

Self-Regulated Learning in the Intermediate Classroom

by

Suzanne Jolene Bartel
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BA Trinity Western University, 2002

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Supervisory Committee

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Dr. Valerie Irvine, Department of Curriculum and Instruction

Co-Supervisor

Dr. Tim Pelton, Department of Curriculum and Instruction

Co-Supervisor

Abstract

This project focuses on the development of Self-Regulated Learning (SRL) skills in an Inquiry-based learning (IBL) environment. There were three guiding questions for this project: (1) How can teachers support students in their development of SRL skills? (2) What are some of the reasons that many learners have not yet developed SRL skills? and (3) How can SRL instruction support students in an IBL environment? The project includes a look at current research and literature in regards to SRL in the intermediate classroom. Chapter three includes a resource that is co-created with Christopher Lister and myself, and provides a detailed unit for teachers introducing IBL to students that is supported by the development of SRL skills in the learner. While the field of education is quickly moving towards IBL and project-based learning, many of our students do not have the necessary SRL skills that they need to be successful in these types of personalized learning environments.

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Dedication

This is for my family who have gone through the highs and lows of my graduate journey with me. To my husband and colleague, Christopher, who has walked this journey with me and supported me each step of the way. To my daughter, Ivy, who was born on February 2nd, 2014 and has a smile that can bring joy into our family even on the most difficult of days. And to my unborn child who I carry with me as I complete these assignments, constantly reminding me to anticipate the road that lies ahead and see the beauty of what is to come.

Chapter One: Introduction

The Connection Between Inquiry Learning and SRL

The new draft British Columbia (BC) curriculum is explicitly “supporting and encouraging student-driven inquiry-based approaches to teaching and learning” (BC Ministry of Ed, 2014). After listening to former BC superintendent, Jeff Hopkins speak to our graduate cohort about his experiences opening and operating the Pacific School of Innovation and Inquiry, I was inspired to bring the idea of inquiry-based (IBL) into my classroom. I helped my students set goals, set some parameters, provided access to information, and set them off on their learning journey. We failed miserably. After the initial excitement and interest wore off, several students mentally gave up when they realized that they needed to remember their supplies to help them meet their goals. Others grew frustrated when their Google searches turned up too much unrelated material. Still others threw in their hats when they realized that there was a lot of work involved in meeting their original goals. Only two students followed through - seizing the opportunity to learn for themselves about something they were passionate about. Only these two were excited enough about learning that they spent extra hours at home accomplishing their goals.

Where had I gone wrong? What did these two students have that allowed them to succeed when the rest of the class could not?

Last summer, University of Victoria’s PHD student, Mariel Miller, was asked to speak to one of our classes about her research in self-regulated learning (SRL). Mariel Miller introduced me to the idea that SRL is so much more than mere behaviour

management. In fact, I now believe that a deficit in SRL strategies is one of the key barriers that holds back so many of my bright students from engaging in autonomous, meaningful, and authentic learning. My students did not yet have the ability to regulate their own learning. They did not know how to set smaller goals to meet a bigger goal. They did not know how to manage their time. They did not have the ability to persevere when the going got tough. My students did not know how to evaluate their learning strategies and adjust them when they did not work, or assess whether they were accomplishing their goals.

With this new understanding, I have chosen to focus my graduate project on supporting SRL in the elementary classroom. SRL is generally defined as learning that is guided by metacognitive, strategic action, motivation to learn, and willingness to make adaptations (Johnson & Davies, 2014; Perry & Rahim, 2011; Pino-Pasternak, Basilio, & Whitebread, 2014; Winne & Hadwin, 1998, 2008). A self-regulated learner is a student who is able to control, evaluate, and adapt his or her own learning process (Zimmerman & Schunk, 2011). Rather than giving up on a difficult problem, a self-regulated learner persists through challenges and adjusts as necessary to complete a task (Perry & Rahim, 2011). A self-regulated learner is constantly monitoring, evaluating, and fine-tuning their learning (Perry & Rahim, 2011; Winne & Hadwin, 2008).

Meanwhile, my colleague, Christopher Lister, is examining inquiry learning and his project is focused on helping teachers and students to become more confident in using inquiry learning in the classroom. All of our discussions regarding our research and projects have brought us to the understanding that in order for inquiry learning to be successful, students needed SRL skills. It was difficult to envision either final project

without the other. Thus, for this project, we are using our combined expertise in the areas of SRL and IBL to co-construct a basic inquiry-learning unit guided by SRL strategies to present to grade four to six students.

Research Problem

While the field of education is quickly moving towards IBL and project-based learning (PBL), many of our students do not have the SRL skills that they need to be successful in these types of personalized learning environments (Dignath-van Ewijk, & van der Werf, 2012). Current curriculum does not yet explicitly embed the support for the development of SRL in students. If IBL is to play a prominent role in classrooms, educators have to first support and guide our students in developing the skills to be autonomous self-regulated learners. It is more important than ever that our students have the skills to set goals, make plans, and monitor their progress. They need to be able to gain learning strategies and the skills to adapt their strategies and plans when things are not going as well as they hoped. In a world where information and knowledge is at our fingertips and readily available for all, it will be those who have the capability to strategically and adaptively learn who will be a step ahead.

Literature Review Overview

A learner's ability to regulate their own learning correlates directly to increased academic achievement (Corte, Mason, Depaepe, & Verschaffel, 2011; Dignath, Buettner, & Langfeldt, 2008; J. A. Greene, Roberson, & Croker Costa, 2011; Harris, Graham, Reid, & Mason, 2011; Perry, 2013; Vandeveld, Van Keer, & De Wever, 2011; Tzohar-Rozen & Kramarski, 2014). A self-regulated learner is one who understands the task given, is able to set goals and monitor their progress towards meeting their goals, can manage their

time appropriately, and can complete a task despite challenges and distractions. SRL skills are not innate in children, but rather are developed through direct instruction and practice (Vandavelde, Van Keer, & Merchie, In Press) that is embedded into the regular classroom curriculum (Dignath et al., 2008).

The literature review in chapter two is an overview of current research about SRL in the elementary classroom. It begins with an in-depth look at Winne and Hadwin's 1998 model of SRL and the four phases of SRL that guide learners. Following this examination of the phases will be an overview of why SRL is so important and what it looks like currently in elementary education. Next, there is a discussion of current research that demonstrates how SRL can be implemented effectively in the elementary classroom. Finally, a brief overview of how current trends in digital learning are impacting how SRL is taught.

Methodic review of literature. In order to conduct this literature review on SRL in the elementary classroom, I studied a range of sources, including research articles, reports, and books. I also used social media (Twitter, Facebook, Email, and Skype) to engage with leading researchers in the field such as Lindsay McCardle, Nancy Perry, Maria White, Mariel Miller, and Sabrina Vandavelde. These conversations helped me to add context, depth, and perception to my understanding of their most recent research.

From January 2015 to July 2015, I researched SRL in the elementary classroom using search words such as self-regulated learning, self-regulated learning AND elementary NOT undergraduate, self-regulated learning AND (learning supports OR teaching methods OR instructional design OR learning strategies), self-regulated learning

AND inquiry-based learning AND elementary, and self-regulated learning AND scaffolding. I conducted my research in a variety of ways.

- Google Alerts for ‘Self-Regulated Learning’ that I reviewed weekly to determine relevance of articles
- Electronic searches on the following databases: University of Victoria Library, ERIC, Google Scholar, PsycINFO, UVic DSpace, and ProQuest Dissertations and Theses
- Manual searches of relevant journals, published research reports, and books
- Contact researchers to read their ‘In Press’ articles
- Contact researchers to receive advice on suggested readings or authors for my research
- Borrow books on SRL theory from UVIC library

Project Overview

The goal of this project is to develop an inquiry-learning unit supported and guided by the SRL phases presented by Winne and Hadwin’s SRL model (1998). This unit is designed to support students in grades four to six. It is expected that this resource will help to fill the gap between current research on SRL and the actual implementation of it in the elementary classroom.

This resource is designed to help classroom teachers lead students through a basic IBL unit that is guided and scaffolded by SRL strategies and skills. Through a series of lessons, the learner will be guided through a basic IBL cycle of developing an inquiry question, researching, interpreting and collating, and sharing what they have learned. Winne and Hadwin’s (1998) four phases of SRL (task understanding, goals, tactics and

strategies, and adaptations) are used to compliment and guide the learner through each lesson. For example, when students are developing an inquiry question, they will also be working on making sure they have a thorough understanding of the task. They will learn to make goals and plans to help guide their inquiry. Each lesson will be embedded with a variety of SRL tactics and strategies that will help students assess their progress and self-efficacy, as well as whether or not they need to make adaptations to their initial goals, strategies, or plans. This unit will be recursive in nature, meaning that at every phase of SRL the learner will be given the opportunity to monitor and evaluate the process. This monitoring may lead to adjustments to earlier phases such as individual goals or the overall task. SRL activities will be applied repeatedly to give learners plenty of opportunities to monitor and evaluate their progress.

Teachers want their students to be self-regulated learners and are already doing their best to attempt to develop these skills in students; however, few are doing so in an effective way that prepares students for in-depth learning experiences (Vandevelde et al., 2011). Teachers need a curriculum that helps them teach their students ‘how to learn’ more than what to learn. This project represents my initial steps towards bridging the gap between the current research and practical implementation of SRL in the elementary classroom. As students begin to develop SRL skills, I expect that we will begin to see more learners who can persevere through challenges, control, evaluate, and adapt their own learning rather than giving up when the going gets tough (Perry & Rahim, 2011).

Chapter Two: Literature Review

In an era of constant distractions, it is more important than ever that students are supported in mastering essential skills for lifelong learning. Students are faced with all kinds of demands for their attention. They need to learn to prioritize, make choices, and intentionally plan their learning. A self-regulated learner is a student who can control, evaluate, and adapt his or her own learning process. Rather than giving up on a task at hand, a self-regulated learner persists through challenges and makes changes necessary to complete a task. At the core of SRL research is the drive to discover how students can better assume control over their learning. SRL occurs when a student realizes that there is a better way to achieve a goal, and then acts upon that realization by making changes to their goals and plans (Winne & Hadwin, 2008). SRL is essential to meaningful learning in the classroom and the development of lifelong learning skills (Zimmerman, 2002, 2008).

Following is an overview of current research about SRL and its application in the elementary classroom. It begins with an in-depth look at Winne and Hadwin's 1998 model of SRL including the four phases that guide learners. The need for self-regulation and the fit of SRL to elementary-level classrooms is examined. Trends in education policy supporting the use of SRL are discussed and the appropriate introduction and application of SRL in the classroom is explored. Finally, a brief overview of how current trends in digital learning are impacting the teaching of SRL is shared.

Theoretical Framework

There are numerous theoretical models of SRL (Pintrich, 2000; Winne & Hadwin, 1998, 2008; Zimmerman, 2002). All of them attempt to model how self-self-regulated learners can manage their learning with a variety of strategies and monitoring. Although there are slight differences, each model touches on the cognitive, motivational, and contextual factors that are involved in the learning process (Greene & Azevedo, 2007). For elementary classrooms, Winne and Hadwin's (1998) SRL model provides a helpful theoretical framework.

Winne and Hadwin's SRL model. Winne and Hadwin's (1998) model of SRL identifies four distinct phases that help researchers understand where students may need support. The four phases are task definition, goal setting and planning, studying tactics, and adaptations to metacognition. Each phase loosely connects to the next through a recursive, sequenced cycle (Winne & Hadwin, 1998, p. 281). Ongoing self-evaluation may lead the student back to a previous phase to reassess and adapt (Winne & Hadwin, 2008, p. 300). Figure 1 shows an overview of Winne and Hadwin's (1998) model of SRL.

During the task definition phase, students use a combination of task conditions and cognitive conditions to form a task definition with clear standards. Task conditions are those external conditions such as time allotted, teacher, resources available, task requirements, and context. Cognitive conditions are internal and include prior knowledge, emotions, beliefs, disposition, motivation, self-efficacy, knowledge of the current task, and knowledge of study strategies. All of these conditions allow each student to form an internal definition of the task that is unique to the individual – meaning that there may be significant variance across students (Winne & Hadwin, 1998, p. 283). Recent research

has pointed towards the crucial importance of task understanding for a student prior to setting goals and planning (Helm, 2011; Perry, 2013).

In the second phase, the student selects one or more goals and creates a plan to achieve the task. A goal always develops out of a perception or definition of the task (Winne & Hadwin, 2008). It grows out of a set of standards by which the final task can be judged. Student goals may be adjusted multiple times throughout the learning process due to their own monitoring of whether or not they are achieving their goals appropriately. For example, if a student perceives the task as too hard, they may lower their initial standards, change their goal, or even give up on the task.

In phase three, the student will determine what strategies they will use to obtain their goals. Winne uses the term SMART (searching, monitoring, assembling, rehearsing, and translating) to help understand the cognitive processes used for phase three (2001). In phase four, students assess their outcomes of each phase in the model in order to adapt their conditions and standards for future learning. These adaptations to their learning become permanent and affect their cognitive conditions for future learning tasks.

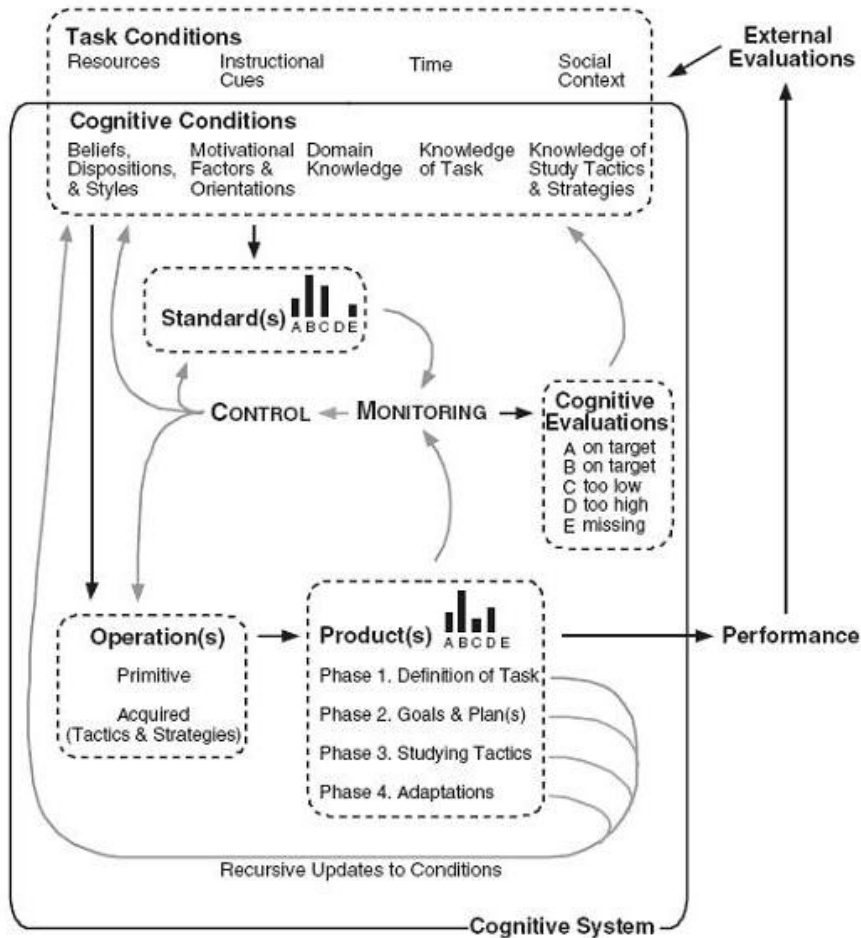


Figure 1. Winne & Hadwin's model of self-regulated learning (1998). From Winne, P.H., & Hadwin A.F. (1998) "Studying as Self-Regulated Learner." In D.J. Hacker, J. Dunlosky, & A.C. Graesser (Eds.), *Metacognition in educational theory and practice*. Hillsdale, NJ.

Five factors tie together the "cognitive architecture" of each phase (Winne & Hadwin, 1998, 2008). These are conditions, operations, products, evaluations, and standards (COPES). At each of the four phases, all five factors play an important role in SRL. The conditions are the resources and constraints inherent in the task. These conditions play an important role in defining the task and standards. Operations are the tactics and strategies that are used to process the learning at each phase. Products are a result of the operation used and unique to each phase. For example, the product of phase

one would be a definition of the task whereas the product for phase two would be a goal and plan to achieve it. A product does not have to be cognitive in nature; it may be an emotion such as excitement or frustration. Evaluations are the students' assessment of the product. These help the students to understand whether or not they have met the task standards. Standards are what make evaluations possible. They are used as the criteria to assess learning (Winne & Hadwin, 2008).

