Improving self-efficacy through metacognitive strategies: A systematic literature review

Victoria E. Wilcott

University of British Columbia

Table of Contents

Abstract

This paper's objective is to explore in the relevant literature related to metacognition and self-efficacy, and to use the insights derived from my literature review to critically reflect upon my practice as a high school teacher. Self- efficacy can be defined as a learner's belief in their ability to accomplish a task, while metacognition is a learner's ability to think about their own thinking. A brief overview of past research on self-efficacy is first provided, followed by a synthesis of research findings that address the relationship between motivation constructs related to the academic settings. Finally, I review the literature that looks specifically at relevant metacognitive strategies that can be used by students and teachers to increase the capacity to see growth and improvement of students' self-efficacy beliefs. This paper uses a systematic literature review to explore how educators might implement metacognitive strategies to foster a culture of improved self-efficacy. This research method is appropriate because it leads to a critique of the existing academic literature in a reliable and accurate manner. An analysis and synthesis of the reviewed literature leads to my discussion, where I explore and critique of my own practices in the context of British Columbia's curricular reform towards Core Competencies. My discussion is informed by my own observations and reflections as a classroom teacher, as well as the numerous insight derived from the reviewed literature. I conclude by advocating for a pedagogical practice that supports metacognitive strategies because they build self-efficacy in students and create dialogical and responsive relationships with learners and teachers.

Keywords: metacognition, metacognitive strategies, self-efficacy, motivation, competencies, academic success, high school students

Introduction

This paper's purpose is twofold: first, to explore in the relevant literature related to metacognition and self-efficacy in the context of junior high school students; second, to use my insights derived from my literature review to critically reflect upon my practice in relation to the implementation of the Self Core Competencies embedded in the current curricular reforms in British Columbia. Self- efficacy can be defined as a learner's belief in their ability to accomplish a task, while metacognition is a learner's ability to think about their own thinking. The purpose of this research is to reflect on my own practice and reconsider the ways in which I engage with metacognitive strategies to improve self-efficacy among students. A thorough systematic literature review serves as my methodology, and aims to develop a robust and in-depth understanding about the positive correlation between improved self-efficacy and metacognitive strategies. This is an important relationship for educators to understand because, as the literature demonstrates, individuals' beliefs in their own abilities improve when they implement metacognition into their learning routine. The research allows me to develop the requisite information and contextual insights crucial to any practitioner looking reflect on their ability to understand the implementation process of metacognitive strategies, as well as their impacts on students. In addition, the research helps me better understand the new BC curriculum—specifically, how metacognitive strategies can be used to fulfill the Self Core Competency. I follow this systematic review of literature by reflecting on how myself, as a teacher- practitioner, may promote self-efficacy amongst a teen-age student demographic through the use of a variety of metacognitive strategies. The linkages between already existing literature and personal experiences as a teacher-practitioner, leads to my conclusion: a reflection of my own practice moving forward, all based on relevant literature. A self-study approach, the study of my lived

experiences as a teacher, allows me to consider past, present, and future metacognitive strategies. I synthesize the dominant themes and ideas from the research in order to draw conclusions about how metacognitive strategies that improve self-efficacy might be useful as part of the actualization of the curricular changes of the re-imagined BC curriculum. My goal is to reflect on my role as a teacher-practitioner who is trying to help high school-aged students increase self-efficacy through metacognitive strategies. The objective is to construct knowledge and meaning from the literature to help inform my pedagogy. This paper uses a systematic literature review to explore how educators might implement metacognitive strategies to foster a culture of improved self-efficacy. This is a suitable and credible way to explore what is already known about my topic of interest because it is "a systematic, explicit, [comprehensive] and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners." (Fink, 2005, p. 3). This methodology allows me to synthesize the discussion of the current literature surrounding metacognitive strategies, as they relate to improving self-efficacy. This research method is appropriate because it leads to a critique of the existing academic literature in a reliable and accurate manner. By systematically outlining my inclusion and exclusion data, and organizing the literature by year and type of publication, I hope to build transparency credibility in my literature review and subsequent discussion. My literature begins by first engaging with research that deals with the conception and importance of self-efficacy, which is the optimistic self-belief in our competence or chances of successfully accomplishing a task and producing a favourable outcome (Bandura, 1977). Early theoretical research in this field points to how people have control over themselves and are active in the challenges and struggles that present themselves (Bandura, 1982). In fact, the research concludes that self-efficacy, or the belief in one’s own abilities, has proven to be a

more consistent predictor of behavioral outcomes than have other self-beliefs. Further to this, a meta-analysis of the research on self-efficacy shows that positive beliefs of one's self account for approximately 14% of the variance in students' academic performance and approximately 12% of the variance in their academic persistence (Multon et al., 1991). In other words, the literature demonstrates that self-efficacy helps predict academic success, achievement, and persistence.

These research findings are relevant to any educators seeking to support growth, success, and confidence in learners. The first section of my literature review attempts to answer why concepts of self-efficacy are important. My reviewed literature is relevant in the wake of British Columbia's 2018 curricular reforms. The key characteristics of the provincial changes, implemented by the Ministry of Education, put an emphasis on individual learning strategies, critical thinking skills, and communication proficiencies. In fact, Personal/ Social Awareness and Responsibility is one of three Core Competencies (CC) that have been embedded into every subject and grade-level in British Columbia. The ministerial documents define this CC as the ability to "set goals, monitor progress, regulate emotions, respect their own rights and the rights of others, manage stress, and persevere in difficult situations". The Ministry of Education has deemed the competency of Personal/Social Awareness and Responsibility to be important because it allows students to master techniques that helps them make ethical decisions, understand and take responsibility for their actions, including their own learning. The subject of my research— examining and evaluating metacognitive strategies to improve self-efficacy— is therefore, a vital strategy for the implementation of the new curriculum. This issue needs to be taken into consideration by educators in BC who wish to ease the transition into the curricular arena of CC's, which I elaborate on in my problem-statement.

This introduction is proceeded by a problem statement, in which I outline the key characteristics of the changes emerging in the current education landscape of British Columbia; this leads to my research question that I use as my framework to construct the foundation of my literature review. My methods outline the process that I underwent to undergo my systematic review of literature. This is followed by my literature review, which is organized thematically into the following big ideas: self-efficacy beliefs and academic success, linking self-efficacy and motivation, and metacognition and relevant pedagogical strategies. They are organized in this way to best articulate the theoretical and methodological issues on my topic of research. I outline what is known and what is not known about my research topic while critically evaluating the relevant literature. The intent is to demonstrate how the scholarly research, can be used to re-imagine a strategic path forward for BC educators who are interested in improving self-efficacy beliefs. An analysis and synthesis of the reviewed literature leads to my discussion, a robust and credible critique of my own practices in the context of British Columbia's curricular reform. My discussion is informed by my own observations and reflections as a classroom teacher, as well as the numerous insight derived from the reviewed literature. My discussion is organized into two sections: past practices, and current connections for future consideration. I conclude by advocating for a pedagogical practice that supports metacognitive strategies because they build self-efficacy in students and create dialogical and responsive relationships with learners. I find, too, that my research and the implementation of metacognitive strategies in the classroom, have simultaneously improved my connection with students and made me more adaptable, and flexible as a teacher-practitioner. Thus, this capstone has helped indirectly foster a sense of self-efficacy from within. I have a greater sense of confidence with the way in which I approach the multitude of learning needs. Furthermore, I share how my ability to respond critically and

creatively to problems has improved. This capstone research, therefore, highlights my students' journey, as well as my own, through the various metacognitive strategies that seek to foster a greater sense of self-efficacy.

Problem Statement

It is not uncommon to hear high school teachers reflect on pedagogical strategies to support student growth. Educators are always looking to find new ways to help students who are struggling with their ability to construct meaning, think critically, and assess improvement. As a teacher-practitioner, I have noticed that learning feels stagnant and students become easily worn down by their inability to identify strategies for improvements. Students are very good at asking *what* it is they need to learn, but do not yet understand *why* or *how* to approach the learning process. In other words, they view themselves as empty vessels waiting to be filled and are frustrated when they do not achieve desired results. In BC's 2018-redesigned curriculum, there has been a distinct shift to skills and competencies from content and facts. This shift, addresses some of the oppressive practices that Freire addresses. The curriculum is now less prescriptive, and allows teachers to develop long-term skills and competencies. This means contributing to an open approach to learning that puts a greater emphasis on the role of the student as an active partner in the learning process. This approach, too, asks more of teachers—requiring them to actively listen and respond to student needs. In this way, both the teacher and the student view themselves as co-learners.

This new role, which puts students at the forefront of learning is especially pertinent as BC moves from a content-based to a competency-based curriculum, where a greater focus is being put on the process of learning and, in particular, a student's ability to think and communicate meaningfully (Province of British Columbia, 2018). In other words, learning outcomes have

moved away from the previous "Prescribed Learning Outcomes" and into "Core Competencies". Three Big Ideas (BI): Critical Thinking, Communication, and Personal-Social broadly define the Core Competencies (CC). For the purpose of this paper, I am primarily concerned with the third CC: Personal/Social, as it relates to how students think, critique, and interpret their own learning. I am especially interested in how students build concepts of self and make connections to the world around them. All courses are to include these CC's in their classroom, with an additional set of Big Ideas for each course/grade. While the CC's and BI's call for engagement, accountability, and active in the learning process, many students are not yet at the point where they are able to engage with their education in this way. Rather than outlining *what* to teach, the core competencies emphasizes *how* students ought to learn. This shift is emancipatory in nature, in that it gives more power to learners by putting them at the forefront of curriculum by emphasizing students' abilities to demonstrate their proficiency in each of the three competencies.

