council of Chief State School Officers (2015) describe further how a competency-based education system would operate:

Students move ahead based not on classroom hours but on their demonstration that they have actually learned material, reaching key milestones along the path to mastery of core competencies and bodies of knowledge. *Learning is the constant, time is the variable.* Tasks and learning units might be individual or collective, and students have multiple means and opportunities to demonstrate mastery through performance-based and other assessments. Each student receives the scaffolding and differentiated support to progress at a pace appropriate to reaching college, career, and civic outcomes, *even when unequal resources are required to achieve a more equitable result.* (p. 21, emphasis added)

This citation emphasizes CBE's ambition for equity of all students. CBE aims for high standards while simultaneously promoting inclusion, addressing bias, and interrupting inequitable practices (Casey & Sturgis, 2018).

On the other hand, Book (2014) brings a different perspective by defining two content delivery options of CBE. The *course-based with credit equivalency* model involves elements of flexible pacing, but direct instruction seat time is required to obtain credits. Whereas, the *direct assessment model* is “untethered from course material and credit hour, learners demonstrate competencies, particularly mastery, at their own pace, typically online, and progress through academic programs when they are ready to do so” (Book, 2014, p. 4). Although many scholars (Casey & Sturgis, 2018; Freeland, 2014; Le et al., 2014; O’Sullivan & Bruce, 2014) promote the direct assessment method from a “prescriptive standpoint”, the absence of an overarching theoretical definition of CBE allows the use of a “descriptive method [... which] examines programs that describe themselves as Competency Based and seeks to discover the elements they share...” (Spady, 1977, p. 9). When investigating established CBE schools, the reality observed is that few schools have fully converted their educational structure away from a seat-time basis (Brodersen, Yanoski, Mason, Apthorp, & Piscatelli, 2017; Freeland, 2014; Stump & Silvernail, 2014). This aspect can be partly explained by the fact that the implementation of such model is a lengthy process and that it cannot be “plugged in” or implemented with a “flip of a switch” (Hall and Jones (1976); in Gervais, 2016). Indeed, some of the characteristics of CBE differ greatly from most current educational contexts. One might even think that implementing CBE is unachievable in a traditional schooling system. However, it is paramount to understand that CBE involves a paradigm shift from traditional learning and teaching (Casey & Sturgis, 2018; Freeland, 2014; Iowa Department of Education, 2016; Smith et al., 2017; Struyven & De Meyst, 2010). To achieve a satisfactory implementation that will be representative of the ideals of a CBE model, a deep exploration within institutions is required to allow careful consideration of the structural, philosophical, and logistical differences between traditional education systems and CBE (Freeland, 2014; Gervais, 2016). Gervais (2016) represents well in table 1 the continuum schools go through in order to reach the ideals of a competency-based model.

	Traditional	Emerging	Competency-based
School culture	Learning happens inside a traditional classroom with little to no accommodation of student interests and learning styles	Educators make limited accommodation for student interests and learning styles by incorporating real-world experiences and partners into the classroom	Students choose from a wide range of learning experiences at school, online, and in their community. Educators work with diverse partners and students to piece together individual learning pathways that accommodate student interests and learning styles
Learning progression	Students are expected to master grade level college and career ready standards	Students are expected to master grade level college and career ready standards and transferable skills	Students are expected to master competencies aligned to college and career ready standards. Each competency has clear, transferable learning objectives
Learning pace	Students advance at the instructor's pace regardless of whether they mastered the learning objectives or need additional time	Students may take accelerated courses if they demonstrate readiness. Students receive specialized support when they fall behind peers. Educators continually group students to encourage peer learning and maximize learning gains for all	Students receive customized supports and accelerated opportunity both in-school and out-of-school to ensure they stay on pace to graduate college and career ready
Instruction	Every classroom has one teacher who designs and delivers an instructional program with very little differentiation for individual students	Educators engage in some collaboration across teams and content areas to align and differentiate instruction based on real-time feedback on student performance	Educators work collaboratively with each other, community partners, and students to develop a unique learning plan for every student based on student interests, learning styles, and real-time data
Assessment system	Assessment instruments are used at set times to evaluate and classify students, not to guide instruction. Students have one opportunity to take the summative assessment at the end of the year	Educators use formative assessment instruments when they believe students are ready to demonstrate mastery. These assessments help educators tailor instruction so that more students are ready to master the summative assessment at the end of the year	A comprehensive assessment system is an essential part of the learning system. Formative assessments guide daily instruction and student selection of customized learning opportunities. Summative assessments show mastery of competencies. Students take these assessments when they are ready and have multiple opportunities to demonstrate mastery
Grading policies	Grades are norm-referenced, reflect mastery of course standards, and are typically based on weighted quarters and a final exam	Grades reflect mastery of course standards and skills and are typically based on weighted quarters and a final exam or project. Students have multiple opportunities to demonstrate mastery of required coursework	Grades reflect the degree of mastery of competencies ranging from advanced to not yet competent. When students do not earn course credit their record indicates competencies that need to be re-learned instead of the entire course
Instruction	Every classroom has one teacher who designs and delivers an instructional program with very little differentiation for individual students	Educators engage in some collaboration across teams and content areas to align and differentiate instruction based on real-time feedback on student performance	Educators work collaboratively with each other, community partners, and students to develop a unique learning plan for every student based on student interests, learning styles, and real-time data

Table 1: Competency Education continuum (Gervais, 2016)

Before we continue perhaps, we need to align our definition of success in school. “The traditional system tends to emphasize order, safety and high achievement. Although high achievement is a shared value between competency-based and traditional systems, the interpretation of achievement is different” (Casey & Sturgis, 2018, p. 5). In a CBE mindset, it is critical to observe a broader and more holistic definition of what is regarded as success for students. Cognitive knowledge is not the only priority, the development of well-rounded competent individuals with great interpersonal attributes is also at stake (Ananiadou & Claro, 2009; Casey & Sturgis, 2018). Casey & Sturgis (2018) define success in regard to three categories:

- Academic knowledge and skills
- Competencies also known as transferable skills (e.g., critical thinking, complex reasoning and problem-solving, teamwork and communication)
- lifelong learning (e.g., growth mindset, metacognitive skills, agency and self-regulation skills).

Subsequently, it is difficult to ascertain the true benefits of CBE since empirical research on students' learning outcomes or on successful pilot programs is scarce. According to Scheopner Torres et al. (2015),

The lack of research on student outcomes is a challenge that impedes the efforts of states, districts, and schools in establishing support from their school communities. Administrators cautioned against conducting these studies too early. Developing competencies, defining common expectations, and establishing consistency in instructional and assessment practices take considerable planning; examining outcomes while districts and schools are still working to implement these new policies and practices could produce misleading results. (p. 18)

While it is true that there is a limited amount of research, current findings are not necessarily consistent with the alleged ambitious goals of CBE. For instance, a comparison of growth percentiles on standardized tests in Massachusetts between CBE and traditional schools yielded null results (Craig, 2012; as cited in Stump & Silvernail, 2014). Although a positive relationship between exposure to CBE and increased levels of student engagement was observed, Shakman et al. (2018) noted a negative correlation between exposure to CBE and SAT scores. However, Scheopner Torres et al. (2015) suggest that standardized tests are probably not the best comparison method since it is not comprehensive with student-centred instructional practices.

In conclusion, CBE's definition is not agreed upon and the causality link between CBE practices and student success is still questionable. This problem could be linked to the fact that CBE requires a paradigm shift from traditional practices and consensus is hard to reach when treading in unknown waters. Nevertheless, it is possible to observe recurrent themes from the literature which include the demonstration of mastery instead of seat time; instruction that is student-centred and personalized; competencies as clear, measurable, transferable, learning objectives; assessments that are a meaningful and positive experience for students; and flexible learning environments.

2.1.4. Characteristics of CBE

In the previous paragraphs, many characteristics of CBE were presented. In the following section, I will unfold them one by one.

Demonstration of mastery instead of seat time

In traditional schooling systems, the key metric to measure learning is time, also known as a time credit. In CBE, learning is not measured on the amount of student seat time, but rather students advance upon mastery. Normally, students are permitted to advance to subsequent concepts or the next grade level regardless if they had sufficient time to master content (Casey & Sturgis, 2018). This approach has created generations of students burdened by widening academic gaps (Casey & Sturgis, 2018; Freeland, 2014). Whereas, "in a proficiency system, failure or poor performance may be part of the student's learning curve, but it is not an outcome" (Casey & Sturgis, 2018, p. 4). Since 2005, the Department of Education of New Hampshire has started the implementation process of a statewide CBE system for all high schools. In her review of the state's progress, Freeland (2014) reports that the removal of seat-time regulations has "removed barriers to innovation" (p. 5) and has created more opportunities for "educators to measure student progress in terms of authentic learning, rather than in hours and minutes" (p. 1). The IOWA Department of Education is also undergoing implementation of CBE in their school district. In their efforts to define the foundations of the movement, they describe it as:

A system of education in which learners advance through content or earn credit based on demonstration of proficiency on competencies. Some students may advance through more content or earn more credit than in a traditional school year while others might take more than a traditional school year to advance through the same content or to earn credit (Iowa Department of Education, 2016, p. 6).

Instruction is student-centred and personalized

One could wonder if a mastery-based approach might do an unintended disservice to students who require special supports or have pre-existing gaps. This question is legitimate considering research that states the negative impacts of holding back students of one grade. Nevertheless, Sturgis and Casey (2018, p. 19) assure that "mastery-based progression is not about limiting, retaining, stigmatizing or penalizing students. It is about taking responsibility for ensuring all students learn, acting upon the belief that all students

can learn with the right supports, and helping students address and mitigate prior learning gaps, however large." In principle, CBE promotes a culture of inclusion and equity where all learners succeed in their own time (Casey & Sturgis, 2018; Le et al., 2014; Lopez et al., 2017). Equity strategies such as culturally responsive approaches and Universal Designs for Learning are embedded in the core of a CBE instruction (Casey & Sturgis, 2018).

The competency-based pedagogy is aligned with recent research from the learning sciences. Indeed, scholars outline the need for education systems to improve in accordance with 21st-century realities (Ananiadou & Claro, 2009; National Research Council 2012, 2012; O'Sullivan & Bruce, 2014). The traditional system based on industrialization is obsolete since we are living in a completely different era. As much as one might be tempted to simply modify the old to make it new, education stakeholders must innovate. The mere addition of higher standards to the current traditional system without any form of personalization to help students reach them is likely to perpetuate the inequitable academic outcomes (Le et al., 2014). While it is true that most districts and schools support the mantra "success for all," many of them maintain systemic inequitable practices such as grading practices that conceal students' actual learning levels refraining students to access the necessary information to improve (Casey & Sturgis, 2018). In contrast, CBE educators will portray student learning authentically and transparently thanks to distributed leadership structures, which are in place to empower them to make decisions in the best interests of students. "Commitment to mastery for all requires districts, schools and educators to challenge and "unlearn" parts of traditional education as we know it, and embrace collective accountability, continuous improvement and personalization instead" (Casey & Sturgis, p. 5).

Many strategies are required to achieve such a grandiose task. According to CompetencyWorks (2011), students must receive "rapid, differentiated support based on their individual learning needs". By rapid, it is implied that support is provided throughout the learning process and not solely in the form of remedial learning opportunities. This proactive mentality encourages students to persevere through their difficulties while continuing to learn. When using the term differentiated, personalization is implied. In this paper, I distinguish the terms individualized and customized, which refers to teacher-led instruction that meets the unique needs of students, from the term personalization (Le et al., 2014). The latter is defined as "broader educational approaches that connect learning

with the interests, talents, experiences, and aspirations of each student and that involve the active participation of each student in the design of their learning" (Ibid., p. 8). The approach promoted by CBE is to meet students where they are regardless of their age (Casey & Sturgis, 2018; Lopez et al., 2017).

A shared learning responsibility between the teacher and the learner is critical in achieving personalization of learning (Casey & Sturgis, 2018; Giampaolo et al., 2015; Le et al., 2014; O'Sullivan & Bruce, 2014). In the DeSeCO project, it is highlighted how crucial it is for individuals to think for themselves and to take responsibility for their learning and for their actions (Ananiadou & Claro, 2009). By involving students in the development of personalized learning pathways, intrinsic motivation, curriculum ownership, and lifelong learning skills are generated (Casey & Sturgis, 2018; Iowa Department of Education, 2016; Le et al., 2014; O'Sullivan & Bruce, 2014). Together, teachers and students will design learning pathways that are based on the students' "development, social emotional skills and academic foundations" (Casey & Sturgis, 2018, p. 6).

In BC and elsewhere in the world, personalization is emerging as one essential aspect of a shift toward student-centred education (BC Ministry of Education, n.d.-b; Freeland, 2014; Fullan, 2010; Iowa Department of Education, 2016; Jobs for the Future & the Council of Chief State School Officers, 2015; Le et al., 2014). As we increase our knowledge of how students learn, we understand that students have varying aptitudes and background knowledge hence justifying the need for different learning paces (Freeland, 2014). Le et al. (2014, p. 8) argue that the "the growing interest in competency education is related to the advancement of technologies that make personalization more feasible—both in terms of meeting the interests and needs of students and providing an individualized learning management system for teachers." Nevertheless, CBE is not to be mistaken for an extreme version of an educational approach that promotes highly individualized online models where students spend the majority of their time progressing alone. While it is true that such models are often cost-effective, they do not take into consideration the importance of the social aspects of learning (Le et al., 2014).

Competencies as clear, measurable, transferable learning objectives

Competencies are at the heart of the learning objectives of CBE. In the past decades, scholars have observed "a shift from content-centred curricula to competence-centred" (Wesselink, Dekker-Groen, Biemans, & Mulder, 2010; as cited in (Bergsmann et

al., 2015). In contrast with traditional systems where academic skills at the lower levels of Bloom's taxonomy are emphasized, competency-based models promote performance-based assessments that build higher order skills and ensure that these skills are transferable to new contexts (Casey & Sturgis, 2018). This philosophy is coherent with PISA's assessment aim of students' performance around the world: it exposes students to real-life challenges to allow them to use their knowledge and skills, rather than measure the extent to which they have mastered a specific school curriculum (Ananiadou & Claro, 2009). PISA assesses not only "students' curricular and cross-curricular competencies but also asks them to report on their own motivation to learn, their beliefs about themselves, and their learning strategies" (Ananiadou & Claro, 2009, p. 7). To create an environment that is conducive to the development of higher order skills, teachers need to be skilled in using a broad range of instructional approaches that engage all learners such as blended learning, project-based learning, collaborative learning (Freeland, 2014; Iowa Department of Education, 2016; Le et al., 2014).

When student success is defined through the mastery of competencies, it creates an environment conducive to deeper learning and lifelong learning (Casey & Sturgis, 2018; Giampaolo et al., 2015; Iowa Department of Education, 2016; Jobs for the Future & the Council of Chief State School Officers, 2015; National Research Council 2012, 2012; OECD, 2005; Smith et al., 2017; Struyven & De Meyst, 2010). Although the term deeper learning is often used interchangeably with the term lifelong learning, they do have subtle distinctions. On one hand, Casey and Sturgis (2018, p. 48) describe deeper learning as "highly engaging learning experiences in which students apply skills and knowledge and build higher order skills." The Hewlett Foundation defines deeper learning with more precision through six competencies: "master core academic content; think critically and solve complex problems; work collaboratively; communicate effectively; learn how to learn; and develop academic mindsets" (as cited in Casey & Sturgis, 2018, p. 48). On the other hand, lifelong learning is defined as "the foundation for learning and working" (AIR; as cited in Casey & Sturgis, 2018, p. 50). According to Sturgis & Patrick (2017, p. 11), the term captures "the skills that enable students to be successful in life, navigating new environments, and managing their own learning. This includes a growth mindset, habits of success, social and emotional skills, metacognitive skills, and higher order deeper learning competencies." In their recommendations, the European Commission (2006) considers that lifelong learning will provide all the basic skills individuals will need to fully

participate in today's knowledge-based economies. Deeper learning and lifelong learning intersect with competency-based education in multiple ways, including through the definition of learning outcomes; the emphasis on learning how to learn; and the importance of applying skills and knowledge to build competencies (Casey & Sturgis, 2018).

Although the discourse on competencies tends to overstate the relevance of work-related competencies, it is important to understand that competency-based education will prioritize the "harmonious development of all human abilities" to foster deeper learning and lifelong learning (Ananiadou & Claro, 2009, p. 6). Covarrubias-Papahiu (2016) agrees by saying that

the term competencies seem to come from the labour market field, but it has been transferred to the education sphere even when this term has a different perspective on each field. Nevertheless, beyond the connection of the term with the working sphere, this perspective may offer more articulation possibilities between the education and the labour market. This fact may reduce the gap between the education of the psychologist and the working and social needs of our society. When emphasizing the relevance of the professional performance of the individuals, priority is given to the 'know-how to do and know-how to be' aiming to reduce the rote-learning [...] (p.128).

In a competency-based system, it is imperative that learning objectives be clearly defined to students (Casey & Sturgis, 2018; Giampaolo et al., 2015; Le et al., 2014; O'Sullivan & Bruce, 2014; Smith et al., 2017). Casey and Sturgis (2018) outline that a transparent learning continuum includes "standards and competencies that reflect the student success outcomes, establishes shared expectations for what students will know and be able to do at every performance level" (p. 7). By rendering learning objectives explicit, students understand the learning targets and tend to feel more empowered and motivated in their learning continuum (Casey & Sturgis, 2018). Moreover, it allows the students to develop a shared understanding of how they will be assessed (Casey & Sturgis, 2018; Giampaolo et al., 2015; Smith et al., 2017).

Assessment is a meaningful and positive experience for students

When teachers are assessing students in a competency-based system, practices must fundamentally shift away from traditional evaluation techniques. According to Tillema, Kessels, and Meijers (2000), "The innovation of assessment might even be the cornerstone of success for the implementation of competence-based education" (as cited

in Baartman et al., 2007, p. 115). However, it remains not an easy task to accomplish. Freeland (2014) states that rethinking the role and format of assessment is one of the biggest challenges experienced by teachers of New Hampshire's high schools currently implementing CBE. So, how is it so different from current practices? In CBE, there is no such thing as failure. Students may require multiple varied opportunities to revisit concepts and demonstrate their learning, but, in the end, expectations will be reached by all (Freeland, 2014; Le et al., 2014; Smith et al., 2017). Therefore, learning is never final. There is often an option to reassess when students are 'not yet' proficient (Casey & Sturgis, 2018; Freeland, 2014). These beliefs foster a growth mindset amongst the students and the adults of the school. "Risk-taking, failure, and revision are part of real and authentic learning processes" (Casey & Sturgis, 2018, p. 7). In contrast, traditional systems offer little to no opportunity for revision because they tend to penalize failure. "Grades in the traditional system may reflect knowing, but they do not necessarily reflect learning" (p. 7). According to Giampaolo et al. (2015), competency-based assessment holds a different function because it recognizes success in learning throughout the accomplishment of tasks and the authentic demonstration of skills such as the implementation of new projects, reports or by using concrete pieces of evidence other than a multiple-choice test. Freeland (2014) also recommends "pen-and-paper exams but that require students to demonstrate competency through real-world examples" and "project-based learning assessment" (p. 16). Nevertheless, it is not so much the type of assessment that needs reconsideration, but what is being assessed. CBE is moving away from rote memorization and emphasizing students' abilities to demonstrate transversal competencies and focus on their application (Freeland, 2014). Rote memorization should hold minimal importance in today's knowledge-based society (Ananiadou & Claro, 2009; Covarrubias-Papahiu, 2016).

Practically speaking, formative assessments play a big role in competency-based instruction (Le et al., 2014). "Formative assessment and effective feedback based on the learning objectives are essential to supporting students to learn, make progress and advance at a meaningful pace" (Casey & Sturgis, 2018, p. 6). This allows students to receive timely feedback by informing them of their progress in regard to specific competencies (Freeland, 2014; Gervais, 2016; Le et al., 2014). Then, students can use that feedback to return to difficult concepts and skills until mastery is demonstrated. The aim is to give ongoing support and intervene earlier and more often. Therefore, teachers

can prevent the widening of academic gaps (Casey & Sturgis, 2018; Freeland, 2014; Le et al., 2014). Also, formative assessment empowers students to have agency and to take ownership of their learning (Casey & Sturgis, 2018; Jobs for the Future & the Council of Chief State School Officers, 2015). According to Le et al. (2014, p. 8), learners develop that sense of agency by having "opportunities to exercise choice in how they engage with core concepts and demonstrate core competencies."

Formative assessments offer multiple opportunities to demonstrate their progress rather than perform on a single time-based event (Casey & Sturgis, 2018). It is common to see traditional systems prioritizing summative assessments that tend to focus on the lower levels of Bloom's taxonomy: memorization, comprehension, and application. Whereas, in CBE, the emphasis is on assessment *for* learning instead *of* learning by embedding it in the cycle of learning (Casey & Sturgis, 2018). Assessment for learning then becomes a guide for teachers' professional learning. Yet, summative assessments still have their place in competency-based instruction. However, they are adapted to the personal pathway of students, occur less often, stand as quality control, and are meant to ensure that students are held to high standards (Casey & Sturgis, 2018; Gervais, 2016).

In an ideal competency-based system, there are mechanisms in place to ensure that expectations are consistent with what it means to master knowledge and skills (Casey & Sturgis, 2018). This is an attempt to move away from teachers' biases and grade variability, which can sometimes reach such height that it may be incoherent even amongst teachers of the same school. How is a CBE able to avoid such inequitable practices? Thanks to moderation processes and calibration of assessments, teachers in a competency-based model can share expectations and understandings of standards.

Confidence in schools grows and equity is advanced when students, teachers and families receive clear and trustworthy information about exactly where students are on the pathway toward graduation (Casey & Sturgis, 2018, p. 7).

Concretely, IOWA's competency-based educational guidelines outline that "determinations of proficiency are based on agreed-upon scoring documents, assessment tools, and/or assessment tasks aligned to the Universal Constructs, standards, and/or competencies" (2016, p. 4). Also, the district outlines its strategies for communicating progress by providing sufficient evidence of student learning to allow a smooth transition beyond K-12 schooling. This form of reporting is in contrast to traditional practices

because of the lack of transparency and high variability behind letter grades (Casey & Sturgis, 2018). Moreover, "grading policies separate academics from behaviours and lifelong learning skills to ensure transparency and objectivity, with students receiving effective feedback and guidance on both" (p. 7).

Flexible learning environments

A CBE offers students to learn in diverse learning environments. According to Jobs for the Future and the Council of Chief State School Officers (2015), learning can take place anytime and anywhere. The flexibility in the use of time in competency-based models promotes "learning experiences outside of the traditional school day and year, and in a variety of formal and informal settings" (Le et al., 2014, p. 8). Indeed, Iowa's guidelines for CBE (2016) state that "teacher and student schedules allow for anytime/anywhere learning" (p. 4) and that "students have voice and choice in when, how, and where they learn and how they demonstrate proficiency" (p. 3). It is possible for students in a CBE model to receive credits for prior learning or out-of-school experiences as outlined by the Iowa Department of Education (2016). Indeed, Albanese et al. (2008) and Hall and Jones (1976) argue that a "if a student has acquired prior knowledge and/or skill and can pass the assessment(s) structured to assess demonstration of the competency, the student can then proceed onto the next learning module or course (as cited in Gervais, 2016, p. 101). For the NHDOE (New Hampshire Department of Education), these opportunities are translated in the form of ELO (Extended Learning Opportunities). They define an ELO as

...the primary acquisition of knowledge and skills through instruction or study outside of the traditional classroom methodology. ELO's often consist of semester-long internships for which students can receive academic credit. Other examples of ELOs could include independent study, performing groups, community service, apprenticeships, and online courses. According to the NHDOE, a 'rigorous' ELO is comprised of four key components: research, reflection, product, and presentation. [...] Teachers and students work together to design individual ELO plans that include clearly identified competencies that the ELO will address, accountability and assessment checkpoints, and teacher and community mentors (as cited in Freeland, 2014, pp. 19–20).

Some of those non-traditional opportunities can take the form of personal life experiences such as "after-school and recreational learning experiences, online courses, community college and continuing education courses, and vocational training such as Fire Explorers, Firefighter Training, or Nurse's Aide training" (Freeland, 2014, p. 20). Opportunities are

endless as long as students can apply, document, and defend their learning through their experiences outside of school (Ibid.). In that sense, CBE promotes the creation of meaningful relationships with “supportive adults in order to maximize motivation, engagement, and achievement” (Le et al., 2014, p. 8). Freeland (2014) cites, as an example, Laconia High School’s efforts to collaborate with local businesses and build relationships with business leaders who can mentor students. After a semester of work, students can be assessed the competencies included in their ELOs, through a competency-based rubric. Yet, Freeland (2014) argues that establishing partnerships with potential hosts for internships and job-shadowing programs remains a challenge for many schools, especially in a rural context.

In conclusion, the model promotes explicit learning outcomes, higher-level thinking, flexible pacing, student-centred instructional practices, providing support/feedback for a positive learning experience for all students especially those who progress slower. Finally, competencies are an evident focus.

2.2. The British Columbian educational context

2.2.1. British Columbia’s brief history of curriculum change

When analyzing the extent of the implementation of the current redesigned curriculum, it is important to provide the framework for its historical context. Indeed, the previous curriculum that came prior shaped many teachers’ practice and also impacted the way student teachers might have been taught themselves.

From March 1987 to July 1988, Barry Sullivan, Q. C., headed the first and latest major report of BC’s education system on the behalf of the Royal Commission of Education. This resulted in the publication of *A Legacy for Learners: Report of the Royal Commission on Education* (Sullivan, 1988). Many important aspects of the report are interesting to highlight because of their relevance throughout BC’s subsequent curriculum history. Even though it was published more than 30 years ago, the Sullivan Commission brings forth progressive ideas and recommendations for its time. For instance, it promotes place-based learning by advocating that student success is directly linked with community support and that our schools are a reflection of our society. Also, the report argues that schools need to prepare students to be able “to meet the rapidly changing challenges of

everyday life in the 21st century” (Sullivan, 1988, p. 1). A school system for all students is also advocated in the commission. The quintessence of similarities is the vision of an “educated citizen who will be able to “think clearly and critically” and “adapt to change” (Gacoin, 2017). Indeed, after the publication of the Sullivan report, the two curricula that followed, the Year 2000 in 1990 and the current curriculum which started implementation in 2010, were greatly influenced by the recommendations made by the commission. In fact, the Year 2000 shares many characteristics with the current curriculum, but they have not all been put in application the first time around.