Winne and Hadwin (2008) point out that adaptation is at the core of SRL (p. 303). There are three areas where direct adaptation or change can occur in their model; change of conditions, change of operations, and change of standards (p. 304). Changes are a result of monitoring and evaluating products. Hadwin (2009) points out that educators spend a lot of time enhancing and developing student learning tactics and strategies; however, students usually struggle the most with defining the task, setting goals, and making plans. Students also have a difficult time learning to monitor and evaluate their learning. Thus it is in these initial phases and in the self-monitoring/evaluation process that students need more support (Hadwin, 2009; Helm, 2011).

Winne and Hadwin's (1998) model is unique relative to other SRL models in several ways. Green and Azevedo (2007) argue that Winne and Hadwin's model of SRL makes three unique contributions to current research on SRL. One of these contributions is how the model highlights that each phase of SRL includes similar processes of monitoring, evaluation, and control. Monitoring and control are, in essence, the hubs of each of the four phases and illuminates the recursive nature of all aspects of SRL and the fluidity between the phases. The model is also unique because it separates task definition and goal setting into two distinct phases (Green & Azevedo, 2007).

A Case for SRL in the Elementary School Classroom

Research suggests that explicit instruction of SRL skills in the elementary classroom correlates directly to increased academic achievement (Corte, Mason, Depaepe, & Verschaffel, 2011; Dignath, Buettner, & Langfeldt, 2008; J. A. Greene, Roberson, & Croker Costa, 2011; Harris, Graham, Reid, & Mason, 2011; Perry, 2013; Vandavelde, Van Keer, & De Wever, 2011; Tzohar-Rozen & Kramarski, 2014). Students with strong SRL skills consistently out perform their peers in academics (Corte et al., 2011; Greene et al., 2011; Harris et al., 2011; Vandavelde et al., 2011). They are typically planful, strategic, and motivated to learn (Corte et al., 2011; Greene et al., 2011). Self-regulated learners set goals, plans, and strategies that guide them in their learning and are capable of monitoring their effectiveness. Because of their superior learning methods, they are more likely to succeed and have a positive outlook on their future (Perry & Winne, 2013; Zimmerman, 2002).

Unfortunately, there are increasingly larger populations of students coming into the education system who have great difficulty with SRL (Vandavelde et al., 2011). Many of these students are from lower economic or immigrant backgrounds. These students often perform at lower academic levels than students from other schools (Vandavelde, Van Keer, & Merchie, In Press). Research on how to teach these various groups of students is scarce. Zimmerman (2002) states that students with few SRL skills tend to try and regulate their learning reactively. They fail to set precise goals or monitor their progress, as well as, they tend to rely on comparing their performance to others. Zimmerman suggests that these learners will have lower levels of satisfaction and

academic success (2002). Vandeveldel et al. (In Press) suggest that schools need to develop intervention programs for students who do not yet have SRL skills.

Despite these trends, there is still little research into specific methods and strategies that can be used to teach SRL in the elementary classroom (Stoeger & Ziegler, 2008, 2011). Dignath-van Ewijk and van der Werf's (2012) research showed that, in general, teachers demonstrate a positive mindset towards the need to have self-regulated learners in their classrooms. Teachers are quick to create constructivist learning environments that allow for student autonomy and opportunities to practice SRL skills, yet they rarely provide direct strategy instruction to help support their students in these environments (Dignath-van Ewijk & van der Werf, 2012). The elementary school classroom offers an ideal environment for researchers to study SRL. Typical classroom practice leads to naturally occurring instances of SRL - suggesting that classroom research on teaching SRL might lead to improved teaching and learning methods (Perry & Rahim, 2011).

At what age can students begin to acquire SRL skills? Right from the start of their formal schooling, and probably even earlier, students are capable of using self-regulatory skills to enhance their learning (Pino-Pasternak et al., 2014; Stoeger & Ziegler, 2008, 2011; Vandeveld, Van Keer, & De Wever, 2011; Dignath et al., 2008). In particular, young children benefit more from SRL instruction than older students since their academic routines are just beginning to develop (Mykkänen, Perry, & Järvelä, 2015). Dignath and Büttner (2008) suggest that when students arrive at school at an early age, they are highly motivated to learn. Primary students have been shown to have higher achievement with SRL strategies than secondary students (Dignath & Büttner, 2008). Children as early as preschool have shown the ability to adopt SRL skills that enable them to set goals and monitor their learning. The advantage of teaching SRL to students from a young age is that it is in these early years that children develop self-efficacy and confidence in learning (Dignath et al., 2008).

Dignath and Büttner's (2008) research comparing the SRL needs of a primary student to those of a secondary student showed that younger students responded more positively to interventions that emphasized motivational aspects of SRL. They stated that younger students' need for motivational support and encouragement should not be ignored and should be carefully considered when designing SRL training.

Furthermore, the development of SRL skills in students at an early age correlates highly with their academic achievement in reading, writing, numeracy, and other subject areas (Corte et al., 2011). Vandeveld, Van Keer, and Merchie (In Press) argue that young children do not spontaneously regulate their learning on their own, but that these skills and strategies must be explicitly taught through modeling and practice. They

suggest that grades four to six are crucial years for students to develop SRL skills as they are preparing to enter middle school and must have a strong repertoire of SRL tactics and strategies to meet the demands of such a big transition. Tzohar-Rozen and Kramarski (2014) agree that grades 4-6 are crucial years in SRL development - suggesting that student attitudes towards school and success peaks during these years and that soon after, negative attitudes towards school begin to develop and become prominent.

Current Trends of SRL in Education

Currently, the BC Ministry of Education (2014) is promoting personal inquiry-based learning in the classroom. There is a call for classrooms where “students are actively involved in setting goals, reflecting on their work, setting new goals based on those reflections, and taking more control of their learning” (BC Ministry of ED, 2014). Dignath-van Ewijk and van der Werf (2012) state that these constructivist or inquiry-based learning environments go hand in hand with SRL skills; one will not succeed without the other. The current curriculum and assessments do not yet support the intentional development of SRL (Corte et al., 2011). Teachers are in favour of constructivist learning environments but demonstrate little understanding of how to teach the SRL strategies that support their students in these environments (Dignath-van Ewijk & van der Werf, 2012). Winne (2014) states that students are rarely equipped with the SRL strategies and tactics that they need to be successful. He adds that SRL is infrequently taught in education and that many learners are left on their own to develop SRL.

The research consistently points towards the need for a widespread change in the education system that comprehensively implements SRL skills across the curriculum

(Corte et al., 2011). Governments in most countries are calling for the development of students with independent learning skills (Tay, 2015) that will enter their adult lives with strong, lifelong learning skills. Research makes it clear that self-regulated learning is a key competence for lifelong learning (Dignath et al., 2008). SRL skills help students to be more successful in life (Zimmerman, 2002) and learn to navigate their own learning in a society where knowledge is accessible by all (Abrami, Venkatesh, Meyer, & Wade, 2013).

While teachers know that SRL can and should be taught to students, few are doing so in an effective way that prepares students for in-depth learning experiences (Vandevelde et al., 2011). This is because little research has been conducted on which practical interventions support SRL in the classroom. Teachers are not trained to understand how to teach their students ‘how to learn’ (Dignath et al., 2008; Pino-Pasternak et al., 2014). Pino-Pasternak et al. (2014) argue that while the successfulness of SRL in the classroom has been proven over and over again, there is still little research to support the practical implementation of this in the classroom. One example of this is that many teachers are purposeful about teaching specific reading strategies to students, yet they do not take the time to teach SRL strategies (Tonks & Taboada, 2011). Since the importance of SRL for elementary students is well documented; there now needs to be a shift in research to help teachers effectively and purposefully prepare students in this area (Vandevelde et al., 2011). Strong SRL habits in students have the potential to lead directly to a strong work ethic, life-long learning skills, and a belief in the value of hard work that will far surpass the tasks and demands of school (Corno, 2011).

Perry (2013) suggests a number of reasons that might explain why teachers find it challenging to implement SRL into the classroom for a variety of reasons. First, some teachers struggle to design and conduct complex, meaningful tasks. Next, many teachers do not believe that their students are capable of such tasks. Teachers also do not necessarily have an adequate understanding of what SRL looks like at different phases. A self-regulated child in kindergarten looks very different than one in grade 6 or high school. Despite these reasons, Perry (2013) recommends that teachers strive to implement SRL in the classroom.

SRL in the Classroom

There is a growing body of research to show the effectiveness of implementing SRL programs and strategies in the elementary classroom (Dignath et al., 2008; Stoeger & Ziegler, 2008, 2011; Tay, 2015; Tzohar-Rozen & Kramarski, 2014; Vandavelde et al., 2011, In Press). Research has shown that educators need to have SRL skills in order to teach students struggling in this area (Greene et al., 2011). SRL programs are most effective in the regular classroom rather than conducted as a separate practice (Dignath, 2008).

Recently, under the mentorship of Zimmerman, White, and DiBenedetto (2015) developed a resource for K-12 teachers called *Self-Regulation and the Common Core: Application to ELA Standards*. This effort to bridge the gap between research and student SRL skills is exactly what SRL researchers have been calling for. Similarly to the BC Ministry of Education's efforts to bring inquiry learning into the classroom, the United States Common Core Standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) are encouraging learners to

take charge of their own learning (White & DiBenedetto, 2015). White and DiBenedetto urge that there is a need for explicit instruction of SRL in the classroom. They suggest that many teachers are already promoting SRL instruction without realizing it; however, this will more effective if it is done consistently and systematically. White and DiBenedetto's resource lays out specific lessons for kindergarten to grade 12 teachers that show how SRL develops and how it can be used effectively in 21st century learning environments.

Perry (2013) has been researching SRL in the elementary classroom since 1995. Her research focuses on understanding how to create opportunities for students to practice SRL and helping teachers learn how to design tasks and support their students in SRL development. Perry's research suggests that a classroom needs the following characteristics in order to promote SRL development. First, a classroom should establish familiar participation structures. This might look like a classroom meeting or daily circle where SRL is discussed explicitly and openly. Pino-Pasternak et al. (2014) also saw the importance of creating a supportive classroom environment in order to foster SRL and an atmosphere that supports student goals and learning. Next, Perry says that students need to engage in complex, meaningful tasks. Third, the teacher should provide scaffolding and modeling of SRL strategies. Finally, evaluation should be non-threatening and student driven (Perry, 2013).

These areas of classroom practice are discussed further in the following sections that are reflective of Winne and Hadwin's (1998) four phases of SRL.

Task understanding and goal setting. There is a growing body of research that suggests that task understanding is fundamental to a student's ability to develop effective SRL strategies (Helm, 2011; Lodewyk, Winne, & Jamieson-Noel, 2009; Malmberg, Järvelä, & Kirschner, 2014; Mykkänen et al., 2015; Perry, 2013). Tasks that encourage SRL are complex and meaningful in nature, addressing multiple goals and lasting over long periods of time (Perry & Drummond, 2002; Perry, 2013). Perry (2013) states that, when learners have little understanding of a learning task, they tend to set inappropriate goals and use ineffective strategies and suggests that learners must have explicit understanding of a task in order to demonstrate effective SRL strategies. Hadwin (2009) suggests that while a lot of teachers focus their attention on strategy and tactic development, it is task understanding and goal setting that need to be further understood in order to best support students (Hadwin, 2009).

Helm (2011) investigated young children's understanding of academic tasks. She found that task understanding correlated positively with gains of knowledge and effective SRL. Malmber et al.'s (2014) research supports this idea of task understanding. In this study, students participated in unstructured tasks where they were given freedom to develop SRL skills. The findings showed that under these circumstances, where explicit structure was not provided, some students tended to adopt a given learning strategy and continue to use it regardless of whether it was effective or not. Other students were reactive in their use of SRL strategies, picking random strategies to try with no understanding of why they chose that given one. These findings suggest that tasks need to be well structured and explained explicitly for students to perform SRL effectively. When

a student is confused by the task, they will focus on irrelevant aspects (Malmberg et al., 2014).

Once a student processes the task and develops a thorough understanding of it, they need to set goals for their learning (Zimmerman, 2002). An effective goal always develops out of a perception of the task (Winne & Hadwin, 1998, 2008). Winne (2014) states that goal setting is a common element in SRL theories. Learners need plenty of time to set goals and assess their progress in achieving them. SRL gives students the skills to adapt their goals throughout their learning journey (Winne, 2014).

Study tactics & SRL strategies. A key to SRL in the classroom is the explicit teaching, scaffolding, and modeling of SRL strategies (Corno, 2011; Tonks & Taboada, 2011; Vandeveldel et al., 2011; Zimmerman, 2002). Somewhere the idea of ‘direct strategy instruction’ has been lost in the mix of constructivist learning environments; however, students need this instruction now more than ever to be autonomous and regulated in their learning (Dignath-van Ewijk & van der Werf, 2012). Nussbaumer et al. (2015) suggest that too much freedom does not help weaker learners –these learners need structure and materials to help them learn SRL skills. Research in this area of strategy development seems to have many collections of differing SRL strategy lists. Winne (2015) uses the acronym SMART (Searching, Monitoring, Assembling, Translating, and Rehearsing) as an overview of SRL strategies. Corno (2011) suggests four strategies that are crucial. They are participating in class, assuming responsibility, managing homework, and studying. Vandeveldel et al. (2011) also gives a comprehensive list of strategies in their research including self-evaluation, organizing, goal setting, seeking information, and more. While all these lists seem quite different from each other, there seems to be general

agreement about the fact that these strategies must be explicitly taught (Corte et al., 2011; Mykkänen et al., 2015; Stoeger & Ziegler, 2008; Tzohar-Rozen & Kramarski, 2014; Vandavelde et al., In Press).

Stoeger and Ziegler (2008, 2011) conducted a five-week SRL strategy-training program for fourth graders. This training program is adapted from Zimmerman, Bonner, and Kovach's (1996) suggested five-week curricula model. The students received intensive instruction on SRL including goal setting, planning, time management, and strategy development. This study showed that students who participated improved in time management skills and the ability to reflect on their learning. Their self-efficacy and motivation also increased. These findings complement the results of Harris et al.'s (2012) study on self-regulated strategy development. Their students also received explicit instruction in goal setting, self-talk, self-monitoring, and self-reinforcement. The skills are repeatedly practiced over time until students can perform them independently. This explicit instruction had positive benefits for all students, including those who were at risk (Harris et al., 2012).

A common thread in these studies appears to be the importance of embedding SRL instruction into regular classroom activities and lessons (Dignath et al., 2008). Schünemann, Spörer, and Brunstein (2013) add to this research by embedding SRL instruction into reciprocal teaching techniques. They found that the effects of this traditional teaching method were enhanced by the SRL instruction. Student learning gains had more longevity than those who did not receive direct teaching about SRL. The results support the idea that SRL can be integrated into regular teaching programs (Schünemann et al., 2013). Tzohar-Rozen and Kramarski's (2014) also attempted to integrate SRL

instruction into regular classroom instruction by explicitly teaching metacognitive and motivational emotional intervention in math. They found that the more metacognitive tools a student had available to help them cope with learning, the greater their desire to learn became. Despite previous capabilities, these students worked harder and persevered in a given task (Tzohar-Rozen & Kramarski, 2014). Another example of SRL implementation into the instruction is Harris et al.'s (2012) research into SRL instruction for Tier 1 intervention. In this study, students received SRL instruction combined with their regular writing lessons. The use of SRL strategy instruction was proven to be effective for both the vulnerable students as well as those who are not vulnerable.

Adaptations: Self, peer, and teacher evaluation. Perry (2013) suggests that classrooms that support SRL developments should support non-threatening and student driven evaluation. This is supported by current research in the field of SRL (Harris et al., 2011; Mykkänen et al., 2015; Perry & Drummond, 2002; Perry, 2013; Tay, 2015; Winne, 2014). When an evaluation is non-threatening, students are more likely to attempt challenging tasks (Perry & Drummond, 2002). Perry and Drummond (2002) state that non-threatening evaluation is “embedded into ongoing activities, emphasizes processes as well as products, focuses on personal progress, and interprets errors as opportunities to learn” (p. 309). This type of evaluation not only helps students to feel less anxious about their learning, but it also gives them a sense of control over their outcomes. An example of this is Tay's (2015) study on the use of real world formative assessment in written assignments. He shows that formative assessment that is given immediately through online forums have a positive impact on student learning. Feedback given by peers in an

online community is an effective SRL strategy that helps students evaluate their work (Tay, 2015).