From my observations as a classroom teacher, many students are leaving high school with an ambiguous concept of 'self'; this lack of personal-awareness makes it more difficult to negotiate their place in the world. This is due, in part, because until the curricular reforms, teachers did not have an explicit avenue through which they could create strategies to help students themselves and their own thinking. In the classroom, I have noticed that many students show signs of low morale and negative feelings of self-efficacy in their ability to communicate their understanding through writing and speaking. This in turn affects the learning process and the tasks they are working on. These negative signs manifest themselves in various ways: avoidance of a task, over-reliance on external sources (such as a teacher), and self-deprecating

remarks. Self-efficacy—or the belief in one's own ability to accomplish a task—play a significant role in the learning process, which I elaborate on in my review of literature. British Columbia's Core Competencies allow educators to engage in a pedagogical practice that aims to invite these higher order-thinking skills, such as critical thinking and metacognition. This is important because students have not yet been taught strategies to self-reflect, question, assess or critique their own learning. Moreover, there is little time spent to engage in one's own learning-- a key step in the process that helps students engage in self-reflection. However, there are few formal structures in place within schools that allow teachers to interrogate the ways in which they can engage with their pedagogy and the new curriculum. The open-ended nature of BC's core competencies offers an avenue to acknowledge many of these challenges, but the ambiguity in ministerial suggestions are leaving many teachers feeling lost and unsure about how to tread these new waters. This is concerning, as teachers need guidance on how to effectively understand and infuse the core competencies into their classrooms and should possess the appropriate knowledge and methods on how to best teach writing as a process.

Research Question

What are the metacognitive strategies deemed most effective in increasing self-efficacy for high school students?

Research Objectives

- To examine the literature/research on the role self-efficacy and metacognitive strategies in the learning process.
- Outline the metacognitive strategies deemed the most effective by scholars in developing self-efficacy amongst students in high school.

- Reflect on my own practices as a teacher-practitioner trying to help increase self-efficacy through metacognitive strategies.

Literature Review

Introduction

This literature review examines past and current research related to metacognitive strategies in the classroom; specifically exploring the strategies deemed effective for the purposes of supporting student's understanding of their own learning processes in relation to learning outcomes. Metacognition—or the ability to think about one's own thinking—is imperative to the learning process. It requires self-reflection, purposeful or intentional strategies, and consistent monitoring. This review looks specifically at relevant metacognitive strategies that can be used by students and teachers to increase the capacity to see growth and improvement of students' self-efficacy beliefs. I am critical that much of the past research that was conducted related to subjects outside of my target age group; the majority of the studies cited college-aged and elementary-aged students. In addition, many of the studies cited used content-based courses (such as Math and Science), while my area of interest falls within the area of creative and expressive courses (Language Arts).

Methods

The research method chosen for the investigation of the research question is a systematic review of literature. According to Fink, a rigorous and credible literature review must be systematic in following a methodological approach to make it credible and reliable. Fink argues that a proper literature review should be explicit in explaining the procedures by which it was conducted, comprehensive in its scope of including all relevant material, and reproducible by others who would follow the same approach in reviewing the topic (Fink, 2005). This method is

appropriate because it contributes to a synthesis of the existing academic research in a reliable and accurate way. It allows me to critically synthesize and analyze what research has been done so far, so that I can critically discuss and reflect on my own pedagogy.

The selection criteria presented in Table 1 were determined prior to my database search and applied to the screening of texts, titles, and abstracts.

Table 1

Inclusion and exclusion criteria

Type of criterion	Criteria	Inclusion	Exclusion
Type of inclusion	Journal articles	X	
	Conference papers		X
	Reports		X
	Dissertations	X	
	Books	X	
Access	Online	X	
	Paper		X
Publication period	1975-2018	X	
Type of study	Empirical investigations	X	
	Theoretical studies	X	
Research method	Qualitative	X	
	Quantitative	X	
Place of publication	Worldwide	X	

The literature search was conducted with the use of ERIC and Google Scholar databases. These two databases were deemed appropriate because they each give access to comprehensive lists of education related articles. The key words were “metacognitive strategies for improving self-efficacy” AND “high school OR secondary education OR adolescents” however, a variety of similar terms were also used . The references section of the returned results were also studied in search for me relevant texts. 29 texts were selected for analysis.

Sample Analysis

The sample analysis includes 27 journal articles and 2 doctoral dissertations. The number of the texts per type of publication are presented in Table 2.

Table 2

Texts by Type of Publication

Type of publication	Study	Case study	Framework discussion	Theoretical discussion
Number	13	3	6	7

The inclusion criteria allowed for analysis of publications from 1975-2018; this allowed for an in-depth analysis of early theoretical research on metacognition and self-efficacy. The majority of the texts (45%) are more recent studies, having been published post-2000, as can be seen in

Table 3

Text by Year of Publication

Y	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
N	0	0	1	2	1	0	0	1	0	0	0	1	0	1	0	1	1	0	1	0	1
Y	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
N	3	2	0	0	1	1	0	3	0	2	0	1	0	1	3	0	1	0	0	0	0

Note: Y= year of publication N= Number of publication(s)

Purpose and Construction of Literature Review

This literature review examines the contributions made by theoretical scholars who study self-efficacy. The review of literature for self-efficacy begins with scholars who conceptualize this concept theoretically, and moves to more current studies and meta-analyses of relevant literature.

This is followed by a synthesis that links the relationship between self-efficacy and motivation. Although student self-efficacy is different than student confidence, the literature indicates that there is a strong link between the two. Motivation emphasizes learners' constructive interpretations of events and the various events that shape their beliefs, cognitions, values and achievements. Although self-efficacy and motivation are entwined to an extent, they

are also separate constructs. Self-efficacy is based on an individual's belief in his or her own capacity to achieve, while motivation is based on the individual's desire to achieve.

Finally, this literature review examines past and current research related to metacognitive strategies in the classroom; specifically how they relate to communicating learning outcomes. Metacognitive strategies can be defined as methods that enable learners to control internal mental activities they have used in the learning process. Metacognition—or the ability to think about one's own thinking—is imperative to the learning process. It requires self-reflection, purposeful or intentional strategies, and consistent monitoring. This review looks specifically at relevant metacognitive strategies that can be used by students and teachers to increase the capacity to see growth and improvement. The literature notes that concrete strategies, which seek to improve self-awareness, ultimately lead to improved notions of self-efficacy. Currently, the best research that supports this idea are metacognitive strategies—intentional methods that enable learners to control internal mental activities they have used in the learning process. This section of my literature review, therefore, focuses on *how* metacognition can be used the classroom by outlining *what* strategies deemed most effective by scholars. Some of the most cited strategies include planning, monitoring, and evaluating tasks (Ku and Ho 2010), which can be supported through effective modeling of peers and teachers (Jacobs, 2003; Paris and Paris, 2001). A concrete example of an effective metacognitive strategy is the use of a daily journal, which encourages independent learning and prompts students to be more aware of their progress. Metacognition is important to the learning process because it helps students make evaluations and critiques of their own thinking processes and learning strategies (Kaya, 2012). In this way, students are less reliant and external stimuli, such as a teacher, to help them improve and grow. In other words, metacognitive strategies help students self-evaluate their own learning, thereby

making them more independent and self-aware of their abilities. Using metacognitive strategies to help build self-efficacy is an important pedagogical tool, especially in the changing climate of the educational landscape.

This review informs my practice a teacher-practitioner addressing the current dilemmas faced by students with regards to the new BC CCs. The systematic literature review helps me to develop and reflect on my own pedagogical beliefs and guides my discussion of specific strategies might be used in the BC context. In other words, the analysis of research-- on how metacognitive strategies promote self-efficacy-- is used to guide and inform the pedagogical reflection.

Self-Efficacy and Academic Success

Self-efficacy—an individual's belief in their own capacity to achieve—is a socio-cognitive perspective first introduced by Bandura (1977, 1982, 1986), who viewed individuals as proactive and self-regulating rather than reactive to outside forces. In his theoretical framework, people have control over themselves and are active in the challenges and struggles that present themselves. Bandura notes that people are capable of intrinsic action (as opposed to being changed by extrinsic forces) in order to achieve a desired outcome. These internalized beliefs, in a classroom setting, help individuals exercise a certain amount of control over themselves, along with their feelings and actions; this is important as it related to tasks and activities in a classroom setting, because what a student believes about their own abilities is linked to the capacity in which they can accomplish a task successfully. According to Bandura, people's behaviour can be best predicted by the beliefs they hold about themselves. Further to this, these beliefs (or perceptions of self) help determine what an individual will do with the skills they have. The

implication for teachers means that, not only are educators tasked with teaching skills and processes, but they are also tasked with building self-efficacy within students.

Self-efficacy affects what students do in class by influencing the choices they make, the effort they expend, the persistence and perseverance they exert when obstacles arise. Perceptions also influence the thoughts and emotional reactions (negative or positive) they experience (Bandura, 1986). This is especially important when one considers the fact that many learning tasks are perceived by students to be difficult; the ability to persist through these difficulties is important. Therefore, Bandura notes that a strong sense of confidence, can help students when writing an essay because it fosters a greater interest in and attention to writing, stronger effort, and greater perseverance and grit in the face of adversity. It should be noted that Bandura sometimes uses confidence and self-efficacy loosely and interchangeably; confidence is a feeling, whereas self-efficacy is a belief. While the two are related, the distinction is noteworthy. Clearly, those with high self-efficacy likely have confidence, and those with greater confidence have high self-efficacy, but it is not a foregone conclusion.

While establishing the role of self-efficacy in the learning process, Bandura (1997) also outlined the ways in which people interpret information from sources in order to form their self-efficacy perceptions; as an educator, it is important to recognize that concepts of self-efficacy stem from both internal and external factors:

1.) The interpretation of one's performance. These interpretations may be based on past performances or predictions about future performances.

2.) The vicarious experiences of observing another person (such as a peer or colleague) perform a task. These are what Bandura calls social comparisons or peer modeling. In

other words, those who surround us play an influential role in that they inform our individual interpretations based on how we perceive our abilities in relation to others.