First, *The Year 2000: A Framework for Learning Curriculum in British Columbia* aims to “enable learners to develop their individual potential and **to acquire the knowledge, skills, and attitudes** needed to contribute to a healthy society and a prosperous and sustainable economy” (British Columbia Department of Education, 1990, p. 4; emphasis added). Again, it expects active participation from the learners for them to become an “educated citizen” who is “thoughtful, and able to learn and think critically” (p. 9). Three goals of education are highlighted:

- **Intellectual development:** to analyze critically, acquire learning skills that will allow students to pursue a lifelong appreciation of learning.
- **Human and Social Development:** to develop personal and interpersonal skills such as a sense of self-worth, personal initiative, and social responsibility.
- **Career development:** to prepare students for their careers and give them the “flexibility to deal with change in the workplace” (p. 10).

The Year 2000 document also recognizes that “people learn in a variety of ways and at different rates” (p. 13) and that programs should be able to “meet individual learning needs” (p. 15). In terms of assessment and reporting, teachers will want to report students’ learning “in relation to the goals of the Graduation Program and to the expectations about knowledge, skills, and attitudes” (p. 32) by providing a written report with a letter grade. A final important aspect of the Year 2000 curriculum was the addition of specific prescribed learning outcomes, which are descriptive content information that needs to be learned by students in each grade level. Even the time allocation recommended is indicated on those documents.

Despite the great claims decreed by the Year 2000 document, the former was not very well received by educational stakeholders. Case (1994) states that most critics have

three main concerns: “lack of articulation of the program proposals, negative implications for practice of specific policies, and inadequate support for implementation” (pp. 82–83). In the same vein, Ken Novakowski, former BCTF president (1989–1992), argue that the Year 2000 “came across as a very progressive document, but the substantial issues that we eventually ended up having with it, had to do more with implementation, and support for the process” (BCTF Teachers’ Federation Online Museum, n.d., para. 137). On the other hand, Harker (1992), who analyzed the coherence between the text and its subtext, finds that there is a dislocation between what is conveyed in the text and the logic and meaning of the subtext. For instance, “despite frequent mention of the need for schools to develop students’ individuality through the encouragement of their critical thinking, creativity, and flexibility, the development of this individuality is constantly subordinated to the need to maintain social stability and economic prosperity” (p. 4).

There are numerous similarities between the two most recent curricula. Before we discuss the current curriculum to expose them, Johns (2017) states that, “with an emphasis on student self-assessment at all levels and the focus on inquiry and big ideas rather than detailed curricular content, this new model has the potential to better engage our students” (Johns, 2017, para. 6). This promising critic sets the table for the presentation of the central tenets of the most recent redesigned curriculum.

2.2.2. The current BC curriculum and its similarities with CBE

In 2010, British Columbia put to motion a concept-based competency-driven curriculum. The redesigned curriculum has been rolled out progressively with teachers implementing the redesigned curriculum in 2016 (K–9), 2018 (Grade 10) and 2019 (Grades 11–12). The competency aspect is influenced by other countries’ approach to CBE such as New Zealand and Australia, whereas the concept-based approach is mostly based on Erickson’s work (Gacoin, 2018). Since this research focuses on CBE, I will only address the aspects within that respect. As mentioned before, BC’s redesigned curriculum has not been affiliated per se with the CBE movement, but they are suspiciously similar.

A competency-driven curriculum

As CBE, the new BC curriculum emphasizes not only the curricular content but most importantly the competencies. The curriculum is grounded in three core competencies—communication, thinking, and personal and social—which are integrated

into students' learning across all curriculum areas and grades (BC Ministry of Education, n.d.-a). Each grade and discipline are subdivided into Big Ideas, which represents what students should *understand*. In addition, there is an extensive list of curricular competencies, which are explicit statements of what a student is expected to be able *to do* in each area of learning. Next to the latter, there is a small section on curricular content, which is what students are expected *to know*. The smaller content section highlights in a sense BC's stronger emphasis for competencies. As we can see in figure 1, the redesigned curriculum is founded on a Know-Do-Understand model.



Figure 1: Know-Do-Understand Model (BC Ministry of Education, n.d.-b)

The chosen competencies were the result of moults public consultations involving various education stakeholders and an extensive literature review of the best educational practices. Although we mentioned earlier that the term competency is not agreed upon in the literature, the reference list provided by the new curriculum allows us to stipulate that the latter is greatly influenced by the constructive definition elaborated in the DeSeCo project (OECD, 2005).

In the context of education, the terms refer to the ability of students to perform a task as expected within a specific discipline or area of learning. That ability represents a combination of skills, processes, behaviours, and habits of mind. Students are competent in an area of learning to the extent that they understand and can apply knowledge to new contexts (BC Ministry of Education, n.d.-b).

Arguably, BC's definition of competency is similar to the one evoked by the OECD.

Personalized learning

Personalization is an essential component of the BC reform (BC Ministry of Education, n.d.-c). The BC Ministry of Education (n.d.-b.) cites that “personalized learning focuses on enhancing student engagement in learning and giving students choices—more of a say in what and how they learn—leading to lifelong, self-directed learning. Students and teachers develop learning plans to build on students’ interests, goals, and learning needs.” The curriculum also highlights its commitment to inclusion and flexible pace by stating that:

Personalized learning acknowledges that not all students learn successfully at the same rate, in the same learning environment, and in the same ways. [...] Schools may provide flexible timing and pacing through a range of learning environments, with learning supports and services tailored to meet student needs. (BC Ministry of Education, n.d.-a)

Nevertheless, scarce are the schools able to break away from the long-held traditions of time-based infrastructures to accommodate authentic flexible pacing. Although the BC curriculum advocates for Place-Based Learning, in the majority of cases, most of the learning takes place in the classroom.

Learning by doing

When analyzing the curricular model, an essential part of it revolves around “the doing” component. Amongst the overarching theoretical foundations supporting the redesigned curriculum are the First Nations Principles of Learning. One of them states: “Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place)” (FNESC, n.d.). In this case, I will tap into the reference to experiential learning. According to Kaminski (2012), experiential learning can be described as “as essential First Nations traditional teaching and learning since this process entails the making of meaning from direct experiences - through reflection on doing or action” (para. 7). Dr. Marie Battiste states that “the first principle of Aboriginal learning is a preference for experiential knowledge. Indigenous pedagogy values a person's ability to learn independently by observing, listening, and participating with a minimum of intervention or instruction” (as cited in Kaminski, 2012)

The “hands-on” pedagogical approach has multiple roots. For instance, Dewey (1929) advocated for collaborative learning in communities through experience.

Montessori (1988) also advocated that children learn by engaging hands-on with the material through a “prepared environment”. In the same vein, “Piaget reminds teachers not to present students with pre-organized vocabulary and concepts, but rather provide students with a learning environment grounded in action” (Martinez & Stager, 2016, p. 14). These mentalities are reflected in the curriculum’s emphasis for a more “hands-on” approach, and also, a focus on curricular competencies which are just as important as the content.

Also, the creation of the new course ADST (Applied Design, Skills, and Technology) highlights the curriculum’s commitment for learning by doing. The aim of this course is to “develop a lifelong interest in designing, making, and evaluating products, services, and processes, and contributing through informed citizenship, volunteer work, or their careers, to finding and solving practical problems”. But, most importantly, this mentality is not limited to this specific course because “there is an intention to bring applied learning to all curricula” (BC Ministry of Education, n.d.-b). Another example resides in the Career Education curriculum where it is necessary for students to recognize the value of experiential learning. Knaack (2017) states that:

The curriculum has less “knowing” and more “doing” along with focusing on the big ideas. Students should come into post-secondary hopefully with stronger skills, strategies and processes for applying and doing the learning. The previous K-12 curriculum had a lot of ‘knowing’ and a larger amount of content to attend to, whereas this new curriculum is focused on the “how” of learning in a subject area (p. 4).

Considering that the new curriculum wants to tap into students’ interests, learning by doing falls completely in sync with this mentality. Students are able to choose their own project inherently increasing intrinsic motivation and creating distance from replicating forms of assessments and teacher-centred classrooms.

Methods of teaching are also challenged in the redesigned curriculum in order to align with this emphasis on experiential learning. Teachers should no longer proceed to transfer their knowledge to their students. Instead, teachers are highly encouraged to provide authentic tasks for their students to learn by themselves through inquiry or problem-based approaches (BC Ministry of Education, n.d.-b).

Assessment and reporting

The BC Ministry of Education (n.d.-b) clarifies that “the Ministry of Education defines the ‘what’ to teach but not the ‘how’ to organize the time, space or methods to teach it.” The previous statement highlights the importance attributed to flexible learning environments and pacing (BC Ministry of Education, n.d.-c), but since the latter are sensitive aspects of the “grammar of schooling” (Tyack & Cuban, 1997), it is unclear if real changes have occurred in that regard. Regardless of the similarities with CBE, not even a remote attempt has been made at modifying the time-based system toward a mastery-based system. Most schools have started using a 1–4 proficiency scale for grading, and provincial literacy and numeracy exams will report a proficiency level instead of a letter grade. The proficiency scale advertised by the BC Ministry of Education is represented in figure 3, but it is not intended to be the only possible option.

Proficiency Scale	Emerging	Developing	Proficient	Extending
	The student demonstrates an initial understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a partial understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a complete understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a sophisticated understanding of the concepts and competencies relevant to the expected learning.

Figure 2: The proficiency scale advertised in the document A framework for assessment (2016)

Yet, the BC ministry offered two options to districts for grade levels 4–9; one implicating a letter grade on report cards whereas the other only involves a grade upon request from parents (BC Ministry of Education, 2016). For grades 10–12, letter grades are still required according to *Ministerial Order 191/94*. The newest version of the Student Reporting Policy K-9, which is still a draft in the pilot phase, is much clearer in its direction. It shifts the emphasis away from letter grades with no ambiguity.

... [The Policy] supports new approaches to reporting, which included a move from event-style report cards to more timely and flexible communication with parents; a replacement of letter grades with a strength-based four-point provincial proficiency scale and descriptive feedback; and greater emphasis on student reflection and self-assessment of the Core

Competencies to increase student engagement and ownership (BC Ministry of Education, 2016).

With a major disconnect between senior and junior grades, and multiple reporting options, it is not surprising to find a plethora of opinions on reporting policies, uneven implementation, and burnt-out teachers due to changes of plans with respect to report cards (Gacoin, 2019).

Implementation strategy

The province of British Columbia has auto-proclaimed itself with “one of the best education systems in the world” (BC Ministry of Education, n.d.-b). Yet, one can wonder if all aspects of it have been put to practice. The success of the BC curriculum was based on the premise of “pedagogical change” (Gacoin, 2018, p. 13). However, this brings forward a significant need for teachers to change their pedagogical practices and mentalities around teaching. The BC Ministry of Education used a curriculum training strategy that spread on a period of three years when teachers were trained during one of their professional days each year and an additional ten hours of non-instruction time during the first year, then five hours for the two subsequent years (McCrea, Godden, & British Columbia, 2015). The rest of the training support was a local responsibility (Meissner, 2015). Thus, the offer depended entirely on the leadership of school districts hence the creation of unequal and inequitable opportunities for teachers and students (Gacoin, 2018). Indeed, Bains (2018) states that teachers “feel that they haven’t been given enough support through additional non-instructional days to learn about the changes and prepare for them” (para. 21). Figure 4 gives a thorough representation of the roll-out timeline of the curriculum.

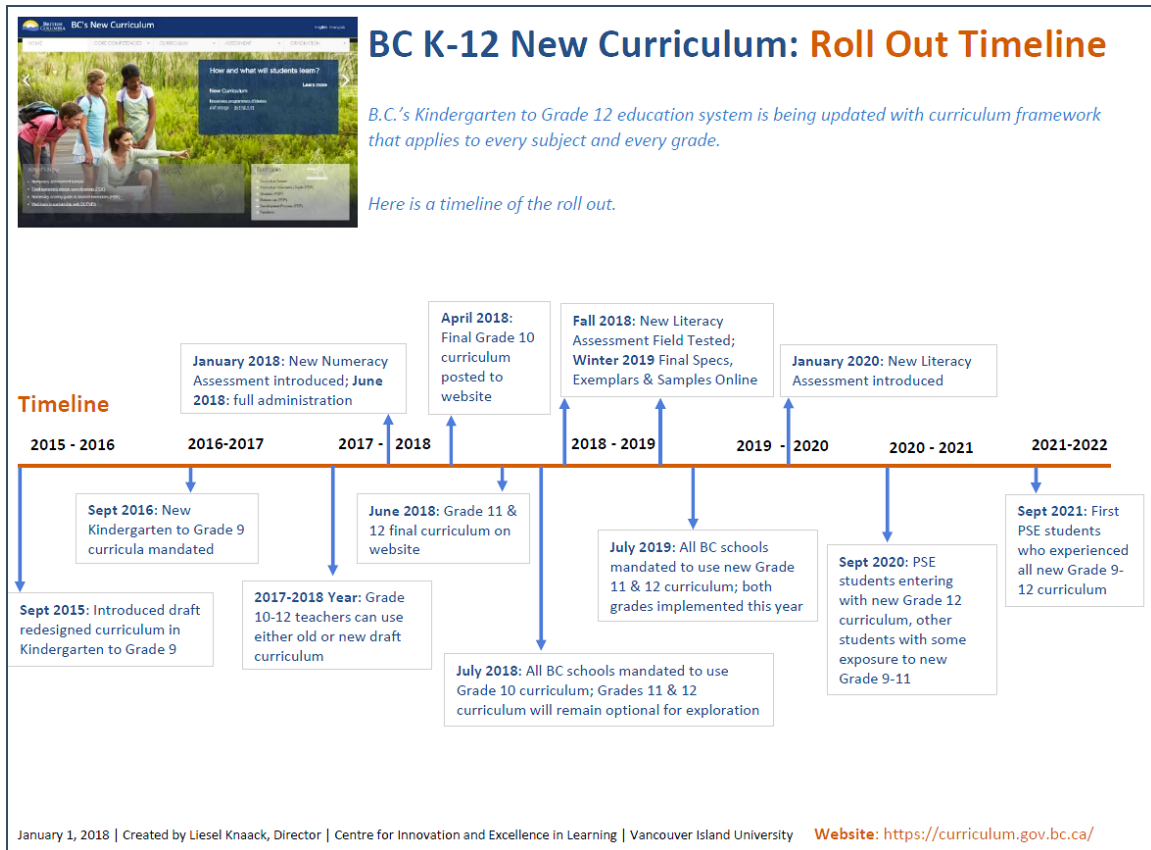


Figure 3: Roll-out timeline of BC redesigned curriculum (Knaack, 2017)

As a remedy, Gacoin (2018) suggests an increase for in-service time and more scaffolding for teachers. It is important to note that in-service differs from professional development since the former is “employer-led training, held during working hours, that should not require the use of teachers’ professional development funding or time” (Gacoin, 2018, p. 27). Regardless, this lack of sufficient professional development time expressed by teachers needs to be considered and addressed for a more successful implementation. Professional development being one key element for meaningful educational change, it will be covered further in the following chapter.

In conclusion, the similarities between BC’s curriculum and CBE are striking. They both advocate for greater personalization and flexible pacing while emphasizing competencies and student-led teaching. They share the point of view that learning can take place anytime, anywhere. Assessment should be as meaningful as possible using descriptors and specific feedback to allow further growth. However, the BC curriculum still requires a grade even though they advocate for the use of proficiency rubrics. They also differ in their time management system.

2.3. Innovations in teaching and learning

Considering the redesigned curriculum being studied and the nature of change it brings along, it is important to state a few important concepts in regard to educational change.

First, let us look at what is considered an innovation. According to Rogers (1995, p. 11), an innovation is “an idea, practice, or object that is perceived as new by an individual or other unit of adoption.” Consequently, I understand CBE to be an innovation because of its characteristics differing greatly from traditional schools. I also argue that BC’s curriculum is an innovation because it is perceived as “new” by its stakeholders and it implies a shift in mentality on many aspects. With that being said, Rogers (1995) advocates that innovations require a lengthy period before they are widely adopted.

2.3.1. Educational change theories

Diffusion strategies

When it comes to defining implementation, Fixsen et al. (2005) state that there is no agreed-upon term in the literature. Nevertheless, their review of the literature offers a good overview of many organized approaches to executing and evaluating implementation practices. Amongst these approaches, Fixsen et al. (2005) cite Rogers’ (1995) work as the most influential and often used as the conceptual model describing diffusion of innovations and the decision to adopt or reject them.

When wanting to implement an innovative curriculum, one needs to establish a clear communication channel with the help of a strong diffusion strategy. It would increase community buy-in, ensure a better understanding of the reform, increase the support for teachers, and diffuse more evidence-based research. According to Rogers (1995), “diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (p. 5). A clear diffusion strategy is mandatory because many make the common mistake of assuming that “advantageous innovations will sell themselves, that the obvious benefits of a new idea will be widely realized by potential adopters” (Rogers, 1995, p. 7). Since the diffusion of an innovation is a social process, Rogers (1995, p. 18) argue that “the heart of the diffusion process consists of the modelling and imitation by potential adopters” rendering stakeholders’

perceptions of the new curriculum highly relevant in the implementation process. The acquisition of complex knowledge is inherently a social process (Vygotsky, 1978).

Rogers (1995) also adds that how potential adopters perceive the change affects its rate of adoption. How teachers, parents and students will talk amongst themselves of the reform will influence the connotation it is attributed. With that respect, it is possible to extend this principle to professional development. The latter should foster collaboration amongst teachers through interpersonal channels since they have been proven very effective (Rogers, 1995). Fullan (2016) agrees since in his model of educational change, he states that teachers need space and time to engage with the purpose of the curriculum in collaborative cultures. Schwab (1983) is also an advocate for collaboration with teachers because “teachers will not and cannot merely be told what to do” (p. 245).

Stages of implementation

We will use the curriculum as our exemplar innovation since it applies to our context. First, schools start with a phase of *exploration* of the curriculum where familiarization occurs. “The purpose of exploration is to assess the potential match between community needs, and community resources and to make a decision to proceed (or not)” (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005, p. 15). If the decision is positive, then, schools move into an *adoption* phase only agreeing to implement the new curriculum without necessarily putting it into practice yet. The third stage is the *program installation*, which includes the first steps of implementation without necessarily exposing it to the consumer yet. For instance, the necessary structural support is put in place such as sufficient funding, human resources strategies... Then, the next step would be initial implantation. Fixsen et al. (2005) describe it as:

During the initial stage of implementation, the compelling forces of fear of change, inertia, and investment in the status quo combine with the inherently difficult and complex work of implementing something new. And, all of this occurs at a time when the program is struggling to begin and when confidence in the decision to adopt the program is being tested. Attempts to implement new practices effectively may end at this point, overwhelmed by the proximal and distal influences on practice and management. (p. 16)

This stage is fragile and because of its novelty, implementers are likely to make mistakes. Once this tumultuous stage has been accepted, *full operation* occurs and “overtime, the innovation becomes an ‘accepted practice’ and a new operationalization of ‘treatment as

usual' takes its place in the community" (Fixsen et al., 2005, p. 17). The benefits are well realized by then. The stage of *innovation* will occur in accordance with opportunities emerging as the curriculum adapts to local contexts. Some changes will be considered unintended by-products causing a threat to implementation fidelity whereas others will be desirable changes soon to be included in the "standard model". According to Fixsen et al. (2005), full implementation requires 2–4 years. The goal for the final *Sustainability* stage will be long-term survival and continued effectiveness even through a changing world.

Rogers (1995, p. 20) introduce a similar innovation-decision process with 5 stages: (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. Knowledge implies when an individual first learns about the innovation and understands it better. Persuasion occurs when an individual takes a favourable or unfavourable stand toward the innovation. Decision implies concrete activities that will eventually lead to a vote to adopt or reject the innovation. During phases 2 and 3, an individual will be actively seeking information to "reduce uncertainty about an innovation's expected consequences" (p. 21). Implementation occurs when the innovation is put to use. "Confirmation occurs when an individual [...] seeks reinforcement of an innovation-decision that has already been made, but the individual may reverse this previous decision if exposed to conflicting messages about the innovation" (p. 20).

I believe that BC's curriculum is currently entering Fixsen's full operation phase since it is being considered the new standard. This is highly relevant since it is important to evaluate the fidelity of a newly implemented innovation once they have entered the full operation phase (Fixsen et al., 2005).

Metrics for meaningful change

When evaluating the success of a specific implementation, scholars suggest a vast array of criteria for meaningful change. In their work, Tyack and Cuban (1997) highlight certain of those metrics. First, they highlight the importance of **fidelity** of implementation. An analysis of the uniformity, community buy-in, the achievement of intended outcomes, and the creation of unintended by-products is critical in evaluating the extent to which a reform was executed as intended.

Community buy-in is an essential, often overlooked, aspect of successful change. Indeed, pushback occurs when fundamental changes are required to the "grammar of

schooling”. When one wants to implement a progressive curriculum such as BC’s which challenges long-held traditions, it is important to consider that mentalities are hard to change because stakeholders hold on strongly to their beliefs (Tyack & Cuban, 1997). The idea of ignoring different cultural backgrounds and social norms may cause some innovations to get highly rejected and therefore fail. Schools sometimes tend to apply new reforms by the hands of individuals who are considered outsiders. When a decision is considered as non-negotiable, the adoption of this new idea becomes more challenging to be accepted and implemented (Tyack & Cuban, 1997). However, there will always be the obedient group who is seeking the approval of the authority, the group who is open to new ideas as they still do not belong to the social system and do not have anything to lose (new teachers), and the group who might fight the new reform claiming that these ideas worked in different cultural settings and circumstances (veteran teachers). Gacoin (2019) observed that a similar situation occurred during the implementation of the redesigned curriculum in BC. Support was higher from new teachers than long-standing teachers.

When analyzing buy-in from the community, the expectancy value-theory initially proposed by Eccles & Wigfield (2002) is a valuable avenue to explore. The individual’s choice to perform the task (implement the curriculum in this case) and their persistence in it can be explained by analyzing his/her beliefs about how they will perform on the task, and the extent to which they value the task itself (p. 37). This theory has been used as a lens to explore students’ and teachers’ views and perceptions toward innovations.

When evaluating the value of an innovation, Rogers (1995) offers five components that influence the perceptions of individuals toward innovations: relative advantage, compatibility, complexity, trialability, and observability. “The relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes” (p. 15). Compatibility addresses the degree to which the innovation is “consistent with the existing values, past experiences, and needs of potential adopters” (p. 15). When addressing the complexity of an innovation, one needs to question how difficult to understand and use it is perceived. Trialability refers to the level the innovation may be tried or tested prior to full implementation. Finally, observability is the degree to which it is possible to observe results of the innovation by others. These components are highly useful to analyze the rate of adoption and the sustainability of an innovation. Hence, if an innovation is not sufficiently flexible or adaptable to a school’s specific needs, it may affect its adoption rate because only select schools or classrooms may find purpose for the intervention.

Tyack and Cuban (1997) also emphasize the need for adaptability in a successful reform. The vision of the curriculum needs to be communicated and clarified to all stakeholders for it to be compatible with the complex contextual landscape of education. Nevertheless, it is simply impossible to create a curriculum that will take into consideration every possible educational milieu. A potential avenue to remedy potential disparities is hybridization (Tyack & Cuban, 1997). Through hybridization, educational practices slowly change. As highlighted by Shakman et al. (2018), certain competency-based practices appeared to be easier to implement such as “enabling students to retake assessments, using rubrics, and enabling students to progress through demonstration of mastery” (p. 61). However, it is important not to dissociate them from the overarching philosophy behind the reform to allow true progressive implementation and not just tokens of compliance. In the same vein, the BC Ministry of Education (n.d.-c) emphasized that the curriculum’s flexibility enables teachers to innovate. Although we agree that flexibility allows adaptability to local circumstances (Tyack & Cuban, 1997), it is essential that hybridization is not made at the expense of the essence of the reform. In a sense, Fullan (20) agrees to a certain form of hybridization by stating that “practice drives theory” (p. 25). Again, precursors were also advocating for a call to the practical. Indeed, Schwab (1969) argues about the importance of practical arts “which brings a theory to its application” (p. 12). “It is vastly more desirable that changes be instituted in small degrees and in immediate adjustment to the peculiarities of particular new cases which call forth the change” (Schwab, 1969, p. 15).

In conclusion, it is imperative to communicate the purpose and philosophy behind the curriculum to all stakeholders to increase fidelity of implementation, the rate of adoption, and community buy-in. Then, it is possible for those stakeholders to adapt the reform to their local context while maintaining the integrity of the philosophy of the reform itself.

2.4. Teacher education

Teacher education programs vary widely even across the same country, Canada being a case in itself. Consequently, one can wonder what is considered essential in a teacher education program. Schön (1992) suggests that teachers demonstrate reflective teaching. In the same vein, Darling-Hammond, Hammerness, Grossman, Rust, & Shulman (2005) advocate for a coherent training program including metacognition. With

respect to reflection, student teachers need to reconnect with their own ways of learning and their initial conceptions of a subject in order to teach effectively. “Programs are often focused on the mechanics of teaching, rather than on the development of dispositions, sensitivities and understandings that guide thoughtful judgments about what to believe or do in the complex world of the classroom” (Erickson, Darling, & Clarke, 2005, p. 173). Hence, this is why it is so important to probe those initial conceptions that student teachers carry with them into their teaching.

How exactly is it possible to achieve such a task? Many researchers suggest the use of conflictual change to allow resurfacing of initial conceptions. The classical model of conceptual change (Posner, Strike, Hewson, & Gertzog, 1982) holds its foundations from the Piagetian concept of accommodation (Piaget, 1968), and the Kuhnian concept of “scientific revolution” (Kuhn, 2008). Initial conceptions are represented as tenacious and hard to change. Therefore, as a teacher, it has been highlighted as a relevant technique to consider the students’ prior knowledge to avoid recurring difficulties. This is applicable to student teachers because they come to the program with their initial misconceptions about education, and if they are not addressed during their training, it is likely that they will revert back to them in their practice.

Potvin (2013) expressed his ambivalence with the term “misconception” because it expresses a prejudice since it automatically assumes a mistake on the student’s end when teachers and society’s misleading interpretations could be the reasons behind some misconceptions. Therefore, we will use the term initial conceptions which is more appropriate.

There are many methods that are proposed to achieve enduring change. Nussbaum and Novick’s (1982) model suggests that teachers “should (1) expose alternative frameworks, (2) create a conceptual conflict, and (3) encourage accommodation” (Potvin, 2013, p. 18). Similarly, PSHG’s model proposed to:

(1) provoke the learners’ dissatisfaction toward their own misconceptions by any means necessary, and then present the scientific conception to learners in order for it to be (2) intelligible, (3) plausible, and (4) fruitful. According to the model, following these criteria would encourage learners to ‘replace’ (Posner et al., 1982, p. 213) their therefore discredited non-scientific conceptions with the programmed ones [...] (as cited in Potvin, 2013, p. 19).