Winne (2014) points out that in order to make any meaningful changes in learning patterns, a learner needs to be able to record accurately and make judgments on progress towards their goals. Winne goes on to say that SRL is triggered when a learner can evaluate him or herself as unsatisfactory and make changes or adaptations to future learning. When they do this, they fundamentally have two options: change or repeat. This active monitoring, assessment, and adaptation of their learning is key to SRL (Winne, 2014). Winne says that when learners assess themselves, they can make adaptations to one or more of three SRL aspects; conditions of learning, strategies used, or standards of evaluation. Harris et al. (2011) supports this research by showing how competent writers have the ability to self-monitor, and self-evaluate their work, making changes to their work as they go. Winne and Hadwin (2008) state that SRL occurs when students can judge that there is a better way to achieve a goal, and then act on that judgment. They suggest that this adaptation and change is the hallmark of SRL.

Co-Regulation

Co-regulation is a teaching strategy that helps to provide support and scaffolding to students in their development of SRL skills. Perry (2013) argues that SRL is social in nature. She points out that SRL is rarely an individual event, but rather involves interactions with others. Recent research supports this concept that co-regulation is instrumental to the development of SRL (Perry & Drummond, 2002; Perry, 2013; Vandavelde et al., 2011, In Press). Perry (2013) states that co-regulation occurs when one person is more knowledgeable about SRL than the other and can support the

accomplishment of a learning goal. The partner could be a teacher or a peer. Students who have low SRL skills need this co-regulation phase to help them transition into being self-regulated. During this phase, learners slowly gain SRL skills through feedback and metacognitive prompts. Teachers can support co-regulation in the classroom through scaffolding, establishing familiar participation structures, enabling students to support each other, and using non-threatening evaluation (Mykkänen et al., 2015; Perry, 2013).

Vandeveldel et al.'s (2011, In Press) work focuses on the use of university student tutors to co-regulate young pupils in vulnerable populations. The students in this study were primarily from lower economic or immigrant backgrounds. Results show the importance of explicit instruction as well as adult support in a child's development of SRL. Their study provided students with one-on-one adult tutors to provide scaffolding and support in the development of both cognitive and metacognitive SRL skills. Over time, this support was slowly diminished. The results showed that tutoring in SRL skills can create a considerable change in how a student processes their learning and uses SRL skills. Students developed a refined and expanded repertoire of SRL strategies. This study showed that modeling, scaffolding, and prompting are key in promoting SRL and that it takes close, personalized guidance to support students in this area (Vandeveldel et al., 2011, In Press).

Pino-Pasternak et al. (2014) furthered this research into identifying co-regulation classroom practices that foster SRL. They found that a combination of dialogue, play, and collaborative problem-solving had a positive effect on children's SRL and academic achievement. The interventions that involved purposeful dialogue about metacognition had a meaningful effect on students who started with lower metacognitive competencies.

The interventions that focused on play and collaborative problem-solving had a positive impact on student confidence and motivation. Teachers observed that these students were approaching the written work portion of the task with greater confidence (Pino-Pasternak et al., 2014).

New Digital Technologies and SRL

Educators and researchers have always been hopeful that the latest technology can support the development of SRL strategies (Nussbaumer, Dahn, Kroop, Mikroyannidis, & Dietrich, 2015). The truth is that early technology such as ‘intelligent tutoring systems’ did very little to support SRL. Only recently have platforms, such as ‘personalized learning environments,’ begun to address SRL explicitly (Nussbaumer et al., 2015). Technology in itself does not produce effective learning environments (Sha, Looi, Chen, & Zhang, 2012). While mobile devices provide the technological and physical structure for mobile and ubiquitous learning, it is a learner’s SRL skills that are responsible for the understanding and accessing of this potential (Sha et al., 2012).

Digital learning environments can be effective because they are easily adapted to the needs of individuals (Azevedo, 2005). The very nature of digital learning, especially with mobile technologies, leads to the nurturing of lifelong learning skills. However, it is only when SRL is connected into these learning environments that learners develop learning skills that are easily transferred to learning situations in and out of school (Sha et al., 2012). Some research has started to emerge that focuses on how SRL can be used as a guiding theoretical framework to design learning in digital environments (Azevedo, 2005; Sha et al., 2012). These studies acknowledge that technology in itself does not create lifelong learners. Students must have the appropriate SRL skills in order to make the most

of digital learning (Sha et al., 2012). Sha et al. argues, “the ubiquity of mobile learning intrinsically calls for the theories of SRL” (p. 368). Ubiquity is a defining characteristic of mobile learning. It means that mobile learning allows students to be continually in motion; learning can happen anywhere and anytime. An effective mobile learning experience is dependent on the learners ability to determine when, where, what, and how to learn. SRL skills are a precursor to learning with mobile technology. Before learners can make the most of these digital environments, they need to be able to set goals, monitor their learning, and adapt when learning gets difficult (Sha et al., 2012). Sha et al. (2012) suggest that SRL theories can give a framework to teachers to help them design, assess, and analyze student learning with mobile devices.

Other research is emerging to show how the use of digital technologies can help develop student SRL skills (Abrami et al., 2013; Johnson & Davies, 2014; Tay, 2015). Johnson and Davies (2014) argue that SRL is enhanced when taught in e-learning environments rather than more traditional classroom environments – because e-learning can address individual differences more effectively. Access to digital technologies can potentially enhance SRL instruction in the classroom (Abrami et al., 2013; Tay, 2015). Abrami et al. (2013) studied the impact of electronic portfolios on enhancing SRL skills. They found that students who were motivated to use their electronic portfolios made significant academic gains in their academic skills and, over time, showed higher levels of SRL than the control group. Abrami et al. (2013) recommended doing more research on the collaborative capabilities of electronic portfolios, suggesting that self-regulation and co-regulation are closely linked. Tay’s (2015) research draws on this need for collaboration in developing SRL skills. He looks at the connection between formative

assessment and SRL. This study compares two groups of students. The first group engaged in a traditional paper and pen written assignment while the second group publishes their writing on an online public forum. The findings showed that formative assessment that is provided immediately in the online public forum was more engaging for students than in the traditional writing activity. The forum not only offered feedback, but also provided choice in the topic. It gave students the opportunity to identify standards for the task, and assess their ability to meet those standards. Traditionally, SRL has been taught primarily by the teacher, but new digital technologies can help teachers design activities that more effectively support SRL development (Tay, 2015).

Conclusion

In an era where students are faced with competing demands for their focus and attention, it is crucial that students learn to prioritize, make choices, and determine what and how to learn in and out of school. They need to be able to adapt their goals and plans to fit any learning situation (Järvelä, Järvenoja, & Malmberg, 2012). SRL can no longer be just an afterthought in classrooms. As curriculum moves towards inquiry and problem-based learning environments, teachers are beginning to realize that SRL is imperative. Through the intentional instruction and exploration of SRL in classrooms, students will start to find more success in constructivist learning environments, which encourage autonomous and engaged learning. By teaching SRL explicitly and allowing students to explore the strategies in the classroom, teachers may find that their students are more successful academically. They may also see increased engagement, motivation, and desire to learn. If a major goal of education is the development of lifelong learners, then it

is time to start supporting students 'learning how to learn' by including SRL instruction in classrooms (Zimmerman, 2002).

Chapter Three: Learning to Learn: A Teacher’s Guide on Implementing IBL/SRL in the Intermediate Classroom

Co-created by Christopher Lister and Suzanne Bartel

“At birth we are endowed with the dispositions and mechanisms to discover the world and make it a meaningful place in which to live. Without a desire to look, to explore by hand, by mouth, eye and ear we would not grow up to be the human beings we are.”
(John Barrell, 2003)

The purpose of the following resource is to support teachers in implementing inquiry-based learning (IBL) in elementary classroom settings and guide students in gaining the necessary skills that they will need to be self-regulated learners. It gives strategies, practical ideas, and resources to engage learners in student-centered environments. The resource combines current research in IBL and self-regulated learning (SRL) to help more students develop into effective independent learners.

What is IBL?

IBL is not a new approach to learning. It dates back to philosopher John Dewey. Like John Dewey’s (1982) pedagogy, IBL is established on the basis that new knowledge and understanding is constructed while learners are working and collaborating together. In Dewey’s student-centered learning environments, learners present and solve problems, make discoveries, and test those discoveries during the time they are working together. Although there is no single definition used to describe the process of IBL, it is safe to say that the inquiry process is an approach to learning that places students’ questions, ideas, and observations at the centre of the learning experience. For students, the inquiry process is driven by students’ own curiosity, wonder, and passion to better understand an observation, issue, idea, or problem. For educators, the process is about honouring and

paying attention to students' learning needs, knowing when and how to introduce students to ideas that will move them forward in their inquiry, and supporting students with SRL to engage in independent learning.

The act of implementing IBL in a classroom is very flexible, and can suit a variety of comfort levels. There are several levels of inquiry that can be implemented by educators. The range of IBL options in classrooms around the world range from 'structured', through 'guided', to 'open' methods. In structured IBL, the teacher directs most of the learning, provides the inquiry question, shows learners where to find research information, and gives step-by-step instructions of how to proceed through the inquiry process. In guided inquiry, teacher and students collectively generate the inquiry question, and the teacher acts as a facilitator through the phases of inquiry. The teacher may use a closed platform or 'walled-garden' to search for information related to the topic, and they may also choose what the final product should look like. In open inquiry, students generate the inquiry question, independently choose where to look for information, synthesize and evaluate, and choose their own methods of presenting and sharing their findings. Using the gradual release of responsibility model as a guide, educators should choose the right level of support for IBL.

The inquiry process can be broken down into six manageable stages:

1. In the '**Question**' stage, student and/or teacher generate an interesting question to research, which will form the backbone of the inquiry cycle.
2. In the '**Research**' stage, student and/or teacher start to research the inquiry question using a variety of means including, but not limited to, books, magazine, videos, audio, Internet searches, web pages, etc.

3. In the **‘Analyze’** stage, student and/or teacher must use the research information they have documented to analyze, synthesize, and evaluate the information. During this stage research information will be sorted, compared, and discarded using a variety of methods.
4. In the **‘Create’** stage, once the remaining information has been collated and a new understanding of the topic has been constructed, student and/or teacher must then choose a final product to highlight their work.
5. In the **‘Share’** stage, student and/or teacher share their findings with a larger audience that may start at the school level but expand to a larger global audience with the adoption of social media platforms.
6. In the **‘Reflect’** stage, students use their thinking skills to reflect on their learning, and highlight new knowledge.

What is SRL?

SRL is the idea that students take control of and evaluate their own learning. A self-regulated learner is a student who is able to control, evaluate, and adapt his or her own learning process. These learners persevere when the going gets tough and are capable of making adaptations to their learning strategies to help them succeed. SRL occurs when a student realizes that there is a better way or strategy to achieve a goal than the current method they are employing, and then they act upon this realization by making changes to their goals and plans. SRL is essential to meaningful learning in the classroom and the development of lifelong learning skills (Zimmerman, 2002).

According to Winne and Hadwin (1998), there are four phases of SRL: task understanding, goals and plans, applying strategies, and adapting and regulating. As

students are guided through each of these phases, they constantly monitor and evaluate their progress, making adaptations to previous phases as necessary. Research shows that children do not just inherit these skills but rather must learn them through explicit instruction embedded into naturally occurring learning experiences. Many students who arrive in classrooms find basic SRL skills to be challenging. They need instruction and support in learning to set appropriate goals, create plans, monitor their time, ignore distractions, adapt goals, and choose appropriate learning strategies.

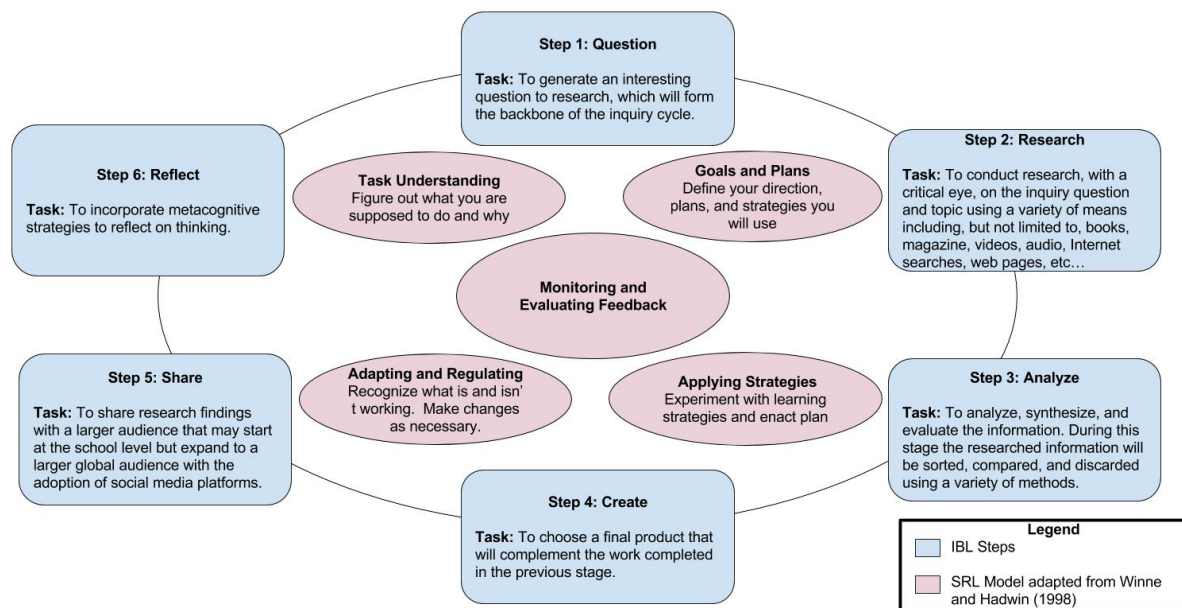
While teachers generally agree that these basic learning skills are necessary, there are few resources specific to the elementary classroom to help them instruct students in gaining SRL skills. In an era where ‘how to learn’ is becoming more important than ‘what to learn’ it is imperative that students are supported in gaining basic learning skills that will help them navigate themselves through the various learning environments that they will face both in and out of school.

Combining IBL and SRL

The new BC curriculum repeatedly encourages educators to support and encourage student-centered inquiry-based approaches to learning (BC Ministry of Education, 2014). Students in inquiry-based learning environments, who are expected to take control of their own learning experiences, need educators to support them in gaining the basic SRL skills that will help them be successful. When students are unable to set goals, make plans, manage their time, evaluate their progress, and apply appropriate learning strategies, their IBL learning experiences are likely to be frustrating and unsuccessful. The model below shows how the six steps in IBL can be supported by the

four phases of SRL. The following IBL unit is designed to support educators in introducing their learners to IBL with step by step support in developing SRL skills.

There are many models of IBL available to educators. The model below was influenced by several experts in the field of IBL including Bybee's 5E instructional model (2015). Bybee's 5E model was designed specifically for science instruction, and represent five stages of a sequence for teaching and learning: Engage, Explore, Explain, Extend, and Evaluate. The model for IBL in IQ: A Practical Guide to Inquiry-Based Learning (2014) was also useful in designing our own cycle of inquiry; Particularly, the interactive questions they posed for educators at each stage of their inquiry. Guided Inquiry by Design: A Framework for Inquiry in Your School (2012) was helpful when considering methods to use when searching for information with students. Lastly, the [Genius Hour](#) movement was a source of inspiration when selecting methods for creating and sharing students' final products.