3.) Verbal messages and social persuasion. Positive messages may encourage and empower, while negative messages can defeat and weaken peoples' beliefs of self-efficacy.

Bandura's early work on the identification of self-efficacy and the sources that influence ones' interpretation spawned many other scholars to examine the role it had on learning. Multon, Brown and Lent (1991) completed a meta-analysis of research on the role of self-efficacy beliefs and academic outcomes. In their research, Multon et al. looked at the effects of self-efficacy in a variety of different academic and non-academic settings, including career choice and decisional behaviours. They conducted computer searches, examined reference lists of articles, and the table of contents to produce an initial sample of 39 published and unpublished papers. They include, but are not limited to, studies that looked at how beliefs about oneself influence future career choices; predictive success and persistence in certain academic majors; and predicting academic performance among college students. In order to be included in their meta-analyses, the studies had to provide the following: (a) a measure of self-efficacy, (b) a measure of academic performance or persistence, and (c) sufficient information to calculate appropriate effect size estimates.

In all the these very different settings, Multon et al.'s meta-analysis demonstrate the support for the facilitating relationships of self-efficacy to academic performance. By incorporating all of the studies in a quantitative methodology they have enabled the "reviewer to transform the findings of independent studies into a common metric" (Multon et al., 1991, p. 30). Essentially, they synthesize all of the known research related to self-efficacy and academic success by adding common denominators and quantifiers. Their findings suggest that self-efficacy beliefs are

generally related to academic behaviors in ways that support Bandura's (1977, 1982,1986) theory. It should be noted that at the time of this meta-analysis, much of the research that had been done on self-efficacy related to either college or elementary-aged students and subjects were often limited to math and science (subjects that are easier to measure quantitatively). However, their findings are clear: positive and statistically significant relationships between self-efficacy beliefs, academic performance and persistence outcomes across a wide variety of subjects, experimental designs, and assessment methods. Most notable about this analysis is that across various types of student samples, designs, and criterion measures, "self-efficacy beliefs account for approximately 14% of the variance in students' academic performance and approximately 12% of the variance in their academic persistence" (Multon et al., 1991, pg. 34). In other words, their meta-analysis supported Bandura's initial theory that self-efficacy helps predict academic success, achievement, and persistence.

A later study that adds to Multon et al.'s previous meta-analysis looks at high school-aged students in a Language Arts classroom (Pajares, 1996). Like the previous scholars, Pajares hypothesized that self-efficacy and the confidence in ones' abilities help determine what a learner will do with the skills they have; the more a student believes they are capable of successfully accomplishing a task, the more likely they are to actually complete said task (1996). Unlike previous research, this study explored the influence of writing self-efficacy, writing apprehension, and writing aptitude on the essay-writing performance—thus, filling a gap in the literature of being: 1.) a liberal arts subject and 2.) looking at high school students. By first defining writing self-efficacy as "students' judgements of their competence in writing, specifically their judgement that they possess various composition, grammar, usage, and mechanical skills" (p. 166), this study began by having student participants self-assess their

abilities and then complete a writing aptitude exam. Of the 181 ninth-grade participants, Pajares found that self-efficacy had a strong direct effect on apprehension, which, in turn, had an effect on performance. Consequently, students' beliefs about their abilities influence their ability to interpret a task. Interestingly, gender did not change aptitude performances, although girls reported lower writing self-efficacy.

Linking Self-Efficacy and Motivation

Self-efficacy—an individual's belief in their own capacity to achieve—is a socio-cognitive perspective first introduced by Bandura (1977, 1982, 1986), who viewed individuals as proactive and self-regulating rather than reactive to outside forces. In his theoretical framework, people have control over themselves and are active in the challenges and struggles that present themselves. Bandura notes that people are capable of intrinsic action (as opposed to being changed by extrinsic forces) in order to achieve a desired outcome. These internalized beliefs, in a classroom setting, help individuals exercise a certain amount of control over themselves, along with their feelings and actions; this is important as it related to tasks and activities in a classroom setting, because what a student believes about their own abilities is linked to the capacity in which they can accomplish a task successfully. According to Bandura, people's behaviour can be best predicted by the beliefs they hold about themselves. Further to this, these beliefs (or perceptions of self) help determine what an individual will do with the skills they have. The implication for teachers means that, not only are educators tasked with teaching skills and processes, but they are also tasked with building self-efficacy within students.

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While establishing the role of self-efficacy in the learning process, Bandura (1997) also outlined the ways in which people interpret information from sources in order to form their self-efficacy perceptions; as an educator, it is important to recognize that concepts of self-efficacy stem from both internal and external factors:

1) The interpretation of one's performance. These interpretations may be based on past performances or predictions about future performances.

2) The vicarious experiences of observing another person (such as a peer or colleague) perform a task. These are what Bandura calls social comparisons or peer modeling. In other words, those who surround us play an influential role in that they inform our individual interpretations based on how we perceive our abilities in relation to others.

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However, their findings are clear: positive and statistically significant relationships between self-efficacy beliefs, academic performance and persistence outcomes across a wide variety of subjects, experimental designs, and assessment methods. Most notable about this analysis is that across various types of student samples, designs, and criterion measures, "self-efficacy beliefs account for approximately 14% of the variance in students' academic performance and approximately 12% of the variance in their academic persistence" (Multon et al., 1991, pg. 34). In other words, their meta-analysis supported Bandura's initial theory that self-efficacy helps predict academic success, achievement, and persistence.

A later study that adds to Multon et al.'s previous meta-analysis looks at high school-aged students in a Language Arts classroom (Pajares, 1996). Like the previous scholars, Pajares hypothesized that self-efficacy and the confidence in ones' abilities help determine what a learner will do with the skills they have; the more a student believes they are capable of successfully accomplishing a task, the more likely they are to actually complete said task (1996). Unlike previous research, this study explored the influence of writing self-efficacy, writing apprehension, and writing aptitude on the essay-writing performance—thus, filling a gap in the literature of being: 1.) a liberal arts subject and 2.) looking at high school students. By first defining writing self-efficacy as "students' judgements of their competence in writing, specifically their judgement that they possess various composition, grammar, usage, and mechanical skills" (p. 166), this study began by having student participants self-assess their abilities and then complete a writing aptitude exam. Of the 181 ninth-grade participants, Pajares found that self-efficacy had a strong direct effect on apprehension, which, in turn, had an effect on performance. Consequently, students' beliefs about their abilities influence their ability to

interpret a task. Interestingly, gender did not change aptitude performances, although girls reported lower writing self-efficacy.

Metacognition and Relevant Strategies

Metacognitive strategies can be defined as methods that enable learners to control internal mental activities they have used in the learning process. A student who is able to engage as an active participant in their own learning becomes proactive in tasks, rather than reactive to them. Metacognition is important to the learning process because they help students make evaluations of their own thinking processes or learning strategies (Kaya, 2012).

A practical example of how this concept might be illustrated in practice includes a three-pronged approach to the completion of a task. To begin, learners with strong metacognitive strategies do not directly jump-in to their work; instead, they thoroughly pre-plan their task before they even begin. This might include identifying the learning outcome, asking for clarification, and identifying appropriate strategies. While they are completing a task, they take time to pause and review what they have done thus far. At times, they critique what they have done and take their time processing, re-visiting, and editing their work. Students with well-developed metacognitive strategies work slowly and steadily, and do not stop even when their task is seemingly done. Finally, once they have submitted their work, they reflect on what they have done and make note of their challenges, to help improve future activities. The reflective and contemplative nature of metacognitive strategies allow for growth over time, because past experiences are constantly being used to improve future endeavors. In this way, these students use the knowledge they have gained of themselves as learners, of task requirements, and of specific strategy use to deliberately select, control, and monitor strategies needed to achieve desired learning goals (Ertmer and Newby, 1996).

Metacognitive strategies can be summarized under three categories (Ku and Ho, 2010):

1.) *Planning*: the ability to choose appropriate methods, determining effective ways of thinking, and deciding on allocation of resources. In other words, the thinking that is done *before* an activity; the anticipation of learning outcomes.

2.) *Monitoring*: strategies that are related to awareness of task comprehension, checking task information to validate comprehension, prioritizing ideas for attention, and filtering out informational ambiguities. This category refers to the thinking that is done during or *throughout* an activity.

3.) *Evaluating*: the examination and correction of one's cognitive processes, evaluating reasoning, goals and conclusions and making revisions where necessary. Evaluation requires a learner to think and reflect *after* an activity.

Examples of each category are outlined below in Table 4, which is a compilation and synthesis of the existing research interested in the effectiveness of metacognition. First, Pintrich and Groot (1990), who use a correlational study that examines the relationships between motivational orientation, the use of learning strategies, and classroom academic performance for 173 seventh graders from eight science and seven English classes. Their findings suggest that although self-efficacy plays a role in relation to engagement, the various ways in which metacognitive and self-regulatory strategies are employed may be more important for improving actual performance on classroom academic tasks. Since their study focusses on the correlation between cognitive strategies and academic performance, an outline of specific metacognitive strategies are limited. Ertmer and Newby (1996) add to this discussion by providing the concrete categories of planning, monitoring, and evaluating—which are used extensively in the current

research surrounding metacognition. They choose the label of "expert learner" to describe students with a mastery level of metacognition:

> [It is the 'expert learners'] ability to implement appropriate regulatory strategies when they become aware that certain facts or skills are missing from their learning repertoires that are necessary for reaching desired academic goals. Expert learners display planfulness, control, and reflection; they are aware of the knowledge and skills they possess, or are lacking, and use appropriate strategies to actively implement or acquire them. (p. 1)

Ertmer and Newby note that an 'expert learner' has a strong sense of metacognitive control, and is able to use reflection consistently and appropriately in each stage of the task (planning, monitoring, and evaluating). Both Kaya (2012) and Ku and Ho (2010) add to the existing research, and well-defined categories, to explicit and specific strategies within each grouping. Table 4 is therefore a synthesis of the body of research related to metacognitive strategies. The intent of this table's construction is to provide an account of the stages of development that need to be employed to properly and effectively engage in metacognition.