In all cases, it seems that a cognitive conflict that is recognized by the learner is the first step toward conceptual change. However, Potvin (2013) discusses the precariousness of the classical model with respect to its “naiveté” and its simplicity. On top of the fact that the diversity of students in a large group is not addressed, the research on this topic usually does not extend past the apparition of the right answer. One can wonder what happens once the right answer is produced. Is the conceptual change permanent? Chan et al. (1997) states that it often appears that students are “unable to achieve meaningful conflict” (p. 2, as cited in Potvin, 2013). Yet, Potvin (2013) agrees that, as of now, the classical model appears to be “the best, simplest, and most operational tool teachers have to ascertain corresponding difficulties and, without a better alternative, there is no reason to abandon it” (p. 23). However, new findings from neuroscientific and neuroeducational research might lead to new interpretations. “Anterior knowledge does not disappear with learning, but remains active, though not always prevalent” (Potvin, 2013, p. 25). Therefore, as opposed to the classical model of conceptual change, it is clear that initial conceptions are not replaced nor rejected, they are just inhibited in the favour of a more adequate interpretation. According to Potvin (2013), it would be more realistic to view conceptual change as an “additive model” which involves rendering available programmed conceptions, developing and supporting watchfulness for problematic prevalent contexts, and encouraging favourable conceptions with meaningfulness and automaticity.

On the other hand, Goos and Moni (2001, p. 1) suggest that teacher education should reflect the principle “practice what you preach” in order to align with the conceptual framework promoted in the very curriculum. In her research, Stein and D’Amico (2002) found “strong parallels between how the district children learn to read and district teachers learn to teach” (p. 1313). For the authors, there is a clear need for policies that work in collaboration with professional development. Their research highlighted how investing in ProD and developing a community of practice were successful practices in trying to implement a new educational program. This information is highly transferable to teacher education program since by investing in the teacher training, every year there will be a fresh flock of ambassadors ready to implement the new curriculum within the practice.

When considering some of the missing links in teacher preparation program, critics have noted “persistent theory-practice gaps, redundant course content, and insufficient time to engage in careful observation of, and dialogue about, good teaching practices” (Erickson et al., 2005, p. 176). Schön (1992) outlines that there is a “radical separation of

the world of the academy from the world of practice, according to which the academy holds the monopoly on research, which is considered to be out of place in practice” (p. 119). Education researchers often face a dilemma where they have to choose between the rigour of academia or the relevance of the field social problems. According to Beck & Kosnick (2006), fostering inquiry in the teacher education program is a good avenue to bridge the two world. In the same vein, Dewey advocates that inquiry is closely related to reflective practice and these techniques can play a key role in closing the gap between scholars and teachers (in Schön, 1992). Schön’s reflective practice approach includes various components: knowing-in-action, reflection-in-action, and reflection conversation with the situation. The first component implies that one knows instinctively how to perform a familiar activity such as walking or solving a familiar math problem. It draws on “prestructures” (Schön, 1992, p. 124). Procedural information to achieve those activities are hard to retrieve because they are tacit. One can make them explicit by observing, reflecting upon, and describing it “by writing out instructions for performance and observing what happens when other people try to follow them” (Schön, 1992, p. 124). Second, the “reflection-in-action” technique involves “an ephemeral episode of inquiry that arises momentarily in the midst of a flow of action” (p. 125). It resembles of an unconscious adjustment during the event such as a basketball player who adjusts his position in response to his opponent’s manoeuvring. Then, one can reflect on knowing- and reflecting-in-action by stopping to think and “getting in touch with the understandings we form spontaneously in the midst of action” (p. 126). Teaching-wise, one can have a lot of practical and procedural knowledge (as Schön would say, “knowing-in-action), but is unable to justify his/her actions and choices. On the other hand, a teacher who applies literally the textbook into his practice with no regards to the complex situation at hand is not any better. Therefore, a delicate balance between the two is needed in order to achieve conceptual and practical coherence. These examples are only a small sample of the wide array of skills that are needed for teachers to be able to teach. I will not get into all of them since it goes beyond the scope of this paper. However, I will discuss further the culture promoted in the teacher education program at SFU.

2.5. Social representations

I will be approaching this research with the theoretical tradition of socio-constructivism (Vygotsky, 1978). Indeed, social representations constructed by the

participants will transpire through the data. Social representations are an organized body of knowledge that enables people to make sense of their physical and social reality (Covarrubias-Papahiu, 2016). These theoretical perspectives are used as a tool/lens through which I am able to analyze the value that the participants placed on the redesigned curriculum. The practical and commonsensical comprehension of the principles of the redesigned curriculum and the associated features of CBE made by the participants will contribute to this research “by revealing information to adjust the educational practices and activities during the professional training based on the professors’ and students’ needs according to the institutional and contextual conditions in which a curriculum operates” (Covarrubias-Papahiu, 2016, p. 113).

It is also important to highlight here some of the findings in terms of the nature of learning. For instance, “learning in complex domains is shaped by prior knowledge (Glaser, 1984); that it involves active, constructive processes on the part of the learner (Resnick, 1989); and that it is integrally interwoven with language and other forms of social interactions (Wertsch, 1985)” (as cited in Stein & D’Amico, 2002, p. 1313). Therefore, when considering participants’ understanding of an innovation, it is also important to probe their initial conceptions on the topic because knowledge is built on top of previous knowledge.

The gathering of those perceptions will bear validity and relevance because it is “a construction process of new meanings and representations based on the contrast of the interpretations of different individuals within the same reality” (Covarrubias-Papahiu, 2016, p. 114). Knowledge is personal but it is intimately linked with the social and cultural context in which it is constructed. Therefore, by interviewing multiple participants from various backgrounds within the same system, I am able to gather a wide array of insights that gives a better representation of BC’s local context.

Chapter 3. Methodology

In this chapter, I will present the methodological aspects of this study. First, I will discuss my choice of research design, a case study. Second, I will present why I chose SFU's teacher training program as my context of study. Third, I will present the favoured profiles of research participants, and how I was able to recruit them. Fourth, data collection and data analysis methods will be discussed. Finally, I will conclude with the ethical considerations that were contemplated throughout the process of this study.

3.1. Case study

Since I want to do an in-depth exploration of a group's perspective in a specific context, my research design will fall into the category of case studies. Specifically, I used an instrumental case study approach because of its "purpose of illuminating a particular issue" (Creswell, 2005, p. 439). Stake (1995) highlight that instrumental case studies can be used when one has a research question highlighting a need for a better understanding. In that sense, it is possible to choose several participants instead of one. This study's initial questioning resides in the way the new competency-driven curriculum in BC is addressed in the teacher education program at SFU. Therefore, perspectives from various stakeholders of the teacher education program need to be considered. Each of these case studies is then instrumental in learning more about the effects of the reform in the program. Stake (1995) would qualify this approach as a *collective case study* "since there will be an important coordination between the individual studies" (pp. 3-4).

Researchers in similar studies (Smith *et al.*, 2017; Covarrubias-Papahiu, 2016; Pantić & Wubbels, 2015) also used the case-study approach. Nevertheless, certain studies (Struyven & De Meyst, 2010; Giampaolo, Surian, Batini & Bartolucsi, 2015) preferred to use quantitative alternatives, but Struyven and De Meyst (2010) concluded that a qualitative approach could reveal more "insight into how student teachers have understood, adopted and further developed these competences in practice" (p. 1507). Therefore, I choose to use a qualitative methodology for my research in order to promote the emergence of diversity and variation in the data (Van Den Hoonaard, 2015).

In the research tradition of a case study, it is recommended to use a variety of data sources to draw a global portrait of the situation (Creswell, 2005) and promote data

triangulation (Beitin, 2012). In that sense, I gathered observations on the student teachers during their course, while performing interviews, observed them again during their practicum, and collected artifacts in the form of lesson plans. Also, I wanted to gain a holistic understanding of what the perspectives of all actors of the teacher education program. Therefore, I interviewed the student teachers and their respective school associates and faculty associates.

3.2. The context of study

The study will take place in the context of Simon Fraser University's (SFU) professional development program (PDP). This case study will contribute to describing a qualitative picture of student teachers of one of the leading universities in the lower mainland in teacher education. Since its establishment in 1975, over 20,000 newly qualified teachers graduate at SFU (SFU, n.d). Also, SFU has been recognized as a leading university in terms of its innovative teacher education program. Highly skilled teachers, Faculty Associates, are seconded by professors to teach in modules that alternate classroom sessions with practical experiences in schools. Thus, the two spheres of knowledge and experience are merged in productive ways (Dawson, 1995). This model was proven very successful by the quality of the graduates that "achieve excellence and professional respect" (BCCT, 1991, p. 3).

The professional development program (PDP) is constructed around ten professional goals which take into consideration the student teacher as a growing professional, their interaction when learning, and their understanding and application of the curriculum (SFU, n.d.). The program is separated into 4 semesters with the first one being newly added in 2018. During the first semester (EDUC 400), student teachers are gathering in Professional Learning Communities (PLC) in which they are exposed to various theoretical educational subjects. They will also have the opportunity to observe within different schools for two weeks. Then, in the following semester, they are assigned into modules (EDUC 401–402). These modules are very unique as they consist of a group of individuals who have also chosen this specifically oriented module. Some of the modules that exist include imaginative education, outdoor education, secondary education and so forth. Accompanied by faculty associates, they will form a tight learning community for the remaining of the semester while concluding this term with a short practicum of 2 weeks of observations and 4 weeks of part-time teaching. During the summer, student

teachers are asked to choose subject-specific courses such as *Designs for learning; secondary sciences*. Finally, in the fall semester (EDUC 405), students will meet once more into their module to separate shortly after for their final long practicum of 13 weeks of full-time teaching.

3.3. Research participants and recruitment methods

With that being said, my focus was aimed to be mainly oriented toward the understanding of this pedagogic approach for future science teachers being my area of expertise. However, my initial phase of recruitment did not yield enough participants from this field, so I also included one elementary-level participant. It turns out that his contribution was highly valuable when comparing the implementation and the pertinence of the redesigned curriculum within elementary versus secondary levels. Stake (1995) abides in the same vein. “Even for collective case studies, selection by sampling of attributes should not be the highest priority. Balance and variety are important; opportunity to learn is of primary importance” (p. 6). Yet, five participants out of six are future science teachers which allowed me to draw on my expertise as a science teacher to understand the references the participants might make in terms of concrete teaching examples. Thus, I was able to adapt my questioning coherently. This focus has also allowed me to look at the group of science student teachers as a whole whereas a group more diverse with various disciplines might have increased the variability of interactions the participants encounter with different curricular competencies.

I interviewed six preservice teachers; an acceptable number when doing qualitative interviews (Creswell, 1998). I argue that this number of participants allowed me to paint a qualitative picture that is representative of future teachers’ perceptions in the context of the PDP at SFU. Considering the small sample size of my group of participants, the findings of this study will not be generalizable to all student teachers (Smith *et al.*, 2017). In this study, I am not seeking to validate a hypothesis, but rather generate “concrete, context-dependent knowledge” (Flyvbjerg, 2011) on the subject thus providing new ideas to integrate into teacher education (Santos, 2012). However, I increased the data sources of this study by also interviewing student teachers’ respective school associates and faculty associates. I was able to interview all school associates related to the student teachers who participated in this study, but not all faculty associates due to recruitment difficulties. Indeed, faculty associates were either too busy, or simply not

replying to my request to participate. In total, eight school associates contributed to the study because sometimes, student teachers had more than one or changed in between their short and long practicum. Two faculty associates, one senior and one junior, participated in this research.

The first initial recruitment phase took place in January 2019 where I recruited my first group of two future science teachers, Isabelle (ST3) and Maria (ST1), and one elementary student teacher, James (ST2). This took place within the context of their second semester in the teacher education program at SFU. My supervisor, Allan MacKinnon, granted me access to the students of his module, EDUC401-402. I was then able to introduce myself to the students of the module and observe some of their classes. I chose to start my recruitment at this specific time in their learning journey because by then, they had most likely been exposed to some, but a limited amount of conceptual information in regards of the competency-based curriculum. This was considered as their initial perspective of the latter. Then, the second recruitment phase took place after the summer semester. I was fortunate enough to teach the *Designs for Learning: Secondary Sciences* course during the 2019 summer semester. At that point, I waited until the very last day of the semester to talk to my students about my research, and how their input would be valuable. In order to avoid a conflict of interest, grades were submitted before interviews began with the second group of three student teachers, Melanie (ST4), Emily (ST6), and Jacintha (ST5). These interviews acted as their initial perspective on the curriculum, but I also considered that they had already gone through most of the PDP with only the EDUC405 course and long practicum remaining. I was able to follow up after their long practicum with all student teachers except for Maria (ST1) due to a lack of time. All the interviews were conducted within the year of 2019 in order to recruit students from the same cohort. They were the first cohort experimenting with the added semester Educ 400.

These two recruitment phases could be perceived as a flaw of this study's methodological design. However, I see it as a strength. Furthermore, I had aimed to get student teachers perspectives at different moments during their PDP to observe a progression in their understanding (during 401–402, before long practicum, after long practicum).

3.4. Data collection methods

In-depth interviewing will yield the core of my data. This approach seems appropriate in this situation because it could allow a “deeper understanding of the issues, structures, processes, and policies that imbue participants’ stories” (Seidman, 1991). I also conducted interviews with the faculty associates and the school associates associated with the student teachers participating in this research. Gathering multiple perspectives allowed me to provide a nuanced understanding of the situation because “each person can bring a different relationship to the topic” (Beitin, 2012, p. 249).

I avoided mentioning that I am studying student teachers’ views about CBE because I was afraid to create bias. The student teachers that I interviewed could have been influenced consciously or unconsciously by knowing the focus of my research, which could have resulted in a more careful consideration of competency-related aspects throughout the program than their peers in the cohort. I simply informed the participants that I am doing research on their perceptions of the curriculum. Van Den Hoonaard (2015, p. 83) would characterize my role as “observer as participant” because of my transparency in terms of my research intention and my less involved role.

3.4.1. Interviewing protocol

Since I am interested in the participants’ construct of the new competency-driven curriculum embedded in their thinking, I conducted semi-structured interviews consisting of a few open-ended questions and a variety of probes to stimulate the conversation (Van Den Hoonaard, 2015). I did not bind myself to the interview guides (Appendix A, B, and C) that I had created. All aspects were not necessarily covered because the conversation was open, and I prioritized quality over quantity. Indeed, I made sure to understand profoundly the participants’ perspectives by asking more questions or by returning to a point made earlier. I believe that this increases the precision and reliability of the data I conveyed in my research. In order to not abuse of my participants precious time, my interviews were restricted to one hour with student teachers and around thirty to fifty minutes with school and faculty associates. The duration of the interview varied on the amount of information that was shared.

My questioning approach was tailored to the targeted audience (student teachers (ST), faculty associates (FA), and school associates (SA)). My questions were also carefully chosen and inspired by similar studies. The questions were formulated with interrogative pronouns *what*, *why* and *how* hence creating information-seeking and open questions (Wang & Yan, 2012; Van Den Hoonaard, 2012). The first group of questions allowed me to understand the socio-demographic characteristics and work-related experience of the interviewee. Then, the second group of questions guided the conversation to get a sense of their beliefs and attitudes toward BC's competency-driven curriculum. The third group of questions were oriented toward grade perceptions. The fourth group of questions were related to the participants' perspectives about the teacher education training with respect to the competency-driven reform. Finally, if time permitted, I probed understanding about specific concepts related to the reform and CBE. School and Faculty associates were probed specifically on their opinions about CBE and its alignment with the BC curriculum.

I met with each student teachers twice except for Isabelle (ST3) who I followed up via email, and Maria, who I was unable to follow-up with. Each time, there was at least one practicum (for the second group of participants), or two practicums (for James (ST2) and Isabelle (ST3)) in between each interview. This meeting frequency was intended to see if experimenting the curriculum while teaching increased their understanding and applications of its different components.

3.5. Data analysis

Codes were assigned to each participant to maintain anonymity and privacy, and then, pseudonyms were attributed to facilitate the reading of this thesis. The coding scheme is important to understand because it is possible to see who was associated with whom. For instance, student teachers #2 (ST2) was associated with school associate #2 (SA2) and #2-1 (SA2-1) since he had two different ones for each practicum. Table 2 may be used to understand the connections between participants.

Student Teachers	School associates	Faculty associates
Maria (ST1)	Joanne (SA1)	Liliane (FA1)
James (ST2)	Laura (SA2)	Shawn (FA2)
	Nicole (SA2-1)	
Isabelle (ST3)	Jennifer (SA3)	
Melanie (ST4)	Drew (SA4)	NA
	Lisa (SA4)	
Jacintha (ST5)	Ann (SA5)	NA
Emily	John (SA6)	NA

Table 2: Connections between participants of the study

Interviews were transcribed to provide verbatim transcripts. During the transcription process, I highlighted interesting quotes that were representative of the interviewee's perspectives on the new curriculum. These quotes would then be compared with other relevant quotes to observe recurrent trends. As I reviewed the data, I was able to observe the emergence of recurrent and emphasized themes. Subsequently, I classified the themes into categories (Seidman, 1991). A similar technique was used by Smith et al. (2017) in their case study of pre-service mathematics teachers' experiences with proficiency-based learning. Just as they did, I was careful to identify themes and categories as they emerged from the experience of participants. However, I also considered concepts obtained from the literature to guide my interpretation. Observation notes were analyzed, and findings were included in the analysis. The results of this study are presented through the form of a narrated analysis and discussion.

3.6. Ethical considerations

Obtaining consent from all participants and be granted access to all the school contexts were, of course, essential to this research. I also made sure to establish a caring and professional relationship with my student teacher participants. They were going through the very demanding process of becoming a teacher, and it turned out that I was much more than just a researcher. I was a careful listener and supporter. All this was done without any expense to the integrity of the research. Van Den Hoonaard (2015) specifies how important it is to establish a relationship with your participants when you are conducting a qualitative research. It does not compromise the research's quality, but rather brings more depth to it.

When writing this thesis, I wanted to avoid simple storytelling by remaining unbiased and professional. In that sense, interviews were conducted at different times throughout the PDP to highlight the differences, the similarities, and the progression of the perspectives of student teachers. Also, I was able to compare multiple sources of data. Indeed, I was granted access to the school milieu of the student teachers' practicum. This allowed me to observe first-hand how the redesigned curriculum was being implemented in school associates' and student teachers' practice. Finally, I interviewed three actors of the teacher education program, namely student teachers, school and faculty associates, to ensure that I encompassed multiple points of view for interpretation.

3.7. Conclusion

The case study approach was ideal in this context because I was able to understand the stories behind the social representations made by teacher education stakeholders. The latter's role in a successful implementation of BC current reform is often overlooked, but it is critical to gather insight from members of the teacher education program (Covarrubias-Papahiu, 2016; Le et al., 2014; Struyven & De Meyst, 2010). A reform's success depends on the extent to which it is compatible with teachers' views of what is worthwhile in education (Pantić & Wubbels, 2012; Santos, 2012). Therefore, I chose SFU's teacher training program, the PDP, as my research context because of its progressive reputation. I interviewed student teachers and their respective school and faculty associates to convey their perspectives about BC's competency-driven curriculum and other CBE-related components. Interviews were conducted within an open-ended

format and guided by an interview guide previously elaborated. Data was collected on multiple occasions throughout the PDP to search for the emergence of an evolution in regard to understanding. Through a narrative style, I highlight the shared perspectives in the analysis and discussion by bringing them together to paint a qualitative portrait of the way curriculum is understood by actors of the teacher education program.

Chapter 4. Findings and analysis

This study explores the perspectives members of the teacher education program hold of the new curriculum implemented in the province of British Columbia. With that respect, data is obtained from interviews conducted with student teachers, their school associates and their faculty associates; field notes; classroom observations. This study intends to analyze and interpret this data to investigate how perceptions about the redesigned curriculum and CBE in general might influence the shift operating within the teacher education program toward a better implementation of the new curriculum.

This chapter presents findings and analysis on three research sub-questions which include:

- 1) How are competency-related concepts and teaching practices addressed in the teacher education program, according to faculty personnel and student teachers?
- 2) What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum?
- 3) What aspects of CBE are manifested in the design and practice of the teacher education program, or in the school settings experienced by student teachers?

To address these research questions, I analyzed data that was obtained over a period of ten months within the same cohort of student teachers (February 2019-December 2019). The data was gathered at multiple times during the program to allow the analysis of a potential progression of the student teachers understanding. To put the reader in context, the redesigned curriculum offered its first draft in 2015, but officially debuted the implementation for levels K-9 in 2016.

During the interviews, participants were asked to give their honest opinion on a variety of subjects in regard to competency-related aspects of the new curriculum. My intention was for them to expand on their perceptions to allow a clearer understanding. The perceptual dimensions that emerged from those discussions were used as themes for further analysis and directions for follow-up interviews. Hence, the analysis that followed allowed me to understand to what extent the essence of the new curriculum is understood by its stakeholders. Then, I was able to see if this level of understanding

impacted the level of implementation of the curriculum in schools. These theoretical and practical perceptions allowed the analysis of the extent to which the redesigned curriculum is explicitly addressed in the teacher education program and how it aligns with the culture it fosters. Finally, this study aimed to identify recommendations for the teacher education program made by participants.

Thematic analysis guided the analysis behind the redaction of this chapter. This rigorous process implied listening carefully to the interviews, multiple readings of the transcripts of each participant and reviews of my field notes. Then, comparison with each artifact and participants allowed the emergence of shared and recurrent themes.

4.1. Perspectives on the principles behind the redesigned curriculum

When interviewing participants about their views on the new curriculum, I quickly had to modify my vocabulary. I was referring to the redesigned curriculum as the “new” curriculum. Quickly, SAs and STs notified me that for student teachers, this was “the” curriculum. It’s not new to them, it’s the only thing they have ever known. They do not have any other knowledge of what the previous curriculum was like other than their own schooling experience as a student, which we will discuss further.

I probed participants about their experiences with the curriculum. I also made sure to ask specific questions about their understanding of some of the key tenets of the competency-driven curriculum. This section aims to provide answers to the second research question with certain modifications. Initially, the question read: “What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum?” However, I modified this question in order to be able to reflect the perceptions and experiences of all stakeholders including student teachers, school associates, and faculty associates. It turns out that the input of the two latter is highly valuable when trying to analyze the fidelity of implementation of the curriculum itself within school contexts. Nevertheless, the initial question will be addressed specifically within section 4.1.3.

First, I will share those perceptions from a theoretical standpoint and then, from a practical standpoint. The reason I distinguished the two is that the data reflected a certain

disconnection between the understanding of the concept and the fidelity of implementation.

4.1.1. Theoretical understanding

When gathering input on theoretical understanding, the key goal here is to collect information on how the essence of the competency-driven curriculum is understood. Then, each specific aspect of the curriculum can be analyzed further to elaborate participants' understanding of the curriculum.

The curriculum in general

When describing their experiences with the redesigned curriculum, there are many key words that are recurrent. James (ST2), a 24-year-old future elementary teacher, describes it as “holistic”. Within the same realm, Melanie (ST4), a 30-year-old scientist who returned to school to become a science teacher, states that it is a “more well-rounded approach”. For instance, Emily (ST6), a 24-year-old future science teacher, refers to the structure of the curriculum, especially the Know-Do-Understand model, as an “all-encompassing way of learning.” Most participants agree that the curriculum “makes sense” (ST6/ST5) because for one, it is a more accurate model of how life truly works. As an example, many note how the redesigned curriculum is shifting away from memorization while simultaneously being highly aware of the stigma surrounding the latter. In fact, Jacintha (ST5), a 23-year-old future science teacher, views this curriculum as being a “complete different shift in mindset” than what was previously done. On the other hand, Isabelle (ST3) states that having students collaborate is a better representation of real-life, but she is conflicted about some other aspects of the curriculum because of her own university experience. She recalls having a midterm worth 20% and a final worth 80%. Although she understands the curriculum's aim of offering “a different way of looking at whether they've succeeded”, she adds that realistically, rewrites rarely occur in real-life.

How do we expect our students to be ready for that [universities tests] when they constantly are able to rewrite everything and fix everything? There needs to be some commitment from them and responsibility from them. And I think that if you quiz them enough on stuff every now and then and you offer to help for studying and all these things, that once the unit test comes, they should have to feel a little bit of stress because they need to make sure they try for the test [ST3: February 15th, 2019].

Nevertheless, she adds that her mentality is different from other colleagues from her module, but similar to her secondary level colleagues.

Most student teachers view this change of curriculum as necessary, appreciated, and synchronized with how students should learn to be prepared for the 21st century. The data collected from student teachers' interviews led me to understand that they inherently view this curriculum as a change although they only have their own schooling to compare it to. For Isabelle (ST3), who is on the fence, she is highly influenced by her own definition of a quality education which is connected with her experience as a student. This aspect will be reflected further for other student teachers as well.

Yet, many school associates do not necessarily view this curriculum change as an innovation because many states that they were already aligned with it before it was implemented. Laura (SA2), who has over 20 years of teaching experience at the elementary level, states that it wasn't a huge shift for her because "I think that it's no different than the old curriculum in the way that as you become more experienced as a teacher". So, for her, the characteristics of the new curriculum represented what a good teacher ought to be doing already. In the same vein, Joanne (SA1), a veteran teacher of sciences and mathematics, says she was already doing it, but maybe not as explicit. However, Maria (ST1) has observed that Joanne, her SA, has really embraced the new curriculum now. On the other hand, Nicole (SA2-1), who has over 20 years of experience teaching at the primary level, says her practice has changed when the curriculum rolled out.

It has changed because before I think the goal was, do they know this? Do they know this? Do they know this? Do they know this? And now it's more, can they do this? Do they understand this? I'm just putting more of that critical thinking piece and trying to use more of the inquiry in the class, where the kids are coming up with their own questions and having that kind of guide [SA2-1: November 8th, 2019].

This reaction toward the redesigned curriculum could be a result of multiple reasons. For instance, it is very common to see teachers slowly change one thing at a time. Joanne (SA1) says that it takes time to build up your reservoir of resources. Tyack and Cuban (1997) agree that hybridization is an interesting avenue: "Rather than starting from scratch in reinventing schools, it makes most sense to us to draft thoughtful reforms onto what is healthy in the present system" (p. 133). Fullan (2010) also abide in the same sense by stating that "practice drives theory" (p. 25). It is fair to say that long-term practitioners are

experts in terms of knowing what works for their students. By being able to slowly adapt their practices to the shift mandated, it ensures that the reform is more sustainable.

In addition, as stated in the literature review, there are differences and similarities between the current curriculum and the previous one. Consequently, it is most probable that the redesigned curriculum requires at least a certain shift in mentality for most teachers for the reform to be implemented with fidelity. Denying the importance of that shift can dissimulate either a lack of understanding of the true essence of the curriculum or either a profound comprehension of the latter. What is certain is that teachers, including school associates and faculty associates, were on various parts of the spectrum in terms of implementation. When asked about concrete examples on how they implement the new curriculum, some were only starting to implement it whereas most were implementing hybrid versions, and very little fully embraced it.

