FOSTERING SELF-REGULATED LEARNING
AT AN INDEPENDENT SCHOOL

by
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Abstract

Self-regulated learning is described as a process in which students become empowered and independent learners. This quasi-experimental mixed methods study of secondary school students at an independent (i.e., private) school investigated if participation in a study skills workshop impacted self-regulated learning (SRL) knowledge, strategy use, and academic performance. Students in a treatment group attended a 7-hour study skills workshop that included instruction on SRL knowledge and strategies as well as cognitive strategies of self-questioning, verbalization, mind maps, and matrix organizers. The participants used two digital tools to leverage SRL activities. The students received feedback through these shared digital documents over the course of two academic terms. The researcher used pre- and postmeasures, including the Metacognitive Awareness Inventory (MAI), the Self-Regulation Strategy Inventory – Self-Report (SRSI-SR), and researcher-developed surveys, and qualitative data collected from open-ended questions and focus groups, to understand if participation in the study skills workshop impacted SRL knowledge and strategy use. To determine impact on academic performance, the design included an active treatment group and a treatment naïve group. While sustained use of the strategies decreased over time, the students reported that the strategies supported their learning. Postmeasure scores were higher than premeasure scores on the MAI and the SRSI-SR; however, a paired sample t test showed no statistical significant difference between these scores. Results from an ANCOVA showed no significant difference in academic performance grades between the treatment group and the treatment naïve group. There was an increase in academic marks from the premeasure grades to the postmeasure grades for both groups. A regression analysis indicated that the
rate of increase in academic grades was slightly higher for the treatment group than the treatment naïve group. Qualitative data suggested the lack of time was a limitation in the student’s ability to use the SRL and cognitive strategies, yet the students reported that participation in the workshop was beneficial. As an educational implication, schools might consider offering similar study skills workshops and establishing digital tools to help students manage their academic responsibilities and develop tools and use strategies to become independent and empowered learners.

*Keywords: self-regulated learning, study skills workshop, independent schools*

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Dedication

This dissertation is dedicated to my family:

To my father, Howard R. Anderson, who is a wonderful model of a life-long learner,
To my sister, Ellen A. Burns, who is my dearest friend,
To my sons, Graham Anderson Pepper and Hudson Anderson Pepper, who inspire me by their exquisite and inquisitive minds, and their kind hearts and souls,
And finally, to my husband, James A. Pepper, who provides love, support, keen insight, encouragement, and humor through an optimistic and grounded approach.
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Executive Summary

Self-regulated learning (SRL) strategies support learning and empower students to be active participants in their educational experience (Zimmerman, 2002). SRL refers to student-initiated learning processes that include cognitive, behavior, emotional, and metacognitive strategies to support and increase student performance (Bandura, 1986; Bransford, Brown, & Cockings, 2000; Kuhn & Dean, 2004; Magno, 2010; Pintrich, 2002; van der Stel & Veenman, 2008; Vygotsky, 1978; Wilson & Bai, 2010; Zimmermann, 1989, 1995). Students develop SRL and use metacognitive strategies when skills are explicitly modeled and integrated within the course content (Berthold, Nuckles, & Renkl, 2007). A student’s lack of self-regulated skills can negatively impact his or her adjustment to academic demands. Independent schools, known to have fast-paced and challenging academic programs, are not required to align to national and state educational initiatives (Kane, 1991) and do not always incorporate learning strategies within course content (Taylor, 2005). Additionally, many secondary school teachers lack knowledge related to learning theory to support students’ developing self-regulation skills (Wilson & Bai, 2010). Professional development initiatives inadequately prepare faculty to foster the development of SRL as students navigate curricular programs (Murray, 2012). Given these factors one might investigate how an educational institution provides learning support to enhance a student’s educational experience. This quasi-experimental mixed methods study investigated how participation in a workshop focused on SRL processes might support the educational experience and academic performance for secondary school students enrolled at an independent (i.e., private) school.
Problem of Practice