Table 4

Stages of Metacognitive Strategies (Ertmer and Newby 1996; Kaya 2012; Ku and Ho 2010; Pintrich and Groot 1990)

Planning
• Identify what is being asked before to beginning a task. • Determining the learning outcomes of a given task and attempt to connect to past/similar tasks that have been fulfilled before. • Search for prior knowledge about the task in an attempt to fulfil it. • Setting goals for oneself prior to beginning a task. • Posing internal questions to oneself about the task before starting it.

• Prioritize and manage the importance of what is needed in order to fulfil a given task. • Choosing a set of learning strategies that might be used in order to complete a given task.
Monitoring
• Cross-referencing the objectives constantly during the task by using the questions set, to help determine if an outcome has been met. • Critiquing various strategies related to the given task can be employed while fulfilling it. • Constantly reviewing the important points on a regular basis during the fulfilment of the task. • Checking the effectiveness of the employed strategies while fulfilling the task. • Checking whether attention is lost while fulfilling the task.
Evaluating
• Determining what has been achieved and what has not been achieved at the end of the task. • Determining whether there is an easier way of fulfilling the task after completing it. • Summarizing what has been learned after completing the task. • Identifying the extent to which the pre-determined objective has been accomplished after completing a task.

Early research in the study of metacognition have suggested that young children are quite limited in their knowledge and cognition about cognitive phenomena, or in their metacognition (the ability to think about one's own thinking), and do relatively little monitoring of their own memory, comprehension, and other cognitive enterprises (Brown, Campione & Barclay, 1978; Flavell, 1978). These early studies looked at strategies used to improve a student's ability to memorize and recall items from a list, or evaluate verbal instruction from a teacher. These results

show that younger students were unable to monitor their own thinking; studies that look to improve metacognitive strategies have been significant to the field of education. Flavell et al. (1979) sum up best the importance of having a strong metacognitive competency:

Metacognition plays an important role in oral communication of information, oral persuasion, oral comprehension, reading comprehension, writing, language acquisition, attention, memory, problem solving, social cognition, and, various types of self-control and self-instruction; there are also clear indications that ideas about metacognition are beginning to make contact with similar ideas in the areas of social learning theory, cognitive behavior modification, personality development, and education (p. 906).

The significance of metacognition helps explain why British Columbia made the decision to include it as one of its' competencies in the new 2018 curricular changes. While self-regulation and self-efficacy can affect a student's confidence and motivation during a challenging activity, the studies on metacognition and its' effects on scholastic growth need to be further explored. Many researchers have described the significance of metacognition, noting the positive effects of self-reflective learning on students' academic development. Thinking about one's thinking and gaining strategies to understand one's strengths and weaknesses enable students to gain greater insights into their learning strategies (Flavell, 1979; Lambert, 2000). It has been shown that these metacognitive processes can be taught by modeling techniques for introspective learning; becoming a strategic learner through metacognitive awareness is a developmental and instructional process influenced by teacher methods (Jacobs, 2003). However, there is no known research on effective methods for modeling metacognitive processes at high school level for the purposes of improving. Much of the research focusses on academic strategies to improve metacognition at the elementary level. The evidence in favour as to *why*

metacognitive strategies need to be included in the classroom is clear. However, the gap in the literature exists in that there is little research on *how* to do this effectively.

Nancy Joseph offers some general practical strategies that teachers might consider as they explore the role of metacognition in their classrooms: self-assessment, questioning, and problem-solving (2010). These activities, she suggests, need to be done continuously because they "encourage independent learning prompt students to be more aware of their progress" (p. 102). If the goal is to prepare students for their lives post-high school, teachers' pedagogies should include supporting students' independent success to troubleshoot problems without assistance. She argues that these strategies allow students to actively participate in their own learning and develop a wide range of cognitive processes that will help them think, reflect, and question in an effective manner. Like Jacobs and Paris, Joseph advocates for strong modeling techniques from both peers and teachers. She also argues that the use of journals and portfolios play an integral role in their ability to build self-awareness in independent thought. Journals allow for independent thought when either peers or a teacher provides open-ended prompts. Joseph advocates for regular and consistent use of journals in a classroom to entrench habits and new skills. In addition, she argues that modelling— either with sample responses help students understand learning outcomes. Finally, regular and detailed feedback to students is necessary. In other words, teacher comments is imperative in building metacognitive strategies because they help model (to the student) the types of questions they should be generating during the writing process. The previous BC curriculum did not offer this kind of invitation to teachers. This might be the main reason why the new competencies have a greater stress on creating independent and critical thinkers.

Iolie Nicolaidou affirms that educators need to help students have self-efficacy beliefs that slightly exceed what a learner can actually accomplish (2010). While the previous literature gives a theoretical understanding of the importance of self-reflection and self-efficacy, this research differs in that it infuses theory and practice together; it provides a tangible example of how self-efficacy is fostered in a practical sense. These process portfolios allow students to: a) document the learning process, b) have access to peers' work, and c) receive feedback. The process portfolios are set up in a way where student work is discussed, shared, and reflected upon after it is completed. On a regular basis, students contribute to their portfolio by adding assignments or pieces of writing. What makes these process portfolios unique, is that students have the ability to return to past work, revise it, or reflect upon it. Nicolaidou argues that the effective use of a process portfolio help students ground their thinking, reflect on what they have learned, have access to their peers' work, and receive feedback. This is another example of a tool that teachers could use to help model the process of writing long term; the study focused on elementary literacy and the use of a writing portfolio to facilitate feedback, self-evaluation, goal-setting, and reflection. Nicolaidou's work "showed that students' writing performance over time increased" (p. 89). This study, while done at the elementary level (grade 3), shows in the importance of reflection, and self-awareness of a learner. It further shows the role of consistent feedback in the writing process. Little research has been done at the junior high school level to determine whether similar results would emerge in high school students.

From my observations as a teacher, one of the most common challenges that high school students face relate to those difficulties in reading comprehension. This is likely due to the fact that reading is at the foundation of most literacy curriculums, and therefore as strong implications for future learning. Seiden and Seiden (2003) confirm this by finding that students tend to focus on

surface features of a written piece. In other words, they are unable to read deeply, identify abstract concepts, and analyze literature beyond a superficial understanding. Furthermore, students' ability to articulate and reiterate big ideas and themes was very weak. Although this study was done at the university undergraduate level, the same can be said for high school students.

Researchers who study language learning have emphasized that the use of reading strategies are an approach to improving reading comprehension. Further to this, many empirical studies showed that successful learners differ from less successful ones in both the quantity and quality of cognitive and metacognitive reading strategies (CMRS). CMRS are an array of strategies that support a student's learning with the use of built-in metacognitive strategies. Reading strategies have been defined as "goal-directed actions which are undertaken by readers for planning and monitoring their efforts in order to decode text, understand words and construct meaning of texts" (Pereira-Laird & Deane, 1997). Some examples of a CMRS include (but are not limited to) annotating text during the reading process, internalizing questions, anticipating future points, and making inferences. It is noteworthy to point out that reading strategies are different from reading skills, in that reading strategies are reflective, while reading skills are automatic actions that result in decoding and comprehension with speed, efficiency, and fluency and usually occur without control involved. Pereira-Laird and Deane (1997) explain these strategies as follows:

> Metacognitive strategies involve planning, monitoring, and regulation activities that take place before, during, and after any thinking act such as reading. In contrast, cognitive strategies refer to integrating new material with prior knowledge. Cognitive strategies

> that students use to acquire, learn, remember, retrieve and understand the material while reading include rehearsal, elaboration, and organizational strategies (p. 190).

In other words, cognitive reading strategies are the actions that a reader may take while interacting directly with the text whereas metacognitive reading strategies are intentional, planned tactics by which learners monitor, identify and remediate their reading (Anastasiou & Griva, 2009). In their study of 36 sixth graders, Anastasiou and Griva found that both cognitive and metacognitive strategy awareness made a unique contribution to reading comprehension, beyond and above the effects of reading accuracy and reading speed. This dichotomy between automatic and intentional actions is an important distinction as they help determine the extent to which a student is able to employ CMRS. Young readers have been found to employ a wide range of reading strategies to comprehend texts, but good learners are more able than poor learners to distinguish between surface-structure and deep-structure information, predict or question while reading, notice inconsistencies in a text and use strategies to make these unconscious. This is likely why BC is moving to a model that focuses on building long-term skills to make better learners; it is a skill students will be able to use well after grade 12.

BC's Core Competencies provide guidelines on how teachers might foster these skills, by adding 'metacognition' as one of the core strategies and processes to develop. Teachers are invited to "talk and think about learning [by]reflecting, questioning, goal setting, and self-evaluating to develop awareness of self as [...] a writer" (Province of British Columbia, 2018). However, there is ambiguity in this language and the success of this new curriculum is dependent, in large part, on the professional judgement of the teachers and the strategies that they choose to employ. However, there has been very little discussion on how these CCs might be employed in the classroom.

Key Insights From Literature Review

The purpose of the preceding literature review was to explore how metacognitive strategies can be used in my day-to-day practice as a teacher while being embedded with the goal of improving self-efficacy for high school students. The reviewed literature lead me to develop a robust and credible critique of my own practices to help me interrogate pedagogical strategies that support the curricular reform in BC. The literature review is a response to my initial research question:

What are the metacognitive strategies deemed most effective in increasing self-efficacy for high school students?

The following table is a summary and synthesis of my key findings (Table 5), as highlighted by the scholars in the field of self-efficacy and metacognition.