Less content-oriented

As addressed by Nicole (SA2-1), another important characteristic of this shift is attributed to the redesigned curriculum being less content-oriented. This idea is shared by not only student teachers, but also school associates and faculty associates. Ann (SA5), who is a Science and English teachers with five years of experience, says that that the new curriculum shifts the focus from content and scores to growth and specific areas for improvement. Shawn (FA2), a second-year faculty associate, thinks that this orientation is very valuable for special needs kids.

I think there are aspects of it that I think are just part of who I am, and so for me, I always focus on those core competencies and especially working with kids with special needs. You require that. There is this attachment to the **whole child**. Forget about content, the parents didn't care about content, the kids didn't care about content [FA2: April 25th, 2019].

Emily (ST6) sees her role as being a facilitator for her students. She also found that the way the website was designed sent a very powerful message in terms of how to focus her teaching:

So, core competencies umbrella and then the big ideas. Even on the website, it shows how. It visually shows how it works and I don't know if it was intentional. I'm sure it was intentional because if they started with content across and then the big ideas across, it wouldn't have the same effect that it does with the big ideas in the circles, and the list of content, and curricular competencies. It puts the curricular

competencies and the content next to each other as if they are equally important, which they are [ST6: September 11th, 2019].

Drew (SA4) and Nicole (SA2-1) compare it with the old curriculum by praising the absence of prescribed learning outcomes (PLOs) which were considered very restrictive. For them, it is something less to worry about. However, Drew (SA4) brings forward more nuance in regard to the abolition of PLOs:

[It] is a good and a bad thing, I think. For good teachers, it's awesome because we can now take it in any direction we want to. For a teacher who may be newer or has challenges or doesn't care, that means they could do less, you know? [SA4: November 12th, 2019].

As a matter of fact, many student teachers have specified how having more elaborations could be useful.

Again, for some student teachers, they see the shift away from content that is brought forward with the arrival of the redesigned curriculum, but they are conflicted with their previous experiences. For instance, when probed specifically, James (ST2) still favors content over competencies even though he agrees that the redesigned curriculum is less content-driven. He explains that by his own schooling experience.

Just from my personal experience growing up, where content was generally the focus. When I think teaching, I still think content. What did I learn? Or what did I learn about something? Not what did I learn on how to learn? I don't think that way, maybe just because of the education system I grew up in [ST2: February 15th, 2019].

On the other hand, Isabelle (ST3) does not necessarily believe it is less content oriented because, when designing lessons, she looks at the content first and then sees how it relates to curricular competencies. She states, "all I care about is content". She relates to content as the "core content that I need to power home" to students hence underlining older views of teachers being knowledge holders. When probed about her views about student centeredness versus teacher centeredness, Isabelle did not know the difference and had not heard of the terms before her first practicum. Nevertheless, she is clearly aware of the shift that is operating with the arrival of the new curriculum. When asked specifically if her lessons revolve more around the teacher or the student, she answered:

Oh, teacher, in my mind, yeah. But the focus is on like, you know, what the students need. So, yeah, I think the BC curriculum is trying to shift, right? To like, how can we help all these students? And how can we make it more about how those subjects can enrich their lives and less

about just like checking boxes of, okay, cool, I did it, we're done kind of thing. So, I think right now, yeah, it feels like it's teacher centred, but it should be student centred. I think that's like the direction that things are going [ST3: February 15th, 2019].

Open-mindedness transpires through that previous statement. Although it could feel overwhelming for her to know that she has to shift her whole mindset, Isabelle (ST3) feels relieved because she realizes how big the pressure is on the teacher when the class is teacher-centred. Overall, she states that she likes that it is shifting, but the how to achieve this shift remains a mystery. Could she be able to let her students explore through inquiry for instance and refrain from talking? She says she would still have content to present and cover, but it would never be for the duration of a whole class. According to her, more than 20 minutes and she will lose the attention of the class. However, she thinks a good way of achieving that “transfer of knowledge” would be through hands-on activities, which are a big part of the learning by doing mentality advocated within the new curriculum.

Maria (ST1) also feels conflicted about how the curriculum is taking a step back from the content even though she, also, highly values content. However, she nuances her opinion by distinguishing junior and senior science courses.

Because in high school, I feel like the content is important, and it's really hard to let go of that, especially because I care so much about the subject I'm going to teach. And I really want them to know the content because I think it's so interesting. And I think that's the separation between grades 9 and 10 and grade 11 and 12. I think in grades 9, 10, yes, it's all about the competencies. But I think 11, 12 when they're selecting the science that they want, that they think is best for them, then it's more about the content [ST1: February 14th, 2019]

The reason she emphasizes content for seniors is because in her opinion, at that point, they are training for university “where it is all about content”. However, when probed about potential applications for curricular or core competencies within senior courses, she was able to give numerous examples such as hypothesizing, analyzing data. Yet, she still thinks it is more important to focus on content rather than competencies. Tyack and Cuban (1997) address how sometimes it is hard to let go of long-held traditions. Throughout her PDP, Maria (ST1) has gotten the impression that there is a negative connotation associated with lectures within science classroom. She is insecure about this because she is not aware of other ways of communicating the content.

These examples represent how mentalities take time to change. Regardless, we can see they are slowly changing, but most are hybrids in between traditional teaching methods and progressive ones. James (ST2), Isabelle (ST3), and Maria (ST1) are torn between how they could apply the kind of education they received, which they perceived as a good education, to a context that is advocating for something different that they have never experienced. Tyack and Cuban (1997) correlates this by stating that “teachers also have had an investment in the familiar institutional practices of the school. They learned these as students, and as they moved to the other side of the desk, they often took traditional patterns of organization for granted as just the way things were” (p. 9). I will address further in the section 4.2 how the university could address those initial conceptions student teachers carry with them. At this point, it is possible that they understand that the redesigned curriculum is shifting away from content, but they are not sure why or how to achieve that change.

More flexibility

Another key word that was recurrent was that BC’s curriculum was allowed for more flexibility. Laura (SA2) talks about the advantages of “not having a checklist”. Nicole (SA2-1) says that:

I feel I think it gives you a framework but I think it also lets teachers kind of approach the curriculum of what they want to cover in their own way and really focus on what might work for them in the classroom [...] it gives teachers more freedom on where they want to focus their energy [SA2-1: November 8th, 2019].

Drew (SA4) also adds that assessment does not have to be as prescriptive allowing the introduction of higher-level thinking questions. According to him, it “builds on enthusiasm and interest and engagement in the kids”. Shawn (FA2) highly believes that the newer curriculum is much more useful than the previous one in terms of planning purposes.

... the majority of people who were born and raised on the old curriculum, never utilized it. It was never, and I’ll speak for myself and other co-workers, we never relied on that for creating learning opportunities for students. Because it was so again, it was content, it never pushed you to thinking in different ways to creativity. It was simply what I had to get through. So that kind of check system was never anything that pushed anybody to good teaching. So good teaching just naturally occurred. Where this one, it becomes relied upon, looked at, inspected, and finally assessed by our own selves. [...] Not only easier to use, but more thoughtful to use [FA2: April 25th, 2019].

While it seems to be highly motivating for experienced teachers, the vagueness behind the curriculum indeed leaves room for creativity, but it is harder for new teachers like James (ST2) and Emily (ST5). It was challenging for him to design a lesson when there was so little information and it created uncertainty because he was not certain if that was what he was supposed to be teaching.

On the other side of the spectrum, Maria (ST1) disagrees with the overall claim for more creativity by stating what she feels is the school reality.

But the reality if you were working in school, and you just showed up is that you do have the resources and you do have the unit already made for you, especially at the secondary level where, while there's a list of things yet to know, it only really works in one sequence, it can't really change the sequence all that much. So, there's not a lot of space for creativity [ST1: February 14th, 2019].

Again, the polarity of opinions may underline a lack of understanding from the student teachers' end of what is truly expected of teachers within school contexts.

It is important here to outline that flexibility was intended by the BC curriculum. "This flexibility supports teachers to combine the learning standards in various ways. Teachers are encouraged to create courses, modules, thematic units or learning experiences that focus on students' needs and interests or local contexts" (BC Ministry of Education, n.d.-b). No matter how commendable this intention may be, it is backfiring and causing stress for student teachers. James (ST2) feels the pressure of ensuring his students meet the requirements of grade one, but without knowing them explicitly, it's hard for him to be cognizant of that.

This is so vague, [...] It just gives me anxiety. I'm not sure if I'm teaching what they need to know or enough. And that always worries me, especially because grade one is a foundational year, right. I want to make sure they get what they need to succeed for the rest of their elementary career. But if I do a poor job, then they're going to be missing pieces going forward [ST2-2: November 8th, 2019].

On her side, Emily (ST6) says that elaborations on curricular competencies would be useful since she often feels lost. "I rely onto the elaborations a lot until I have a network of teachers around me". Isabelle (ST3-2) agrees because her SA asked her to create everything from scratch and she struggled. Later, she learned that many similar science activities were shared within her district. She suspects that sharing resources ought to become easier once you are a full-time teacher. Therefore, the PDP could provide better

guidelines in that sense and guide them toward tools to ease their uneasiness. From the Ministry of Education, more elaborations would be appreciated. Right now, the curriculum can be vague for student teachers who have a minimum of resources.

Increases teacher autonomy

Jacintha (ST5) outlined that BC's curriculum gives more teacher autonomy. Emily (ST6) agrees that there is more space for professional autonomy than in the older curriculum when giving out a grade because she does not feel "stuck in a rigid equation". She can use her professional judgment to attribute a grade. Ann brings forward another interesting point by saying that the curriculum requires teachers to be more metacognitive and reflect on "why they're doing this? How they're doing this? What they're teaching?"

For Melanie (ST4), learning about competencies has made her realized that it will be a lot easier for her to focus more on skills than content which is coherent with her intentions for her future practice.

And it also has that you no longer have to justify things to parents and stuff like that. Because I know that can be a problem is why is my kid learning stuff like that. Well it's in the curriculum ... which is helpful [ST4: August 29th, 2019].

So, it seems that this aspect is strongly related to the flexibility allotted to teachers. By giving full flexibility to teachers, the Ministry of Education is making a gesture toward more professional autonomy for teachers. All participants have shared this feeling.

Some of the key tenets of the redesigned curriculum have been probed to understand the perceptions of participants on the matter. We will address the concepts of competencies, learning by doing, personalized learning and the interdisciplinary approach since they are all connected to a certain extent with CBE.

Competencies

When asked to define the term competency, it turned out to be a difficult task for both long-term practitioners and student teachers. When giving out their answers, most were uncertain and there was a plethora of responses. This inability to have a common definition is coherent with the literature in which there is no consensus amongst scholars (Ananiadou & Claro, 2009; Bergsmann et al., 2015a; Le et al., 2014; O'Sullivan & Bruce, 2014; OECD, 2005; Smith et al., 2017). Most participants defined it as a *skill* which again

is corroborated by OECD (2005). However, the latter states that competency is much more than just skills. The predominant understanding of the term competency involves three components interrelated: a behavioural component (skills), an understanding component (knowledge), and a value component (values, attitudes, motivation, and beliefs) (Bartman et al., 2007; Giampaolo et al., 2015; Iowa Department of Education, 2016; Jobs for the Future & the Council of Chief State School Officers, 2015; O’Sullivan & Bruce, 2014; OECD, 2005; Struyven & De Meyst, 2010). This definition is also congruent with the definition stated by the BC curriculum. Yet, it is not really understood. Shawn (FA2) stresses how defining the term is important work, but gathering insights about the way stakeholders’ understanding vary is even more relevant. On the other hand, Laura (SA2) says that the ministry chose a word that could be defined in multiple ways in order to allow people to teach to their interpretation. As an analogy, she made a parallel with the Bible stating that there are many interpretations of it. While it is true that I stated earlier that some form of adaptation to local school context is important, it is most important that the purpose of the reform be understood. By ensuring the latter, hybridization cannot be made at the expense of the essence of the curriculum. As a concrete example, Nicole (SA2-1) found that some competencies are so vague that she found it difficult to explain them to her student teachers. A lack of coherent definition is exactly what could cause an uneven implementation. John (SA6), who has been teaching senior and junior sciences for more than 20 years, finds himself in a similar situation. He is very confused with the terms core and curricular competencies which could explain his reluctance to embrace the curriculum even after its theoretical “full implementation”.

Let’s look at the variety of responses that were shared. Melanie (ST4) simply said that it was hard to define to finally add that it meant “street smart” to her. Jacintha and Maria (ST5/ST1) envisioned a more practical definition by defining it as skills “transferable to other subjects and beyond their schooling” or even “life skills that are essential for a working person in the world”. For Liliane (FA1), who is a first-year faculty associate who has previously taught for 20 years English and Social Studies, competency can also be associated with content, and it implies “processing, understanding and doing”. On a completely different standpoint, James (ST2-2) explains competencies as being a vehicle toward content.

[Competencies] can be a skill through which learners access or engage with content. [...] curricular competencies provide a framework through

which students engage with content that ultimately prepares them for more advanced kind of like learning in the future [ST2-2: November 8th, 2019].

As mentioned above, most referred to it as a skill, but it was often associated with what the student is able to *do*, to *demonstrate*, or an *ability*. Yet, it was demonstrated previously that it is only part of the definition of the term. This could be explained by what is communicated on the BC curriculum's website: "Three elements, the Content (Know), Curricular Competencies (Do), and Big Ideas (Understand) all work together to support deeper learning" (BC Ministry of Education, n.d.-b). In the Know-Do-Understand model, the only reference to the term competencies is associated with the doing. Therefore, it comes as no surprise that it is the predominant understanding of the term.

Let's zoom in a little and address how core competencies are understood. For Lisa and Drew (SA4), the shift has been relatively easy since the new curriculum beautifully aligns with the Middle Years Program (MYP) from the International Baccalaureate (IB). Within that program, core competencies are essentially the same as Approaches to Learning (ATL). However, Emily (ST6) found that some of the core competencies, such as the personal and social, and the cultural identity, were unclear on how they fit within a science classroom.

Overall, I observed the lack of a coherent definition that is present in the literature to be transposed to practical contexts. Having a clearer theoretical definition could help clarify the concept for practitioners.

Learning by doing

Most participants were in agreement with the push for learning by doing. According to Joanne (SA1), it is a very natural way of learning and it increases student engagement. Jacintha (ST5) adds that it makes students more responsible for their learning while allowing more freedom. Drew (SA4) says that it is easy to apply within the classroom because it just requires a little bit more imagination. However, Lisa (SA4) and Isabelle (ST3) raise potential hurdles such as "not having a lab tech" or "not having sufficient time". On the other hand, Maria (ST1) only agrees partly with the concept and is unsure of how it should unfold.

I like it, for a lot of things, I would say like 80% like it, 20% not all the time. You can't always learn by doing, I think, especially again, as you

get into secondary, there are things that you can't just think of your own. I'm just going to come up with that "atoms have electron theory". You don't come up with that, you know, you have to be told a little bit. But then I think it's really cool to experience things. And sometimes, I think, it's just a redefining of it, not necessarily doing something physical necessarily, but just be solving, more like solving the last part of the equation on your own, kind of analogy. Where you, I don't know what it looks like... [ST1: February 14th, 2019].

A teaching practice that is often associated with learning by doing is inquiry. When probed about the latter, all participants agree to say that it makes sense in theory, but not all of them are changing their practice. Indeed, John (SA6) explains that it is harder than we think because of the lack of resources. As Melanie (ST4) noted after her long practicum, inquiry is harder to put in practice than she expected. She experienced that there was more room to try teaching inquiry with juniors because there was less at stake. Others would like to change their approach, but they feel bound by grades. Overall, I observed that there was a good general understanding of this concept and that it was applied within all science classrooms. However, the extent to which it was applied is still unclear to me. For instance, many participants did not fully know how having students design their own lab would unfold within the constraints of time and space of a high school classroom.

Personalized learning

The comprehension of this concept was highly polarized. It seems that it is mostly for student teachers that the concept is harder to grasp. Indeed, Liliane (FA1) says that it is a challenging concept for new teachers but it's worth it. Undeniably, every participant sees the value in applying the tenets of personalized learning, but the constraints are distinguished between two categories: lack of knowledge on the theory itself and lack of knowledge on how to apply it.

First, the lack of knowledge on the subject itself can root down to a lack of exposure. Isabelle's (ST3) relates her experience with personalized learning:

When it comes to individual students, I've only seen so far, students have a little bit more time to take a test, or students need a scribe, and that can be done like right outside the classroom, in the hallway. That can be done and not hold up everything, if that makes sense. Like this whole class can still go on doing it their way. And you're not like pressed for time. So what scares me is if there's like lots of students with lots of different specific learning needs that I can't fulfill just by mixing it up every day [ST3: February 15th, 2019].

Isabelle's understanding is more representative of tokens of compliance than true personalization efforts. One of the reasons behind this could be that although it has been addressed in the PDP, she still does not feel like she has learned enough. Maria (ST1) agrees by saying that it is still a huge question mark for her.

I mean, in PDP, we've gone through all of the resources that we have, in times when you need them, and that students have, in times when they need them, but it's still super unclear what you're supposed to do when you see that someone is struggling in your class. [...] And still, I feel like we haven't talked about specific strategies with specific issues in specific subjects. So, it all is very general. And I don't know when we're going to get to talk about that. I don't know if we will... In PDP at all [ST1: February 14th, 2019].

So, it seems that the application remains unclear for Maria. In addition, in her previous statement, Isabelle (ST3) mentions that she is scared to implement it which is something that was shared with Melanie (ST4) who mentioned that personalized learning "terrifies" her. These perceptions are inherently correlated with how confident student teachers feel to implement such practices. When referring to the expectancy value theory, those who do not feel confident to implement it are unlikely to do it in their practice.

On the other hand, Jacintha (ST5) sees the new curriculum under a different light right away. She states that "you can cater the curriculum for the students rather than mold the students for the curriculum". She does not see personalization as just teaching strategies, but as a whole planning strategy with students at the center. This highlights the disparities of understanding on personalized learning.

In conclusion, while it is true that the curriculum is well perceived by all participants, there is a wide spectrum of understanding on all of the key components highlighting that some have a better grasp of the foundations of the reform than others. Part of it could be due to being influenced by previous schooling experiences whereas others agree with the theory but are unsure of how to put them to practice. I will now discuss these disparities in terms of application in the following section.

4.1.2. Practical understanding and application

First, I present information on how the reform is actually being implemented by actors in the field such as school associates and faculty associates' former practice. As stated previously, the new curriculum makes sense for stakeholders, but implementing it

with fidelity is the delicate part. We already know that there is uneven implementation (Gacoin, 2019). Indeed, Lisa (SA4) stresses that “there’s so much dependent in influencing how the curriculum is carried out”. Many reasons can explain those disparities. It is interesting to look at specific realities that are not really reflected into policy reports. Also, my data is highly relevant because it gives us an indication on the curriculum’s application from teachers who have been chosen to become teacher educators because of their allegedly progressive practice. Let us recall that Rogers (1995, p. 18) outlines that the diffusion of an innovation is a social process that implies “modelling and imitation by potential adopters” which is highly similar to the relationship that is developed between a mentor and a mentee. School associates gave concrete example on the methods they were using to facilitate the comprehension of the redesigned curriculum for student teachers. Laura (SA2) mentioned that she was modelling it for her student teacher, and that she answered questions without being adamant about there being only one way to teach. She encouraged “collegial” conversations. For Nicole (SA2-1), she used a more prescriptive style and said that she was content with her student teacher because “he is just really willing to listen and do whatever I say”. As we can see, James (ST2) experienced two different styles of mentoring during his short and long practicum, but he did not say if he preferred one above the other. Most school associates work collaboratively with their student teachers. Drew (SA4) says he assisted his ST by working together and jointly creating in the beginning and “then sort of letting her fly, right? With creating her own stuff”. Ann (SA5) said:

We literally just printed it out and went through it together. And we went through not just what each one meant but like the importance of using it purposefully and how to create activities around it. I did a lot of modelling for her, showing her how I would develop activities around a certain curricular competency. I showed her how to include that on assessments, like in rubrics and stuff like that. But mostly, sitting down and chatting about it and referring to it on a daily basis. It was a mixture of like explicit reviewing of documents, modelling, showing her my lessons, how I do it, and then helping guide her when she’s making the connections [SA5: November 22nd, 2019].

As we can see, there are similarities between the mentoring methods of school associates, but each student teacher has to adapt to a teaching style that might not be their own. Right away, that is a big learning curve for them. Therefore, school associates’ views on the practicality of the new curriculum will inherently affect to a certain extent the way student teachers apply it.

School associates' standpoint

Changing one's practice can be hard. Ann (SA5) talks about how some teachers have been pushing back the arrival of the new curriculum.

It definitely takes a growth mindset to go through a curriculum change, and I noticed a lot of kind of pushback from teachers about the [curriculum] ... because it's new and because it's different and because it was a lot more work, but a lot of positive as well, in that it's essentially, at the end, good for student learning, right? More work why? It's a lot easier to use a test that you've had for 20 years and photocopy it and give it to kids, as opposed to doing skills-based assessment and focusing on lab skills, because the massive shift in the curriculum was from this content-heavy way of learning to a skills-based, curricular-competency based shift from content to skills, as well as like adding in social/emotional learning with the core competencies [SA5: November 22nd, 2019].

As an example, John (SA6) addresses his reluctance to switch. During our discussion, he reminisces the Year 2000 curriculum that was highly praised but did not roll out as expected. So, when turning to this curriculum, he states:

..."Okay, you sure you wanted to do this?" because again I still remember the year 2000 document years ago. You know "Going to come through, gonna come through" and then last minute, "Yeah, we're not doing it." So, I was very cognizant, I guess, of the past history when it comes to Minister documents coming through [SA6: November 12th, 2019]

As a result, John (SA6) only started implementing the curriculum as of last year because he was waiting until the last minute to see if it was going to go through.

Ann (SA5) also brings up an important point: time. Changing a practice will inherently involve countless hours to first understand the change and then make the change. Laura (SA2) and Joanne (SA1) also agree that it takes time. Changing everything is hard for Joanne (SA1) because she feels she will not be as comfortable and engaging. Nicole (SA2-1) talks about how she felt in the beginning:

At the initial stage, it was the very overwhelming. Right away I saw the good in the curriculum, but I think a lot of it was just so much newness was just thrown at us all at once. And really, I think the professional development we had to absorb and understand it really wasn't strong enough, with so much happening at the same time. It was very, very overwhelming [...] it was just, it was just a lot and I think people were just burnt out from trying to learn all these new things [SA2-1: November 8th, 2019].

The lack of organized professional development (ProD) comes up frequently within the school associates' testimonies. Indeed, Gacoin (2019) also states in the 2019 Implementation Survey that this concern is shared by teachers across the province. "Only 31% of teachers have good or very good access to in-service and professional development" (Gacoin, 2019, p. 7). Liliane (FA1) says she was very prepared due to her implication in curriculum-specific groups. She was a facilitator of the new curriculum within her school. On the other hand, Joanne (SA1) still wonders what it really looks like. She mentions that she would have appreciated having someone model for her at least the first steps because she is willing to implement it even more with some support. This is a concern that was outlined by Gacoin (2019) who stated that only "(26%) of teachers have access to instructional samples that are appropriate for their local context" (p. 8). As a result, 70% of teachers have defaulted to individual research (BCTF, 2017). Ann (SA5) shares how she managed her self-learning journey:

If I'm being honest, I had to seek out a lot of my own guidance for learning this stuff, right? Like, there were the curriculum implementation days that were professional development, which was good. Surrey School District has done an amazing job on giving tons of Pro D opportunities for people to learn this curriculum. However, all of that is on our own time. I think about the last five years and how much time I have had to put into learning this new curriculum, implementing it, making new unit plans, making new assignments, going to the district office, doing workshops. It is astounding, and I now see why a lot of people still are kind of stuck in their own ways, because maybe they don't have the desire or time to pull 12-hour days while the curriculum's coming out, right? So, yes, there are dedicated Pro D days that are part of your time, but it takes a lot of teacher effort outside of school to do a complete revamp of a curriculum [SA5: November 22nd, 2019].

Other contexts which have implemented similar educational models have learned that professional development was key to sustainable implementation (Barack, 2018; Scheopner Torres et al., 2015). Five professional days to master a whole new way of teaching was insufficient within Maine's context (Stump et al., 2016).

In the light of all these affirmations, it is clear that implementation is uneven even amongst school associates who are supposed to be progressive teachers picked out by administrators. On the one hand, we have Emily (ST6) which is being trained by John (SA6) who only started implementing the curriculum last year and is still confused with the terms whereas, on the other hand, we have Melanie (ST4) who has two SAs that have

highly embraced the new curriculum. Emily (ST6) found herself in a delicate situation when her SA asked her to plan for something that wasn't on the new curriculum:

I kind of had to stand up for myself and be like "Hey this isn't on the here so like" ... not only is it not on the curriculum [...] but it's also from my 7 full immersion weeks, I would also love to have practice with the BC curriculum right? [...] That's something that has been hard for me because I want to respect him and his practice and what he's been doing for years, and years, and years, but I also want to be cognizant of the fact that he very much does stuff out of the old curriculum. [...] I doubt his units and lessons have changed much in the transition... I don't think they have [ST5: August 29th, 2019].

MacKinnon (2017) acknowledges this situation by adding that, "teacher candidates can experience vulnerability and uncertainty, where they can be subject to an unequal power distribution from many sides" (p. 2).

Shawn (FA2) stated during our discussion that the new curriculum comes out of most experienced teachers. This is a common thought. However, as seen throughout this research, simply assigning an experienced teacher to become a school associate is not the only accreditation that should be evaluated. Some veterans hold tightly to their original views and do not always abide with the innovation that is rolling out. Liliane (FA1) agrees by stating that implementing the curriculum is hard for new teachers and people with lots of experience. Therefore, there should be a more rigorous process in place to assign school associates

Core competencies

As stated in the theoretical section, core competencies used language that was really vague and was sometimes misunderstood. Consequently, it comes as no surprise that their implementation within teachers' practice is uneven. Most secondary level teachers (STs and SAs) say they are embedded into their teaching in a more implicit way. Melanie (ST4) says she does not "ever talk about them specifically to students" in the classroom and does not assess them. According to her, core competencies are never supposed to be assessed; they are self-assessed. Within her school, core competencies are mostly addressed outside of the classroom once a month for a special activity. So, they are removed from the context of the subject even though Melanie (ST4) thinks that "they do weave in and out of everything that we do". Jacintha (ST5) understood it on another level. "I learned like sometimes you've got to implicitly embed the curriculum, but

sometimes it has to be a little more explicit in letting students know what skills they're actually building". Yet, she says she has put a greater focus on curricular competencies and content than core competencies. While she says that core competencies are embedded in her practice, they have yet to be explicitly taught.

Ann (SA5) outlines how not teaching the core competencies explicitly can become a problem.