Independent schools are self-governed, establish criteria for their faculty, develop a self-defined curriculum, and have mutually selected students in which the student chooses the school and the school chooses the student (Kane, 1991). As educational institutions, independent schools have characteristics and patterns that shape the education experience for their students (Coleman, Hoffer, & Kilgore 1981; Dronkers & Robert, 2008; Jaleel & Premachandran, 2016; Page & Keith, 1981). Student characteristics might determine the manner in which these individuals develop and use SRL and metacognitive strategies that support learning within the independent school setting (Askell-Williams, Lawson, & Skrzypiec, 2012; Karlen, Merki, & Ramseier, 2014; Leutwyler, 2009; Zimmerman & Martinez-Pons, 1990). At the same time, independent school faculty might encourage SRL, based on their knowledge, beliefs, and pedagogical practices (Askell-Williams et al., 2012; Clift, Ghatala, Naus, & Poole, 1990; Spruce & Bol, 2015). The combination of these factors, the independent school context, student characteristics, and faculty’s knowledge and pedagogical approach, may result in a student’s lack of strategies that support engagement, empowerment, and academic achievement within the learning process. The question becomes: in what ways can an educational institution, like an independent school, foster SRL to support learning and to enhance a student’s educational experience?

Background and Context

School Context

Independent or private schools, as institutions, have practices and characteristics that frame their operation and can shape the student experience and outcomes. The core
element that defines independent schools is the manner in which they operate. These schools are privately funded and governed (Esty, 1982). Dependent on tuition dollars, these schools must create unique identities to compete with public schools and other independent schools (Deal, 1991). In fact, independent schools try to provide different or specialized programs to legitimize the tuition (Kane, 1991). Because these schools are not required to follow public school reform initiatives, the teachers and administrators design the curriculum and program and use curricula that can have a particular value orientation (Kane, 1991).

Ranked by TheBestSchools.org (2013) as one of the top private schools in the United States, the school in the study is one of many private schools that serve 17.6% of all kindergarten through Grade 12 students in the local city (Kolko, 2013). The school enrolls approximately 700 students aged 3-years-old to Grade 12. In the upper school division, that includes Grades 9-12, over 40% of the student body scores above the 95th national percentile in standardized testing on verbal and quantitative reasoning. In terms of measures of intelligence, 25% of the students have full-scale IQs in the very high or superior range (120-129) and 16.9% score within the extremely high or very superior range (130 or higher). The annual fund raises more than $800,000 per year, and the school grants approximately $2,000,000 in need-based financial assistance to 24% of the students (Eldredge & Cockrell, 2014). Similar to Kane’s (1991) description of many private schools, the school is known for content-rich curricula and fast-paced program that includes arts, athletics, and community service requirements.
A Needs Assessment Investigation

The purpose of the needs assessment conducted during the spring of 2015 was to investigate how upper school students engage with the curricular program and how their teachers support student learning at the academically rigorous independent school. Both students (N = 54, 21% of the total population) and teachers (N = 24, 53%) provided data that informed the study. Students shared that teachers provided some learning support within the course dialogue, and they received additional support through teacher-directed extra help sessions during mutually available free time. Often seen as a quick avenue to address current issues, this learning support was not typically sustained over time. The majority of the student participants (79%) desired additional instruction related to learning strategies in most academic areas.

Many of the upper school teachers (62.5%) reported a focus on content and did not always engage students in conversations about learning strategies. Faculty also shared observations regarding the students’ approach to their studies. Comparing the current student population to that of 5 years ago, teachers (41.7%) reported that more students struggled to successfully engage with the curriculum. Reasons cited included a perceived wider range of student ability, student distractibility, and students’ inability to handle stress and the rigor of the program. Overall faculty believed students would benefit from additional learning support and structure; students, too, desired learning support.