Table 5

Synthesis of key findings from literature review

(1) Why is this research important?
• As a reflective practitioner, I am interested in developing a stronger sense of self-efficacy for students (an individual's belief in their own capacity to achieve) which was a socio-cognitive perspective first introduced by Bandura (1977) • Students have control over themselves and are active in the challenges and struggles that present themselves (Bandura, 1977). As an educator interested in improving my own practices, I am keen to involve my students in my pedagogical strategies. • Students are capable of intrinsic action in order to achieve a desired outcome. These internalised beliefs, in a classroom setting, help individuals exercise a certain amount of control over themselves, along with their feelings and actions (Bandura, 1977, 1982). • Students develop their concepts of self-efficacy through (1) the interpretation of their own performance, (2) the vicarious experience of observing another person (3) verbal messages and social persuasion (Bandura, 1977). This means that students

concepts of self-efficacy are built by internal and external forces that can be shaped by a teacher.

- There is a positive and statistically significant relationship between self-efficacy beliefs and academic performance (Multon et al., 1991). As a teacher, I am interested in cultivating a culture of growth and improvement.

- The more a student believes they are capable of successfully accomplishing a task, the more likely they are to actually complete said task (Pajares, 1996).

- Motivation is both distinguished from and linked to self-efficacy. Most important, as it gives students the skill of persisting through a difficult task (Pajares, 2003).

(2) What metacognitive strategies seem to be effective in improving self-efficacy beliefs?

- Students' writing confidence and competence increase when they are provided with process goals (i.e., specific strategies they can use to improve their writing) and regular feedback regarding how well they are using such strategies (Graham & MacArthur, 1988).

- When process goals are linked with feedback from a peer or teacher, writing competence improves even more and strategy use increases (Schunk & Swartz, 1993).

- Metacognitive processes can be taught by modelling techniques for introspective learning; becoming a strategic learner through metacognitive awareness is a developmental and instructional process influenced by teacher methods (Jacobs, 2001). Some examples of modelled strategies include, but are not limited to:

    - Identifying what is being asked before to beginning a task.
    - Determining the learning outcomes of a given task and attempt to connect to past/similar tasks that have been fulfilled before.
    - Searching for prior knowledge about the task in an attempt to fulfil it.
    - Setting goals for oneself prior to beginning a task.
    - Critiquing various strategies related to the given task can be employed while fulfilling it.
    - Constantly reviewing the important points on a regular basis during the fulfilment of the task.

- Checking the effectiveness of the employed strategies while fulfilling the task.
- Determining what has been achieved and what has not been achieved at the end of the task.
- Summarizing what has been learned after completing the task.

(Ertmer and Newby, 1996; Kaya, 2012; Ku and Ho, 2010; Pintrich and Groot, 1990)

- Regular and consistent use of journals in a classroom help entrench habits and new skills related to metacognition (Joseph, 2010)

- The effective use of a process portfolio helps students ground their thinking, reflect on what they have learned, have access to their peers' work, and receive feedback (Nicolaidou, 2010)

(3) When should the metacognitive strategies be implemented?

- Metacognitive strategies need to be implemented by learners throughout the completion of a task: before (planning), during (monitoring), and after (reflecting). Regular and consistent use of metacognitive strategies throughout the learning process helps a learner improve their understanding of a task. (Ertmer and Newby, 1996)

My systematic literature review provides me with foundational knowledge of past research in the field of self-efficacy and metacognition. The theoretical knowledge helps me determine *why* my research is relevant by thoroughly examining to role of self-efficacy and the past research that had been done on metacognition and metacognitive strategies. From what I have discerned, my research is relevant because improving self-efficacy is related to academic success; a key component of discussed in my problem statement. It is in conjunction with my key insights from Table 5, that I move onto my discussion section, which helps inform my own practice.

Discussion

Introduction

The purpose of this discussion is to explore how metacognitive strategies, as outlined in my literature review, were used to inform my day-to-day practice as a teacher, with the goal of improving self-efficacy for my high school students. My discussion is divided into two sections: (1) *past practices* and (2) *current connections for future consideration*. I critically assess (with the help of Table 5 and the reviewed literature) my own past, current, and what could become my future practices. I conclude my discussion with an account of what and how I have changed my practice, as the result of a depended understanding of notions of metacognitive strategies to improve self-efficacy. In my discussion, I engage in some components of the new BC curriculum in contextualizing my claims and insights about the congruence of my teaching strategies with what scholars deemed as appropriate in terms of metacognitive strategies required for the development of self-efficacy of high school students.

Background/ Context

My reflections from the field, something that informs my role as a teacher-practitioner, stem from my employment as a full time public school Language Arts (LA) teacher in BC's lower mainland. This reflection of my own practice is a response to a Ministry mandated curriculum redesign (drafted in 2016, with official implementation in 2018) and is contextualized by personal interests in self-efficacy and metacognitive strategies to increase critical and creative thinking in my classroom.

My typical teaching encounters are with students of adolescent age, between twelve and eighteen years old. A typical Language Arts class is 78 minutes in length and features 24-28

students for a total of 100-credit hours. Learning activities take place in what is typically defined as a traditional school classroom.

Past Practices

This section begins by first outlining my early journey as a novice learner and teacher. I outline how I came to adopt my early methods as a practitioner, who was heavily influenced by the curricular content provided by the Ministry of Education. An exploration of my past practices is important, because it helps explain how I came to my current understanding of pedagogical strategies that best support students' self-efficacy beliefs. My development as a teacher-practitioner, and subsequent strategies that influence my teaching, are important because of the points I outline in Table 5 section 1, where I identify why the research relating to self-efficacy and metacognition are important. These points are in line with the type of teacher I am now: someone who is responsive to the needs of their students, and someone who is able to make pedagogical changes based on those needs. This section will outline my journey as a teacher, and my growth towards pedagogies that support self-efficacy through the use of metacognition. Prior to the curricular reforms drafted in 2016, British Columbia operated off of a learning model that used Prescribed Learning Outcomes. This meant that learning goals were laid out very clearly by the Ministry of Education and provided teachers with a rigid set of guidelines to follow. In some ways, this system was a banking model of education[1].

[1] In *Pedagogy of the Oppressed*, Paulo Freire outlines and condemns this banking model of education by arguing that the learners' receive knowledge passively as empty vessels from the teacher, who is supposed to be store-house of knowledge in the traditional teacher-centered classroom (Freire, 2018). Freire also states "in the banking concept of education, knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing" (p. 72). In this model, teachers lecture and share information with students, and then test or interpret students retention of this information.

I liken the older curricular model in BC to the banking-model because of its' emphasis on content over growth. As a young teacher, I very much viewed my role as someone who had to pass on information and interpret my students' understanding of said information. The following, Figure 1, is a list of key concepts that the Prescribed Learning Outcomes (PLOs) were created under, and help demonstrate the content-based model I refer to. As a teacher working in this system, I felt like it was very difficult to include metacognitive strategies because the learning outcomes were more restrictive and prescriptive. This model created by the Ministry of Education in BC and was used by teachers and teacher-candidates to plan units and lessons until the draft curriculum was distributed in 2016.

Figure 1

Prescribed Learning Outcomes (PLO's) for grade 9 students pre-2016 (Province of British Columbia, 2007)

Literacy Skills	**Established Goals (PLO's):**
Oral Language	A1 interact and collaborate in pairs and groups A2 express ideas and information in a variety of situations and forms A3 listen to comprehend, interpret, and evaluate ideas and information from a variety of texts A4 select and use a range of strategies to interact and collaborate with others in pairs and groups A5 select and use a range of strategies to prepare oral communications A6 select and use a range of strategies to express ideas and information in oral communications A8 speak and listen to make personal responses to texts A7 use listening strategies to understand, recall, and analyse a variety of texts A9 speak and listen to interpret, analyse, and evaluate ideas and information from texts A10 speak and listen to synthesize and extend thinking A11 use metacognitive strategies to reflect on and assess their speaking and listening A12 recognize and apply the structures and features of oral language to convey and derive meaning
Reading and Viewing	B1 read, both collaboratively and independently, to comprehend a variety of literary texts

	B2 read, both collaboratively and independently, to comprehend a variety of information and persuasive texts with increasing complexity of ideas and form B3 view, both collaboratively and independently, to comprehend a variety of visual texts B4 independently select and read, for sustained periods of time, texts for enjoyment and to increase fluency B5 Before reading and viewing, select, adapt, and apply a range of strategies to anticipate content and construct meaning. B6 during reading and viewing, select and use a range of strategies to construct, monitor, and confirm meaning B7 after reading and viewing, select and use a range of strategies to extend and confirm meaning B8 Explain and support personal responses to texts B9 interpret, analyse, and evaluate ideas and information from texts B10 synthesize and extend thinking about texts B11 use metacognitive strategies to reflect on and assess their reading and viewing B12 recognize and explain how structures and features of text shape readers' and viewers' construction of meaning B13 demonstrate increasing word skills and vocabulary knowledge
Writing and Representing	C1 Write meaningful personal texts that elaborate on ideas and information C2 write purposeful information texts that express ideas and information C3 Write effective imaginative texts to develop ideas and information C4 create thoughtful representations that communicate ideas and information C5 select and use a range of strategies to generate, develop, and organize ideas for writing and representing C6 Select, adapt, and apply a range of drafting strategies while writing and representing. C7 select and use a range of strategies to revise, edit, and publish writing and representing C8 write and represent to explain and support personal responses to texts C9 write and represent to interpret, analyse, and evaluate ideas and information from texts C10 write and represent to synthesize and extend thinking

I was both a product and a manufacturer of this system, having graduated from high school in 2007 and becoming a teacher in 2012; I experienced this content-driven system as a student, and later reinforced it for four years prior to the curriculum's re-design in 2016. As a learner in this prescriptive system, my identity was formed by those around me: teachers and peers. I was never asked to reflect on my own work and was seldom encouraged to self-assess or think about my learning. The external comments from my teachers were the only reinforcements I received; these would become the basis of my self-efficacy beliefs. This was problematic, because I had no way of moving forward and improving unless a teacher told me what to do. I did not have the capacity to think independently or identify strategies to improve. I was a learner who received information and reacted to it—I was neither a part of it nor was I reflecting or questioning it. I do not consciously recall using any of the metacognitive strategies that I outline in Table 5 section 1; I was not asked to reflect, self-assess, or create learning goals for myself. Everything felt incumbent on an end result, so that once a teacher deems that a PLO is "met", the learning moved forward to another PLO. In contrast, the new CC model looks at learning as a cyclical journey where old concepts are continuously revisited.