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Figure 2. Model of IBL combined with SRL



BC Core Competencies and Learning Outcomes Addressed

Core Competencies		
Communication	Allowing students the opportunity to share information, experiences, and ideas with others in unique and creative ways.	
Thinking	Allowing students to take concepts learned and transforming it into a new understanding. Helping students to build metacognitive awareness, creative thinking, and critical thinking.	
Personal and Social	Helping students develop the skills to thrive as learners: understanding and caring for themselves and helping them to achieve their personal goals.	
Big Ideas and Learning Standards		
English Language Arts: Grades 4 & 5	Big Ideas	<ul style="list-style-type: none"> Exploring text and story helps us understand ourselves and make connections to others and to the world. Listening carefully helps us learn. Texts can be understood from different perspectives Combining different texts and ideas allows us to create new understandings.
	Learning Standards	<ul style="list-style-type: none"> Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding Use a variety of comprehension strategies before, during, and after reading, listening, or viewing to construct meaning from text Apply a variety of age-appropriate thinking skills to gain meaning from texts Show an increasing understanding of the role of organization in meaning Use writing and design processes to plan, develop, and create texts for a variety of purposes and audiences
English Language Arts: Grade 6	Big Ideas	<ul style="list-style-type: none"> Exploring text and story helps us understand ourselves and make connections to others and to the world. Exploring and sharing multiple perspectives extends our thinking Synthesizing the meaning from different texts and ideas helps us create new understandings
English Language Arts: Grade 6	Learning Standards	<ul style="list-style-type: none"> Access and integrate information and ideas from a variety of sources and from prior knowledge to build understanding Use a variety of comprehension strategies before, during, and after reading, listening, or viewing to construct meaning from text

		<ul style="list-style-type: none"> ● Apply a variety of age-appropriate thinking skills to gain meaning from texts ● Show an increasing understanding of the role of organization in meaning ● Use writing and design processes to plan, develop, and create texts for a variety of purposes and audiences
Social Studies: Grades 4-6	Learning Standards	<ul style="list-style-type: none"> ● Use inquiry processes (ask questions, gather, interpret and analyze ideas, and communicate findings and decisions) ● Ask questions, corroborate inferences, and draw conclusions about the content and origins of different sources
Science: Grade 4	Learning Standards	<ul style="list-style-type: none"> ● Demonstrate curiosity about the natural world ● Make predictions based on prior knowledge ● Suggest ways to plan and conduct an inquiry to find answers to their questions ● Represent and communicate ideas and findings in a variety of ways such as diagrams and simple reports, using digital technologies as appropriate
Science: Grades 5 & 6	Learning Standards	<ul style="list-style-type: none"> ● Demonstrate a sustained curiosity about a scientific topic or problem of personal interest ● Identify questions to answer or problems to solve through scientific inquiry ● Make predictions about what the findings of their inquiry will be ● With support, plan appropriate investigations to answer their questions or solve problems they have identified ● Choose appropriate data to collect to answer their question ● Communicate ideas, explanations, and processes in a variety of ways

Figure 3. BC curriculum and learning outcomes addressed in this project

The Process of IBL Supported by SRL

Step 1: Question. *“Classrooms that resonate with questions are cultivating thinking”* (Gear, 2008). Questions have driven people’s desire to learn since time immemorial. The role of the teacher in guided IBL is to model good questioning skills and create learning opportunities for students to ask and answer interesting and powerful questions derived from curricula learning outcomes. Creating environments that encourage learners to engage in the practice of wondering about the world around them is sometimes no easy task. Before engaging in IBL, it may be necessary for students and teachers to unlearn practices that stifle curiosity and adopt practices that nurture our natural curiosity. Therefore, the first step in creating an environment where IBL can thrive is creating a safe place for students to express their opinions and thoughts without prejudice. Next, teachers should develop classroom experiences where students are encouraged and expected to question together and be exposed to a variety of different ways of thinking, beliefs and experiences. A powerful inquiry question extends beyond simply recalling, summarizing, or detailing events: it becomes an opportunity to think and take action.

Note: Before jumping into the topic of what makes a great inquiry question, it may be beneficial to complete a couple of foundation lessons on what constitute powerful questions. Adrienne Gear has developed some excellent resources on generating powerful and deep-thinking questions.

Simple Questions	Powerful Questions
<ul style="list-style-type: none"> ● quick to answer ● can be answer with a yes/no response ● usually one single correct answer ● thinking stops when the answer is found ● help to understand only the topic of concern ● need little or no justification 	<ul style="list-style-type: none"> ● take mental effort and time to answer a powerful question ● answer not found in a single text, rather across multiple sources ● no one single correct answer ● answer to the questions leads to more questions ● help to deepen understanding ● require support and justification

Figure 4. Criteria for differentiating between ‘powerful’ and ‘simple’ questions
Adapted from Gear, A. (2008) “Nonfiction Reading Power.”

Helping students develop their own powerful inquiry questions. Developing an inquiry question to drive thinking and learning in your classroom is one thing, but helping students derive their own questions is an altogether more challenging task. We have collated some resources and ideas that should help. It is important to remember that students who are have become conditioned to work in teacher-centered classroom may have initial difficulty moving into a student-centered environment that is rich in questioning, curiosity, and wonder. Not to worry, time and the development of SRL skills will enable these learners to ignite their passion for inquiry. Here are some strategies to consider:

- Make questioning a central theme in your classroom
- Create opportunities for students to wonder and be creative doing projects such as [Wonderopolis](#), [Genius Hour](#), [Passion Time](#), [Maker Education](#), and [20% Time](#)
- Create a ‘Powerful Question’ wall in your school
- Avoid asking questions that return a factual answer, or have a fact as their answer.

For example, how many people in prison are teenagers - we know this - it’s quantifiable

- Create an ‘I Wonder Board’ in the classroom
- Model ways to ask questions about media, ideas, behaviours and topics in class
- Model questioning in teacher read alouds

Examples of powerful inquiry questions.

- When and why should we estimate?
- Is Canada a great country?
- What makes objects move the way they do?
- How do effective writers hook and hold their readers?
- Is illegal action ever justified when trying to cause political change?
- How do we know what really happened in the past?
- What will Canadian communities look like in the future?
- [Further examples](#) can be found in Appendix 1

Adapted from McTighe, J., & Wiggins, G. (2013) “Essential Questions: Opening Doors To Student Understanding.”

Finding inquiry questions - where to look. The new BC curriculum (2015) has many more opportunities for inquiry learning than previous iterations. Try to create your powerful inquiry questions that connect to big ideas in your learning outcomes. See example:

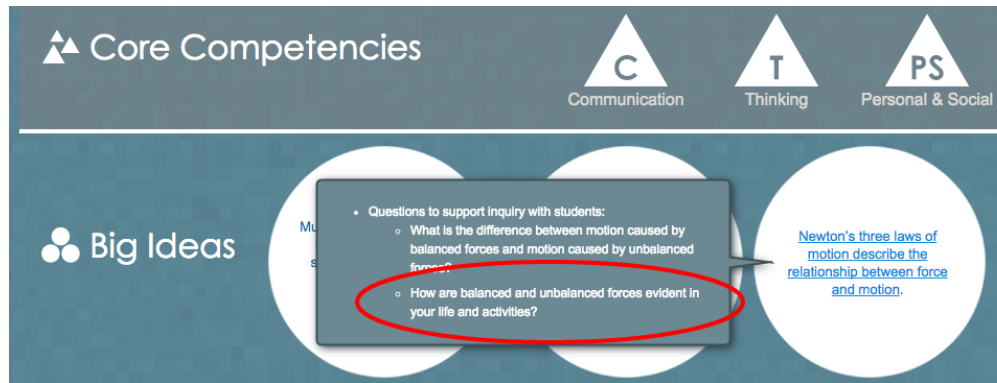


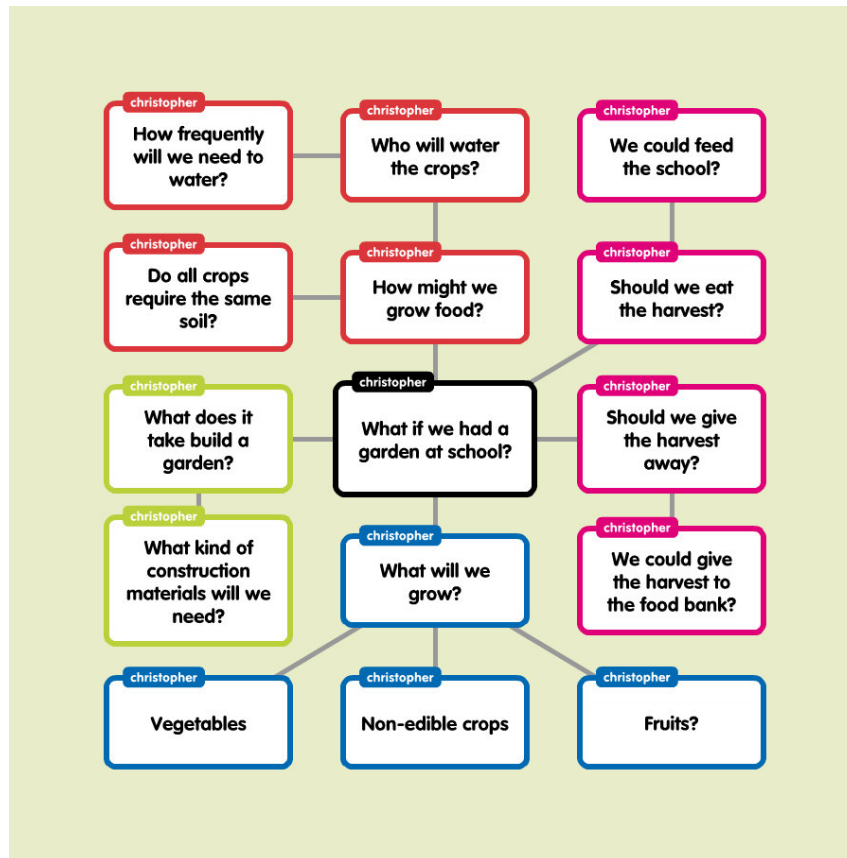
Figure 5. Inquiry questions in BC curriculum. Adapted from British Columbia, Ministry of Education. (2015) “Social Studies Grade 6 Curriculum.”

Refining your inquiry question. Below is a checklist to help you refine your inquiry question. Make sure:

- The question is appealing to students
- The question taps into students’ interests and passions
- Students can relate to the question in their daily lives
- The question is concise
- Students will have a variety of choices for end products
- There is an authentic audience for the project
- The question requires serious investigation
- Students will learn important skills and content

Adapted from Vincent, T. (2014) “Crafting Questions That Drive Projects.”
Strategies for Developing Powerful Inquiry Questions

A powerful inquiry question will likely lead to more wondering and stimulate your learner’s natural curiosity. These additional questions expose students to thinking about what they need to know to answer the inquiry question. Mind mapping tools like the [Popplet](#) app [Lucidchart](#), and [Mindmeister](#) allow students to group their additional questions based on similarities.



"School Garden Inquiry" by [Christopher Lister](#) is licensed under [CC BY-NC-SA 4.0](#)

Figure 6. Example of mind-mapping using Popplet

Step 1: Generating an Inquiry Question	
Recommended activities to support SRL development	
SRL focus: goal setting and task understanding	Goal setting naturally compliments this initial stage of inquiry learning. As students begin to generate their inquiry question, they will inherently begin to set goals towards the final outcome of their project. At this stage, it is important that a teacher comes alongside the students and helps them verbalize and adapt their goals to be appropriate for the timeline of this unit.
Develop an inquiry goal	At the end of step one (generating an inquiry question), students should use the My Inquiry Goal form (Reproducible 8) to set their initial goal and create a simple plan to achieve that goal.
Class discussion about goal setting	Discuss the importance of monitoring and adapting goals on a daily basis and let students know that they will be doing so often throughout this unit. Students must understand that their goals are flexible and adaptable.

Demonstrate how to make adaptations to original goals	If students are making insufficient progress, they can use post-it notes to make adaptations to their goals. For example, if a student’s inquiry question is too general or broad, they could grab a post-it note to narrow it down to a more focused question. Or if a student has a family tragedy occur in their lives and realizes that they will not be able to meet their initial goal, they could make it smaller and more feasible for their current situation.
Task understanding	Use the an IBL planning form and/or the My Inquiry Goal form (Reproducible 8) to help students understand the task that they to accomplish and how to get there. This form can be revisited often to help students plan out their daily tasks, as well as to assess if they are making significant enough progress to meet their goals.
Introduce “My Inquiry Log”	Guide students through the steps of filling out their daily My Inquiry Log (Reproducible 7). Show students that each day they will have a chance to assess their own confidence in meeting their goals.

Figure 7. SRL strategies to support generating an inquiry question

Step 2: Research. Once an inquiry question has been formulated, the next phase of the inquiry cycle is to conduct critical research on the topic. In order for learners to be successful in this stage, and not become overwhelmed or distracted by mass amounts of information, it is important that the teacher offer a variety of strategies. These strategies should encourage learners to gather a variety of robust sources from a variety of different perspectives.

In a time when students in schools are interacting with information from a variety of online sources (e.g., images, videos, websites, etc.), it is critical to support students in learning the necessary digital literacy skills to become critical readers and interpreters of a range of different types of media. There are many different strategies available to educators to use with learners when searching for information. Assuming most of the research will be conducted online, then narrowing down search efforts for students will

help them avoid getting lost down the metaphorical ‘rabbit hole’ associated with Internet searching.

Strategies.

- Limit the boundaries of the search process
- Direct them to predetermined websites
- Evaluate resources for usefulness, trustworthiness, and readability
- Develop appropriate, efficient, and effective search strategies
- Choose the best resources for the task
- Understand what primary and secondary sources are and when to use each one
- Take notes using keywords and phrases
- Keep a detailed record of resources used

Types of sources. A variety of sources should be considered when gathering information such as print, websites, video, images, and opinion pieces. Keeping a detailed list of sources will help students organizing their research.

Topic:		
Date	Website	Type of Media

Figure 8. Reproducible 1 - organizing sources. Full page available in reproducible section.

Research options. Depending on your comfort level, there are a variety of options open to your students when searching for information. Your first stop should be your librarian if you have one, as they are the experts on searching information. If you have access to a district library service like Follett Destiny, you can create your own walled-garden approach to research by presenting and limiting where students get their information from. You can also achieve the same results using a social bookmarking applications such as [Diigo](#) or [Symbaloo](#).

If your students are using a search engine such as Google, then they will benefit from a little practice developing powerful search techniques. A simple Google search will return a number of resources to help with this, but we have included a Google search techniques resource ([Appendix 2](#)) you might find useful. Common Sense Media (2015) also has some excellent resources on [strategic searching](#).

Reading research. Research is a complex cognitive process. Students will need extensive guidance and practice to read research effectively. The independent reading level of students will likely impact their ability to read website that do not have the built-in capacity to adjust the reading level. There are several website and browser extensions including [Newsela](#), [The Readability Test Tool](#), and [Wonderopolis](#) that can help with making sure your students are reading research at their individual reading levels. A more extensive list can be found in [Appendix 3](#).

Usefulness. Evaluating research information and sources to determine whether or not they come from reliable and trusted sources is an integral part of the search process. This step is often overlooked by intermediate-aged students. The danger of blindly accepting whatever is put in front of them as the truth is that it tends to negatively impact the quality of their inquiry. Internet research without critical evaluation is a flawed process. The following list highlights some of the problems associated with Internet searching:

- Internet search results, like those you would find after a Google search, are ranked by importance by computer algorithms. The highest-ranked websites may not therefore be the most relevant
- The content found on websites searched from the Internet have little or no review process to determine whether the content is accurate or not
- Advertisements and links can be distracting
- The information varies greatly in accuracy, purpose, and reliability
- Information from the Internet needs critical evaluation before using

Using a simple checklist like the one below can ensure that your learners develop important critical thinking skills.

Question	Answer	
	Yes	No
Does it help me answer my inquiry question?		

Figure 9. Reproducible 2 - research checklist. Full page available in reproducible section.. Adapted from UC Berkeley Library. (2012) “Evaluating Web Pages: Techniques to Apply & Questions to Ask.” and from Tech-Ease. (2011) “How can my students know if a web source is reliable?”

Biases. It is inevitable that students will allow their own biases to impact the decisions they make about gathering certain pieces of information to support or disprove their inquiry question. To engage in authentic IBL, it may be beneficial to make students aware of the implications of allowing biases to infiltrate their inquiry. MediaSmarts (2013) has some excellent resources to help to combat [biases](#) when researching.

Step 2: Research Inquiry Question	
Recommended activities to support SRL development	
SRL focus: applying strategies	At this point, teachers should focus on helping students to attain a variety of learning strategies that support the process of learning. For this step (research inquiry question), it is important that teachers provide many options for appropriate research.
Revisit inquiry goal often	Students should revisit their Inquiry Goal (Reproducible 8) each day to determine whether or not they are making sufficient progress towards achieving the overall goal. If they are not, they can make adaptations or find support through their Inquiry Log (Reproducible 7).
Fill out ‘My Inquiry Log’ each day (Reproducible 7)	Students will need support learning how to fill this out initially. Eventually they should be able to fill it out in 5 minutes or less.