Theoretical Framework

Using Bandura’s (1986) social cognitive theory, Schunk (1996) defined self-regulation as the management, control, and regulation of learning, which includes planning, reflecting, and evaluating the learning process. Zimmerman (2002) focused
more specifically on SRL and posited that self-regulated learners are active participants who monitor their mental, behavioral, and motivational processes. In Zimmerman’s model SRL includes three cyclical phases: forethought, which involves goal setting, strategic planning, and self-motivation beliefs; performance, in which the learner aims for self-control and self-observation; and self-reflection, when a learner judges his or her performance against a chosen standard and then strategizes for change. The information in one phase informs the next, and the cycle begins again; reflection informs planning and impacts performance (Zimmerman, 2002).

**Learning Support Inventions**

Students who practice SRL increase their ability to be independent and self-regulated learners; a student’s awareness and use of SRL strategies increases academic achievement (Dignath & Büttner, 2008). Study skills courses are an effective means to teach learning strategies (Tuckman & Kennedy, 2011). According to Dignath and Büttner (2008), the most effective study skills courses combine SRL instruction with cognitive strategies. Additionally, scaffolds or prompts (Askell-Williams et al., 2012; Bell & Pape, 2014) and the use of online learning documents (Kurt, 2007) support the development of SRL processes. Mentoring and coaching can also guide a student’s effective use of SRL strategies (Núñez, Rosário, Vallejo, & González-Pienda, 2013).

Interventions that combine the instruction of both SRL and cognitive strategies can impact learning and academic achievement (Dignath and Büttner, 2008). Selecting effective cognitive strategies becomes an important consideration. Recommended strategies include self-questioning (King, 1992), concept or mind maps (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013), and organizers with self-monitoring
scaffolds (Bell & Pape, 2014).

**Research Purpose and Objective**

The purpose of this study was to investigate how students’ participation in a study skills workshop, focused on SRL knowledge, SRL processes, and cognitive strategies, might impact students’ SRL knowledge and strategy use as well as academic achievement. The objective was to equip upper school (i.e. secondary school) students with strategies and knowledge that might support their learning at an academically rigorous private school.

This research involved process and outcome research questions, as follows:

**Process Research Questions (RQ):**

RQ1: To what extent did the implementation of the study skills workshop align with the intended research design?

RQ2: What was students’ overall experience with the study skills workshop?

RQ2A: What was the students’ self-reported level of engagement during the workshop?

RQ2B: What were the students’ perceptions of the quality of instruction and subsequent support?

RQ2C: What components of the study skills workshop do students report as having the greatest value?

**Outcome Research Questions:**

RQ3. To what extent does participation in the study skills workshop change a student’s knowledge and practice of self-regulated learning?
RQ3A. What are the students’ self-reported use of and usefulness of the SRL strategies?

RQ3B. To what extent did participation in the study skills workshop affect the students’ SRL awareness and SRL strategy use?

RQ4. To what extent does participation in the study skills workshop impact the student’s academic performance when compared to students who did not participate in the intervention?

Research Design

A mixed methods quasi-experimental design, including a pre- and postmeasures with a comparison group, was used to capture both quantitative and qualitative data to inform the research questions (Creswell & Plano Clark, 2011). The intervention was a study skills workshop. The quantitative data included pre- and postsurveys on metacognitive awareness and SRL strategies and knowledge. In addition, student grades were collected. The qualitative data included transcripts of student input from focus groups and written documents, an observer’s report, and the researcher field notes. The combination of these two methods provided rich data to understand the effect of the intervention on the students’ learning process and academic achievement as well as the students’ experience with the intervention.

Intervention

Grade 9 students’ (N = 30) participated in a 7-hour study skills workshop, which was presented in four sessions. The content of the workshop comprised of SRL knowledge and processes as well as cognitive strategy options. The SRL content instruction covered the SRL cycle, goal setting, strategic planning, self-reflection, self-
evaluation, and self-regulation prompts. The cognitive, or learning, strategies, focused on comprehension from text and from lecture and included self-questioning, summarizing, and mind maps. Each student received a packet of reference materials and access to two online digital SRL tools. One tool provided a framework to manage assignments, set goals, and reflect on learning approach; the other tool provided a means to analyze academic performance and evaluate one’s study approach. The students received feedback through these shared Google Sheets as well as through email reminders. The entire intervention lasted for approximately 20 weeks and included a 7-hour workshop and face-to-face support that was available upon request for two marking periods, each of which lasted approximately 10 weeks.