Later, as a teacher-candidate, I was taught to use this content-driven model as my framework and guide when teaching a text or concept. Ideas were, generally, fixed and required few personal responses from students. Rather, students were taught how to interpret information in a way that best suited the teacher's demands. This is not to say that students were not learning— they were learning to analyse, interpret, and critique texts orally and in written form. The problem that many students were having is that it asked very little of the individual learner's profile. Teaching in this context, I felt like there were few options to integrate varied learning styles and students did not see themselves in the curriculum; this included the inclusion of

metacognitive strategies. I seldom used metacognitive strategies outlined in Table 5, and when I did, they felt untethered to the outlined ministerial curriculum. In other words, if I used a strategy, such as self-assessment, I couldn't help but feel like I had to tie it to a specific PLO. I was making pedagogical choices that were tied to the curriculum, as opposed to making pedagogical choices that were tied to the needs of my students. Essentially, I was creating lessons to tick PLOs off of the list. Students were seldom asked to think about their own thinking and there were few opportunities to reflect on the process of learning. In many ways, learners conceptions of self were formed by the comments that I gave them.

As a teacher within this content-driven system, I found it difficult to foster growth in my students, because the PLOs were so heavily based on learning content that stressed the importance of literacy. I often felt like I was racing against a clock to cover material and finish units. There were few times where I felt as though it were appropriate to re-visit past skills to refine them. This philosophy goes against many of the metacognitive strategies, that allow for self-reflection and critique of past learning (Table 5 section 2). These are metacognitive strategies where the notion of returning to past knowledge reinforces new skills, and a greater understanding of one's abilities. In contrast, Figure 1 shows how the old learning outcomes do not support this type of leaning—there are no PLO's that explicitly reflect the concept of metacognition. Instead, the PLO's are more rigid and straightforward about the types of learning goals a student sets out to achieve. Concepts, while clear and to-the-point, did not allow for the type of responsive teaching I was interested in. This made it difficult to include my student's thoughts and reflections in their own learning. In many ways, I was confined and restricted to what and how I could teach. Assessment in this PLO system meant that teachers, myself included, graded in relation to the standards: not yet meeting, meeting, and exceeds expectations.

Everything was looked at and assessed in relation the learning outcomes that had been presented by the ministry. Many teacher-colleagues preferred this model of education because they argued it was more straightforward and easy to follow. While this may have been true for some, it did not allow for the type of critical and creative thinking that I was interested in fostering. Similarly, it did not take into account the individual learning needs of my students because it did not consider their strengths or challenges. Put simply, this model outlined that students would be able to do X, Y, Z by the end of a school year and would reinforce this with notion with Provincial exams: two exams at the grade 10 level, one in grade 11, and one in grade 12. As a teacher, I often felt like I was teaching to an exam and deviating from the prescribed outcomes could mean that my students would be unprepared for the provincial test at the end of the school year. Since the provincial exam was a culmination of the PLOs, I felt like it was my job to follow the ministerial documents. My teaching practices felt static and repetitive; once a teacher figured out the content, they would teach the same thing repeatedly each year. As a young teacher in the field, this seemed to be incongruent with the educational goals that I laid out for myself: to be responsive to students, to build relationships with my classes, and to change my strategies to fit the needs of learners. I problematized and struggled with this because what I believed about education was incommensurable with my actions: I thought one thing, and was not behaving in a way that supported this belief.

Most importantly, my students were not independently developing their own sense of self-efficacy; the strategies in Table 5 section 2 were seldom used. Students were highly dependent on validation from me, and had difficulty moving forward on a particular task independently. Their beliefs about their own abilities were entirely based external factors. My literature cited Bandura's (1997) outline for the ways in which people interpret information from

sources in order to form their self-efficacy perceptions: the interpretation of one's performance, the vicarious experience of observing another person, and verbal messages and social persuasion. The PLO model of education did not allow students to form self-efficacy perceptions internally because there were no learning outcomes that allowed for self-reflection or metacognition. Self-efficacy beliefs were, instead, formed by peer observation or verbal messages from teachers. This is not to say that metacognitive strategies were never used. However, there lacked explicit framework for me to follow; it was not a requirement and, as a result, I did not employ student-lead metacognitive strategies to build self-efficacy. How could I do this when I was following a learning map filled with goals that was so prescriptive? Luckily, a re-imagined way of looking at education arrived in my fourth year of teaching (2016) and I was able to begin thinking about new pedagogical strategies that were more conducive to the type of teacher I wanted to be.

Current Connection for Future Consideration

The following section is an analysis of my current practices as I move deeper in my understanding of the new BC curriculum. The main features of my current teaching revolve around the notion of building self-efficacy—students belief in their own ability to accomplish a task. Two things prompted this shift: first the incommensurability of my beliefs about the aims for education and my actions as an educator, which I discuss in my previous section; second, the implementation of the Personal/Social Core Competency, which calls for pedagogy that allows students to "thrive as individuals, to understand and care about themselves and others, and to find and achieve their purposes in the world" (Province of British Columbia, 2018). My interpretation of this particular CC—especially the point about fostering personal responsibility— led me towards inclusion of metacognitive strategies, as they allow students to think and reflect about their own thinking. Compared to my past practices, my current pedagogy

is more responsive to the needs of students and dialogical with their growth. In addition, my current practices are more inclusive of the student as a partner in the classroom, because they allow the learner to contribute to the learning process in a meaningful way, which I share in the following discussion.

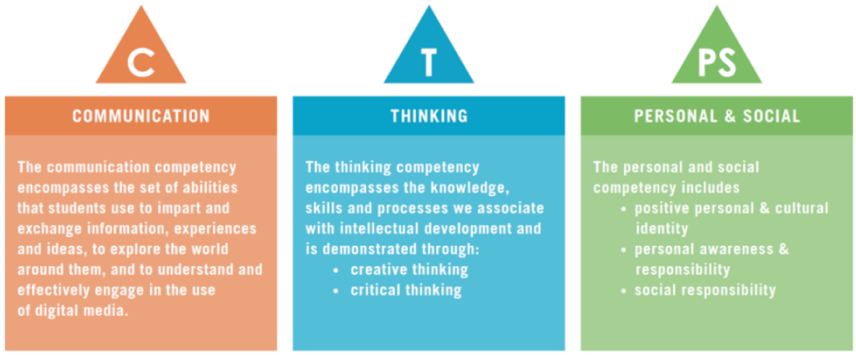
The new competency-based curriculum was released in 2016; as a novice teacher, I found this exciting and daunting at the same time. It was exciting because I felt as though there was a shift away from the banking model that plagued the PLO's. At the same time, it was daunting because there was little guidance on how to implement the new curriculum. In my district, for instance, I was simply told by administrators to start using the new curriculum—there was no extra funding for supplies or district resources. Furthermore, there were no district-lead or school-lead professional development days. It seemed that, for the most part, it was up to individual teachers to guide their own professional development in the wake of the province-wide curricular reforms. One area of support, however, was that teachers were provided with an additional four district-wide "curriculum implementation days" for each of the 2016, 2017, and 2018 school years. As opposed to the self-guided nature of typical professional development days, curriculum implementation days are used by teachers to explore the new curriculum and familiarize themselves with the new competencies. Although there were no formal structures in place to understand how the new curriculum worked, many departments worked informally together. At my school, I joined a Community of Practice (CoP), a place in which I could collaborate, and share my insights with colleagues. A CoP is a hub where colleagues come together with common interests and a friendly informal atmosphere, within which the participants may feel free, to sharpen their skills and broaden their horizons and I found that

working with like-minded teachers helped focus my understanding of the new competencies (Gau, 2013 p.1519).

Through the use of my CoP and district's Curriculum Implementation Days, I was able to reflect on the purpose of the new curriculum; I realized that it is more open-ended and gives more professional freedom to teachers because, rather than outlining *what* to teach, the core competencies emphasizes *how* students ought to learn. This shift is emancipatory in nature, in that it gives more power to learners by putting them at the forefront of curriculum by emphasizing students' abilities to demonstrate their proficiency in each of the three competencies in Figure 2.

Figure 2

Core Competencies in British Columbia (Province of British Columbia, 2018)

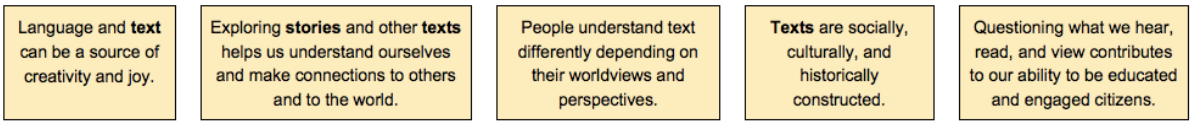


Note: Drafted in 2016, and are embedded into every grade-level and subject K-12 in BC.

Further to this, the Big Ideas in the Language Arts curriculum at the grade 8 level are an example of how student needs become more of a forethought when planning lessons, as opposed to an afterthought. See Figure 3.