Introduce SRL forms	This will most likely take an extra lesson or two apart from the IBL unit. Students should receive explicit instruction on how to use their Inquiry Log (Reproducible 7) to determine where they need support and what forms or strategies would be appropriate to use. See ‘SRL Support Handbook’ provided for more information.
Begin to use SRL support forms	Students will begin to use their Inquiry Log (Reproducible 7) to determine which SRL support form will help them gain the skills needed to help them achieve their goal.
Class discussion about goal setting	Continue the class discussion about the importance of monitoring daily goal setting and adapting goals.
Continue to support student organization of work and supplies	Make certain that students place their notes and work into the appropriate location in their binder prior to the end of each work session. Some students may need one-on-one support in this area initially. See Reproducible 13 for binder organization support.

Figure 10. SRL Strategies to support researching an inquiry question

Step 3: Analyze. In the analyze step, determining the importance of one’s research information, synthesizing, and drawing conclusions are important skills which need to be developed. The teacher will need to help students develop the strategies needed to be selective about which research to keep and which to discard. It may also be necessary for the teacher to help the student decide if there is enough information collected, if the information represents diverse perspectives, if it helps to answer the inquiry question, and if further research is required. Without the ability to determine what is important in student’s research they have little chance of drawing conclusions, making personal connections, and developing high levels of comprehension.

Determining importance. Determining the importance of the research as it relates to the inquiry question is a complex process. Helping students determine the main idea of each piece of research is a critical skill required in this step. The graphic organizer below may help students organize their research and determine the main idea.

Organizer To Help Identify The Main Idea

Title, Subtitle, and Headings	First Sentence of Each Paragraph	Last Sentence of Each Paragraph

Introduction	Ending

Conclusion: What are the most important ideas in the article?	Important Pictures
1.	

Figure 11. Reproducible 3 - Identifying the main idea. Full page available in reproducible section..

Synthesizing. “Synthesizing combines awareness and understanding on all levels- it is the summary of text, combined with the readers’ connections, questions, and inferences, to formulate a new perspective” (Gear, 2008). Learners will need to be able to connect what they read, view, and process during their research to their own existing knowledge. The connections learners make can be personal connections, connections to other text or media, or connections to the larger world around them.

Strategies for synthesizing.

1. Understanding the difference between a summary and a synthesis will help students transform their learning into new areas.

Summary	Synthesis
<ul style="list-style-type: none"> ● “two-dimensional” reading: text + reader ● facts from the text made simpler ● no additional input ● a retelling of the text 	<ul style="list-style-type: none"> ● “three-dimensional” reading: text + reader’s thinking = new thought ● facts from the text expanded upon ● opinions, thoughts, ideas included ● a rethinking of the text

Figure 12. Difference between summary and synthesis

2. One of the simplest ways we can help students to synthesize is allowing them to notice their thinking before and after reading. The following graphic organizer will help students extend their thinking beyond information found in the research

Inquiry Question:	
Summary from the text	My thinking
●	●
Transformed thoughts:	

Figure 13. Reproducible 4 - synthesis. Full page available in reproducible section.

3. Identifying trends or patterns in evidence and information can also help to improve the act of synthesizing. Trends may include ideas, themes, or arguments that repeat throughout the research evidence. Contrasting and comparing the research information can also help.
4. There are several important questions educators can encourage their students to ask in the synthesizing phase such as.
 - a. What is similar about the evidence?
 - b. Are there two or three points or arguments that are consistent across a number of pieces of research evidence?
 - c. What has been the thing that has most changed my thinking? Why?

Struggling synthesizers. Synthesizing is a high-level cognitive thinking and processing skill. Not all learners will be able to achieve this without guidance and significant practice. Educators may find it useful to use the following prompts with students:

- What will you need to think about before we get started on this?
- How are your ideas about this changing?
- What has been the thing that has most changed your thinking? Why?
- What are you noticing about your thinking?
- How are you feeling about what you have learned/done so far?

The graphic organizer below will help learners make connections between their own beliefs on the research topic and their findings in the research information.

Inquiry Question:	
Personal point of view and beliefs	Ideas to support this found in research evidence
1. 2. 3.	1. 2. 3.
My initial position was 'yes'	The research evidence is pretty evenly split.

Figure 14. Reproducible 5 - synthesizing. Full page available in reproducible section.

Drawing conclusions. Some students may be experienced at drawing their own conclusions whilst others will need a support. The following questions may help learners to draw several conclusions from their research:

- How do my findings affect me or others interested in this inquiry question?
- What did the research evidence tell me about my inquiry question?
- What are big ideas that have been learned?

- How and when did my thinking change?

At the lowest level, drawing conclusions is about weighing the pros and cons of an issue.

A simple pros and cons chart might help struggling learners draw conclusions.

Inquiry Question:		
Pros (Positives)	Cons (Negatives)	Interesting

Figure 15. Pros and cons chart

A strong conclusion to an inquiry question should be based on a combination of the research evidence students have found, student's prior knowledge and assumptions, and the connections they were able to make between the various pieces of information they studied.

Inquiry Question:	
What I knew	What I learned
What I now know - Conclusions	

Figure 16. Reproducible 6 - drawing conclusions. Full page available in reproducible section.

Step 3: Analyze	
Recommended activities to support SRL development	
SRL focus: applying strategies	At this point, teachers should focus on helping students to attain a variety of learning strategies that support the process of learning. For this step (<i>Analyze, Synthesize, Evaluate, and Draw Conclusions</i>), it is important that teachers provide many options to help students analyze and evaluate their research.
Revisit inquiry goal often	Students should revisit their Inquiry Goal (Reproducible 8) each day to determine whether or not they are making sufficient progress towards achieving the overall goal. If they are not, they can make adaptations or find support through their Inquiry Log (Reproducible 7).
Fill out 'My Inquiry Log' each day (Reproducible 7)	This is designed to help students assess themselves and their progress in this inquiry project.
Use SRL support forms	Students should use their Inquiry Log (Reproducible 7) to determine which SRL support form will help them gain the skills needed to achieve their goal.
Class discussion about goal setting	Continue the class discussion about the importance of monitoring daily goal setting and adapting goals.
Continue to support student organization of work and supplies	Make certain that students place their notes and work into the appropriate location in their binder prior to the end of each work session. Some students may need one-on-one support in this area initially. See Reproducible 13 for binder organization support.

Figure 17. SRL strategies to support analyzing

Step 4: Create. After students have gathered enough information to formulate their own understanding on the topic, they are ready to shape their research into a presentation in the create phase. One of the most important factors students need to consider is to align their research into a suitable end-product in preparation for dissemination and sharing. Choosing a suitable end-product, which can be shared can be a difficult task for students. There are several considerations students need to attend to before making a final decision about their end product.

1. End products should be chosen based on individual's strengths. For example, if the learner is a visual learner, then they may consider making a movie as an end product.
2. Consideration should be placed on how far the end product will be shared. For example, if sharing is being restricted to the classroom, a wide variety of end products can be considered, but if the objective is to share with a global community, the end product needs to be in a format that can be shared easily on social media.
3. Another important consideration before choosing an end product is the audience that will receive the product. A younger audience may need the end product to be produced in a way that is simple to comprehend. In this instance, a poster may suffice. However, an older audience may demand a more sophisticated way to receive the end product and may also want the option to interact, reuse, reshare, and remix it. A video hosting site with options for commenting may be more appropriate.

4. Lastly, it is important for students to choose a method of presenting their end-product with a tool they already know how to use. At this stage, it may not be effective or efficient for learners to learn how to use a new tool as some tools require extensive knowledge in order to use effectively.

Both low-tech and high-tech methods of creating an end product should be considered. Examples of low-tech methods are a dance, diorama, or poster. High-tech methods involving digital technologies offer a variety of ways to showcase a learner's research. One of the most powerful attributes of digital technologies are how they intuitively allow students to represent their understanding in a number of different ways. Student have free access to incredibly powerful multimedia authoring tools for text, audio, image, and video production. Tools suitable for synthesizing work in preparation for sharing include: text (Word, Pages, Google Docs, InDesign, and Open Office); image manipulation and remixing (Photoshop, Gimp, Aviary); audio production (Garageband, Audacity, Aviary); graphic design (Illustrator, Fireworks); screen capture (Gawker, Quicktime, Awesome Screenshot, SmartRecorder); video production (iMovie, Movie Maker, Animoto); Animations (Flash, cameras); and presentation tools (Powerpoint, Keynote, Prezi, Pecha Kucha). Many of these features can also be added to your Firefox or Chrome web browsers.

Step 4: Create	
Recommended activities to support SRL development	
SRL focus: adapting and regulating	As students near the finish line of their IBL project, it provides a great opportunity for teachers to help students learn to adapt and regulate their learning to ensure that they meet their final goal.
Revisit inquiry goal often	Students should revisit their Inquiry Goal (Reproducible 8) each day to determine whether or not they are making sufficient progress towards achieving the goal. If they are not, they can make adaptations or find support through their Inquiry Log (Reproducible 7).
Fill out 'My Inquiry Log' each day (Reproducible 7)	This is designed to help students assess themselves and their progress in this inquiry project.
If needed: use SRL support forms	Students will use their Inquiry Log (Reproducible 7) to determine which SRL support form will help them focus on achieving their goal.
Revisit task understanding	Have students review their initial goal for how they would share their new knowledge to others. At this point they can reevaluate their initial goal and adapt it if necessary. Help students revise what their end task might look like and how they will create this in the next couple work periods.
Continue to support student organization of work and supplies	This becomes even more important as students may be working on creations that are outside of their binders (multimedia, poster, etc.). Make certain that students place their notes and work into the appropriate location in their binder or other place prior to the end of each work session. See Reproducible 13 for binder organization support.

Figure 18. SRL strategies to support creating

Step 5: Share. *“Share what you love, and the people who love the same things will find you.” (Kleon, 2014).* Students’ need to share their stories. Sharing is a key component of learning in the digital information age. Making student’s learning visible is an important step of the inquiry process. Students become experts in the area of their inquiry question and over time move from the position of learner to teacher. It might be said that they have an opportunity and a responsibility to the learning environment to share their findings. It also presents an opportunity to share with a wider audience and connect with like-minded people. When learners connect with others for the purpose enhancing learning, a shift occurs from learning for someone else to learning for oneself. Students need to self-select their method of sharing and their comfort level. Sharing may occur at the classroom, school, community, or world level. There are numerous free applications, which allow students to share their work.

Projects can be shared at school assemblies by connecting the media to a projector. Depending on the size of the project, it may be possible to email projects to parents containing an embedded files. Alternatively, an email containing a link to secure file sharing site such as [Dropbox](#), [Box](#), [Google Drive](#), or [One Drive](#) may be used. Recipients of the link could log in with a password and view the content. Projects may also be hosted on a school website, class website, or uploaded to a blog or wiki service such as [Edublogs](#), [Wordpress](#), [Blogger](#), or [Wikispaces](#). To harness the true power of social media and reach a wider audience, projects may also be uploaded and shared on a video sharing sites such as [Vimeo](#) or [YouTube](#). Once uploaded, video projects can be shared on a variety of social media networks. A link to the project can be disseminated on services such as [Twitter](#) using an appropriate hashtag. It is also possible to post the

project to a [Facebook](#) page or [Google+](#) page. Using social media as a method of disseminating projects allows like-minded people to interact with the project. These interactions often lead to invaluable feedback, a deeper understanding of the topic, and may lead to improved iterations of the project. An extensive list of presentation tools can be found can be found at:

<http://cooltoolsforschools.wikispaces.com/>

Note: It should be noted that it is the responsibility of the educator using the above tools to make sure that they are in full compliance with British Columbia’s Freedom of Information and Protection of Privacy Act (Office of the Information & Privacy Commissioner for British Columbia, 2015)

Step 5: Share	
Recommended activities to support SRL development	
SRL focus: monitoring and evaluating feedback	Although students have been doing this all along, this is a great point for students to receive feedback from their peers and teacher to help support their learning journey.
Revisit inquiry goal often	Students should revisit their Inquiry Goal (Reproducible 8) each day to determine whether or not they are making sufficient progress towards achieving the goal. If they are not, they can make adaptations or find support through their Inquiry Log (Reproducible 7).
Fill out ‘My Inquiry Log’ each day (Reproducible 7)	This is designed to help students assess themselves and their progress in this inquiry project.
If needed: use SRL support forms	Students will use their Inquiry Log (Reproducible 7) to determine which SRL support form will help them focus on achieving their goal.

Figure 19. SRL strategies to support sharing

Step 6: Reflect. Metacognition can be described as ‘thinking’ about one’s ‘thinking.’ In education, it involves knowing when and how to use a specific series of strategies to improve learning. When students have and use these strategies to analyze how they learn, they become more powerful learners.

Strategies that improve metacognition.

1. ***Teach students about how their brains grow and brain science*** - Research shows that when students understand the difference between a growth mindset vs. a fixed mindset, there is an increased likelihood that they will participate in reflective thinking, and be more aware about how they learn and grow. Teaching students about the science of metacognition is an important strategy in helping learners understand how they can help their brains to develop.

2. ***Think-Pair-Share*** - Allow time for students to update each other on their inquiry projects. Assigning students an inquiry partner will encourage discussions, facilitate elaborations on project development, and promote self-reflection.

3. ***Give students practice recognizing what they do not understand*** - Creating opportunities for learners to develop self-awareness skills is critically important. Posing questions such as "What was most confusing about the material we explored today?" will help to create an environment that embraces struggle in a positive way. Pausing to acknowledge the challenges that arise during inquiry learning can jumpstart metacognitive processing, and help to create a classroom culture that understands confusion is part of the learning process.

4. ***Have students keep inquiry journals*** - One way to help learners monitor and track their own thinking is through the use of personal inquiry journals. Assigning weekly questions to help students reflect on how they learn rather than what they learn is an important metacognitive skill. Example questions may include:

- What was easiest for me to learn this week? Why?
- What was most challenging for me to learn? Why?
- What helped my learning this week? How?
- What got in the way of my learning this week? How?
- Allow learners the freedom to choose and use a variety of journal formats.

Examples may include mind-maps, blogs, wikis, diaries, lists, e-tools, etc.

Step 6: Reflect	
Recommended activities to support SRL development	
SRL focus: monitoring and evaluating feedback	Now students will spend time reflecting on their learning journey and assessing themselves on the process. Encourage students to be honest about areas they need to continue working on to improve themselves as learners, as well as areas that went really well for them. It is important that learners identify the SRL strategies that they found most useful on their journey.
Revisit inquiry goal	Ask students to evaluate whether or not they achieved their Inquiry Goal.
Self-Assessment on SRL skills	Students assess their SRL skill development over the past weeks using the following SRL Self-Assessment (Reproducible 14)
Now What? learning reflection	Students reflect on their learning and develop an understanding that learning does not end here using the ‘Now What?’ form (Reproducible 14)

Figure 20. SRL Strategies to Support Reflecting

SRL Support Handbook

Purpose. The purpose of the following handbook is to help students develop independent SRL skills. Explicit instruction of SRL skills is more effective when accompanying other classroom learning goals rather than as a stand-alone unit. Therefore, the following forms are designed to compliment an inquiry based learning environment where it is necessary for students to have basic SRL skills such as time management, ability to focus on a task, goal setting, and self-monitoring. The aim of this handbook is to help students quickly pinpoint areas of SRL that they find difficult and develop strategies to work on in these areas.

In a gradual release of responsibility model, students will initially learn how to use each of these forms with direct instruction from a teacher. However, ideally, as a student becomes more independent, they will use their daily [‘Inquiry Log’](#) (Reproducible 7) to determine areas of SRL that need extra support and then choose the appropriate form to help them with that skill. For example, if a student is not meeting their learning goal because they are too distracted, they will use the form titled [‘I’m Distracted!’](#) (Reproducible 11) to help develop strategies to focus on their work. If a student has a learning goal that is too big, they can use the [‘My Goal is Too Big’](#) form (Reproducible 10) to help them narrow their focus. If students feel that they are strong in all areas of SRL, they may be encouraged by their teacher to pick an area of SRL to strengthen.

It is recommended that these forms are kept in a separate duo tang, folder, or binder section so that students can look at them to monitor progress in their learning and

development of SRL skills. Students will also go back to these forms at the end of the IBL unit to help them reflect on and assess their learning.

Description of SRL forms.