Data and Data Analysis

The quantitative data included pre- and postintervention scores of the following: self-regulated skills, knowledge, and strategy use, and academic grades. The statistical analyses included descriptive statistics, paired sample t tests, MANCOVA, ANCOVA, regression analysis, and correlation analysis. For qualitative data, the researcher employed a conventional content analysis emergent design in which codes were not predetermined but were defined during data analysis. The process allowed new insights to describe and explain any phenomenon. A qualitative codebook helped to organize the data collected through surveys and from focus group transcripts (Hsieh & Shannon, 2005).

Findings

The treatment group was engaged and actively involved during the workshop’s sessions. They found the instruction clear and noted benefits in the content presented.
The students rated the following strategies as particularly helpful: setting goals,
verbalizing knowledge, and using the online tools. The students also noted value in
attending the workshop. There were no significant results in the students’ self-reported
knowledge and use of SRL strategies. However there was a positive change their overall
metacognitive awareness scores. These results were similar in terms of self-reported selfregulated strategy use. The only significant difference was in the student’s ability to seek
and learn information. However, there was a positive change in the students’ selfassessed SRL knowledge and strategy use. While sustained use of the strategies showed a
decrease during the two academic terms, the students reported that the strategies
supported their learning and that attending the workshop was beneficial.
There was no significant difference in academic achievement between the
treatment and the treatment naïve groups. For both groups, academic performance
increased between Quarter 1 and Quarter 3, with the rate of change for the treatment
group being slightly higher than that of the treatment naïve group. Two findings are of
note. First, the treatment group had higher academic performance pre-intervention than
the pre-intervention grades of the treatment naïve group. Second, a higher percentage of
treatment group members were enrolled in accelerated or honors sections of the courses;
these courses impacted the weighting of the student’s grade point average (GPA).
Results from focus groups indicated that the students did not believe they had
sufficient time to fully engage in the SRL and cognitive strategies. For example, after two
academic terms, only 10 of the original 30 students who attended the workshop continued
to use the online tools. Yet, many students noted that they were more aware of SRL
processes. The students found value in attending the study skills workshop, appreciated

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the topics and the concepts presented, and recommended that similar workshops be offered in the future.

The independent school environment might limit the transferability of similar study skills workshops to other school settings. Additionally, the students’ academic, arts, and athletic requirements restricted their availability to leverage the SRL processes and strategies and use of the online SRL tools developed for the research.

Overall, students found participation beneficial. Based on the positive change on SRL knowledge and strategy use, in addition to academic performance, the students may have increased learning independence and empowerment. Given these results, schools might consider offering similar study skills workshops and establishing digital tools to help students manage their academic responsibilities. Additional communication and collaboration with teachers or academic coaches would encourage and foster SRL in students.
Chapter 1

Overview and Factors Related to the Problem of Practice

Student-initiated learning strategies, often called self-regulated learning and metacognitive strategies, support the cognitive process and lead to increased student achievement and critical thinking skills (Bandura, 1986; Bransford, Brown, & Cockings, 2000; Kuhn & Dean, 2004; Magno, 2010; Pintrich, 2002; van der Stel & Veenman, 2008; Vygotsky, 1978; Wilson & Bai, 2010; Zimmermann, 1989, 1995). Students develop SRL and use metacognitive strategies when skills are explicitly modeled and integrated within the course content (Berthold, Nuckles, & Renkl, 2007). A student’s lack of self-regulated skills can negatively impact his or her adjustment to academic demands. Independent schools, known to have academic programs that are fast-paced and challenging, are not required to align to national and state educational initiatives (Kane, 1991) and do not always incorporate learning strategies within their curriculum (Taylor, 2005). Additionally, many secondary school teachers lack knowledge related to learning theory to support students’ developing self-regulation skills (Wilson & Bai, 2010). Often, professional development initiatives inadequately prepare faculty to foster the development of SRL skills as students navigate curricular programs (Murray, 2012). Given these factors one might investigate how an educational institution provides learning support to enhance a student’s educational experience.