It's just being explicit about it. It's allowing students the opportunity to reflect on them, giving them that time, which is not always easy to find because as a teacher, you're responsible for assessing curricular competencies and content, but we do not assess the core competencies. And at the end of the year, students are asked to reflect on their core competencies, so as teachers, if we aren't explicitly talking about them, then they don't know about them. Sure, they're doing them, and they can probably like demonstrate proficiency in the core competencies, but if we're not explicitly using the language, they aren't able to explicitly reflect on them at the end of the year [SA5: November 22nd, 2019].

Core competencies are everyone's job and no one's at the same time. This could become a delicate situation where teachers assume someone else is teaching them. She explains that there is a difference between the junior and seniors. Seniors are more focused on getting the curriculum done regardless if it is content or curricular competencies whereas juniors there is more time to implement them. For instance, Ann (SA5) explains that they are always in the back of a teacher's head, but then one day you wake up and you realize that core competencies have not been addressed for a month because it might not have been connected to the content, but it is certainly connected to all skills. So, she does a reflection. Is it more a token of compliance than true implementation? To what extent do students really understand the connections between core competencies and their work? It is hard to say. Lisa and Drew (SA4) also make a distinction between senior and junior sciences. It is easier in junior grades because they just self-assess ATLs and they also hand out the rubric along with assignments. Here, it is important to understand that the IB program already has premade rubrics. So, the fact that rubrics already exists and can be adjusted seems to be a good starting point for teachers. Drew (SA4) says that "with the eights, it's a lot more explicit teaching of those [self-reflection skills] than the 12s". It is implicit for seniors, but they are working toward rendering them more explicit. They are tuning up their rubric for seniors first and then they will jump into self-assessment. They do not feel ready for the latter at the moment. Seniors are not part of the IB program.

Overall, it is possible to see that implementation of core competencies is unclear to long-term practitioners, a statement corroborated by Gacoin (2019). Hence, it has become a sensitive subject for student teachers as well where all of them mention that they only address it implicitly.

Personalized learning

Again, referring to the theoretical understanding, all participants understand the principles of personalized learning. However, the portrait that is reflected in school associates' practices may not support this, and may even contravene student teachers' self-direction. Shawn (FA2) says that it sounds easy, but it is actually much harder to achieve. Joanne (SA1) even states that she often feels overwhelmed within that respect. Drew and Lisa (SA4) agree that it's great and they do it to a certain extent, but it remains a challenge. According to them, one of the constraints could be due to the class size that tends to be a little bigger than ideal. Lisa says, "Sometimes you may have an aid in your classroom, and there's three or four students that need the aid at that time [...] reality sometimes can catch up with you". Some of the techniques they are applying include providing extra time, allowing students to show their understanding in different ways, a science fair project where students can choose their own subject, redoing assessments. But, according to them, all of this is harder to include with seniors. Even at the elementary level, Laura (SA2) presents her classroom to explain how difficult it is to embed in the classroom.

Okay, I've got 23 students. I have four with IEPs [Individual Education Plan]. I have, a handful that are ESL [English Second Language] and need that support. Then I have kids that should be categorized and are not. I have the five or six students that are ADD [Attention Deficit Disorder], ADHD [Attention Deficit and Hyperactivity Disorder] that are not on meds, and then I have the ones that are on meds. And I'm me. I'm one. So, differentiate all you want. But there has to be an ability to work with those students and have that time, and that's why I think that at least with the way that the new curriculum or redesigned curriculum goes, we have the ability to let students go to the place that they're able to go to. Right? [SA2: March 12th, 2019].

Although it is difficult, she mentions that the way the new curriculum is presented, it allows more personalization. She would love to do more, but she does what she can with what she has for now. Drew (SA4) says, "Personalized learning also creates interest and engagement". For example, the science fair project allowed multiple entry points since some students were doing just similar labs as the ones done during the school year

whereas others were pushing beyond their grade level. According to the Implementation Survey, “Less than half (46%) of teachers agree that the redesigned curriculum helps them to meet the diverse needs of students in their classroom” (Gacoin, 2019, p. 5).

So, obviously time and resources seem to be a constraint in implementing personalized learning even further into the practice. James (ST2) brings forward his perspective of student teachers into the equation. After reading the definition of personalized learning provided by the BC curriculum, he states:

I agree with all the statements that are on there. And I think it's really the right way forward, moving forward with education, for the best for the kids. I just think it's just a lot harder or requires a lot more effort and investment into the practice to be an effective teacher under this new curriculum. Not that that stuff wasn't there before, I just think it was made a lot more clear, and it was brought forward. So, this is the priority now. Because I'm sure that people were thinking about that stuff under the old curriculum, too. [...] I don't know how to consider different learning styles and different learning rates and the different environments that some students need. Like I don't know how to do that right now. If you were to move me into a classroom full of 30 kids that had all these different needs, I would feel pretty lost [ST2: March 12th, 2019].

He did mention that he felt uncomfortable implementing it. When asked about what would help him feel more comfortable with this concept, James (ST2) stated that experience and seeing real-life examples would be the key. Jacintha (ST5) also agrees with the principles of differentiation, but she expresses her puzzlement as to what to do with her English 12 classes including 15 AP students who run throughout the whole year and 6 regular English 12 students who are only there for the semester. Differentiation was covered during the PDP, but it was still vague according to her.

Assessment and reporting

This aspect has been the most confusing for all participants. While everyone understands the shift of emphasis away from grades that transpires from the redesigned curriculum, the Ministry of Education’s policies have been conflicting in that sense. The assessment and reporting policies have been modified multiple times and vary greatly across districts creating frustration and confusion amongst practitioners. Liliane (FA1) says that assessment has been one of the biggest shortcomings of the way the curriculum was rolled out. Then, again, there is a plethora of opinions about how students should be graded.

First, let us start with the facts. When the curriculum started its implementation, there were no guidelines in terms of assessment and reporting. In July 2016, the revised Student Reporting Policy came into force. Regardless of the curriculum's intentions to move away from letter grades, they were still two options offered to districts for progress reports; one with grades and the other one with grades upon request by parents (BC Ministry of Education, 2016). Now, there is another draft that is currently being piloted by some districts/schools. Laura (SA2) and Nicole (SA2-1) say that the fact that there were multiple changes of plans with respect to reporting was highly demotivating and demanding because the language kept changing every year. Laura (SA2) adds that report cards are now more work than ever. This sentiment was also reflected in the implementation survey. "Only 19% of primary and/or intermediate teachers and 20% of secondary teachers feel that workload expectations for assessment and reporting are reasonable" (Gacoin, 2019). Laura also addresses the lack of coherence across districts for reporting and assessment techniques.

So, the idea is that for each of the competencies, it's how we as teachers are defining it. And it's not necessarily the same from class to class, school to school, district to district. And then, what the districts are expecting us to do with them is different. Right? I could be at one school and they want it one way and come here and have it another way; go to another, a different way [SA2: March 12th, 2019].

This represents a great example of uneven implementation because in part of the vagueness behind reporting strategies and elaborations about competencies. Rogers (1995) stresses the importance of a clear diffusion strategy to ensure sustainable change.

As of now, only 32% of secondary level teachers feel that assessment is aligned with the principles of the curriculum (Gacoin, 2019). "Only one-fourth of teachers feel that they have received clear guidelines related to student assessment (23%), student self-assessment of the Core Competencies (25%), and/or student reporting (23%)". Not only are teachers confused, but student teachers as well. Isabelle (ST3) says she feels "confused sometimes because everybody, every new person I talk to or different subjects or different things, I hear different things about grade". According to her, the "how" to assess differently wasn't done in detail during her PDP. Student teachers ask for specific techniques. For instance, Melanie (ST4) states that the value of summative and formative feedback was discussed, but no techniques. Nicole (SA2-1) has the same observations

on the field: “I think that's also been for most of them [student teachers] is they don't understand the formative assessment, or **how** they're going to assess different things”.

Another fact is that universities are still demanding grades. Drew (SA4) notes that university acceptances are the only thing that is standard in life. This creates a lot of tension for high school teachers and most of them distinguish junior and senior grades because of that reality. “There is also a lack of alignment between curricular demands and the school structures that need to be in place to meet these demands” (Gacoin, 2019, p. 7). This aspect leads to many questions and much confusion amongst school associates and student teachers. Isabelle (ST3) says that percentages are the way to go since this is what universities are asking. Yet, many ask: How do you convert a proficient into a percentage? What is the alternative? Ann (SA5) does not see the value of having no grades for seniors not until universities change their standards. Yet, she is convinced that it will not change because, if it does happen, parents, students, and teachers will need to make a huge transition out of this cultural and traditional system.

So, one can wonder which assessment methods are prioritized. Considering the distinction Maria (ST1) makes for juniors and seniors, she also categorizes the way they should be assessed.

The seniors, if the foundation is the content, then I think it's really important to have them experience what it is to have tests or exams. It's like something that it's not to be given up anytime soon in universities, and it's not going to be given anytime soon... I think even in the workplace, like sometimes you just have to show what you know on the spot. And I think it's really good to have this skill also of being able to take information and put it on a page, which is really hard to do. But that wouldn't be the only assessment. So I'd also, for sciences, have some sort of experimental design component. [...] But then on the junior side, definitely, especially they're coming from middle school or elementary school where they've completely changed assessment, I think it's important to provide the grade 9–10 as a transition point between that, where we're giving them a lot of different opportunities to do a lot of different things. So, in science, anything from research projects, to group experimentation, to involving visual and digital things are really important too. It's also a good time, since you have a little bit more time, I think they're younger kids and they have less complicated things to learn to learn like the presentation of information. So different ways of presenting what they know [ST1: February 14th, 2019].

Maria brings up an interesting point that is shared by many other participants. It seems to be easier to embed the new curriculum's philosophy for elementary and junior students.

Indeed, Isabelle (ST3) thinks that rewrites are easier with juniors. Drew (SA4) offers an explanation as to why it is more difficult with seniors. He says that open-ended projects are harder to mark. But he brings forward the idea of holistic marking and that requires more time. It's not easy like a multiple choice. And then, he explains that courses previously relied a lot on tests and that it is just easier to slip right into old ways that rely heavily on tests than create new assessments from scratch. Again, it takes time. Lisa (SA4) says it's like you enter a "sink or swim" mode. So, is it harder for student teachers to implement the new curriculum because they are in the sink or swim mode when they start teaching? "I think it depends on the relationship and the guidance that they [student teachers] have from whoever their SA is". Drew states that "it can be a challenge. Because it's easy to just use what people have, right? Instead of creating your own thing, which is difficult". Not only is it challenging, but it is scary to face uncertainty. Lisa understands that fear:

It can be a little nerve-racking the first-time round, switching to something that's a little bit more open-ended in terms of assessment, and I get that fear. What really drove me to kind of open it up a bit more, aside from my music background and coming up through the juniors here, was just recognizing that not everyone can demonstrate their knowledge from a test. And a lot of kids have very visible test anxiety [SA4: November 12th, 2019].

Therefore, it is possible that even though the new curriculum does not really advertise for tests as much as before, they are still present because they are part of the "grammar of schooling" (Tyack & Cuban, 1997). The latter implies that it is hard to pull away from a technique that has been around for so long and as proven effective for many. To be able to operate such a shift, one must be able to clearly explain the reasoning behind the change to gain community buy-in. Teachers and students, but parents are also a big part of the equation.

It's always that kind of mix with how parents grew up, and how their school system was and then looking at this, I don't know that they get it or they see the value in some of these items. Though I do. [...] a lot of it is educating the parents and especially when you have certain demographic [...] I'm fine with getting rid of letter grades if there is a clear way to show parents how their child is doing. And I think parents like letter grades because to them it makes sense and it's an easy snapshot of where their child is [SA2-1: November 8th, 2019].

This is a strong example to demonstrate the importance of an efficient diffusion strategy (Rogers, 1995).

How important are grades to participants? Although they understand the philosophy behind the new curriculum, their beliefs about grades are going to influence their practice. Once the classroom door closes, teachers do what they believe is best for their students. Isabelle (ST3) feels really strongly about the importance of grades: "At the end of the day, you need to know your content, and testing is a great way of doing that. I think that there should be other forms of assessment as well". Melanie (ST4) is still unclear about her position: "I think that it's something that I'm still ... like mulling over. I don't know like I do ... there's some things that need to be assessed with a test. And I know that's not the way that everyone thinks. But that's what I think". On the other side, Shawn (FA2) can see how going away from grades can be beneficial, but he nuances his opinion according to the grade level:

The further up the grades (and maybe this is because I've spent most of my time at the K-7/K-5 level) is how their importance seems to get/increase. They have to be this way because we work in a system in which numbers and grades create opportunities for some students. So, there is a separator there, right? How else are you going to have students go to post-secondary? So, there is this system change that would have to happen, but I have no clue how that would have to occur. So, if we have no true grades, no separators and anyone can apply to university. I don't know how helpful that would be [FA2: April 25th, 2019].

So, Shawn brings up how grades seem to increase in importance as we increase in grade level. According to Drew (SA4), this importance increases not only for teachers, but for students as well. While it is true that he sees the value in different types of assessments, it might differ from senior students' expectations.

They kind of would rather have it just black and white, right? So for instance, with multiple-choice questions, they just know what they got right and wrong. But Lisa says I feel like they're [juniors] way more accepting of yeah, this is how school is now. [...] I would say that they're more adventurous. So, I wonder what the seniors are going to look like the longer this new curriculum [unfolds]... [SA4: November 12th, 2019].

Overall, the assessment and reporting section is a very delicate and sensitive subject where there is a plethora of opinions on the matter amongst practitioners, but also from all educational stakeholders. The disparity between grade levels is evident and increases the blur around assessment.

In conclusion, the practical understanding of the participants of this research varies greatly from their theoretical understanding. While most understand the tenets of the redesigned competency-driven curriculum, implementation is harder than expected. Some of the hurdles to a more even implementation include a lack of resources, a lack of practical understanding (the “how” to implement) from professional development and the teacher education training program, and strong cultural and traditional beliefs on certain aspects of the curriculum.

4.1.3. The evolution of understanding

In the light of what was shared in the previous sections, I will delve deeper into the evolution of the student teachers’ understanding of the competency-driven curriculum. This analysis will provide further answers to research sub-question number two which states: What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum? I will start by addressing the student teachers views before their first practicum or second practicum and then, see if they have changed.

Before the practicums

When I conducted my interviews with student teachers, I attempted to establish a safe space for them to share details about how they felt about the new curriculum and their overall experience as a student teacher. Interestingly enough, many confided about how anxious they felt before going into their short and long practicum. Some elements of the curriculum still felt unclear to them and the fact that they were “going in” without necessarily having answers to all those questions was nerve-racking. James (ST2) talks about how he feels about the learning by doing aspect of the curriculum.

It makes me feel a bit more anxious about my practice, though, because sometimes, I mean, you have to be creative to get the kids engaged. [...] What if I can't be creative? Is it okay to put in a worksheet once in a while? I think it will be okay to do that. I don't think there's a rule against it. But I think in an ideal world, I'll be able to make every lesson engaging, every learning opportunity an engaging one, but I just don't know if I'll be able to live up to that standard. So that's what worries me about this shift [ST2: February 15th, 2019].

In this statement, it is possible to feel the anticipation, the anxiety, and the pressure a new teacher might feel in the face of uncertainty. This example is highly helpful for an outsider

or an experienced teacher who may have a harder time putting themselves in a student teacher's shoes. James adds:

I think it was a lot easier to be a teacher in the old curriculum. A binder full of worksheets that you've used every single year, for 20 years, that you just oh, here's a worksheet for this unit or this lesson. And you just recycle that. But now, I feel like depending on what your kids like, and how your kids learn, how they prefer to learn, you have to differentiate your delivery [ST2: February 15th, 2019].

I argue here that for him it would feel less stressful to teach by the old curriculum because he has experienced it himself as a student. Therefore, it is less unfamiliar than trying to abide to the redesigned curriculum which as he feels puts a lot of pressure on teachers to come up with engaging activities. Jacintha (ST5) also speaks about her nervousness before her long practicum:

I'm still like pretty nervous with teaching and being in front of the students. [...] when I stand in front of the classroom, it's not only your education, it's like all these students' education that's in your hands and you're responsible for [ST5: August 29th, 2019].

The pressure student teachers feel is real and to ignore it would be foolish. In hindsight, some student teachers would have like to learn about time management strategies to reduce other sources of stress since they were experiencing so much just by teaching. I will discuss this aspect later. For James (ST2), he believes that although the practicum is stress inducing, it will lower his anxiety because it will give him the chance to implement his lessons and see what works.

What is also most stressful for student teachers is the fact that they still have a lot of unresolved questions. Although she understands the value of core competencies, Maria (ST1) feels that they have yet to talk about them specifically within the PDP.

We just said, "Oh, well then you have to put them in [the unit plan]." But yeah, we haven't really had a discussion about that. [...] we haven't talked about each competency and broken down what each one is for the core competencies. So that's been kind of an individual thing. But I actually think that makes a lot of sense, if everyone goes ahead and looks at it on their own, because the whole thing they're trying to push is, figuring things out on your own and asking questions and then being answered, inquiry [ST1: February 14th, 2019]

Maria (ST1) appreciates that the PDP is pushing for inquiry with student teachers as is the redesigned curriculum. Yet, even though she did her research, she still wonders how to

assess core competencies. In her opinion, solely evaluating a student teacher's understanding of the core competencies by observing if they were incorporated within a lesson is not representative of their true comprehension. Maria is also uncertain about the full extent of the change occurring. "How can the new curriculum really change science and math? You can't really change science and math, these are subjects that the content is the content and, how can you not be focused on the content?" But then, after the observation phase of her first practicum, her mentality completely shifted:

It seems more natural now than it did before, and it seems like the core competencies, the students were familiar with them, and what they actually mean. For example, I was really confused about the difference between creative thinking, critical thinking. And I thought critical thinking was used all the time in math and science and I realized that actually, that's creative thinking. And critical thinking is more like being skeptical and digging deeper to find out if something is really true or not [ST1: February 14th, 2019].

To her, core competencies just seem to be this natural component of teaching science. It is naturally embedded into the science curriculum. She has observed the "little triangles" referring to core competencies everywhere on the students' worksheets and lots of references to it in class. "It's like something that was always there, the difference is now we're being explicit about it". She adds that she could probably draw out the competencies from a video of someone teaching 7 or 10 years ago.

With regard to curricular competencies, Jacintha (ST5) mentions that she is still struggling on how to assess them. James (ST2) agrees because the quantity of curricular competencies is a "little bit overwhelming" to him. He still wonders, "do I have to do all these at once, or certain number of times, or as much as possible? That was a question that I had that wasn't really made clear". On the other hand, Isabelle (ST3) confused curricular competencies and core competencies during our first interview. But, once we distinguished the two together, she said that curricular competencies felt very general and numerous.

Yeah, I'm kind of just experimenting with that now, so I'm not sure. But yeah, they're kind of broad, and they seem like a lot. And I don't quite understand why they're there, or I think they're kind of just... Yeah, I don't understand yet [ST3: February 15th, 2019].

So here, it is important to note that not only is she unsure about their meaning, but she is also unsure about their purpose. This would be coherent with her views on content. Isabelle (ST3) and Maria (ST1), still highly value the content over competencies.

The content is like the vehicle for which you learn the skills. So, you can't learn the skills without the content. It's really hard to do that. But the idea and what they're trying to measure is the skills [ST1: February 14th, 2019].

Maria (ST1) still confuses content and competencies together since they seem to be so interconnected. From her standpoint, Isabelle (ST3) is confused because she is convinced that she has missed important information on how to split a grade in percentages. This shows that they both understand that the curriculum is less content-oriented, but they still do not know to what extent because they both highly value content. James (ST2) understands that that “the general trend is to avoid, like testing, like multiple choice, memorization, and do more interactive assessment maybe, differentiate a little bit, allow for options”, but he is missing the practical knowledge on how he can achieve it. Finally, some concepts are unfamiliar to student teachers such as rubrics (ST2), authentic tasks (ST1/ST3), and proficiency scale (ST5).

After the practicums

After experimenting teaching for themselves, some realizations are made. First, student teachers were more confident to implement certain aspects of the curriculum. For instance, James (ST2) initially did not feel confident about curricular competencies. Now, he says:

So yeah, I feel much more comfortable navigating it. I'm still like concerned about, do I have to hit every single one at least twice, or at least three times? Is there a good number? Is it okay if my students only hit the core competency like once? What's the count? Things like that, yeah, I'm concerned [ST2-2: November 8th, 2019].

As we can see, even after the long practicum, some of the initial competency-related questions remain. This could be on account of the fact that he did not have much time to explore them during his university courses prior to his first practicum.

It was really something we had to learn as we went, I think. We didn't have too much time to explore the curriculum in the module, not that I remember. Like I remember not feeling prepared, leaving. And this was my, like journey toward understanding this better, came from

experience, came from being in the classroom, like trying it, talking with my SA [ST2-2: November 8th, 2019].

Jacintha (ST5) states that she mostly self-taught herself about the competency-driven curriculum just like Maria (ST1). But an important contributing piece to Jacintha's understanding was her long practicum:

I felt like it was more of a shift in, like, your lens, the way you look at things, because I feel like a lot of the skills are often there, but you just have to be more explicit and put more focus on them. [...] the being metacognitive is key and just shifting your mindset to more of like a skill-based mindset. [...] I think I feel confident, and I feel confident in seeking out help and guidance if I'm unsure [SA5: November 22nd, 2019].

So just like James (ST2), experience was revealing for Jacintha (ST5), but most importantly, her long practicum was the missing piece in giving her a confidence boost.

On the other side, some initial questions were met with even more questions. Melanie (ST4-2) talks about her experience with inquiry as being hard to teach and put in action. Drew (SA4) gives an example of a previous ST who struggled and quit the program. It was hard for her to develop the ability "to branch out to something different and unexpected. Because you know, inquiry is great, but it leads to unknown, right? It leads to like, what are they going to make? I don't know". How can we make sure ST are comfortable with uncertainty themselves to be able to facilitate inquiry activities for their students?

Most student teachers are now familiar with curricular competencies, but less with core competencies. It is the case for James (ST2). His school associate corroborated the fact. This could be explained by what James (ST2) initially said before his practicum:

So I do feel, in general, that we didn't get enough, like, instruction on how to apply the curriculum to our teaching. It seemed very surface level, very brief. But maybe it's because they want us to just try first and then learn from our mistakes, and they'll go into more detail about the curriculum later. I don't know what they're planning. But I think there's a general sense of anxiety amongst the student teachers like, "Oh, we don't know enough, like what are core competency..." We haven't talked about core competencies a lot so far [ST2: February 15th, 2019]

After his practicum, he added that he was still a bit lost, but he had a sense of where to start implementing them. The bulk of his learning came from experience. He adds that

core competencies and curricular competencies give good guidance even though he originally thought the opposite. James (ST2) and Emily (ST6) explain how helpful the backward design model (Wiggins & McTigue, 2005) was for unit planning.

In conclusion, it is possible to say that many answers and clarifications were provided by experimenting teaching, but there are still important comprehension pieces missing for student teachers. Therefore, when referring back to my research question about the level of introduction of competencies within the PDP, the results reflect that there are some shortcomings in terms of the implementation of curricular and core competencies and assessment. Now, I will talk further about the extent to which the competency-driven curriculum was included into the teacher education program at SFU.

4.2. The redesigned curriculum in the teacher education program

As mentioned earlier, shortcomings were identified in the way student teachers were introduced to the competency-driven curriculum. Now, I will address each part of the teacher education program to yield data for sub-question number one which states: How are competency-related concepts and teaching practices addressed in the teacher education program, according to faculty personnel and student teachers?

First, I will analyze their time on campus by analyzing each semester in chronological order starting with the newly added semester EDUC 400, the module EDUC401-402, and the summer courses which were more subject specific. Then, I will delve deeper into the benefits and consequences of the two practicums. Finally, I will talk about the beneficial aspects within the program.

4.2.1. At the university

The university context is for most student teachers the initial contact with the new curriculum considering that none have experienced it as students. Therefore, the role the faculty holds in introducing the central tenets of the reform is crucial to a sustainable and faithful implementation. First, I will talk about the first semester EDUC 400. Then, I will talk about the coverage of the new curriculum within the program and the importance of

tackling students' initial conceptions about education in general. Finally, I will conclude on how student teachers are graded within the PDP.

EDUC 400: A new semester

The cohort of student teachers that I interviewed was the first one experiencing the added semester. Therefore, it is totally normal that there was some fine-tuning necessary. I am aware that changes have been made to the second attempt of EDUC 400 last September, but I am unaware of the nature of those changes. Tyack and Cuban (1997) also highlight how it is unwise to evaluate programs in their first iteration. Regardless, I will share some of the concerns with respect to competencies that were told by participants of my study. However, it is important to understand that I bring forward the experiences of certain student teachers and that these perspectives only stand as grounds for reflection since they do not necessarily represent a complete portrait of this added semester.

First, Jacintha (ST5) felt that it lacked context.

I think the first semester, for me, I've got to say, was the weakest. It was nice going into the schools, doing a community scan, and learning about special needs or special education. We did a lot of different workshops. That was great, but I didn't really have any context or anything to go off of. I hadn't even seen a unit plan or a lesson plan, and I didn't even know what the workload is like for a teacher. So, that information was like, yes, I'm learning, but I didn't know where exactly I was going to apply it or in what capacity or how [ST5: August 29th, 2019].

For instance, she wishes lesson and unit planning was introduced earlier to allow a better understanding of what was coming up for them. Thus, the first semester would have been more meaningful to her. The importance for student teachers to have a better vision of their future profession was very important to her. "I remember that whole first semester wondering, like, what is teaching actually like?" In the same vein, Maria (ST1) says that the lack of context hinders the understanding process of theoretical concepts. "Even if they were to tell us the how, it doesn't really sink in until you see it". Indeed, many said that there was a lot of theory, and very little practice.

All student teachers agree to say that they learned a lot about inclusion and indigenous knowledge from EDUC 400, but not enough on the competencies in the new curriculum. For instance, Liliane (FA1) says that student teachers don't look at the

curriculum's model at all in EDUC400 and it would help them to be introduced to it before they do unit planning and school observations. James (ST2) brings forth another perspective:

I think they wanted us to get a head start on maybe creating personal connections with those different areas of education. For me, I found that was very helpful, because I didn't know much about special education, and I didn't feel particularly connected with Indigenous education before PDP started. But that first initial semester, even though there wasn't a lot of interaction, it really helped to prepare me for this semester [ST2: February 15th, 2019].

Isabelle (ST3) also talks about how she enjoyed learning about all these different subjects to slowly be able to construct her teaching identity which was a process that carried on throughout her PDP.

The coverage of the new competency-driven curriculum

As stated previously, the competency-driven new curriculum wasn't addressed within the first semester, and it wasn't necessarily addressed explicitly in the following semesters according to all student teachers. Maria (ST1) explains that everyone within the PDP thought someone else taught it.

I think everyone in the program sort of was thinking that someone else explained it. It got missed somewhere. This semester, I think they thought that it had been explained last semester, because it was the new semester, in which we were supposed to talk about all these things, but it ended up kind of going around [ST1: February 14th, 2019].