- Daily Inquiry Log (Reproducible 7) - This form is designed to be completed at the beginning of each work period or day. Students take a couple minutes to choose a goal for the session, and make a simple plan to achieve it. They will be asked to consider any distractions or challenges that they might face in meeting their goal.
- My Inquiry Goal (Reproducible 8) - This form helps students with a ‘big picture’ goal for the entire inquiry based learning unit. At the beginning of the unit, students should fill this out to help focus their inquiry. If students wish to adapt their goal or plan at any point, they can do this with post-it notes in the bottom right-hand side of the page. If drastic adaptations are necessary, then students may consider refilling in the form.
- My Daily Goal (Reproducible 9)- This optional form is for teachers who wish to delve deeper into daily goal setting with their students. For most teachers and classrooms, the ‘Daily Inquiry Log’ will be a quicker method of setting daily goals. However, this form allows students to spend extra time on making a well thought out plan and obtaining support for achieving their goals. If students wish to adapt their goal or plan at any point during the day, they can do this with post-it notes in the bottom right-hand side of the page.
- My Goal is Too Big! (Reproducible 10) - Many students struggle with making attainable goals. This form helps students take a large goal and narrow it down into more specific and manageable steps. Students will restate their large goal and then break it down into smaller steps that need to happen to reach that goal. Once

- this has been completed, students will pick on of those smaller steps to become their new (smaller) goal for the day.
- I'm Distracted (Reproducible 11) - Distractions are one of the number one reasons students do not accomplish their goals. This form helps students to identify internal and external distractions. The student will brainstorm strategies they can use to help them deal with these distractions. In order to better support the students in the process, the back of this form has examples of distractions and strategies they can use.
 - Time Management (Reproducible 12) - Students are juggling numerous activities and events each day. Learning to prioritize what is most important and what can wait till tomorrow is a crucial SRL skill. This form helps students to identify the many things they need to accomplish in a day including mandatory and leisure activities. Using a colour scheme, students will determine what must be done, versus what can wait until tomorrow. Students are encouraged to use this form in replacement of their planner for three or more days.
 - Binder Organization Suggestion (Reproducible 13) - Many students struggle to meet their goals because they can not find their work supplies or notes. This makes it difficult to get started during a work period. These students need to take extra time at the end of each class to make sure they know that everything is in the right place so they can get started on their work quicker in the next work session. This may take one-on-one support at the beginning.

Recommended lesson plan: IBL supported by SRL.**1. My Inquiry Log (5-10 minutes)**

The My Inquiry Log (Reproducible 7) form is the cornerstone of monitoring and adapting SRL skills throughout this unit. When this form is filled out honestly each day, teachers and students will be able to use it as quick assessment of progress and areas of need. Using their Inquiry Log, students should take 5-10 minutes before each work session to set goals, develop a plan, and evaluate themselves and the progress they are making.

Students should start by determining if they met the previous day's goal. If they did not achieve it, they should read the options provided to determine what might be the reason that they did not. After this, students will set their new goal and make a simple three-step plan to help achieve their goal. A quick self-assessment of their confidence level follows this. If they are not feeling confident, students should pick one or more things that might help them build their confidence. Finally, students will make a short list of the distractions that might affect their ability to work during this work period.

2. SRL Support Forms (10 minutes)

Once the Inquiry Log is filled out, teachers will help students find the appropriate SRL form to support them in the development of their SRL skills. It is recommended that the teacher hold a separate instructional time to review these forms and their purpose before starting the IBL unit. If students are meeting their goals and feeling confident, teachers can choose to either let them start their work period immediately or ask them to choose a SRL form to help support their further development of SRL skills. However, if a student either did not meet their goal the previous day or is not feeling confident about

meeting their new goal, they should be directed to the appropriate support (see Figure 15 below). The reason a student does not meet their goal should be clearly stated on their Inquiry Log.

If student...	Options/strategies they can try (pick one or more)
does not have enough time to get work done	<ul style="list-style-type: none"> ● Managing my Time form to help student learn to prioritize activities (Reproducible 12) ● I'm Distracted form to help student use time more efficiently (Reproducible 11) ● My Goal is Too Big!! form to help student adapt their goal and inquiry question to be more manageable (Reproducible 10)
is overwhelmed and does not know where to start	<ul style="list-style-type: none"> ● Allow students to look for sample inquiry questions online or in Appendix 1 ● My Goal is Too Big!! form to help student narrow down their focus (Reproducible 10) ● Partner student with a more focused student to help them understand the task better
has too many distractions (either inside or outside of their heads)	<ul style="list-style-type: none"> ● I'm Distracted form - to help student determine what is distracting them and some strategies to help them deal with these distractions (Reproducible 11) ●
has a goal that is too big	<ul style="list-style-type: none"> ● My Goal is Too Big!! form to help students develop a smaller goal (Reproducible 10)
does not understand their goal	<ul style="list-style-type: none"> ● My Daily Goal form to help student understand what they are trying to achieve (Reproducible 9)
can not work in their current location	<ul style="list-style-type: none"> ● I'm Distracted form to determine what is distracting them about the current location and what their options are to deal with this (Reproducible 11)
struggles with finding appropriate online research	<ul style="list-style-type: none"> ● Look at list of appropriate online search sites provided (Appendix 3) ● I'm Distracted form if student is easily distracted on the computer to other websites such as Facebook or YouTube (Reproducible 11) ● Teach students how to use search techniques (Appendix 2)

does not understand their inquiry question	<ul style="list-style-type: none"> • First, revisit My Inquiry Goal form from beginning of unit and make adaptations or clarifications to develop focus (Reproducible 8) • Next, use My Goal is Too Big!! form to help students determine the next steps that will help them work towards their end product (Reproducible 10)
needs to adapt their goal	<ul style="list-style-type: none"> • Revisit My Inquiry Goal form from beginning of unit and make adaptations or clarifications to develop focus (Reproducible 8) • My Goal is Too Big!! form to help student adapt their goal and/or inquiry question to be more manageable (Reproducible 10) • My Daily Goal form to help student understand what they are trying to achieve (Reproducible 9)
needs more time to work on project	<ul style="list-style-type: none"> • Managing my Time form (Reproducible 12) • I'm Distracted form to help student use time more efficiently (Reproducible 11) • My Goal is Too Big!! form to help student adapt their goal and inquiry question to be more manageable (Reproducible 10)
needs support in organizing and keeping track of their work and papers	<ul style="list-style-type: none"> • Teacher or EA to help student one-on-one to organize a separate binder in the suggested way (Reproducible 13)
has little to no confidence in the ability to achieve goals	<ul style="list-style-type: none"> • Meet with teacher to receive individual support • My Goal is Too Big!! form to help students develop a simpler goal (Reproducible 10)

Figure 21. Strategies to Use to Develop SRL Skills

3. IBL Work Session (45 minutes)

- see instructional IBL methods and suggestion in the IBL process

4. Reflect and Organize (5 minutes)

Students will do one or more of the following activities (in order of priority):

1. Organize notes, work, and SRL forms into binder so they are ready for next work period
2. Assess their progress on today's goal by using the Inquiry Log for next work session

3. Write down their goal for next work session on the Inquiry Log for next work session
4. Write down steps to help them achieve their new goal

Assessment Strategies

Assessment strategies are the tools teachers use to collect evidence of student learning. Formative and self-assessment practices are the most powerful forms of assessment when the end goal is to improve student's SRL skills and motivation to learn. We have created a self-assessment for students to use to evaluate their learning at the end of their inquiry cycle. This assessment will give the teacher feedback on student confidence in SRL and IBL. It also allows the student to look to the future and how they will continue their learning journey. This self-assessment tool can be found in our reproducible section (Reproducible 14). Following, you will find a list of other formative assessment strategies that you could use in monitoring student progress throughout the unit.

Other assessment tools.

- Student Portfolios
- Reflection Journals (Appendix 4)
- Rubric for Discipline-Based and Interdisciplinary Inquiry Studies
 - <http://www.galileo.org/research/publications/rubric.pdf>
- Effort/Achievement Rubric
 - <https://balancedtech.wikispaces.com/Effort+and+Achievement+Rubric>
- Freedom to Fail Rubric
 - https://www.isteconference.org/uploads/ISTE2015/HANDOUTS/KEY_94213546/FailureRubric.pdf
- Oral Presentation Rubric

<https://docs.google.com/document/d/1NUmCtENNQCUFcsUocPhouPOSS7bUKFubZKz3mDQzN8>

Reproducibles and Appendices

Reproducibles

- Reproducible 1 - Documenting Sources
- Reproducible 2 - Research Checklist
- Reproducible 3 - Identifying Main Ideas
- Reproducible 4 - Synthesis
- Reproducible 5 - Synthesizing
- Reproducible 6 - Drawing Conclusions
- Reproducible 7 - Daily Inquiry Log
- Reproducible 8 - My Inquiry Goal
- Reproducible 9 - My Daily Goal
- Reproducible 10 - My Goal is Too Big!
- Reproducible 11 - I'm Distracted!
- Reproducible 12 - Time Management
- Reproducible 13 - Binder Organization Support
- Reproducible 14 - Assessment

Appendices

- Appendix 1 - Sample Inquiry Questions
- Appendix 2 - Google Search Techniques
- Appendix 3 - Leveled Reading Websites
- Appendix 4 - Reflection Questions

Name: _____

Date: _____

Documenting Sources

Topic:		Name:	
Date	Website	Type of Media	

Name: _____

Date: _____

Research Checklist - Usefulness

Questions To Ask	Answer	
	Yes	No
Does it help me answer my inquiry question?		
Is this a personal website?		
Does this resource list the name of its author or publisher?		
Are there lots of advertisements?		
Is it biased?		
Is the content support by addition sources?		
Can I find other sources with the same information?		
Overall - is this a reliable source?	YES	NO

Adapted from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html> and <http://etc.usf.edu/techease/win/internet/how-can-my-students-know-if-a-web-source-is-reliable/>

Name: _____

Date: _____

Identifying the Main Idea

Title, subtitle, and headings	First sentence of each paragraph	Last sentence of each paragraph

Introduction	Ending

Conclusion: What are the most important ideas in the article?	Important Pictures
1. 2.	

Name: _____

Date: _____

Organizer: Synthesis

Inquiry Question:	
Summary from the text	My Thinking
<ul style="list-style-type: none">•••	<ul style="list-style-type: none">•••
Transformed Thoughts:	

Name: _____

Date: _____

Synthesizing

Inquiry Question:	
Personal point of view and beliefs	Ideas to support this found in research evidence
1.	1.
2.	2.
3.	3.
My initial position was 'yes/no'	The research evidence shows...

Name: _____

Date: _____

Drawing Conclusions

Inquiry question:	
What I already knew	What I learned
I now think - conclusion	

My Inquiry Log

My Inquiry Question: _____

 Name: _____
 Date/Time: _____
 Location: _____

Today's Goal

Steps to help me meet this goal:

1. _____

2. _____

3. _____

How confident are you that you can meet this goal today?
 Circle a number (1 is no confidence, 10 is very confident)

1 2 3 4 5 6 7 8 9 10

If you are a 5 or lower, what do you need to do to build your confidence? (pick one or more)

<input type="checkbox"/> Make my goal smaller	<input type="checkbox"/> Find a new location to work
<input type="checkbox"/> Change my goal	<input type="checkbox"/> Manage my time better
<input type="checkbox"/> Change my inquiry question	<input type="checkbox"/> Deal with the distractions around me
<input type="checkbox"/> Change my learning strategies	<input type="checkbox"/> I need more time
<input type="checkbox"/> Get help from the teacher	<input type="checkbox"/> I don't know where my supplies and work from last day are

Last session, I did/didn't meet my goal. (Circle one)

If I didn't meet my goal, it's probably because (pick one or more):

- I didn't have enough time
- There were too many distractions
- My goal was too big
- I didn't understand my goal
- My choice of location was not great
- My online searches weren't effective
- I don't understand my inquiry question
- My work and supplies are not organized
- Other:

Today's Possible Distractions:
 Around me:

Inside me:

Name: _____
Date: _____

My Inquiry Goal

My Goal (inquiry question) is:

To reach this goal, I need to do the following things:

- 1.
- 2.
- 3.

I will know I have reached this goal by:

Adaptations (place post-it note here):

Name: _____

Date: _____

My Daily Goal

Today's goal is:

To reach this goal, I need to do the following things:

- 1.
- 2.
- 3.

I will know I have reached this goal by:

Adaptations (place post-it note here):

Two things that will help me achieve my goal:

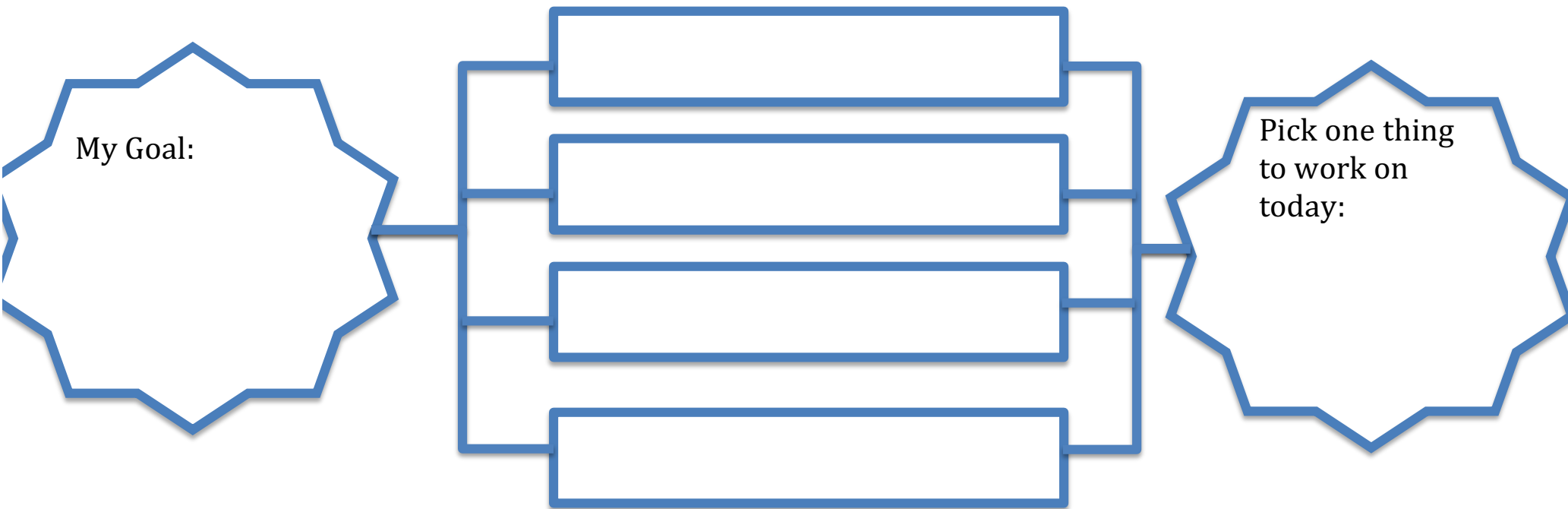
- 1.
- 2.

Name: _____

Date: _____

My Goal is Too Big!

List 2-4 things that need to be done to meet your goal



My new (smaller) goal:

Name: _____

Date: _____

I'm Distracted!

Distractions (list as many as you can)	Strategies I can try (Brainstorm 2-3 ideas)	Today I will try (Pick 1 strategy to try)
Outside my head:		
Inside my head:		

** see back of this page for distraction examples and strategy suggestions

Distractions Inside Your Head

Examples:

- Lack of confidence in achieving your goal (belief that you can't do what you need to do today)
- Feelings of frustration, anger, sadness, loneliness, anxiety, etc.
- Feelings of excitement for an event that is happening tonight or next week (birthday, Christmas, etc.)
- Something that happened at home that you are thinking about (fight with brother, pet is lost, etc.)

Strategy suggestions for distractions inside of your head:

- Go for a walk to get some fresh air
- Take several deep breaths
- Talk to a friend or teacher for a couple minutes
- Make your goal smaller so that you don't have to do as much today (if you are very distracted by other things in your life or feelings of not being able to accomplish your task)
- Write your thoughts down on a paper or journal
- Find something that gets your mind off of these distractions (read a book, draw a picture, etc.)
- Others?

Distractions Outside Your Head

Examples:

- Friends are talking to you
- Too loud in classroom
- You are sitting beside someone who makes you feel mad or irritated
- You get distracted by other websites on the computer (Facebook, Google, YouTube, etc.)