Figure 3

Big Ideas Language Arts 8 Curriculum (Province of British Columbia, 2018)



The implication behind these BI's is that the student must be able to make connections to themselves, thereby engaging in the reflective strategies that are embedded in the Personal/Social Core Competency. The new curriculum played an important role in the development of my current practices, as it prompted an important shift in how I saw my role as an educator. The way in which I interpreted my role, changed from a credo of, "You must be able to understand this concept", to facilitating an inquiry of, "What is your connection to this concept?" Figure 2 and 3 help demonstrate this shift, as the BI's require, at least in part, a connection to oneself and/or community. The second BI in Figure 3, for example, ask students to explore "stories [that help] understand our connections to others and the world" (BC Curriculum, 2016). In this way, students are not asked to focus on the content of a given texts, but rather, students' personal connection to texts. In this way, the CC of communication, critical thinking, and self are simultaneously integrated into the LA curriculum. This makes the development of metacognitive strategies relevant and necessary. Through my CoP, I was able to reflect and critically deconstruct the purpose behind the BI's and the role that the CC's played in their formation. Although all of the CC's in Figure 2 need to work together, the third one—Personal/Social CC—seemed most important to me, perhaps because it seemed furthest away from the previous curriculum that I outline in my previous section, *Past Practices*. This CC calls on students to think about their own thinking and make personal connections to what they are learning. A strong foundational understanding of oneself as a learner kept pointing me in the direction of metacognition—how one thinks about their own thinking—and thus, the basis of this capstone and subsequent discussion. The inquiry into my own professional growth could not have occurred without the prompt of the new curriculum: I was forced to interrogate how my pedagogical choices influence the students in my classroom. Each interrogation led me closer to

the notions of self-efficacy and metacognition. As my previous literature review discusses, there is well documented research studies in the past four decades that describe the importance of metacognition; this research has helped guide my pedagogy and is the primary way that I have engaged with the new curriculum thus far. As the research suggests, there are many positive effects of self-reflective learning on students' academic and personal development. I synthesize this research in Table 5 section 1. where I explain how there is a positive and statistically significant relationship between self-efficacy beliefs and academic performance (Multon et al., 1991). Researchers have demonstrated that metacognition is vital to learning, and even indicating that appropriately focused metacognitive instruction increases practical intelligence and enables students to gain greater insights into their learning strategies (Flavell, 1979).

My classroom practices have therefore shifted to align with the research in metacognition; there is less focus on the completion of content and more emphasis on the learning strategies to understand the content, as well as the ways students learn. My entry point into the use metacognitive strategies has been the use of daily journals (Joseph, 2010). At the junior level (grade 8-10), I have been using daily journals to build habits and new skills related to metacognition. Like Joseph, I have found that regular and consistent use of journals in a classroom helps entrench habits and new skills related to metacognition. I begin every class with open-ended prompts that allow students to explore their own thinking. I do not check for syntax, spelling, or grammar, but instead emphasize the importance of communicating ideas and one's thinking. Below is a list of example journal prompts that I have used this year:

- What will your writing focus be for this week? Why?
- How might your work ethic be connected to your academic success?
- Describe a choice you made today that positively affected someone around you.

- How will you know when you need to ask for support?
- What kinds of questions came to mind when we read 'X' last class?

The act of journaling at the beginning of class has been built into the students' routine, to the point where they come into class, grab their journal, and begin writing. As the prompt is always posted somewhere visible, students no longer rely on verbal cues to begin the activity and most students are able to sustain this individual activity for longer periods than the beginning of the school year. This short 5-15 minute writing activity is often followed by a short oral discussion where students are invited to share their thoughts. I have observed that many students make connections to past journal entries and are often able to bring their ideas into subsequent classroom activities. This shows that they are using past knowledge to inform new knowledge (Table 5 section 2), which in turn increases the likelihood that they will apply their understanding to future tasks and learning outcomes. In addition, the regular and consistent use of a journals support the research behind habit formation and its' role in contributing to greater SRSD (Table 5 section 2).

Another metacognitive strategy that I have been using is use of a process portfolio to help students ground their thinking, reflect on what they have learned, have access to their peers' work, and receive feedback (Nicolaidou, 2010). These process portfolios allow students to: a) document the learning process, b) have access to peers' work, and c) receive feedback. The process portfolios are set up in a way where student work is discussed, shared, and reflected upon after it is completed. A conversation therefore begins once a student completes a task and emphasizes the notion of learning as an on-going process. Students are required to self-reflect, either verbally or in written form to a peer and myself (the teacher). This engages the student in reflection, a key component of the metacognitive process outlined by Ertmer and Newby (1996),

who argue that regular and consistent use of metacognitive strategies throughout the learning process, including at the end of a task, helps a learner improve their understanding.

Specifically in my classroom, each process portfolio consists of every student contributing and building their own file folder. Each portfolio is managed by the students, and it is important that it is a document that they constantly have access to. In this file folder, students are consistently and regularly adding projects, assignments, and pieces of writing. On a daily basis, students either add, revise, or reflect on past or current work. In this way, their portfolios are constantly evolving and changing. On occasion, students share work from their process portfolios with their peers. Sharing a personal portfolios with peers allow students to deepen their understanding of their own work. Similarly, students also reflect and share the work from their process portfolios with me, their teacher. Our conversations are student-led. Whereby the student chooses which assignments they would like to speak to in responses to questions I pose. For example, I might ask a student to show a piece of writing that showcases their ability to critically engage an audience. One student's reflection may involve a discussion of the growth they had while developing a short story they wrote, while another student may choose to showcase a visual representation of a text. In each case, the student reflects independently and is able to articulate an individual interpretation of their learning.

The three steps to consider for *when* metacognitive strategies take place— planning, monitoring, and evaluating (Table 4) are used regularly and consistently (Table 5 section 3) and are documented within these process portfolios. Another practical example of these steps were used during an LA oral presentation. To begin, I ask students to identify what is being asked before they start their task. This helps learners determine the learning outcomes and also helps them connect to past tasks that they have already fulfilled. While students are working, I remind them

to constantly review the important points and to check for effectiveness of their employed strategies. After the completion of their task (in this example, an oral presentation), I ask students to reflect orally or in written form. Here is an excerpt of a reflection that my students completed:

- Please discuss your growth in the area of speaking, presenting, and discussing (in small or large situations). In other words, how well can you convey meaning through speech?

Student reflections get recorded and discussed with me individually for two reasons. First, to help them, as learners, articulate their ideas and understanding. Second, it helps me, as their facilitator understand their strengths and challenges so that I may better respond to future needs. These reflections are compiled into each student's process portfolios, which are kept in the classroom. Students are free to re-visit past work and review older activities/concepts. In fact, students are encouraged to regularly return to past projects or written assignments to help identify areas of growth. This is one of the strategies from Table 5, which encourages students to access prior knowledge to build a foundational understanding.

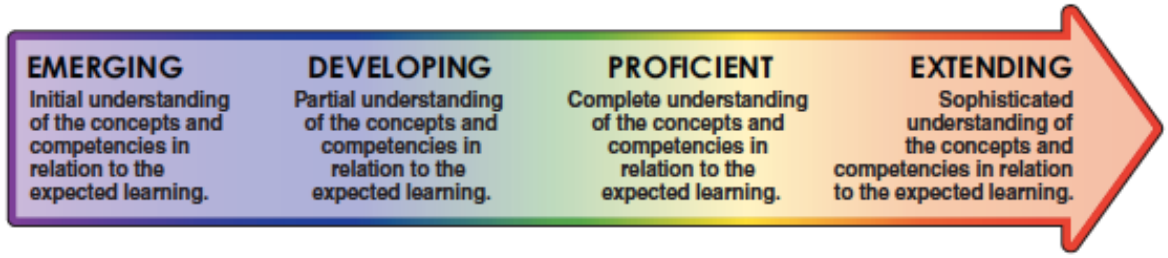
This notion of including student input and self-reflection is further encouraged when I ask students to reflect concretely upon their work with the use of a proficiency scale, which was developed in conjunction with my school's CoP. The two examples below were made in an effort to make learning more about a journey, where students can return to past work later on in the school year. Students are encouraged to use these scales in their self-reflections to help articulate and explain their thinking. Figure 4 demonstrates how the language in both scales (emerging, developing, proficient, and extending) is consistent to help students understand learning outcomes and make appropriate explanations of their growth and development. The

visual scales help students articulate and identify their learning needs. It is also a shift from my past practice, where assessment was more rigid (not yet meeting, meeting, and exceeding expectations) because it excluded student self-reflections and input.

Figure 4

Proficiency scales used for self-reflection

Emerging	Developing	Proficient	Extending
Struggles to understand or demonstrate skill	*Understands or demonstrates skill at a basic level*	*Clearly understands and demonstrates skill well*	*Understands critically and demonstrates skill with excellence*



My pedagogy emphasizes the role of 'learning as a process' through the use of process portfolios. This stands in contrast to my past practice, which emphasized the completion of curricular content and the fulfillment of PLO's. All students in my class have a file folder with their written assignments, projects, and self-reflections. As a class, students often return to older work in their portfolio and re-assess their skills. The closed-loop nature of this process allows students to think about their own thinking (metacognition), as well as their beliefs in their own abilities (self-efficacy). As the research supports, students see greater improvements overtime because they are more aware of their progress and can account for—and act upon—challenges that they identify.