There wasn't someone or a course that was specifically in charge of it. A lot of the learning was self-directed. Maria (ST1) and Emily (ST6) said the bulk of her learning came from her reading the document detailing each competency out of her own willingness to better understand them. For James, there was some time devoted at looking at the website during EDUC401-402, but according to him, it was more browsing. As they were preparing to teach their unit for their first practicum, it was essential that they go more in depth for that specific unit, but he says that it's almost like they only got a taste of it and now they were asked to try it themselves. He speaks of the anxiety feeling he and his classmates experience when trying to make a unit plan for the first time.

We're all a little bit worried about, you know, planning and lesson planning, because we haven't seen a lot of good examples in the semester or during this learning time for us. [...] we don't know what

good unit plans look like, what good lesson plans look like, or what good activities look like [ST2: February 15th, 2019].

He adds that he had never seen a written unit plan before he wrote his first one. He was only given a template. He did touch a little bit each part like core competencies, curricular competencies, and potential barriers, but he qualifies that as more surface-level teaching. He would have appreciated more explicit discussions on it.

School associates welcoming student teachers into their classroom also observed this reality. Ann (SA5) talks how surprised she was when she initially realized her student teacher's understanding of the new curriculum:

You learn how to interact with students on your practicum. That's something you can't teach at SFU. You have to be in there with the kids. But the one piece that you can learn at SFU is the curriculum. And I feel ... because I was very lucky to have her as my short practicum and long practicum ... like, she had ... and no fault to her ... she had not even consulted, she didn't even know what the curriculum was coming into short practicum [SA5: November 22nd, 2019].

Ann (SA5) advocates that ST should receive more explicit instructions on the competencies within the curriculum. Student teachers need to know the nuts and bolts of the curriculum before SAs can show them how to implement it.

On the FA side, Liliane (FA1) made a strong affirmation about how she felt the competency-driven curriculum was addressed within the program at the moment.

I think that the way that the new curriculum is being taught to student teachers is the same as the way that the old curriculum has been taught to old student teachers [FA1: February 21st, 2019].

This affirmation is revealing because it might underline that the shift towards competencies that is slowly being operated within schools hasn't quite caught up with post-secondary yet. So, it's one thing to talk about this new way of teaching, but it's another to teach it in a traditional fashion. Yet, she remarks that SFU has always been more avant-garde. According to her, she is more a guide on the side than a sage on the stage.

Another important point that was brought up was how uneven the exposure to the new competency-driven curriculum was following the EDUC 400 semester. Some STs were more fortunate than others to get FAs that were very explicit.

I think it does depend on your FA and our instructors because we had an amazing FA in the secondary module, and we are also very small module. There is only sixteen of us. So, we were very close and group discussions were literally whole group discussions, and it's quite easy to do a group discussion with only 16 adults. So, I think our FA contributed a lot to our understanding... [...] **So it depends a lot on the SA. And the FA.** [...] because with our FA I think she was very engaged in the new curriculum, and so we were very engaged to the new curriculum. But having done other courses over the summer with other people from different modules and some were equally engaged some were far less engaged depending on what the focus of their module was [ST4: August 29th, 2019].

When asked what she meant about engaged with the curriculum, she detailed how:

We went really deeply into the core competencies and we kind of like looked at what the different competencies were but also like applications of how do you teach them in this scenario and how have other teachers had success teaching them in this or that scenario or whatever [ST4: August 29th, 2019].

Other secondary student teachers who were not in a secondary module found it confusing to have FAs that were not secondary science teachers. Emily (ST6) says although her FA is wonderful, "The science material is a bit of an add-on which is hard". Isabelle (ST3) understands what her FAs are advocating for, which is that no matter your level, you can learn from each other. Yet, Isabelle (ST3) says one of her biggest complaints about the PDP was that she was shocked that she had not been in contact with more science student teachers. She feels some activities are just not applicable to a science classroom.

They were trying to explain how this would be great in all classrooms and a science classroom. But the problem is, I think what they missed was that we don't have as much time as other classes because we have so much like content to cover. [...] In science, there always needs to be, like, all the content needs to be explained. There needs to be sort of quizzes checking out to make sure people understand the content, tests, labs [ST3: February 15th, 2019].

Within this statement, we can find a mindset that is still aimed strongly toward the content and the importance of grades. When asked what type of assessments she would favour, she replied that summative quizzes are really good for checking learning. This shows that the shift that needs to be operated to implement the new curriculum still hasn't occurred for her at this stage. When following-up with her after having gone through the program, she states that her views on the matter had not changed. According to her observations, students were motivated by grades and "students never wanted to do what they wouldn't

be graded on, or activities they knew other students didn't need to do.” She adds that students shared with her that core competencies were a waste of their time.

In conclusion, the coverage of competencies within the new curriculum did not begin until the EDUC 401–402 semester and even then, it felt uneven amongst the modules. Having gained a better understanding of the competency-driven curriculum beforehand would facilitate unit planning, and introduction within the school milieus.

Student's initial conceptions

This section falls perfectly right after Isabelle's opinion about the importance for grades and content. What I am trying to demonstrate here is that it would be beneficial to tackle further initial conceptions to foster enduring conceptual change. Results show that many student teachers remain highly influenced by their prior schooling experience. Since the new curriculum requires a big mentality shift, it is essential to address those conceptions to inhibit them and ensure that student teachers will not be tempted to go back to the old ones.

Let's look at some of the initial conceptions student teachers have from their own schooling journey. Right away, Emily (ST6) says that she knew the curriculum was going to be different because all she had ever known was content-based learning. Isabelle (ST3) highly values percentages for herself and her students.

So, I believe in percentages. And I just remember when I was in school, I liked seeing just like, boom, that percentage. And I wasn't sure why they changed A, B, C, D to level 1, 2, 3, 4. Because of the same thing. In my mind, I'm like... You know, just maybe their explanations are different, or maybe they seem nicer. I've no idea. So, grade scales confuse me [ST3: February 15th, 2019].

On the other hand, Emily (ST6) and Melanie (ST4) see the value of shifting the emphasis away from grades for their students but not for themselves. They want grades. Jacintha (ST5) also talks about her views on grades:

Because again, my own education, I came from like, “Grades are the most important thing.” And I feel like somewhere in my mind, I still have a little bit of that. Like, I understand, but also, I often think about like, oh, so, are they going to get a grade? [ST5: August 29th, 2019].

She also acknowledges that she has gone through the old curriculum as a student and it was much different. It was note-taking first and then, exercises. Regardless, she feels that her mentality is slowly shifting.

Because I remember myself, I used to want to do all the things that would give me an A, and just like limit my learning to that sort of box. And I would just want to do that and not take a risk and do something different or go beyond, even if I didn't quite get the A. Maybe I got a B or something different. But I think it like killed my creativity. So, I think the new curriculum, it's nurturing that creativity within students and helping them be themselves and learn outside just like this structured, "Okay, this is what you need to get an A, this is what you need to get a C+, this is what you need to pass the course." So like, going beyond those barriers [ST5: August 29th, 2019].

For James (ST2), he is well aware that his own schooling is influencing his perspective. He is in favour of grades sharing the spotlight with competencies, but he is having trouble envisioning how it is implemented in the classroom just based on his personal experience through K-12.

In conclusion, student teachers would benefit from an exploration within to allow the emergence of those initial conceptions. Therefore, it will be easier to adhere to the different mentalities embraced by the new curriculum.

Grades in the PDP

As discussed previously, it is evident that the PDP is doing a decent job at communicating that the redesigned curriculum is shifting its focus away from grades to bring forth competencies. However, even though it's beyond the reach of this thesis, one wonders if teacher educators are practicing what they preach. Universities have been known for being very grade-oriented. It was not my purpose to evaluate the newly reformed PDP, especially in its first year of implementation. However, in some cases students did experience an incongruence between how they were treated as students in the program and what was being espoused in the BC Curriculum. For instance, Lisa (SA4) talks about how this could influence student teachers' practices.

I would love if student teachers, I think, were maybe a bit more adventurous, to be okay with trying and feeling. I think the rigours of going through, especially post-secondary, it's very marked-based, or it can be; I'm speaking from personal experience. But a lot of stress is like, do you show up? Can you do the exam? And then, they continue to take that and their previous experience of school and transitioning that.

And then, when they really hit what schools are really like nowadays, then they're forced to shift their thinking [SA4: November 12th, 2019]

Yet, the PDP works on fail/pass program. The only time the students will receive letter grades is during their summer semester with subject specific courses. For having been a teacher of those courses, I have first-hand experience on how seriously student teachers take these grades. Melanie (ST4) actually complained how arbitrary these grades were attributed. According to ST, they are the grades that they will need to show to future employers. Liliane (FA1) remarks that it is because of districts asking for references about the best candidate that they actually need grades.

If we were working in the confine, this is simply for the student, no end result, we don't need grades at all. But it's that there are external factors, in a sense, that require grades from us in order to separate, filter out, or filter in. I don't ... my students don't need grades, but other people need grades for them [FA1: February 21st, 2019].

Liliane (FA1) believes that competencies have a space in PDP because they would yield more feedback. As of now, she thinks that student teachers do not receive enough feedback because the PDP goals are broad. Her ideal would include:

I would see it with different specific competencies. So, the goals that currently exist, but they would be a little bit more specific and instead of the sub-goals, some of them would be connected to each other. So, there wouldn't be quite as many sub-goals. There would be some sort of a scale, like a rubric like what we use in schools, that would demonstrate the ... they would do some sort of self-assessment on that. And then, the faculty associates and the school associates would also do some sort of assessment on that as well. We'd give them very specific feedback about different ways they can improve. Right now, we do it, but we do it with very few things. So, on their midterms and their finals, they only pick two areas that they want to consider for further growth. Instead of looking where the scale would be for a number of different aspects [FA1: February 21st, 2019].

She refers to the document "Profile for Teaching Competency" that was previously used to evaluate student teachers as a good way to receive feedback on a scale for each competency.

Also, Shawn (FA2) makes an interesting parallel between core competencies and curricular competencies and the PDP goals.

So [goals] 8-9-10 are about the curriculum. But really 1 through 7 are about you as a growing professional. You can almost take that and those

are our core competencies. And then we can take “how we learn” and “whom we learn with” as, in a sense, curricular competencies. So, it’s not just this focus of what makes a great teacher or what makes a great unit plan. It’s who am I? This personal development that we go through that we’re not just creating the system of certifying teachers on set attributes. It’s these personal attributes that we are looking at. I think that PDP is doing a great job and always had about developing thoughtful, caring, kind, well-planned professional. And that’s what I want for my students [FA2: April 25th, 2019]

Overall, both FAs seem satisfied with the grading system in the PDP. Nevertheless, Liliane (FA1) thinks that remodeling the goals so they include a form of rubric would yield more feedback for student teachers to improve their practice.

4.2.2. Practicums

As it was stated previously, the choice of SA will highly influence the extent to which a student teacher will implement the redesigned curriculum. Lisa (SA4) and her student teacher agree to say that it depends a lot on the SA. Which brings forward the selection process of those school associates? Liliane (FA1) thinks that SAs should be selected because of their engagement with the new curriculum. This is the missing piece.

I think if the school associates understand it [the curriculum], then I don’t think we need to spend more time at SFU doing it. In the same way then in the past, if the school associates were really progressive educators, they would still help the student teachers more than school associates who weren’t. But now with the new curriculum, it is even more important that the school associates understand the curriculum and can work with it so that they are not just relying on student teachers to bring in information about the new curriculum. They have to be mentored relating to the new curriculum. And many are, but some aren’t [FA1: February 21st, 2019].

So, it seems that the selection process could be revisited because some of the school associates in this research are not that familiar with the new curriculum. At the moment, teachers are appointed by an administrator. Student teacher who end up with less progressive teachers are bound in certain ways to teach like them for now. Emily (ST4) says that she is working under constraints because she is experiencing the new curriculum through the lenses offered by her SA who is new to the redesigned curriculum. It actually becomes a true concern for ST that they become “stuck” with a SA that is not proactive. James explains how one teacher whom he observed in her classroom reacted.

She expressed that she's uncomfortable and that she wished she could just, from what I remember, just stick with what she does, because that's what she's been doing forever. And I heard, just here and there, whether it was in PDP or in my other volunteer experience, that a lot of older teachers are not changing their teaching style to meet the new curriculum. They're just sticking with what they've always done. And I heard there's a lot of that going on. And that sparked a lot of concern amongst new teachers. "Oh, what if I got placed with an ... with an SA that is like avant-garde, right?" Kind of like not willing to ... right? I'm not sure if that's the right use of the term. But you know what I mean? [ST2: February 15th, 2019]

This case is not isolated. Liliane (FA1) also reports a lot of resistance around the new curriculum within the schools. "Our new student teachers are the ones who actually never knew anything different". Are we putting too much pressure on student teachers hoping that they can bring the change that is needed for the curriculum to fully be implemented? By considering student teachers like the figurehead of the new curriculum, we might be depriving them from an opportunity to learn from a practitioner who has first-hand notion of how the new curriculum unfolds. Therefore, the choice of SA is a highly critical component within the teacher education program.

Although Liliane (FA1) thinks that the SA should be the expert of the curriculum, Shawn (FA2) thinks that there is currently a lot of side-by-side learning.

So, for those student teachers, they are getting way more support in this draft curriculum than their school associates are. So, there is kind of this side-by-side learning for those 11-12 this year and the years before 8-10, and then K-7. Like I said, they are not only trying this in a well-supported environment of PDP, they are actually supporting others, experienced teachers in this. So, it's really important work [FA2: April 25th, 2019].

Shawn (FA2) also adds that because that field work is so valuable, student teachers would benefit from having more time in the classroom. This would allow more time to observe and "slowly take on the process, which they do but I don't think that within a two-semester system ... really 401 and 405, it is too short". According to him, letting ST apply their knowledge over a longer period of time would yield better retention rates and less stress. Even with the added semester, Shawn (FA2) outlines that it does not increase their "in-school work". He suggests having a 2 years-long system for PDP.

School associates resonate with Shawn's call for more experience. According to Joanne (SA1), this would allow ST to experiment with different types of classroom settings.

As of now, some student teachers stay in the same school with the same SA for their two placements. It does remove the trouble of going through administrative issues in the beginning and shifts the focus right away toward teaching, but it does not necessarily offer a variety of classroom experiences. James (ST2-2) talks about the value of meeting experienced teachers:

I think the biggest factors of my growth, I think, have been the people that have been guiding me. And I think that's how the program is structured, right? To give student teachers access to knowledge and wisdom and experience from the mentor figures [ST2-2: November 8th, 2019].

He also adds that the bulk of his learning came through experience. Jacintha (ST5) also praises the value of experimenting on her own.

I think you can like talk about something for so long, but you can't really understand it until you're standing there and you're implementing it and you're doing things. So, I mean like, lesson planning and unit planning and learning more about that and getting resources from other teachers is very helpful, but also like, doing things yourself and running a classroom and learning from your own mistakes is sort of the best thing that you can do [ST5: August 29th, 2019]

Jacintha's comment abides by the "learning by doing" component of the redesigned curriculum. During her practicum, she also experimented with FreshGrade. For her, it was a tool that was useful in the process of understanding the new curriculum. It allowed her to know what she was assessing by attaching curricular competencies and it allows a good overview of what was covered, what was done and how it was assessed. You can see student progress and they can see it too.

Maria (ST1) also thinks more observations would be beneficial. She even proposes shadowing a few teachers doing different subjects. According to her, the amount of information she would learn about classroom management would be highly valuable.

In conclusion, all participants agree to say that more experience would be valuable for learning both about the competency-driven curriculum and the nuts and bolts of teaching. When pairing a ST with a SA, it is important that the latter be carefully chosen for their implication with the redesigned curriculum in order to provide good guidance for student teachers.

4.2.3. Beneficial aspects

Throughout my conversations with student teachers, many aspects were stated to improve student teachers' understanding of the redesigned curriculum. Therefore, I will highlight them so they can be emphasized by the PDP.

As mentioned before, the practicums and field experiences were highly appreciated features of the program. Another important component was unit planning sessions. In retrospect, Melanie (ST4) said it was one of the key elements that helped her understand the curriculum. Shawn (FA2) abides by stating the importance of the planning phase to implement the new curriculum. On the field, Nicole (SA2-1) agrees as well:

I think they do a pretty good job at SFU about when they do their lesson planning to include all those pieces. [...] I just think that with how they make them connect everything on their write-up, I think it's beneficial. It's a lot of work, but I think it really gets them thinking about what they're doing [SA2-1: November 8th, 2019].

It is interesting to note that all levels of actors of the teacher education agree on this aspect. So, the perspective from school context is coherent with the academic world.

James (ST2) also says unit planning has been essential for his preparedness in teaching to the new curriculum. Not only was it useful to create, but it was even more important to ensure that he was consistent with the goals he had set. Initially, he recalls that his experience with unit planning was rather tumultuous:

There were a couple of days devoted to it during short practicum, module time. But it wasn't like comprehensive by any means. We even had like a day during 401, 2, where we all met up as like grade groups through all the PDPs, all the elementary school people met up. And then we like shared our units and provided feedback, but I personally found that very unhelpful, because it's like the blind leading the blind. Like none of us knew what we were doing. And we were just trying to help each other, but I'd rather get help from someone who knows what this is about, like an FA. Right? And then for 405, we had even less time in module before we came to the schools. We had like one day, one afternoon to refresh our memories about what unit planning is like, we took a look at some finished unit plans, and we discussed what made them good. But it wasn't really. We made unit plans, I mean, got feedback from our FAs. We had like a 45-minute one-on-one, but that's not even enough time to really go through one unit plan carefully. Right. So yeah, I just got thrown in the water. Yeah, I had to figure it out [ST2-2: November 8th, 2019].

On the other hand, Shawn (FA2) talks about the process he uses to teach about unit planning. He really emphasizes the approach of making student teachers understand **what** they will teach, **how** they will teach, and **why** they will teach it that way. It avoids that student teachers just pick, and achieve a random activity without actually understanding the pedagogical foundations behind it.

What How Why. If you don't have one of those, typically the how, and the why, your learning activities, well the importance of your learning activity falls flat. It is not supported [FA2: April 25th, 2019].

So, although the process might have been difficult and long, all participants seem to find a significant amount of value within this exercise.

Another important emphasis within the PDP is the focus on reflectiveness. Isabelle (ST3) says that her SA encouraged her to adopt a reflective practice, but that the PDP was also very conducive to a reflection within her own identity. She talks about the EDUC400 and EDUC401-402 semesters:

[Faculty Associates] were all about sort of creating your teacher identity, kind of creating your own morals and things that like you kind of stand for as a person. And that kind of helps shape you in a way that's ready to educate others. This is the first time in my life I feel like I've had time to learn about me or work on me. [...] reflecting, right, has become this tool to create your authentic self. And I've liked the process. I've liked the self-journey that I've been on [ST3: February 15th, 2019].

With that respect, Isabelle (ST3) says that the PDP is mirroring a lot what the BC curriculum advocates. She says that the PDP is encouraging student teachers to be reflective and authentic and she has observed that teachers in schools are continuously doing that as well. It struck her because it was so different from what she was used to referring to her scientific background. On the other hand, for Jacintha (ST5), it was goal-setting that allowed her to cover the new curriculum by taking the time to reflect on herself, her teaching and her students. Interestingly enough, Beck and Kosnick's study (2008) emphasize that, "none of the interviewees mentioned the emphasis on reflection in negative terms" (p. 122).

During module time, Melanie (ST4) particularly like how humble her FA was when she talked to them about her mistakes that she did. She modelled for them that it's acceptable to admit your mistakes to your students. Isabelle says that the sharing of resources has been very useful in giving her confidence to try the new curriculum by doing

things differently and taking risks. Emily (ST6) said she enjoyed having a smaller group. She also appreciated looking at the curriculum after experiencing it herself as a student and explicitly highlighting the important parts. For instance, she mentions how her FA had core competency magnets and curricular competencies highlights to bring those in the forefront.

Like Emily (ST6) said, experiencing the curricular and core competencies as a student was very powerful for ST. Emily (ST6) emphasize how these were revealing moments for her understanding of the curriculum. She recalls living a hands-on lesson that was delivered by two of her classmates. In retrospect, she was able to pinpoint all the curricular and core competencies that she had worked on during that single one-hour activity. She also states that she understood what an authentic task was by actually participating in some during her *Design for Learning: Mathematics* course. Jacintha (ST5) agrees by saying that she enjoyed:

...doing small activities in a classroom environment, and also just like thinking about what curricular competencies are being touched and how do these lessons relate to one another, I think that really helped in like the Designs for Learning: Science and my English class that I took [ST5: August 29th, 2019]

Because she experienced the curriculum as a student within her courses, she expresses her value for experiential learning for herself and extends the application to her students.

In that sense, Melanie (ST4) stated an important aspect that is required from her teacher education: she wants her teacher training program to be coherent with the curriculum they are supposed to be teaching.

They need to start practicing what they preach because we've been told that we need to give kids autonomy to fight for their own education and to tell you what they want to learn about and how they want to learn it, but when we try and do that to the University ... they're like pffff ... whatever. We're being told in 400 and 401-2 that tests are no longer appropriate ways of assessing ... like there are circumstances where they are still good and they have reasonable outcomes in a well-designed test. Yet, I just wrote an exam worth 50% of the final grade and a lot of it is like explicitly teaching communicating [ST4: August 29th, 2019].

According to her, some courses in education do not preach what the recent learning sciences and what the redesigned curriculum is promoting. For instance, she says that she would have liked that some of her courses focused on some core competencies

equivalent to teaching such as how to manage time when you are a teacher. She even states another example to represent the disparity. She talks about a course on *Curriculum Development: Theory and Practice* that she took.

The new curriculum and a lot of spots were described as being K-9 which is not true because it is K-12 now. Examples of the new curriculum only went up to grade 9 which that's you know ... more than half of the teachers will only be teaching within that realm. A lot of us will be teaching 10-11-12 too, so it's relevant to have examples of all grades and then there was a final exam worth 50% of our grade. [...] it's [our] training and so to have a 50% exam on a course that's about curriculum theory and development with a new curriculum whose focus is no longer on test taking I was like "What is this?". And so it was like almost the course in itself was an oxymoron in itself. It was very frustrating [ST4: August 29th, 2019].

In that sense, Jacintha (ST5) appreciated that SFU's focus seemed to be more on competencies than content.

It was mainly like focused on like the competencies rather than the content, because I didn't get any of the content in the first semester. And I was really scared because I was like, oh, my biggest sort of problem or issue will be the content, because like, I wonder if I'll remember like Chem 11 or Chem 12. But I think I've had a complete 360 from that, because content is something that you can just go through even like day by day, and it just comes back, because like, you know most of it, and you're learning along with the students [ST5: August 29th, 2019].

So, she appreciated that just like the curriculum, content and competencies share the spotlight. Again, the fact that she experienced it allows this learning to be more meaningful than if she had been told. However, some were not too keen about being separated from their "content" peers. For instance, Emily (ST6) and Isabelle (ST3) were looking forward to interact with other science student teachers. So, they appreciated the "mash-up" where all science teachers met for a day of activities.

In conclusion, unit planning was particularly helpful in understanding the redesigned curriculum. Other important features included the focus on reflectiveness, modelling of the curriculum by teacher educators, and experiencing the curriculum as a student. Opinions vary on the extent to which the PDP was aligned with the new curriculum. Some elements were very correlated while others were incongruent.

4.3. Parallels between the BC curriculum and CBE

In this chapter, we will discuss the extent to which participants are familiar with central tenets of CBE. We have already discussed a few with respect to personalized learning and competencies, but there are still some important points to cover. It is important to mention at this point that student teachers were not asked specifically about competency-based education because of the follow-up interviews. I did not want to share that the emphasis of my study was on competencies because I did not want them to focus consciously or unconsciously on this aspect hence creating a bias on the data. Therefore, I probed student teachers on specific parts of CBE. However, I was very explicit with school and faculty associates. Regardless, none had ever heard about CBE per se, but many made correlations with our curriculum when given the following working definition on CBE. The definition goes as follows:

- Students advance upon demonstrated mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students. It is flexible and can take place anywhere.
- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions (CompetencyWorks, 2011).

School associates and faculty associates reacted to certain elements of it. All stated that it is an interesting concept, but there are certain limitations. For instance, Laura (SA2) addressed how true personalized learning was very hard to achieve practically speaking. Another important critic was with respect to the mastery approach. According to Liliane (FA1), flexible pacing is not worth it because we go back to what was done in the past referring to holding students back a grade. She adds that there was a reason this practice was abolished. The same concern is expressed by Lisa (SA4) who anticipates drawbacks, such as self-esteem issues, from holding back students until they master. On the other hand, Drew (SA4) speaks to the socialization process that takes place in schools and how this mastery approach could affect friendships. It almost reminds him of the concepts

behind the infamous Khan academy “where it’s individualized, and you’re on your own path, and you have to master the thing before you can move onto the next thing. I haven’t really seen this in action”. He also mentions similarities with a flipped classroom:

Where they’re on their own individual paths. And I wonder ... like, I like it. I do. I think it’s really good. But are they missing the whole classroom experience? Do they get to work together on things? Or is it individual only, you know? I don't know enough about this yet to really comment on it [SA4: November 12th, 2019].

His perception is not far removed from Maria’s views. According to her, mastery rhymes with individualization. Therefore, there is a disconnect in terms of the core competencies, such as collaboration, communication, personal and social, advocated by the BC curriculum and how students allegedly work within a mastery-based system.

The other thing is that they [the Ministry of Education] want everyone to work together as well. That's a problem if you're talking about mastery, which is an individual thing. But you want people to work together and to have all those personal and social goals, then it doesn't really fit together. So that's the problem. And then, you're also in a system where if different courses and different teachers are doing different things, then I don't know if that fully works out. And then you have to hand in a report card. What is your report card going to say, you're mastering some things, but not others? Or you're still on the first unit because you haven't moved on. Except when someone who doesn't get something and won't get something, then you have to be able to move on. So, there's a disconnect [ST1: February 14th, 2019].

Just like Drew (SA4), Maria (ST1) does not think that mastery is an option because of the potential repercussions on the socialization aspect that takes place within a student’s schooling journey.

In the same vein, Shawn is in complete disagreement with the mastery approach:

If we ever look at one rubric from one to four, we will never move on until all kids get the four. And that’s just not the way it is. I think it would reduce how many of those competencies we can actually work with to get always to a four. I think it reduces our creativity and the importance of education being a learning over time [FA2: April 25th, 2019].

So, Shawn (FA2) associates mastery to a four on BC’s publicized proficiency scale. This is an interesting point considering that proficiency scales are an integral part of the redesigned curriculum but have yet to be adopted by all teachers. Indeed, “A large

percentage of secondary school teachers feel that letter grades (58%) and/ or percentages (60%) are an important part of communicating student learning” (Gacoin, 2019).