Strategy suggestions for distractions outside of your head:

- Choose a new location to sit in the classroom
- Ask the teacher if there is a different room you can work in
- Bring headphones or earplugs to school
- Have an accountability partner who checks to make sure you are focused in your computer work
- Have an accountability partner who reminds you to get back on task

Name: _____

Date: _____

Managing My Time

	Date: _____	Date: _____	Date: _____
Things to do tonight			

Colour Legend

Pick a colour scheme to organize your activities:

- Things that I HAVE to do (family or afterschool commitments)
- Things that are a priority to do
- Things I want to do

Managing My Time Instructions:

You are filling out this form to help you learn to manage your afterschool time in a productive way. This form will become your planner for this week. The following steps will help you learn to manage your time better:

1. Start by writing today's date in the first column.
2. Take a couple minutes to write down all the things you have to do tonight. This may include soccer practice, eat dinner with family, watch favourite TV show, homework, play with toys, etc... Anything you would like to get done tonight.
3. Pick three different colours to highlight or star your items. With the first colour, circle or highlight all the activities that you **MUST** do tonight. These might be family commitments or extra-curricular activities like dance or soccer. With the second colour, look over your remaining list and circle or highlight the activities that need to be priority. This will be any homework that is due tomorrow, practicing a musical instrument, chores, etc... Take your last colour and circle all the things that you'd like to do.
4. Take it home, and complete the activities in order of importance. Those activities that are mandatory or priority should happen first, and then feel free to do the things you want to do. Check each thing off as you go!
5. Return it to school to show your teacher.
6. Repeat for the next two days

Binder Organization Suggestion

When students struggle to find their work and supplies, they waste endless amounts of times searching or redoing work. Becoming an organized learner is an important SRL skill and students that struggle in this area need one-on-one support to make sure papers go in the correct place each day and that supplies are put away correctly. Inquiry learning is dependent on the student's ability to be organized. They need to be able to take notes as they research and come back to those notes many days later to synthesize and analyze them for further use. It is suggested that students use a separate 1-inch binder (or smaller) to keep track of their inquiry work. This binder should be separate from other school subjects such as Math and Language Arts to help them keep focused. Here are the suggested tab headings to help students keep their work organized

Inquiry Binder:

1. **General** - project requirements, teacher expectations, timelines, inquiry question brainstorming, etc...
2. **SRL Support** - Inquiry Goals, Inquiry Logs, and SRL support forms
3. **Research** - notes and sources
4. **Synthesize** - handouts that help students analyze and synthesize their work
5. **Other** - project creation or other items that need to be kept on ha

Name: _____

Date: _____

Inquiry Learning: Self-Assessment

Inquiry Learning			
I can...	Yes	Sometimes	I need further support in this area
learn new things.			
generate an inquiry question.			
collect and critically interpret multiple sources.			
keep detailed track of my progress.			
evaluate evidence in my research information and draw conclusions.			
generate questions for further inquiry.			
investigate and obtain information independently.			
create an end-product that answers my inquiry question.			
share my end-product with a larger audience.			
use feedback given to me by my teacher throughout the inquiry			
critically reflect on my learning.			
show interest and curiosity in learning.			

Name two areas mentioned in the above list that you would like to improve in:

- 1.
- 2.

Name two areas mentioned about that you think you are excellent at:

- 1.
- 2.

Name: _____

Date: _____

Self-Regulated Learning: Self-Assessment

Self-Regulated Learning			
I can...	Yes	Sometimes	I need further support in this area
develop my own learning goals.			
make a plan and identify steps to achieve my goals.			
adapt goals when they are too big or too hard.			
persevere with a task when it seemed difficult.			
focus during my work.			
complete tasks and assignments within established timelines.			
identify and understand my skill strengths and the areas where I need			
use class time appropriately to complete tasks.			
ignore distractions enough to complete my work.			
encourage others to ignore distractions			
be responsible for my own learning.			
ask questions when I do not understand something.			
follow schedules and use my planner to organize time effectively.			

Name two areas mentioned in the above list that you would like to improve in:

- 1.
- 2.

Name two areas mentioned about that you think you are excellent at:

- 1.
- 2.

Name: _____

Date: _____

Now What?

From my inquiry I learned.... (include words, pictures, thoughts, feelings, etc.)

Now I am wondering....

Some things I could do to further my learning on this topic are:
(For example, books to read, movies to watch, people to talk to, places to visit, etc.)

Future Goal: Of these things, one thing I will commit to doing to continue my learning is:

Sample Inquiry Questions By Core Subject Area

Numeracy

How do we collect and interpret information about people's lives?

How do we measure the height of a mountain?

How big is one billion?

What is the relationship between the area of circle and circumference?

Social Studies

Is Canada a great country?

Is illegal action ever justified when trying to cause political change?

What will Canadian communities look like in the future?

What is it like to live in each of the Canadian Regions?

Will democracy die due to citizen apathy?

Literacy

What can the reader learn from the behaviours and decisions of this protagonist?

Discuss the author's purpose or theme in your book. What is he/she saying about society?

Adolescents? Humanity?

Describe the most important relationship in the novel. What is most important about it? What does it tell us about relationships in general?

What makes one writer more powerful than another?

Science

What would it feel like to travel in space?

What are some important moments in space history and space exploration?

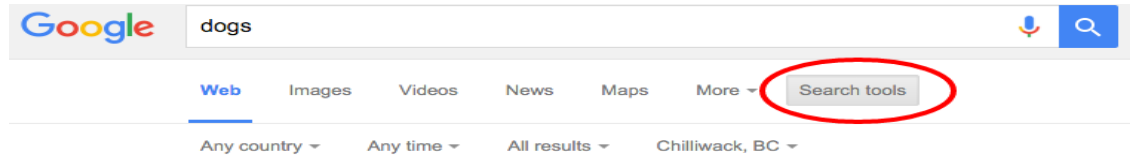
How do we care for the world?

How easy is it to be green?

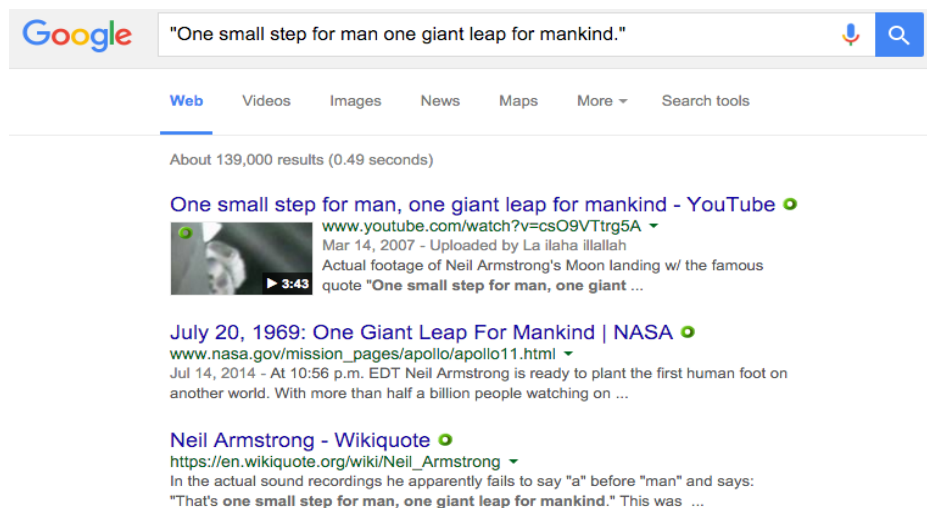
How high can you build a pyramid of plastic cups?

Google Search Techniques

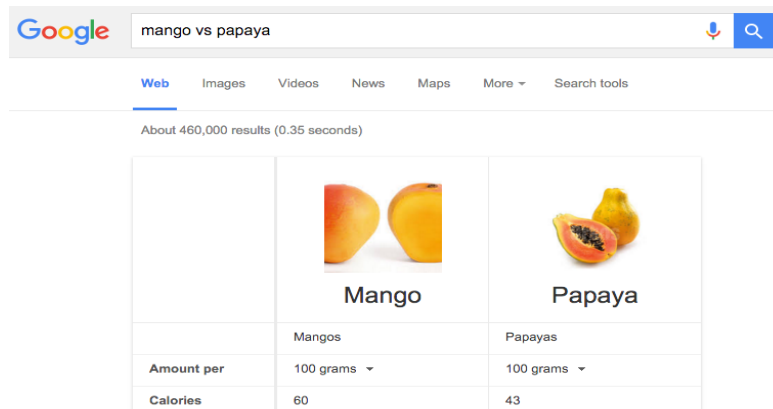
1. Use the additional search options such as ‘web’, ‘images’, ‘videos’, ‘news’, ‘videos’, ‘more’, and ‘search tools’ to refine and narrow down your search parameters.



2. Use quotes and quotation marks to locate information. When you put your search parameters in quotes, it tells the search engine to search for the whole phrase. This can help locate specific information that may be stored under other content.



3. Compare and contrast items using versus - “mango vs papaya” returns a nutritional comparison between the two fruits.



4. Use a colon to search specific sites - “digital citizenship site:mediasmarts.ca”

A screenshot of a Google search interface. The search bar contains the text "digital citizenship site:mediasmarts.ca". Below the search bar, there are tabs for "Web", "Images", "Videos", "News", "Books", "More", and "Search tools". The search results show "About 797 results (0.70 seconds)". The first result is "Digital Citizenship | MediaSmarts" with a link to "mediasmarts.ca/tag/categories/digital-citizenship". The second result is "Teacher Resources | MediaSmarts" with a link to "mediasmarts.ca/teacher-resources".

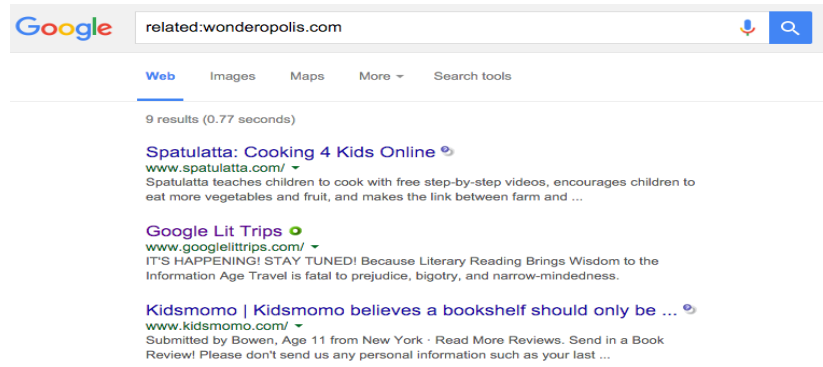
5. Find a page that links to another page - “link:curriculum.gov.bc.ca” returns websites that link to the new BC curriculum.

A screenshot of a Google search interface. The search bar contains the text "link:curriculum.gov.bc.ca". Below the search bar, there are tabs for "Web", "Images", "Maps", "More", and "Search tools". The search results show "About 15 results (0.44 seconds)". The first result is "open education – Adventures in a Gifted Classroom" with a link to "bryanjack.ca/tag/open-education/". The second result is "Kootenay Lake District Parents' Advisory Council - Home" with a link to "dpacsd8.weebly.com/".

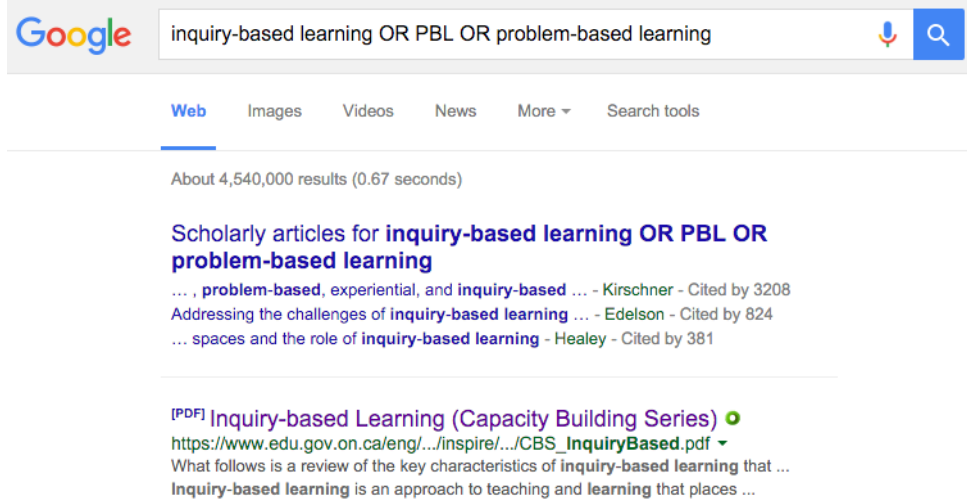
6. Use the asterisk wildcard. Used to find missing terms when you cannot remember the whole string- “* favours the *” returns the proverb, “Fortune favours the brave.”

A screenshot of a Google search interface. The search bar contains the text "* favours the *". Below the search bar, there are tabs for "Web", "Maps", "News", "Images", "Videos", "More", and "Search tools". The search results show "About 27,200,000 results (0.66 seconds)". The first result is "Fortune favours the bold - Wikipedia, the free encyclopedia" with a link to "https://en.wikipedia.org/wiki/Fortune_favours_the_bold". The second result is "Fortune Favours the Brave Scottish Gifts - Facebook" with a link to "https://www.facebook.com/fftbrave/".

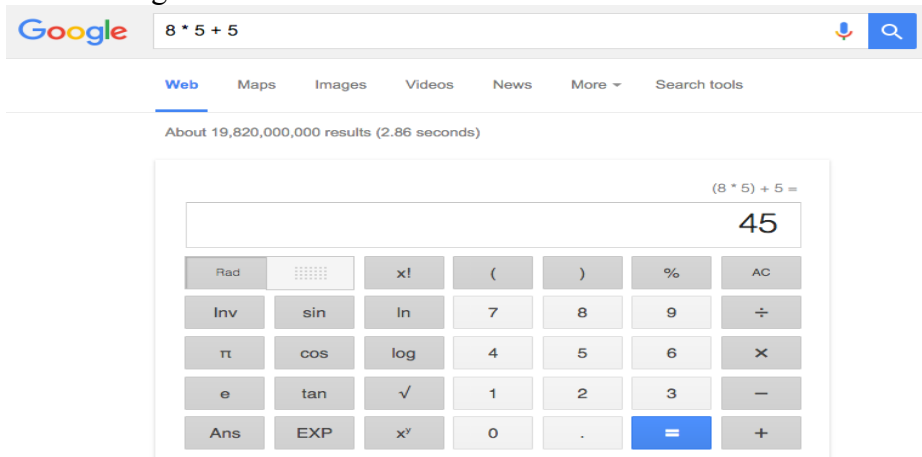
7. Find sites that are similar to other sites - “related:wonderopolis.com” returns sites related to Wonderopolis.



8. Find websites that may use one of several keywords you need information on. “inquiry-based learning OR PBL OR project-based learning” will return results on all three keywords.



9. Use Google to do math - “8 * 5 + 5” returns the answer 45



10. Keep it simple

Google search knows how to search for a lot of things. What this means is you don't need to be too specific. If you need a pizza place nearby, use this to search: *"pizza places nearby"*

Google search will detect your location and deliver a variety of results about pizza places that are near you.

11. Gradually add search terms

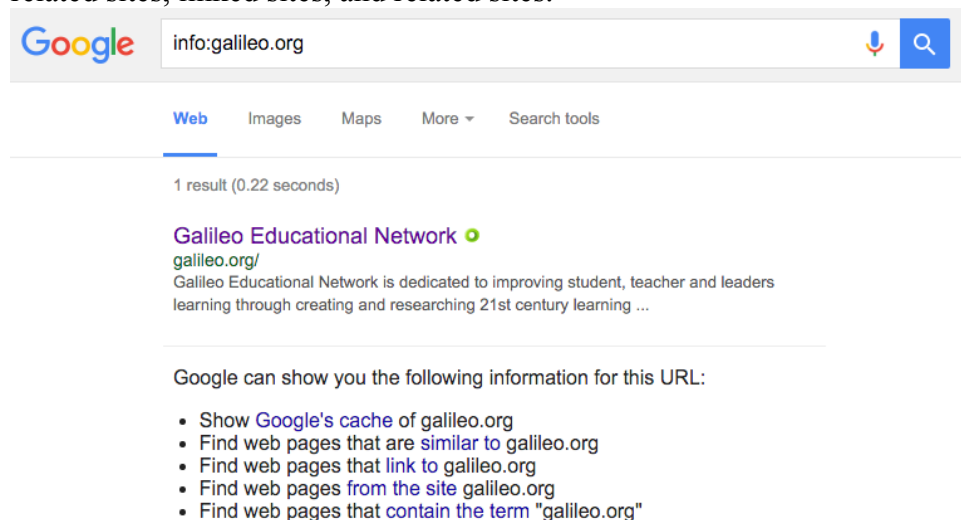
There may be time when Google search does not return the results you expect. In this instance, keeping it simple may not be the best option. As Google itself suggests, the best method is to start with something simple then gradually get more complicated. See the example below.