I have observed several positive changes in relation to self-efficacy in my classroom. Students are able to sustain their focus during difficult tasks for longer periods and show greater signs of motivation to complete a task properly. Students are also more likely to ask for help if they need clarification on a learning outcome. Interestingly, I have observed that students are

more likely to problem-pose with a peer by orally articulating and communicating. In this way, students have not only become less dependent on teacher feedback, they are also building community within the classroom. These changes have occurred in conjunction with the implementation of the metacognitive strategies, which support of the Personal/ Social CC. At the junior level, students are able to articulate (oral and in written form) there areas of strength and areas of growth at the end of a task with greater ease. This corroborates Graham and MacArthur (1988) suggestion that outlining learning outcomes prior to (and throughout) a task, has positive outcomes for learners. As I have observed, students have greater self-efficacy beliefs because learning goals were clear and articulated with consistency and regularity. Further to this, students' write in their journal (on a daily basis) to document their progress. In this way, at the end of a task, students are able to use the proficiency scales from Figure 4 to justify and communicate with clarity the degree to which they completed an outcome. In addition, students are able to provide greater detail in the feedback and self-reflections. The ease with which they can reiterate their abilities to meet objectives indicates that they hold stronger self-efficacy beliefs; in other words, students have a greater understanding of their own abilities. In this way, I have seen positive changes as a result of embedding the third core competency into my pedagogy. While I am not making a correlation between student's increased self-efficacy and improved academic success, the research in my systematic review of literature suggests that there is a strong link between the two.

It would be naïve to assume that the improvements I have observed are the result of any one of the strategies I have used thus far. Rather, it is the combination of all of the variables working together: pedagogical strategies (daily journals, process portfolios, and self-reflection), as well as the facilitator's considerations (context, flexibility, consistency) that I outlined in my

literature review. I frequently change and adapt strategies for the diverse needs in my classroom. Similarly, I change the delivery method of strategies to align with the compositional needs of my classes. For instance, some classes require more explicit modelling prior to the completion of a self-reflection, while other classes are able to make connections and inferences with little instruction. I would therefore attribute, some of the success I've observed so far, to the relationships I've built with students. I am able to anticipate what metacognitive strategies they may find helpful, and this has helped me better model and facilitate their learning process. In one of my Language Arts classes, for instance, they have a higher propensity to inquire aloud during a class discussion. This is especially useful during a pre-planning activity, where students benefit from searching for prior knowledge about the task in an attempt to fulfill it (Table 4 and Table 5 section 2). Students are able to listen to one another to build their understanding; this strategy increases their self-efficacy beliefs because it heightens their belief in their own abilities. Some classes, however, require more explicit modelling of this pre-planning strategy. Rather than immediately engaging in a class discussion of prior knowledge, I first have students write and record in their journals what they already know about the content. Allowing for this extra pre-planning step, gives students to the confidence to make connections before a class discussion. In both instances, I used metacognitive strategies outlined in Table 5, but had to use my professional discretion to determine which one was best suited for the given environment.

Although I have seen some success in my classroom, there have also been challenges that I have faced. The idea of shifting from a content-based to a competency-based model has been difficult for parents and students to wrap their heads around. Rather than focusing on *what* to learn, students are instead encouraged *how* to learn. The traditional English canons, while still appreciated, are no longer the core of a Language Arts classroom and this has been difficult to

explain to parents and students who are so used to another model of education. Instead, there is a focus of understanding oneself in relation to literature and media. I have observed that many international students, in particular, have difficulty with the cultural differences of the BC curriculum; this may be because many come from school systems that stress traditional rote learning, rankings, and test scores. In addition, English Language Learners (ELL) likely have the most difficulty with these new strategies because they do not yet have the communication skills (written or oral) to share and represent their thinking—a key component of the CC's. Embedding the Personal/Social CC into my practice has been a steep learning curve, not only for myself, but also for the students in my classroom. I find myself having to explain with more frequency *why* or *for what purpose,* we are completing a task; it helps remind students of the CC's and the learning outcomes. In addition, my communication with parents has also increased, perhaps because I have more to report on in terms of a student's learning profile. The use of metacognitive strategies has made me more responsive to my students and this has helped me have richer conversations with parents when they inquire into how they might support their child at home. I attribute this to the growth I have seen from individual students and their ability to report on their own learning. In other words, as students' awareness of their own learning improves (and their ability to articulate this awareness), so too has my understanding of their needs.

Given the relatively new implementation of the outlined metacognitive strategies, I would like to disclose that there is still much I need to learn. I have little to comment on when it comes to long-term growth/ academic success for students who employ metacognitive strategies. However, my insights into this phenomena have grown, and the positive observations in the classroom that I have made thus far are supported by the literature review.

The new curriculum, supported through the strategies that I have outlined,
shifts away from the content-oriented PLO's and allow students, instead, to have the capacity to be partners in educational processes, rather than products that have been shaped to serve the needs of external interests (McGregor, 2009). This, I argue, provides more equitable opportunities for learners; the curricular changes are facilitated by the metacognitive strategies that I have outlined which in turn positively affect the self-efficacy of students. Schools and teachers need to support this relationship by responding to the demands of the learners since the purpose of public school should be to "help students deconstruct the world around them and negotiate a just place within it" (McGregor, p. 356). I argue that a greater understanding of oneself, through the use of metacognitive strategies, is one way to support this belief. By providing teachers with a greater understanding of the CC's—in particular the CC of Personal/ Social—schools would show that they value the multi-dimensionality of student needs, particularly their complex social and emotional development. This approach would make schools relevant, responsive, and dialogical.

In practice, this could manifest itself in many ways. Increased district and school-based support to empower teachers to learn about new pedagogical strategies is one way to promote a culture responsiveness. Professional development days that allow educators to share their ideas would facilitate discussion. Further to this, they allow colleagues to collaborate and reflect together about what works (or is not working) in their classrooms. My capstone outlines some of the ways metacognitive strategies can be used to increase self-efficacy, and the ability to engage in dialogue about my findings and observations may help facilitate new conversations. By sharing insights, I may be able to expose colleagues to new ways of thinking about their pedagogical practice. Similarly, I anticipate that I'd learn from them as well; as with most

collaborative exchanges, reciprocity is often at the core of the transaction. More collaborative time (either built into the school schedule, or set aside during professional development time) would allow teachers to work together to transform the way they think about teaching and learning.

Conclusion

My students' journey, as well as mine, is marked by reflection—an essential element for metacognition. On a daily basis, my students write about their experience in various forms, including journaling, storytelling, and poetry. My students' propensities to self-reflect have cajoled me to think more deeply about my own professional progress, participation in journaling, and dialogic discussions of strengths and challenges within my own pedagogy. I reflect because it allows for interrogation and critique of what I do and why I do it. With the implementation of metacognitive strategies, my reflections have shifted from *what* I teach, to *how* or *why* I make certain pedagogical choices.

While I witnessed growth within my students through this research, I have also felt firsthand, a growth in my own sense of self-efficacy as an educator. In other words, the internal beliefs related to my competencies as a teacher-practitioner have improved. These include the ability to respond to student needs, interpret student reflections, and react to student critique. Similarly, the implementation of metacognitive strategies—journaling, process portfolios, self-reflections, to name a few—have allowed for a greater understanding of my own strengths as a teacher-practitioner. Interestingly, the more I connect with and understand my students' needs, the more responsive I have become to them. In this way, I have become more adaptable, and flexible with what my students require to be successful in a learning setting. Thus, this capstone has helped indirectly foster a sense of self-efficacy from within. I have a greater sense of confidence with

the way that I approach the multitude of learning needs and my ability to respond critically and creatively to problems has improved. As a result of this capstone project, I have a renewed sense of purpose to continue to explore this research and the implementation of different ways to infuse metacognition into my pedagogy.

My purpose in exposing students to metacognitive-infused environments is to foster an environment that allows for discourse and responsive teaching—all with the goal of building their self-efficacy beliefs. My pedagogical journey demonstrates my shift from viewing my students as *receivers* of content to valuable *partners* in the learning process. I do not wish to control their thinking and action; rather, I wish for them to gain a greater awareness of the factors that promote a greater sense of self-efficacy—their belief in their ability to accomplish a task. I believe that doing so, is an incredibly emancipatory action for my students. For this reason, it is incumbent for me to continue to seek alternative pedagogy, a different way of approaching how I teach and how I educate, which includes an emphasis on dialogue, reflection, and critique. I argue that such an approach, not only allows those with low concepts of self-efficacy to feel included in school, but also makes teachers more responsive to the needs of their students.

Through my research on metacognitive strategies to build self-efficacy beliefs, I have interrogated my own practice. The systematic review of literature helped me discern some of the key insights from known research, which I outlined in Table 5. My research is relevant given the curricular changes in BC, which support this type of interrogation. My literature review, along with my own observations and experiences as a teacher-practitioner has helped me draw insight and conclude that, in order for the outlined metacognitive strategies (Table 4 and Table 5 section 2) to be effective, a teacher/ facilitator needs to also consider three things:

1. *Context*: Discretion and professional judgement play a pivotal role in the implementation of modeling techniques. The list of specific metacognitive strategies (Table 4) are extensive, so teachers interested in using metacognitive strategies in their classroom, should remember that age, subject-area, and class composition need to be taken into consideration before a selection of modeled strategies can take place.

2. *Flexibility*: teachers and students alike should not feel bounded to any particular strategy; try new and do not be afraid to switch strategies if something is not working out as anticipated.

3. *Consistency*: Regular and consistent use of metacognitive strategies throughout the learning process helps a learner improve their understanding of a task.

As a teacher-practitioner, who has been regularly using the outlined metacognitive strategies in my practice, I have noticed that my own abilities to self-reflect have become more purposeful and thoughtful. All of this contributes to my professional commitment of lifelong learning in the field of education. This research has made me more critical of my own practice, which has resulted in an increased level of responsiveness to my students. The practical application of my research has also lead to a more open and reciprocal approach to learning; one that puts a greater emphasis on the role of students as active partners in the learning process. This approach, too, asks more of teachers—requiring them to actively listen and respond to student needs. In this way, both the teacher and the student view themselves as co-learners. As students engage in metacognition and share their concepts of self-efficacy with me, I find myself engaging more deeply with their needs and my propensity to respond to them has increased. In this way, the research has helped make my pedagogy more relevant, responsive, and dialogical.

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