For Nicole (SA2-1), it is not as clear what mastery would look like within a primary context:

So that one [students advance upon mastery] is a little bit more vague for me, depending on what you're talking about. I think if you're talking about being able to add or subtract, then you can maybe measure how they're getting to mastery. But even then, I have a lot of kids who go to Kumon and memorize those facts. But if they make a mistake, they have no idea what the right answer is because that's the only answer they've memorized. So, I wouldn't consider that mastery [SA2-1: November 8th, 2019].

Even for student teachers, the concept is unclear. This is how Maria (ST1) understands mastery:

So, students have a, I guess, the idea is for them to be able to see which parts they were weak and get a chance to work on those to bring it up. And then overall, they end up having a higher percentage equivalent, but it's based off of a different system [ST1: February 14th, 2019].

In this statement, Maria (ST1) shows a vague understanding of mastery-based learning which is still tainted by her traditional views about percentages even though she acknowledges that success is expressed differently.

However, Drew and Lisa (SA4) note that the word mastery is not used in the redesigned curriculum per se. Nevertheless, they are both wondering what it actually looks like in a classroom. Drew (SA4) says: “I love the idea, but I don't know how logistically it would work as a teacher, right?” Because that is a point that was raised by many. How do you operate this sort of system within our time-based structures? The constraint of time is recurrently expressed. Lisa (SA4) addresses that issue when discussing how she has to “fit” her labs within one-hour blocks. From Maria’s point of view, it is the option to retake until skills or content is mastered that is difficult to operate within the current infrastructures.

So, how that would be structured within the timeframe that you have in a semester school, and you only have four or five months and you have four units. It's hard to allot time to go back and redo or something like that. Especially, what if it's an experiment-based thing. In university, it's so easy, you have a lab, and if you need to redo any of the labs, you can go and do that on your own time, but that's not the same for high

school. So, some of the things are being presented. It's a little bit like "okay, but, but let's be realistic with what we have already," because you can just change all the infrastructure that exists [ST1: February 14th, 2019].

She thinks that the mastery-based approach is not necessarily doable for all subjects. The mastery-based system is not something that was mentioned during the PDP; it's something that she observed within school settings.

And then the idea from what I understood from those teachers is that they would allow for a lot more flexibility in the pacing of the topics. So, some kids might be moving on completely, and some kids might stay, which is what Montessori does and it works so great there. Yeah. But with Montessori you have so much more flexibility in everything else, like you have different assessments strategies and you have different... So I don't know how that's going to come into the regular public-school system, but I think if everyone accepted a mastery-based system, I think it would be great, especially for math and science, too, the kid knows when they're ready to move on [ST1: February 14th, 2019].

It is clear that the concept is positive in her opinion, but she cannot even fathom implementing such practice because it is so remote from what she knows and is accustomed to. At the high-school level, time-based infrastructures are part of the "grammar of schooling" (Tyack & Cuban, 1997).

Regardless of the opposition on the mastery aspect, many similarities were established between CBE and the reform in BC. Elementary-level school associates say it is similar to what the new reform in BC is advocating. Laura (SA2) states: "I don't necessarily think that it's [CBE] any different than what we're trying to do in the classroom anyways". Nicole (SA2-1) affirms: "Yeah, that sounds like our curriculum". Drew (SA4) adds that he is always thriving for meaningful experiences for his students.

Shawn (FA2), who is a special needs teacher, agrees with all aspects of CBE, except for the mastery aspect, and thinks that it correlates a lot with the revised curriculum. He emphasizes the importance that competencies be explicitly told to the students. For him, it is a question of mindset: a lot of the new curriculum aspects are part of who he is. Core competencies are at the center of his teaching with special needs kids. When learning about the new curriculum, Shawn began with the core competencies then, moved to the curricular competencies, and finally, to the content which was held minimal value in his eyes.

For Liliane (FA1), who is a high school teacher, she states that the CBE approach is similar to what she does in her classroom:

With the mastery piece, there are certain assignments that students will keep redoing until they've shown me that they perfected it and they move on. I don't do that for every assignment, but I take it out for parts of the course [FA1: February 21st, 2019].

She adds that students are assessed based on their competencies rather than a numerical score. So, in that regard, it is similar.

In conclusion, it is possible to see that there is a plethora of opinions on the central tenets of CBE. Some see its value whereas others don't. Then, there are also those who understand the benefits, but don't see how, practically speaking, it could be implemented within our time-based infrastructures. The connection between BC's redesigned curriculum and CBE is evident for most except for the mastery aspect. The latter cannot seem to find its place within BC's school system. Furthermore, it is important to mention that CBE hasn't been addressed per se within the teacher education program. Maria (ST1) is the only student teacher who brought it up, but she observed it within school contexts.

4.4. Summary and conclusion

In this chapter, I analyzed the key findings on how actors of the teacher education program perceived the redesigned curriculum in its whole and with respect to its various components. It was interesting to compare the theoretical understanding versus the practicality of the latter. As it occurs, all participants' understanding vary slightly when it comes to applying the concepts behind the BC curriculum. Indeed, although most participants agree theoretically, they find themselves sometimes lost in terms of how to apply those vague concepts. What is even more interesting is that it applies to long-time practitioners as well as new teachers. Results corroborated other research (BCTF, 2017; Gacoin, 2019) which indicate that there is a lack of time and professional development to allow sustainable implementation within school contexts, but it also brought forth how student teachers ought to be better prepared to implement the redesigned competency-driven curriculum with respect to their university training. Those aspects include increasing the coverage of the competencies across all semesters for all students, addressing

students' initial conceptions of education, and rethinking how grades are awarded within the PDP.

Also, the data provided insight on how student teachers understand the new curriculum and how their comprehension evolves throughout the program. I was able to highlight some of the features (school and university related) that facilitated that comprehension. In that sense, the practicum and field experiences were, without a doubt, the most helpful. Other important aspects included unit planning sessions, SFU's focus on competencies and reflectiveness, modelling and allowing student teachers to experience the curriculum as students. These aspects increase the student teachers' perceived alignment between their training and the way they are asked to teach.

This also allowed me to draw parallels with the CBE movement and understand how participants understand CBE components and perceive it within the structure of the BC curriculum itself. Similarities between CBE and the BC curriculum are evident for all school associates and faculty associates, but the mastery aspect is not congruent with BC's vision.

Data analysis in this chapter incorporated some initial discussions about the results. The following chapter will extend this discussion further to relate results to existing theory and other empirical evidence within the literature.

Chapter 5. Discussion

This chapter presents further discussions on the findings analyzed in the previously. In the previous paragraph, I was able to highlight important insights that provided answers to my research question *How is the recent competency-driven curriculum in British Columbia addressed in the teacher education program at SFU?* When referring to the teacher education program, there are two main constituents: the school setting experienced during observations and practicums, and the courses taught on campus. To allow good representation of both of these contexts, it is important to gather perspectives from all actors of the PDP including school associates, faculty associates, and student teachers. In that sense, the study intended to answer three sub-research questions namely

- 1) How are competency-related concepts and teaching practices addressed in the teacher education program, according to faculty personnel and student teachers?
- 2) What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum?
- 3) What aspects of CBE are manifested in the design and practice of the teacher education program, or in the school settings experienced by student teachers?

In this chapter, I will draw on the theoretical framework and relevant literature review provided within Chapter 2 in order to extend the discussions initiated with data analysis. Through a deductive approach, the chapter draws upon social representations shared by the participants of this study. This approach provides an interpretative lens to understand the data that was collected in this study and draw conclusions. Data is interpreted with the literature review in mind to be able to situate findings in current understandings and writings. These conclusions are of high relevance to ensure that the educational change that is being operated within schools is also reflected in the teacher education program.

5.1. Research sub-question 1

When considering research sub-question 1 “How are competency-related concepts and teaching practices addressed in the teacher education program, according

to faculty personnel and student teachers”, important insight may be gained by analyzing the recurrence of components of the competency-driven curriculum within the teacher education program. When learning about the redesigned curriculum, key components need to be understood by student teachers. As highlighted in Chapter 2, the reform in BC revolves around key elements of CBE such as competencies, an emphasis on learning by doing, and personalized learning. The results of this study outlined beneficial practices that fostered a better understanding of these theoretical concepts.

5.1.1. Experience is key

Student teachers shared that the bulk of their learning came from fieldwork with respect to school observations and the two practicums. Not only is the value in them clearly established by student teachers, but all participants advocate for more experience to allow more exposure to the variety of teaching methods, teaching contexts, and diverse student needs. All the faculty associates agree to say that more experience would be beneficial for student teachers, and a 2-year system was envisioned by one of them.

If we turn to the literature, Schwab’s work (1969) also advocates for a return to the practical because it allows a better representation of what the theory, in this case the curriculum, is truly like. The curriculum is a guide, but it is not a recipe. Student teachers need to experience the true intricacies of teaching. In that sense, Schön (1992) highlights the importance of “thinking-in-action” knowledge a practitioner develops when an “ephemeral episode of inquiry that arises momentarily in the midst of a flow of action” (p. 125). It could resemble unconscious adjustments made during an event such as a basketball player adjusting his position in response to his opponent’s manoeuvring.

In addition, findings from the learning sciences are also applicable to student teachers. Stein and D’Amico (2002) found in their research that there were significant resemblances between how students learn how to read and how teachers learned to teach. Therefore, it is possible to apply to student teachers some of the practices that are advocated in the BC curriculum. For instance, the “doing” emphasis, experiential learning, and the “hands-on” approaches are transposable in this situation. However, one has to be careful to not fall in the trap of simply providing a classroom to student teachers for them to experiment without guidance or specific learning goals. The learning environment needs to be carefully prepared to provide a rich and authentic experience that develops the whole

child (Montessori, 1988). In that sense, Piaget suggests providing a “learning environment grounded in action” rather than just concepts that are presented without context (as cited in Martinez & Stager, 2016, p. 14). Unfortunately, the opposite was reported about the EDUC400 semester which lacked context. Moreover, one participant even stated that the lack of context hindered her understanding of theoretical concepts. However, it is important to note that it is a common phenomenon in teacher education. Beck and Kosnick (2009) attribute this problem “in part to the difficulty student teachers have learning about teaching before they become ‘real’ teachers with their own classroom” (p. 10). Yet, they do not believe that it justifies giving up and continuing as usual.

An interesting avenue is the inquiry approach. Dewey advocates that inquiry is closely related to reflective practice (Schön, 1992). One student teacher even suggested that one of the reasons she wasn’t exposed more to the curriculum was perhaps because she needed to inquire about it by herself. However, it did not seem to be an appropriate use of inquiry to her because it did not yield sufficient amount of knowledge.

It is interesting to bring forth some nuance on this topic. It is possible here that student teachers’ opinions about certain realities of the program change as they enter their teaching practice. Indeed, Korthagen and Lunenberg’s (2004, p. 429) cite that “Although [student teachers] often develop sound ideas about teaching and learning during their preparation period, teachers quickly abandon these ideas as soon as they become teachers” (as cited in Kosnik & Beck, 2008, p. 117). Also, MacKinnon (2017) highlights how student teachers tend to value “practical lifesaver” knowledge in the beginning and that “it may not be apparent to teacher candidates at this time how the knowledge received from the university might relate to practice when they are trying to stay afloat” (p. 4). Therefore, it is important to understand that these perspectives brought forward by student teachers are meant to fuel discussion and reflection.

With respect to fostering inquiry, it would be an interesting approach to begin with self-exploration, but it would be important to supplement it with other learning activities. The interesting aspect about inquiry is that “there is no such thing as a final settlement” (Schön, 1992). Therefore, it implies that one always keeps on learning because one problem can spark other questions. This natural curiosity is highly relevant to teacher education because it has the potential of being a strong source of intrinsic motivation for learning beyond the classroom walls. “The goal is for the student teachers to become

lifelong learners, constantly inquiring into their beliefs and practices with respect to teaching and learning” (Beck & Kosnick, 2006, p. 53). Learning to teach is not a finality. According to Kosnick & Beck (2009), the need for ongoing learning in teaching should not be perceived negatively.

These techniques can play a key role in closing the gap between the rigour of academia and the relevance of the field social problems. As it was mentioned, inquiry might foster a more reflective practice. In that sense, student teachers understood the value of metacognition for their students, but also for them to be able to reflect on their practice. According to certain student teachers, modules created the appropriate atmosphere and conditions that were conducive to reflection whereas lectures felt more impersonal and out-of-context. One student teacher even highlighted how reflection was key for her in slowly building her teacher identity by understanding her own beliefs, values, and cultural system. Reflection is a key element in teacher training and is strongly connected to the learning by doing approach. Indeed, student teachers need to be able to reflect on the appropriate practices and then, choose which is more appropriate in a specific context. The goal is not to focus only on the “doing”. This could result in ST developing strong practical and procedural knowledge but being unable to justify their actions and their choices. The aim is to develop reflective practitioners who are able to apply their knowledge in concrete situations by reflecting on their conceptual knowledge.

Experiential learning is important for any kind of student. In their case, student teachers highlighted on many occasions that their learning heightens when they were experimenting the curriculum as students. Interestingly enough, it was when they accomplished tasks that are good representations of what the reform advocates that they had a better understanding of the realm of each approach, and consequently, the curriculum itself. Concrete examples and modelling by teacher educators were significant sources of learning for student teachers. For instance, one teacher candidate highlighted that she finally understood what an authentic task was when she was asked to participate in one during her mathematics course over the summer semester. Others expressed how skeptical they were of the practicality behind inquiry, but their concerns about the approach vanished once they saw how it could unfold after experimenting inquiry in a carefully thought-out environment. Also, the importance of conceptual change and the persistence of initial conceptions did not occur to them until they faced a conflictual change themselves. These examples support the importance of experiential learning. Moreover,

the latter is an essential part of the First Nations Principles and considering SFU's effort to align with First Nations Knowledge, it is highly relevant that this practice be emphasized further in the teacher training program.

5.1.2. Unit planning

When analyzing how students learned best about the new curriculum, student teachers expressed numerous times their appreciation for unit planning. This sentiment was mirrored by faculty associates and also observed by school associates. One school associate expressed how SFU is doing “a good job” at ensuring that all elements of the new curriculum are included in the unit and lesson plans. Although she acknowledged that it is demanding, it is worth it because it fosters connections between different elements of the curriculum, and it activates their reflection. One approach of unit planning that revealed to be very useful was the Backward Design Unit Planning Model which was popularized by Wiggins and McTigue (2005). According to faculty associates, it ensured that student teachers understand **what** they will teach, **how** they will teach, and **why** they will teach it that way.

However, it is important to remember that there were some shortcomings in the way ST were introduced to unit planning in general. Some student teachers mentioned that they had not seen many examples of a good unit plan before they needed to create one themselves. Also, student teachers had barely touched on some of the key elements of the new curriculum (core and curricular competencies) before being introduced to unit planning. It is important to remember at this point that student teachers were not exposed at all to the competency-driven curriculum in their first semester, and they were asked to create their first unit plan at the beginning of the second semester. Consequently, it felt superficial to just “fill out” the triangles for the core competencies. ST reflect that they would have required more information about the latter to allow more meaningful connections in their unit plans. An initial introduction to the core and curricular competencies prior to unit planning would have contributed to building a better understanding of these core elements of the redesigned curriculum. I suspect that the lack of knowledge might have hindered the full incorporation of competencies in the student teachers' practices. Indeed, we will discuss further in following section how competencies were not thoroughly understood and implemented, especially the core competencies.

5.2. Research sub-question 2

With respect to research sub-question 2 “What are the experiences and perspectives of student teachers throughout the program with respect to the role of competencies in teaching and in the BC curriculum?”, this study’s initial analysis outlined that experiences with respect to competencies were segregated between two categories. The latter are what is understood theoretically and what is really applied. There is a dissonance between the two and that is a potential threat to implementing the curriculum with fidelity. Erickson et al. (2005) have also critiqued the “persistent theory-practice gaps” in the teacher training program (p. 176). Schön (1992) outlines that there is a “radical separation of the world of the academy from the world of practice, according to which the academy holds the monopoly on research, which is considered to be out of place in practice” (p. 119). Therefore, a bridge needs to be built between the two instances. An interesting avenue is elaborated by Rogers (1995): establishing a clear diffusion strategy when wanting to implement an innovation is key. Therefore, it is relevant to clearly expose the intents of the curriculum during the teacher education program. Every year, there is a wave of newly trained teachers that will flood the schooling system. The education they receive has the power to either foster ambassadors of the new curriculum or resistant teachers. According to Schwab (1989), “Reflection on curriculum must take account of what teachers are ready to teach or ready to learn to teach” (p. 240-1). In other words, student teachers need to be able to make connections between their theoretical and practical understanding. I will expose next how these connections are not proper in relation to competencies in particular.

5.2.1. Theoretical understanding

The expectancy-value theory is a good tool here to evaluate student teachers’ perceptions about innovations. The theory stipulates that the more value an individual give to a task, the most likely he/she is to accomplish and persist in it (Eccles & Wigfield, 2002). Therefore, the perceived value student teachers have of the curriculum itself is likely to influence the extent to which they actually implement it. Rogers (1995) also adds that how potential adopters perceive the change affects its rate of adoption.

The results of the findings indicate that, overall, the curriculum was well received by student teachers. This sentiment was mirrored for teachers across the province

(Gacoin, 2019). There were some shortcomings that will be discussed in a moment. But, first, there are two interesting points to highlight: the level of understanding was high and it increased throughout the duration of the program. For instance, one student teacher specifically talked about how her teacher education program has prepared her in shifting her mindset. This suggests that the training that student teachers received was able to communicate effectively the essence of the curriculum in most cases. However, Isabelle (ST3) reported having difficulties comprehend how competencies unfold in teaching and she remained conflicted with her initial views about content and grades. In Maria's case (ST1), I was unable to follow up with her after her practicum. Therefore, it is impossible to know if her understanding remained stagnant or progressed. Nevertheless, the four other participants shared that they felt much more confident in implementing competencies after having gone through the entire program.

Teacher educators made use of a good diffusion strategy in terms of communicating the purpose behind the curriculum. However, many student teachers highlighted that they understood what the concepts were, but they were unsure on *how* to implement it. This aspect will be discussed further in the following section. Regardless, this overall good perception of the curriculum is a promising indicator in terms of student teachers being more likely to implement the redesigned curriculum with fidelity.

However, there were still shortcomings that were highlighted by participants from both school and academic contexts. First, actors from all fields expressed the need for courses on campus to reflect a greater and more explicit emphasis on competencies in general, but specifically on core competencies. The results revealed that student teachers felt the coverage of competencies to be superficial. Not only is it incoherent with what the reform advocates for, but it also hindered the learning process of such an important component of the curriculum. For instance, ST were asked to start including core competencies in their unit plans when they had barely been introduced to them let alone understood their meaning beforehand. Complaints about unclear explanations of theory are also reflected in Beck and Kosnick's studies (2008; 2009). "Many of the interviewees felt the theory in their preservice program was not explored in sufficient depth" (p. 6). I will discuss later that this affected the way that competencies were included in practice since they were more considered as an "add-on".

Also, according to one faculty associate, little had changed since the arrival of the new competency-based curriculum in terms of the teaching methods used by teacher educators. According to her, teacher educators teach the new curriculum with old curriculum techniques. Yet, it is highly relevant that teachers model the curriculum. Teacher educators who were able to model competencies for their student teachers played a critical role in fostering a better understanding of the application of the concept. For instance, one ST recalled that her FA would highlight the curricular and core competencies that were used in each activity they were doing. Not only did it increase their visibility, but it also grounded them in context. The teacher was able to unfold the tacit into explicit because the “knowing-in-action” was shared (Schön, 1983). A competent practitioner most likely knows more than he/she is able to express. However, it is possible to share this tacit information by reflecting on the action and extracting the key elements. “Phrases like ‘thinking on your feet’, ‘keeping your wits about you’, and ‘learning by doing’ suggest not only that we can think about doing but that we can think about doing something while doing it” (p. 54). Overall, when one is reflecting on their practice, this would be “reflecting-in-practice” (p. 59). This could involve a variety of reflections such as:

He may reflect on the tacit norms and appreciations which underlie a judgment, or on the strategies and theories implicit in a pattern behaviour. He may reflect on the feeling for a situation which has led him to adopt a particular course of action, on the way in which he has framed the problem he is trying to solve, or on the role he has constructed for himself within a larger institutional context (p. 62).

Therefore, a teaching practice including some “reflecting-in-practice” would foster the development of practitioners who analyze and understand theoretical concepts from multiple angles, and then reflect-in-action when a case arises. This vision is in sync with the realities of teaching. However, this explicit form of teaching did not spread across all modules. Indeed, many participants stated that it was very “FA-dependant”, and that the coverage of the competency-driven curriculum was uneven.

Another important aspect that is taught when modelling “reflecting-in-practice” or “reflecting-in-action” is the fact that teachers model that it is acceptable to admit when they are wrong. Many overly confident practitioners who view themselves as experts can be trapped in a world where they rarely practice reflection. “For them, uncertainty is a threat; its admission is a sign of weakness” (Schön, 1983, p. 69). Indeed, one student teacher admitted her admiration for her teacher who spoke explicitly of her previous teaching

mistakes. Yet, all her colleagues did not share this experience. The overall feeling that emerged from student teachers prior to their practicum was anxiety and uneasiness. Comments such as “I’m not sure if I’m teaching what they need to know or enough...” “But if I do a poor job...” “It’s like all these students’ education that’s in your hands and you’re responsible for...” “ ... you're held at such a high standard, like heaven forbid you mess up...” are representative of how insecure they feel about uncertain circumstances. The study of reflection-in-action is critical in giving student teachers tools to react in the front of uncertainty. Also, it sends the message that mistakes are acceptable as long as you can reflect on them and adapt yourself, which could help reduce the level of stress felt prior to teaching.

Another point that was suggested by all participants was to include more aspects of the competency-driven curriculum across the program with an emphasis in the EDUC400 semester. Just like the new curriculum emphasizes, the retention of important concepts is more enduring when revisiting them on multiple occasions (Knaack, 2017). Not only that, it is important to teach in accordance with the teaching practices promoted by the reform. A criticism that was also recurrent was the perceived lack of context in the first semester. Therefore, by introducing the competency-driven curriculum sooner, it is possible to kill two birds with one stone: increase the level of understanding of student teachers toward competencies while giving them a glimpse of what teaching within the new curriculum would look like.

However, it is important to consider the time constraints that apply to a short program such as the PDP. According to Beck and Kosnick (2008; 2009), it is important to prioritize certain areas instead of trying to cover too many topics. Depth rather than breadth. Then, one can wonder if competencies within BC’s competency-driven curriculum is deemed a priority in the PDP. If so, it is essential that this priority be embodied by the teacher education program itself as emphasized by Beck and Kosnick (2009).

In conclusion, it is promising that the theory behind competencies was well-received by student teachers because it is strongly correlated with how likely they will implement them into their practice. However, a lack of coverage on core competencies yielded a lower understanding of the concept which could counteract the previous statement. Suggestions that fostered learning about competencies include modelling new

teaching practices, talking about previous mistakes, and extracting tacit information about competencies through reflection-in-practice and reflection-in-practice.

5.2.2. Practical understanding

The previous discussion about the critical role allotted to reflection-in-action is applicable in better understanding concepts, but most importantly in applying them. It has been highlighted by student teachers that when they understood the theory they were lacking the information on *how* to implement it. This sentiment is mirrored by new teachers in Beck and Kosnick's studies (2008; 2009). "Many said that there needed to be fuller indication of the practical implications of a given concept, principle, or strategy" (2009, p. 6). This feeling did not reflect a dismissal of theoretical understanding. On the contrary, "although most of the study participants identified theoretical understanding as important to them [...], many felt the theory presented in their pre-service program was not explained clearly enough" (p. 5). This sentiment was also reflected amongst participants of this study. Again, it is evident that the link between theory and practice needs our attention.

The curriculum is an ideal, but the reality is different. "Curriculum in action treats real things: real acts, real teachers, real children, things richer and different from their theoretical representations" (Schwab, 1969, p. 12). Hence, practitioners could benefit from the practical arts "which modify the theory in the course of its application, in the light of the discrepancies" (p. 12). Adaptability is essential when implementing the curriculum (Tyack & Cuban, 1997). Local needs are not the exception; they are essential in bringing the curriculum to life. Indeed, Schwab (1969) adds that "the specific not only adds to the generic, it also modulates it" (p. 12). According to Tyack and Cuban (1997), there is high value in the concept of hybridization.

Therefore, it is one thing to understand the concepts behind the reform, but is the application coherent with the intents? Do ST feel ready to teach competencies in accordance with the new curriculum? Are they implementing competencies within their practice? I used the lens provided by the expectancy-value theory to analyze student teachers' responses. Indeed, student teachers will have a choice on the extent to which they actually implement the new curriculum in their practice and their persistence in that task is in strong correlation with how they perceive their preparedness to perform the task at hand. To answer the previous questions, the results of the findings indicate that student

teachers feel ready to implement curricular competencies at the end of their program, and that this preparation is reflected in the inclusion of curricular competencies into their practice. Nevertheless, the portrait for core competencies reflects otherwise. As stated previously, many referred to core competencies as “vague”, lacking a clear theoretical understanding of them. Hence, many student teachers are not implementing them at all in their practice or if they are, it is mostly implicit.

When evaluating the value of core competencies as perceived by student teachers, I used Rogers’ (1995) five components that influence the perceptions of individuals toward innovations: relative advantage, compatibility, complexity, trialability, and observability. The relative advantage of core competencies hasn’t been explicitly addressed and the concept remains “vague” for ST because in part there were not a lot of opportunities to be able to observe their scope within the PDP. Core competencies were not explicitly addressed in BC’s previous curriculum either. Therefore, it makes it hard for experienced teachers, let alone student teachers, to conceive what it could look like. Consequently, they remain complex in their eyes. In terms of compatibility, student teachers perceive them as highly compatible because they are important “life skills” that are mandated by the province. However, the extent to which they were able to try to teach them relies heavily on their SA and their own motivation. Therefore, it is understandable that the implementation of core competencies resembled more tokens of compliance than meaningful change (Tyack & Cuban, 1997)

Moreover, it is important to highlight the difference between the extent of implementation of core competencies in elementary verses secondary schools. Core competencies are more embedded into the teaching practice at the elementary level than at the secondary level. This portrait reflects the realities of both student teachers and school associates. The general idea that emerged from the data was that it was **easier** to implement competencies at the elementary than secondary level. One of the elementary level school associates even states that she has done less in regard to defining core competencies for her grade three students since the kids are beginning to have a good general understanding of the concept from previous year. Therefore, it is possible that this shift could operate within the secondary level, but that more time is needed to observe the results.