First try: job interviews

Second try: prepare for job interviews

Third try: how to prepare for a job interview

12. Use "info:" to get information about websites - "info:galileo.org" returns information about related sites, linked sites, and related sites.



The screenshot shows a Google search interface. The search bar contains the text "info:galileo.org". Below the search bar, there are tabs for "Web", "Images", "Maps", "More", and "Search tools". The search results show "1 result (0.22 seconds)". The result is for "Galileo Educational Network" with the URL "galileo.org/". The description of the result is "Galileo Educational Network is dedicated to improving student, teacher and leaders learning through creating and researching 21st century learning ...". Below the result, there is a section titled "Google can show you the following information for this URL:" with a list of five options: "Show Google's cache of galileo.org", "Find web pages that are similar to galileo.org", "Find web pages that link to galileo.org", "Find web pages from the site galileo.org", and "Find web pages that contain the term 'galileo.org'".

13. Use important words only

The way Google search works is to take what you search for and match it with keywords in online content. When you search for too many words, it may limit your results. That means it may actually take you longer to find what you're looking for. Therefore, it is best to use only the important words when searching for something. Let's see an example.

Don't use: Where can I find a Chinese restaurant that delivers.

Instead try: Chinese restaurants nearby.

Or: Chinese restaurants near me.

14. Use advanced search - https://www.google.ca/advanced_search

Recommended Websites for Research

The Readability Test Tool - <http://read-able.com/> - provides a quick and easy way to test the reading level of your work. You can test portions of what you are reading on a web page and give you information about the readability for your students.

Newsela - <https://newsela.com/> - Newsela offers a variety of non-fiction and current events articles at various reading levels. This is a great site that offers students a chance to read about the same content at a variety of reading levels.

ThinkCERCA - <http://www.thinkcerca.com/> - An online literacy platform to help teachers personalize literacy instruction for students.

ProCon - <http://www.procon.org/education.php> - This website that provides research (pros and cons) on over 50 controversial issues.

The Critical Thinking Consortium - <http://tc2.ca/> - This website focuses on providing critical thinking skills to students in post secondary education environments.

Wonderopolis - <http://wonderopolis.org/> - Provides multi-disciplinary content that aligns with US Common Core Standards. This website helps students become critical thinkers and encourages students to wonder about and explore the world around them.

Kid Friendly Websites for Research

- KidsClick! - <http://www.kidsclick.org/>
- KidRex - <http://www.kidrex.org/>
- KidzSearch - <http://www.kidzsearch.com/>
- Kid Friendly Search - <http://www.kidfriendlysearch.com/>
- National Geographic Kids - <http://kids.nationalgeographic.com/>
- Kidtopia - <http://www.kidtopia.info/>
- Safe Search Kids - <http://www.safesearchkids.com/>
- GoGooligans - <http://www.gogooligans.com/>
- Ask Kids - <http://sp.askkids.com/docs/askkids/>
- Mymunka - <http://mymunka.com/>
- Quintura - <http://quinturakids.com/>

Prompting Questions to Initiate Student's Reflections

Reflecting back

1. How much knowledge did you have about the topic before we started?
2. What steps did you go through to produce the end product?
3. Have you done a similar kind of work in the past (earlier in the year or in a previous grade; in school or out of school)?
4. How are you now better at this kind of work?
5. In what ways do you think you still need to improve?
6. What problems did you encounter while you were working on this topic? How did you solve these problems?
7. What resources did you use while working on this piece? Which resources were especially useful? Which ones would you recommend to others and use again?

Reflecting forward

1. Given more time, what is one thing you would like to improve upon?
2. What would you change if you could do this project over again?
3. What is something that you have seen in your classmates' work or process that you would like to include in your future projects?
4. What's one thing that you would like to try to improve upon?
5. What goal would set for yourself for next time?
6. What are some areas of your learning you need more help with?

Reflecting internally

1. How do you feel about this project? What parts of it did you enjoy? Dislike? Why?
2. What was satisfying to you about either the inquiry process or the finished product?
3. What did/do you find frustrating about the inquiry process or the finished project?
4. What were your own expectations for this project?
5. Did you miss/meet/exceed your own expectations?
6. Did you meet your goals for this project? If not why not?
7. What does this project say about you as a learner?
8. What did you learn about yourself as you worked on this project?
9. Have your opinions about the topic changed?

Reflecting externally

1. Did you do your work the way other people did theirs?
2. In what ways did your work on this project differ from another student's work?
3. In what ways was your project or inquiry process similar to other students?
4. If you were the teacher, what comments would you make about this piece?
5. If you were to self-assess yourself, what would you say? Why would you say that - what is the evidence?
6. What is the one thing you would like people to notice about your project? Why?
7. What do your classmates notice about your project when they look at it?
8. In what ways did your work meet the teacher goals for this project?
9. In what ways did your work not meet the teacher goals for this project?
10. If someone else were looking at your project, what might they learn about you

Chapter Four: Reflection

Project Summary

It is apparent that teachers want their students to be self-regulated learners and many already do their best to develop these skills in students; however, few are doing so in an effective and intentional way (Vandeveldt et al., 2011). There is a need for a curriculum that helps teachers teach their students ‘how to learn’ rather than what to learn. The project described in chapter three represents my initial steps towards bridging the gap between the current research and practical implementation of SRL in the elementary classroom. As students begin to develop SRL skills, I expect that we will begin to see more learners who can persevere through challenges, control, evaluate, and adapt their own learning rather than giving up when the going gets tough (Perry & Rahim, 2011). These are the same skills that students will need to be successful in an IBL environment.

The project presented is an IBL unit supported and guided by SRL. This unit is designed to support students in grades four to six in the inquiry process while developing the necessary skills to be independent, self-directed learners. The resource is designed to guide students through the basic IBL cycle of developing an inquiry question, researching, analyzing, sharing, and reflecting. The project is a combined effort by myself and Christopher Lister (in press), whose extensive research in IBL has supported this aspect of our project.

Winne and Hadwin’s (1998) four phases of SRL (task understanding, goals, tactics and strategies, and adaptations) are used to compliment and guide the learner

through each IBL lesson. For example, when students are developing an inquiry question, they will simultaneously be working on making sure they have a thorough understanding of the task, as well as learning how to make goals and plans to help guide their inquiry. Each lesson is embedded with a variety of SRL tactics and strategies that will help students assess their progress and self-efficacy. They will also be given opportunities to determine whether or not they need to make changes to their initial goals, plans, or learning strategies. At every point of the way, students will be encouraged to monitor and evaluate their progress. These opportunities to regularly conduct a self-assessment may lead to adjustments to earlier goals or plans such as their inquiry goal or end task. SRL activities will be used daily to give learners plenty of opportunities to develop the skills of planning, goal setting, time management, focusing on a task, and assessing their progress.

Learning How to Learn: Linking SRL and IBL

Without realizing it throughout the program, my final Master's of Education (MEd) project does an incredible job of summarizing my MEd journey from start to finish. From the initial excitement of IBL and personalized learning, to the frustrations of not being able to successfully initiate this type of learning in my own classroom, to the discovery of SRL, and then the realization of IBL's complete dependence on students having SRL skills.

In my first MEd course, we learned about personalized learning through our own learning journey. We picked and designed a project of our choice, listened to guest speakers, worked at our own pace with no exact deadlines, and did not know how each assignment would impact our final grade. This was way outside of my comfort zone as I

am most comfortable learning in a traditional setting where I know exactly what the professor wants of me and how I can achieve that.

Imagine my relief when our second course syllabus came out with each requirement set out, deadlines in stone, and specific grade percentages assigned to each task. It was not long into that second term that I began to realize why I was more comfortable in this setting. I know how to meet goals and achieve excellence in a traditional learning setting. I can pinpoint the grade level I hope to achieve, and determine the effort and level of commitment I need to make in each of the various assignments to meet my goals. I like deadlines and checklists that help me know that I am getting closer to completion. However, I had the stark realization that I was not learning much of value to me. I was simply getting things done.

These two distinctly opposite learning experiences led me to understand myself better as a learner. I had become a product of my many years of formal schooling. Like a robot, I could pass my classes and succeed to the predetermined level that I set. Yet I was uncomfortable when given the freedom to learn on my own, especially when others were observing. I knew that my personalized learning journey had been a more innovative, meaningful, and practical experience than the following one, and I knew that this is the type of learning I value most. As a teacher, I want my students to have meaningful learning experiences, not just ones where they jump through hoops to achieve success that has no long-term impact on their lives.

Meanwhile, guest speaker Jeff Hopkins, principal of the Pacific School of Innovation and Inquiry, spoke to our class about the value of inquiry learning in his school. I felt inspired to bring similar learning opportunities to my students. Using his

ideas, I attempted to introduce a simple IBL learning experience to my grade four to five students. Unfortunately, many of my students, even strong students, seemed to struggle with the freedom to learn on their own. I could relate! What would it take to help these students learn to manage their own ideas and see them through to the end? How could I support my students in becoming active rather than passive learners?

That summer, Mariel Miller, a PhD student at University of Victoria, came to speak to our cohort about SRL. In my experience, the term SRL has been primarily used in regards to behavioural/emotional regulation support. It had begun to feel like a cliché term in my work place that had focused much of our energy and finances towards behaviour management. Mariel Miller introduced me to the idea that SRL is so much more than mere behaviour management. She discussed how many of our strong students did not yet have the ability to regulate their own learning. They did not know how to set smaller goals to meet a bigger goal. They did not know how to manage their time. They did not have the ability to persevere when the going gets tough. Many of them did not know how to evaluate their learning strategies and adjust them when they did not work, or assess accurately whether they were accomplishing their goals.

I began to view SRL as the missing ingredient in my students IBL experience. I learned that SRL was something that students learned through practice, and they did not just arrive in my class with these learning skills. SRL is the idea that students gain the skills through guidance to *'learn how to learn.'* This idea reminded me of Richardson's (2012) book, *Why School?* Richardson quoted Herbert Gerjuoy's prediction that "the illiterate of the 21st century will not be those who cannot read and write. The illiterate

will be those who cannot learn, unlearn, and relearn.” If SRL skills help my students become better learners, I was determined to bring this into my classroom.

At that point, SRL became the topic of my research for my literature review. I also chose to use it as my learning project in a parallel course with Dr. Alec Couros. Through my research and learning project, I discovered that many of the world’s leading experts in SRL research were residing in Canada. I began to make connections to several of them (including Nancy Perry, Allyson Hadwin, Phil Winne, and Lindsay McCardle) asking for reading lists, research project suggestions, and other recommendations. This lead me to a facebook group, [AERA Studying and Self-Regulated Learning](#), dedicated to promoting SRL and bringing together researchers to share in their SRL experiences. Here I met Marie White who is a co-author of the classroom curriculum, *Self-Regulation and the Common Core* (2015). Her book is one of the first published attempts at closing the gap between the research and practical application of SRL. Her support and recommendations began to help me formulate some strategies that I could develop for teachers to use in their classrooms.

Meanwhile, my colleague Christopher Lister was doing his research on IBL in the intermediate classroom. He was running into some similar roadblocks as I did in his delivery of IBL in the classroom. Our conversations led me to reaffirm my belief that SRL is a necessary skill set for students in IBL learning settings. At that point, we decided to join our projects together to create an intermediate classroom unit about IBL that was specifically guided and supported by SRL skills. Lister became the expert on the IBL portion of our project, and I brought in my knowledge and understanding of how SRL could complement the IBL learning experience.

Moving Forward

As I move forward in my career, I can see a variety of ways that my graduate experience will impact my journey. My confidence in myself as a learner, the new professional networks I have made, and the pedagogical knowledge and understanding that I have gained, will, no doubt, dramatically impact my future professional career.

My confidence in myself as a professional and as a learner has been a long bumpy journey. My graduate experience has done much to encourage me in both these areas. Dr. Valerie Irvine's unique ability to encourage people in their own personal learning journeys has forced me to take control of my own learning and become confident in my ability to trust myself in this process. My past formal education taught me to primarily meet expectations and jump through hoops and secondarily, to be a learner. Dr. Irvine had a very different philosophy of learning which left me with no choice but to build my confidence in this area. This program has taught me to believe in my ideas and share them with others. Encouragement from my professors to be vulnerable by sharing my work online has done much to help build this confidence. It has also helped me to understand that it is alright if not everyone agrees with my ideas. I have noticed that this confidence in my online presence and my UVic cohort has begun to have a positive impact on who I am as a leader in my school. I anticipate that as I continue to believe more in myself, I will be able to better collaborate with my colleagues and lead when necessary.

The network that I have begun to build throughout my graduate experience is constantly growing. In Alec Couros' class last spring, I learned about digital identity and the need to evaluate and take control of our online identity. He encouraged us to engage

thoughtfully on the Internet by both sharing our work with others and viewing and commenting on the work of our peers and colleagues. Through this, I have built connections with professionals, researchers, and colleagues who can offer support and guidance in a variety of ways and I have learned to share my own ideas and thoughts in these networks. Two examples of this are my increased engagement on Twitter and active participation in blogging. The exciting thing is that, as I come to an end in my graduate experience, I can take these connections and expanded professional networks with me. I can continue to learn from these people for years to come. These networks will continue to support me on my journey as a lifelong learner.

My graduate program has had an enormous impact on my pedagogical understanding and the direction I see myself going as a teacher. First, my extensive research in SRL is beginning to have an impact in all aspects of my teaching. I can quickly see which SRL skills my students are finding challenging and support them in these areas. I am excited that through teaching SRL, I am essentially teaching my students ‘how to learn.’ I cannot imagine a more valuable skill for 21st century learners. Next, I am excited to see how the use of technology and IBL can give students endless opportunities to practice these learning skills and gain confidence. As students are given more opportunities to learn for themselves and tools to be successful, I believe that their confidence will grow in the same way as mine has through my own IBL graduate experiences. Finally, I hope that my learning in SRL, IBL, and innovative use of technology in the classroom will be helpful to my colleagues and district as we begin to implement the province of BC’s new curriculum. Classrooms are becoming more student-focused and less teacher-focused and I hope that I can use my graduate

experience to offer my ideas and strategies, as well as continue to learn from my peers and networks. As IBL becomes part of our daily practice rather than just a novel idea, I hope that I can use my understanding of SRL to support teachers in guiding their students to become learners.

Recommendations for Educators

As IBL becomes more explicit in BC's curriculum, it is important that educators and curriculum developers not forget that students first need to obtain skills that will make them successful in these environments. I recommend that educators make an explicit effort to teach students to manage their time, set goals, monitor their progress, focus on a task, and persevere when that going gets tough. Teaching these SRL skills will help students to be successful in IBL environments. Teaching SRL to students is a great starting place for teachers who want to help their students become independent learners.

Next, educators should not expect that students have come into their classrooms with SRL skills. Research has shown that students do not develop these skills naturally; rather they need to be taught them explicitly. Educators should strive to find practical ways to help students learn to regulate their learning in simple, manageable ways. Furthermore, educators and researchers need to begin to develop practical resources to support teachers in this area. As educators begin to provide explicit SRL instruction in one area of their classroom, they will soon realize that these skills can be used in all aspects of the student's life, both inside and outside of the classroom. SRL is, in essence, teaching students 'how to learn' in a productive and meaningful way.

Finally, students need to know how to respond to failure. Educators often choose to ignore goals that are not met in schools and classrooms; however, these are the very

goals that we should be focusing on as an opportunity to grow. Students need to know that failure is just a starting place to try again. When goals are too big, or outside situations impact their ability to achieve their goals, students need to know how to adapt their goals and carry on despite of the challenges. This flies in the face of making year- or term-long goals and slipping them into an envelope to be opened at a later date. Students should monitor their goals often and adapt them when needed.

Closing Thoughts

Dean Shareski spoke to our graduate class about joy in learning. He said that “A joyful learning environment might be the most important thing you can create for a child” and that ‘joy’ should be a major ingredient in our goal as teachers to create lifelong learners (Shareski, 2015). I believe that a combination of allowing students to learn what they are passionate about (IBL) and giving them the confidence and skills to do so (SRL) is an important step towards aiding children in finding joy in learning. In a world where ‘learning’ becomes more valuable and ‘knowing’ becomes less so, it is crucial that educators teach their students ‘how to learn,’ not ‘what to learn.’ A classroom experience mixed with a combination of IBL and SRL is a great starting point for teachers. It is not about providing a perfect IBL/SRL experience, but rather about creating an atmosphere where mistakes and failures are seen as stepping stones towards growth and understanding. It is about finding the tools that encourage our students to become active, confident learners who have a wonder and curiosity for exploring the world around them.

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