Even at the secondary level, there is a distinction that is made between junior and seniors. For instance, it is easier to do “rewrites” or even foster a “growth mindset” for juniors than seniors. One school associate adds that it is as if they lose the latter as they become older for it to be replaced by a higher focus on grades. Why are some aspects of the curriculum easier to implement with juniors? Some suggest that there is “more time” because there is “less content to cover” highlighting again enduring conceptions about a content-based curriculum. Others suggest that concept-based education, which promotes the interdisciplinary approach, is easier to implement for younger years. This aspect wasn’t addressed as much in this research because of this study’s focus on competency-related aspect. Nevertheless, there were significant mentions of that concept throughout the interviews. High school teachers say it occurs sometimes, but that time-based infrastructure and the lack of collaboration time amongst teachers hinders the process considerably. One student teacher says this is a question that remains unanswered even though she has inquired about it numerous times during her time on campus and in schools. How do you foster an interdisciplinary approach within a secondary context? Gacoin (2019) states that:

Collaboration on inquiry projects across teachers, for example, requires time and space to happen. However, less than half (44%) of teachers agree that the schedule and/or timetable at their school supports the implementation of the redesigned curriculum, and only 1 in 5 teachers (22%) feel that there is adequate time to collaborate with colleagues (planning or co-teaching, for instance) (p. 7).

The portrait painted by Gacoin of the teacher reality in BC corroborates the results of this research.

In conclusion, results indicate that most of the time PDP was able to communicate the essence of the redesigned curriculum. However, practical questions remain on *how* to implement the curriculum specifically for core competencies. “Theory and practice are inextricably connected: if we are not familiar with practical realities, we are ill-equipped to develop sound theory or teach it to others” (Beck & Kosnick, 2009, p. 9). Therefore, a delicate balance between the world of practice and theory is needed in order to achieve conceptual and practical coherence.

5.3. Research sub-question 3

With respect to research sub-question “What aspects of CBE are manifested in the design and practice of the teacher education program, or in the school settings experienced by student teachers?”, findings have been elaborated in chapter 4. Essential aspects of CBE, such as mastery-based learning, assessments that are meaningful, and personalization, are not reflected within the structure of PDP as experienced by student teachers. Nevertheless, results highlight that the general culture of CBE is shared within the PDP. First, I will discuss how CBE is perceived by teacher educators. Second, I will present an overview of how CBE is represented in the teacher education program. As mentioned before, I will discuss further on the need for more coherence between the competency-driven curriculum and the program. In that sense, addressing initial conceptions about education in general would be a relevant practice to adopt. Finally, I will discuss the school’s setting by highlighting the crucial roles school associates play within the student teachers’ training.

5.3.1. Perceptions about CBE by teacher educators

First, it is important to consider how CBE is perceived by teacher educators, including school and faculty associates. Their perceptions give a good indication of the level CBE is actually addressed within the teacher education program. Research on educational change demonstrates the importance of “ownership” from the members of teacher education programs, especially teacher educators (Fullan, 2003). Thus, the way CBE is addressed in the program directly influences how successfully a new competency-based curriculum is implemented (Covarrubias-Papahiu, 2016; Le et al., 2014; Struyven & De Meyst, 2010). The success of a reform is highly influenced by what is considered worthwhile in education by teachers (Pantić & Wubbels, 2012; Santos, 2012).

While most participants see the resemblance between CBE and the redesigned curriculum, none had ever heard about CBE per se. When presented with a working definition, results indicated that most do not see the value behind the option of students advancing upon mastery. This reality is coherent with the literature. Although *CompetencyWorks* presents CBE’s ideal as moving away from time-based structures, Book (2014) argues that there are two content delivery options of CBE. The course-based with credit equivalency model involves elements of flexible pacing, but direct instruction

seat time is required to obtain credits. Whereas, the direct assessment model is “untethered from course material and credit hour, learners demonstrate competencies, particularly mastery, at their own pace, typically online, and progress through academic programs when they are ready to do so” (Book, 2014, p. 4). Although many scholars (Casey & Sturgis, 2018; Freeland, 2014; Le et al., 2014; O’Sullivan & Bruce, 2014) promote the direct assessment method from a “prescriptive standpoint,” the absence of an overarching theoretical definition of CBE allows the use of a “descriptive method [... which] examines programs that describe themselves as Competency Based and seeks to discover the elements they share...” (Spady, 1977, p. 9). When investigating established CBE schools, the reality observed is that few schools have fully converted their educational structure to mastery moving away from a seat-time basis (Brodersen et al., 2017; Freeland, 2014; Stump & Silvernail, 2014). Therefore, it is not surprising that teacher educators don’t resonate with the mastery aspect, which entails flexible pacing. One school associate even points out that, to his knowledge, there is no mention of mastery within the curriculum. Yet, flexible pacing is an essential part of the reform, but the practicality behind it hasn’t been clearly elaborated. The time constraints were raised on multiple occasions. Therefore, one can only wonder if clarifications about flexible pacing were intentionally left out or it has just been considered too difficult to implement thus far. Important concerns have been shared with respect to flexible pacing such as socialization issues, the over-individualization of learning. One faculty associate even stresses how aiming for mastery for all would reduce the number of competencies students could address hence causing a reduction in teachers’ creativity and moderating the importance of education as a timely process.

Otherwise, it has been perceived as an interesting concept with certain limitations: interesting for its focus on competencies and meaningful assessments, and limited, because of personalization. Indeed, “only 37% at a secondary level feeling the redesigned curriculum is completely or largely aligned with what their students need from their education” (Gacoin, 2019, p. 5). In that regard, only 46% of teachers think that the curriculum’s commitment toward inclusion actually meets students’ diverse needs (Gacoin, 2019). These facts speak loudly to the challenges of achieving meaningful implementation of personalized learning. Most adaptations made by BC teachers have been “superficial” modifications compared with the ambitious claims of the ideals of CBE. Again, the time-based structures were cited as a limiting factor.

For most participants, the focus on competencies was thought of as a meaningful education change. It has become an integral part of their teaching identity and it is something they feel strongly about. Gacoin (2019) agrees by reporting that 80% of the teachers of the province think that competencies are an important component of the curriculum. However, this mentality has been reflected for only a select few in assessments.

In conclusion, it is possible to say that teacher educators see the value in most aspects of CBE except mastery because it implies flexible pacing. The infrastructures are not there to support students who are falling behind because they have not mastered yet certain competencies. Also, although teacher educators have a hard time envisioning what CBE could actually look like, they really take at heart the focus on competencies.

5.3.2. CBE within the PDP

It will be interesting here to analyze if the aspects that were privileged by teacher educators are the ones who were most present within the PDP. Therefore, we will highlight the elements of CBE embedded in the teacher training program.

The incoherence was flagrant for student teachers when considering the way they were being assessed and how they were told to assess their own students. The shift away from tests/grades promoted by the redesigned curriculum was clearly communicated to all student teachers, but it wasn't necessarily applied to them. One student teacher recalls being evaluated on an exam worth 50% of her grade, which was a total aberration in her opinion. Indeed, Beck and Kosnick's findings (2008) revealed that a lack of alignment in teaching methods "cloud issues, confuse students, and are simply ineffective" (p. 127). Faculty associates note that grades are mostly for external purposes since students don't necessarily need them. However, there are two constituents to this issue: one is the lack of coherence between the training and the recent learning sciences, and the other is the fact that student teachers *want* grades for themselves. First, I will discuss how a more coherent training program could foster a better understanding of the CBE components within the new curriculum. Second, I will argue further that student teachers' initial conceptions about education have a direct influence on their perceptions of grades for instance.

Coherence between the curriculum and the teacher training

Darling-Hammond et al. (2006) highlight that a teacher training program ought to be coherent with the changes that are advocated by the reform. Therefore, universities should align with the changes they want to see operate within the profession. I will address this point by analyzing the way competency-based aspects of the curriculum are included within the PDP at SFU.

In PDP, the focus on competencies rather than content, which is also an essential part of the redesigned curriculum, is understood by all student teachers. For instance, secondary student teachers are not paired with their content-peers. The modules and the Professional Learning Communities (PLC) are composed of student teachers from all grade levels regardless of their content speciality. This emphasis was understood by student teachers as it was intended to be, which is that all learners can learn from each other because competencies are transferable and numerous connections can be made across grade levels. However, although they stated they understood the reason, secondary student teachers still expressed that they sometimes wish for more time with their peers because of the lack of practical advice applicable to their realities.

With respect to personalization, student teachers highlight how there was a significant focus on theoretical concepts, such as inclusion, but little concrete adaptations were shared rendering implementation difficult. This mirrors the reality experienced by teachers on the field as mentioned previously. However, the level of personalization for the student teachers an institution like SFU can make for a program counting a high number of students is questionable.

As for meaningful assessments with timely feedback, it has been brought to my attention that some participants, including faculty associate and student teachers, feel that they sometimes do not receive sufficient feedback or in a timely manner. One student teacher specified that she wrote numerous reflections, but she only got feedback on two of them. One of the faculty associates argues that student teachers could receive more feedback during their module time if they were evaluated on a rubric. Also, she states that competencies have a place within the evaluation of student teachers because it would be comprehensible when using a rubric. The latter would be useful since “explicitly stated criteria [...] have the advantages of offering conceptual tools and language for describing learning in different subject areas, aiding teachers in making and defending judgments

about students' work, and providing students with detailed information on their achievement together with steps that can be taken for improvement" (Goos & Moni, 2001, pp. 74–75)

Assessment within the program needs to be in coherence with the recent learning sciences and what is advocated in the reform. While letter grades are still present within the PDP, the BC curriculum and CBE are moving away from standard-based assessment toward criterion-based assessment. Goos and Moni (2001) distinguishes the two by saying that "norm-referenced assessment, which compares the achievement of individual students to that of other students, and criterion-referenced assessment, where the emphasis is on reporting the actual, rather than relative, achievement of students, usually by reference to numerical cut-off scores" (p.74).

Overall, Goos and Moni (2001) advocate that teacher education programs should aim to practice what it preaches within its walls. The authors reported that student teachers lacked knowledge about meaningful types of assessments. So, they revamped the assessments within their professional teaching program to reflect assessments required within schools. However, it was made clear that :

A direct transfer of school assessment methods to the university environment is inappropriate, since differences in students' maturity, interests and needs must be taken into account. As our current students are adults undertaking a postgraduate teacher education course, we believe it is important to offer assessment tasks that mirror the authentic practices of the teaching profession. (p. 75)

Therefore, reliance on examination was discouraged and assessments spread across the semester to allow students to receive feedback to eventually improve their later performance. Assessments were based on professional judgment of the academic staff with the support of well-defined criteria. "Because assessment tasks are closely tied to students' professional duties as teachers, we recognize our responsibility to model task performance in workshops and to provide exemplars of good practice" (Goos & Moni, 2001, p. 76). Again, the value of modelling is noted for another important feature of the program. This principle can be applied to other aspects of the curriculum as well such as teaching methods or even experiential learning. For instance, how could it be logical to teach about the value of experiential learning through a lecture?

Speaking of experiential learning, the value of practicing what you preach is closely related with the topic. A topic that is emphasized by the First Nations Principles of Learning. SFU's engagement for experiential learning is noteworthy since, for instance, many modules are community-based. Indeed, four student teachers out of six came from community-based modules. Yet, they still ask for more experiential learning. They want more experiences on the field, but also opportunities to live and experiment the competency-driven curriculum themselves during their university courses.

In conclusion, student teachers had a good understanding of the importance of shifting the focus from content to competencies, but they seemed to lack understanding with respect to assessment options and teaching methods promoted by the new curriculum. Promoting coherence with what is advocated by the reform and what is taught to student teachers seems to be relevant in this case.

Conceptions about grades

In this section, I will analyze how student teachers perceive grades for themselves and how it differs from what they value for their students. Teaching student teachers about the value of addressing initial conceptions for their students could help them understand the incoherence in their own conceptions. Also, if we refer to the expectancy-value theory, if student teachers perceive that grades are worthwhile, they are more likely to implement them in their own practice, which is not in accord with the reform mandated.

When comparing the BC curriculum and the PDP to see its alignment, the new curriculum shifts the focus from content and scores to growth, and student teachers are assessed in a similar fashion within *most* of the PDP. Indeed, letter grades are still required at the end of summer courses. However, I argue that these requirements are mostly due to our traditional attachment to these cultural entities and to external pressures such as future employers wanting a way to compare student teachers. Indeed, it is known that people hold on strongly to their beliefs because of the influence of their cultural backgrounds and the social norms they abide to (Tyack & Cuban, 1997). In the same vein, Schwab (1983) also brings forth the importance of keeping in mind the "locality" of students, or student teachers in this case. In this case, he is referring to social class, religious background, economic standing, ... The student teachers' background can have an influence on their representation of what they consider a good education and "upon what they are most willing to devote their energies" (Schwab, 1969, p. 242). To disregard

those previous conceptions about education would be a crude mistake that could lead to the rejection of this competency-driven curriculum. Community buy-in is an essential, often overlooked, aspect of successful change. Indeed, pushback occurs when fundamental changes, such as removing grades, are required to the “grammar of schooling” (Tyack & Cuban, 1997).

Another interesting lens to analyze these conceptions is offered by conceptual change theories. While the prevalent models encourage the creation of discordance by exposing the learners’ initial conceptions, Potvin (2013) does not recommend evoking the conceptions first because it could increase the risk of heuristic recognition and learners being “contaminated”. In the prevalent model, Potvin (2013) notes that “conflict has meaning only in the context of competition; learners should therefore be given the chance to benefit from the availability of a ‘new branch’ to grab onto before invited or incited to let go of the ‘old one’” (p. 29). The second step implies that inhibitive incentives should be explicitly taught. Limits of a certain conception can be shown through demonstrations or modelling (as addressed previously). Then, this practice “makes learners aware of the importance of installing in themselves a systematic watchfulness” (Potvin, 2013, p. 31). This form of reflection is a highly desired skill for student teachers. Schön (1992) suggests that teachers demonstrate reflective teaching. Student teachers need to reconnect with their own ways of learning and their initial conceptions of a subject in order to teach effectively. Potvin (2013) also makes the analogy with his model with a villager going through the forest. The conceptions are trails that are progressively shaped in the forest. The more a trail is used, the clearer it becomes. However, it is not possible to unclear a trail. Therefore, you can only install a stop sign encouraging the use of another route that will then become wider with usage. In that sense, teacher educators need to help student teachers see the value behind this different path and inhibit their previous conceptions about grades.

5.3.3. CBE within schools

Within the school context, I believe that my data is credible because on multiple occurrences, I was able to corroborate it with findings from the latest implementation surveys done in BC. Triangulation of the data increases the reliability of results (Beitin, 2012). Moreover, my research brings forth another perspective: the one respectively held by faculty associates, and student teachers, but also the ideas shared by all three actors.

In this section, I will discuss the relationship that student teachers establish with their school associate and how they integrate their milieu.

Results indicate that student teachers attribute “the bulk of their learning” to originate from their field experiences. Therefore, the relationship between the mentee and the mentor is highly valuable, and school associates hold a critical role within the program. Participants mentioned on many occurrences that their understanding of the curriculum was FA and SA-dependant. Therefore, it is critical that school associates be chosen with respect to their implication with the new curriculum rather than just their years of experience. As a matter of fact, Gacoin (2019) reinforces my point because she reported that long-standing teachers demonstrated less support for the redesigned curriculum than newer teachers.

Although student teachers should be trained within the realm of the redesigned curriculum, they are still coming to terms with the practical aspects and the delicate way it actually unfolds in the reality. SAs are there to facilitate this transition. Indeed, learning is inherently a social process (Vygotsky, 1978). Rogers (1995, p. 18) also argue that “the heart of the diffusion process consists of the modelling and imitation by potential adopters” rendering school associates’ perceptions of the new curriculum highly relevant when considering the extent student teachers will actually apply the reform. In section 4.1, I demonstrated that student teachers’ mentality toward the curriculum evolve as they progressed into the PDP, but it is not only influenced by their school associate, but also as they observe the curriculum unfold in a practical stance.

Chapter 6. Conclusion

6.1. Summary of research findings

In this concluding chapter, I will summarize my findings with respect to this study's overall research question *How is the recent competency-driven curriculum in British Columbia addressed in the teacher education program at SFU?* Then, I will discuss the various implications this research can have on curriculum and policy and suggests potential avenues for further research.

Due to the small size of my sample, the findings of this study did not aim to be generalizable, but rather explorative (Smith *et al.*, 2017). Indeed, I was not seeking to validate a hypothesis, but rather generate “concrete, context-dependent knowledge” (Flyvbjerg, 2011) on the subject thus providing new ideas to integrate into teacher education (Santos, 2012). I believe that I was able to attain my goal because the data that I have collected through my interviews was rich and valuable. Moreover, some information shared by participants on the state of implementation of the reform was corroborated by recent research. The qualitative data that emerged from this study can also be used as a jumping board for further research.

Although there are many influences that might affect the level of understanding and application of the competency-driven curriculum from the student teachers' end, I argue that the teacher education program definitely has a key role to assume. The latter must ensure that graduating teachers understand the scope of the reform and fully embrace it. Results show that significant work has been done in adapting the teacher education program especially in terms of communicating the essence behind the curriculum. Data reflected that student teachers had a generally good understanding of most components of the competency-driven curriculum. Shortcomings in their theoretical understanding revolved around core competencies and assessment practices. However, their practical understanding was lower. While it is possible to attribute this to universities' perpetual tension between theory and practice, a similar portrait was also observed within school contexts. Therefore, student teachers and schoolteachers are lacking the practical knowledge to implement the reform truthfully.

When analyzing the extent to which the competency-driven curriculum was addressed within the PDP, results indicated that coverage of competencies was uneven across all semesters, and superficial for most.

Again, these findings are not meant as a critique of the PDP, but simply an indication of the level of understanding of the participants of this research. Besides, as stated by Beck & Kosnick (2008), it is important to consider that “what was taught was not always what was learned” (p. 124).

However, it is important to highlight that student teachers’ comprehension of the BC curriculum as a whole increased considerably after their passage in PDP. When considering the facilitators (school and university related), the practicums and field experiences were, without a doubt, the most helpful. This statement also brings forth the important contribution school associates bring to the student teachers’ experience. In the same vein, faculty associates also bring their own teaching experience in the equation, which is a unique and appreciated feature of SFU. Other important facilitating aspects included unit planning sessions, SFU’s focus on competencies and reflectiveness, modelling and allowing student teachers to experience the curriculum as students. These aspects increase the student teachers’ perceived alignment between their training and the way they are asked to teach.

This study also allowed me to draw parallels with the CBE movement and the BC curriculum by analyzing how participants understand CBE components and perceive it within the structure of the BC curriculum itself. Similarities between CBE and the BC curriculum are evident for all school associates and faculty associates, but the mastery aspect does not seem to fit with BC’s vision.

6.2. Implications and recommendations for curriculum and policy

When Tyack and Cuban (1997) analyze elements that lead to successful implementation, they “favor attempts to bring about such improvements by working from the inside out, especially by enlisting the support and skills of teachers as key actors in reform” (p. 10). Consequently, my dual status as a researcher and a teacher within the

context helps me bring forward the practical, which is a practice that Schwab (1969) also advocated for.

Essentially, I argue that it all begins with having a more coherent training program. This revamping has been seen elsewhere in the world. Goos and Moni (2001) report how they operated first within their own walls the change they wanted to see unfold in secondary schools. When teacher educators practice what they preach, it increases the exposure to the teaching methods that are promoted by the reform, and also increases coherence, which leads to more motivation and understanding for student teachers. Student teachers reported that they learned best when they were able to observe the curriculum unfold. However, the majority of these observations were confined to school contexts whereas the university courses remained more theoretical. While it is true that SFU's commitment in bringing more practicality in the PDP is noteworthy, there are still elements that would benefit from improvement. Student teachers would benefit to start the discussion on core competencies and curricular competencies as soon as possible. It would contribute to more clarity when students embark on their unit-planning journey.

6.3. Implications for further research

This study was aimed to see how the BC redesigned curriculum was being implemented by orienting the lenses toward the actors of the teacher education program. The BCTF has been concentrated on evaluating the level of change by analyzing their members' perceptions. However, I wanted to see if the teacher training could play a role in fostering a more sustainable change.

Time will tell us if student teachers who are graduating from the program are more ready to implement the change within their practice and justify their opinions with their future teacher colleagues. However, further research should aim to include more participants from the program to allow a better overview of the situation. For instance, this research is not generalizable to all student teachers going through the PDP. Yet, it highlights relevant themes that could be used to create a questionnaire that could be distributed to all student teachers in the program. Then, I would suggest using a mix-methods approach in order to first yield quantitative data from the questionnaire, but then follow-up by letting certain participants express further their point of view through qualitative interviews or focus groups. In addition, time restriction and resources restrained

my recruitment to student teachers, school and faculty associates. However, I believe that professors also have an important contribution to make to this topic. It would be highly valuable to include them in any further research.

Finally, since I wasn't able to recruit enough secondary science student teachers for my study, I also recruited one elementary student teacher. It turns out that this was fortunate because his insight actually brought forward a point that would benefit from being researched further. He and his school associates seemed to project the idea that it was easier to teach the new curriculum in the way it was intended. Therefore, it would be beneficial to probe more stakeholders from the elementary level to validate this hypothesis.

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Appendix A.

Interview guide for student teachers

Student teachers (ST)
-What is your age? -Before entering the PDP, did you have any experience in an educational context?
-How are you experiencing the new curriculum?
-How do you interpret this Venn diagram representing the curriculum model? (BC, n.d.) -How would you define a competence? (Giampaolo <i>et al.</i>) -To what extent has learning about competencies impacted your future instructional practices? -Describe your level of preparedness for implementing competencies in your future classroom. (Smith <i>et al.</i> appendix) - How do you feel about the new curriculum’s approach of “learning by doing” (BC curriculum, n.d.)? -How do you feel about personalized learning as stated in the BC curriculum as follow: “ <i>Personalized learning acknowledges that not all students learn successfully at the same rate, in the same learning environment, and in the same ways. [...] Schools may provide flexible timing and pacing through a range of learning environments, with learning supports and services tailored to meet student needs.</i> ” (BC curriculum, n.d.)
-What sorts of assessments will you favour/prefer with your future students? -How familiar are you with a proficiency rubric? -How do you feel about grades?
- In your opinion, what are the aspects of your training that have prepared you the most for teaching the new curriculum? -How are your teacher educators and school associate assisting you in implementing the new curriculum? -How do you perceive the competency-based engagement and investments in the PDP at SFU? (Struyven & De Meyst, 2010)

-What is your perception on these topics? (Giampaolo et al.)

- **teaching contents in respect to competencies.**

“It is appropriate to give greater importance to the disciplines and to the teaching contents?”

It is urgent to reduce the importance of the lectures and promote a competence-based education?

It is appropriate to decrease the importance of the relationship with students and give more importance to teaching contents?

Learners must acquire contents and notions not competencies?

Teachers and contents need to be at the center of education? (p.31)

- **learning objectives**

“It is important to teach starting from learning objectives?”

Learners and learning objectives need to be at the center of education. ?

Could you summarize in few words a didactic action with a learning objective?”

- **student-centeredness**

“Teaching is based on relationship with students?”

It is important to understand how students learn, what their problems are, and to adapt teaching behaviors to learners’ characteristics?”

It is possible to entrust an important assignment to a learner if the teacher need it. ?”

- **authentic tasks**

“Do you normally use activities during the lesson?”

Do you normally assign authentic tasks during the lesson?”

Could you provide an example of an authentic task assigned recently?”

Appendix B.

Interview guide for faculty and school associates

Faculty associates (FA)
<p>-Can you tell me about your teaching experience? What levels do you teach?</p> <p>-What exactly is your role in the education faculty?</p>
<p>-How are you experiencing the new curriculum?</p> <p>-To what extent did you implement it in your teaching practice?</p>
<p>-How would you define a competency? (Giampaolo <i>et al.</i>)</p> <p>-To what extent has working with competencies impacted your teaching practice?</p> <p>- How do you feel about the new curriculum's approach of "learning by doing" (BC curriculum, n.d.)?</p> <p>-How do you feel about personalized learning as stated in the BC curriculum as follow: "<i>Personalized learning acknowledges that not all students learn successfully at the same rate, in the same learning environment, and in the same ways. [...] Schools may provide flexible timing and pacing through a range of learning environments, with learning supports and services tailored to meet student needs.</i>"</p> <p>-How would you define the Competency-Based education movement?</p> <p>-What are your thoughts and experiences in regards to Competency-Based education (CBE)? (Struyven & De Meyst, 2010) (see working definition further)</p> <p>- How do you understand the notion of competence as a basis for teacher education curricula? (Pantić & Wubbels, 2015)</p>
<p>-To your knowledge, to what extent is the new curriculum being addressed in the PDP?</p> <p>-How are you assisting ST in understanding how to teach the competencies prescribed in the new curriculum?</p> <p>-How do you perceive the competency-based engagement and investments in the PDP at SFU? (Struyven & De Meyst, 2010). More specifically, how do you feel the PDP is addressing certain aspects of CBE in their curriculum? (see working definition further).</p> <p>-Can you give concrete examples?</p> <p>-In your opinion, is there something the teacher education program at SFU should do differently to increase the level of preparedness student teachers need to teach the new curriculum?</p> <p>-How do you feel about this citation: "Competency-based learning shifts the role of the faculty from that of 'a sage on the stage' to a 'guide on the side.'"? (O'Sullivan, 2014).</p>
<p>-What sorts of assessments do you favour/prefer with your students? Is it different with your students than with teacher candidates?</p> <p>-How familiar are you with a proficiency rubric?</p> <p>-How do you feel about grades?</p>

-What is your perception on these topics? (Giampaolo)

- **teaching contents in respect to competencies.**

“It is appropriate to give greater importance to the disciplines and to the teaching contents?
It is urgent to reduce the importance of the lectures and promote a competence-based education?”

It is appropriate to decrease the importance of the relationship with students and give more importance to teaching contents?

Learners must acquire contents and notions not competencies?

Teachers and contents need to be at the center of education? (p.31)

- **learning objectives**

“It is important to teach starting from learning objectives?”

Learners and learning objectives need to be at the center of education. ?

Could you summarize in few words a didactic action with a learning objective?”

- **student-centeredness**

“Teaching is based on relationship with students?”

It is important to understand how students learn, what their problems are, and to adapt teaching behaviors to learners’ characteristics?”

It is possible to entrust an important assignment to a learner if the teacher need it. ?”

- **authentic tasks**

“Do you normally use activities during the lesson?”

Do you normally assign authentic tasks during the lesson?”

Could you provide an example of an authentic task assigned recently?”

Working definition:

In 2011, one hundred innovators in competency education came together for the first time. At that meeting, participants fine-tuned a working definition of high quality competency education with five elements :

- Students advance upon demonstrated mastery.
 - Competencies include explicit, measurable, transferable learning objectives that empower students.
 - Assessment is meaningful and a positive learning experience for students. It is flexible and can take place anywhere.
 - Students receive timely, differentiated support based on their individual learning needs.
 - Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.
- (CompetencyWorks, 2011)