This chapter provides an overview of the issues related to student learning support within the independent school setting. The culture and context of an independent school that offers a challenging program to an academically strong student body provides a backdrop for the study. Then factors that impact the development of SRL will be
explored. First, an investigation of student characteristics will provide information on when and how students acquire and use SRL. Second, research on faculty knowledge, beliefs, and pedagogical approaches, particularly at the secondary school level, will reveal how a teacher might impact a student’s development and use of learning strategies and skills.

**Problem of Practice**

Independent schools are self-governed, establish their own criteria for their faculty, develop a self-defined curriculum, and have mutually selected students in which the student chooses the school and the school chooses the student (Kane, 1991). As educational institutions, independent schools have characteristics and patterns that shape the education experience for their students (Coleman, Hoffer, & Kilgore, 1981; Dronkers & Robert, 2008; Jaleel & Premachandran, 2016; Page & Keith, 1981). Student characteristics might determine the manner in which these individuals develop and use SRL and metacognitive strategies that support learning within the independent school setting (Askell-Williams, Lawson, & Skrzypiec, 2012; Karlen, Merki, & Ramseier, 2014; Leutwyler, 2009; Zimmerman & Martinez-Pons, 1990). Concurrently, an independent school’s faculty might encourage SRL due to their knowledge, beliefs, and pedagogical practices (Askell-Williams et al., 2012; Clift, Ghatala, Naus, & Poole, 1990; Spruce & Bol, 2015). The combination of these factors, the independent school context, student characteristics, and faculty’s knowledge and pedagogical approach, may result in a student’s lack of strategies that support engagement, empowerment, and academic achievement within the learning process. The question becomes: in what ways can an
educational institution, like an independent school, foster SRL to support learning and to enhance a student’s educational experience?

**Theoretical Framework: Metacognitive Strategies and Self-Regulated Learning**

The terms metacognition, self-regulation, and SRL are often used interchangeably, and all of these concepts are related to self-awareness and the regulation of learning (Dinsmore, Alexander, & Loughlin, 2008). Metacognition, or “the ability to reflect on one’s own performance” (Bransford et al., 2000, p. 97), is often used as an overarching term to describe self-regulation and self-evaluation. Flavell (1979) defines metacognition as “beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises” (p. 907). Metacognition is often separated into two areas: metacognitive knowledge, the understanding of how an individual approaches tasks and through what strategies (van de Stel & Veenman, 2008), and metacognitive regulation, the management of one’s thinking processes and control of learning (Flavell, 1979).

An understanding of learning strategies and the management of the learning process are critical components and subprocesses of SRL. SRL involves a student’s proactive, intentional, and reflective use of strategies during the learning process (Leutwyler, 2009). According to Ertmer and Newby (1996) learning strategies aim to encourage management, control, and regulation including the ability to plan, reflect, and evaluate learning. Studies that investigate learning support and the impact on achievement often focus on the acquisition and use of metacognitive strategies and self-regulation skills (Berthold et al., 2007; Ertmer & Newby, 1996; Gomes, Golino, & Menezes, 2014).
Various empirical studies have investigated the benefits of learning strategies based in SRL and metacognition and ultimately how their use connects to learning outcomes. For example, Magno (2010) investigated the possible link between metacognition and critical thinking, a process in which an individual uses strategies to increase the likelihood of a desired outcome. In his two-wave study with 240 freshman students from different colleges and universities in the Philippines, Magno found a significant correlation between metacognitive skills and critical thinking. For students to think critically, they must be aware of metacognitive skills, including executive control and process (Magno, 2010).

Just as metacognition and critical thinking are linked, metacognition is connected to academic achievement and may have a stronger influence than intelligence. Gomes, Golino, and Menezes (2014) worked with 684 students in Grades 6 to 12 to investigate whether metacognitive skills or intelligence had predictive value on academic achievement. After the students completed intelligence and metacognitive tests, Gomes and colleagues compared the scores to achievement scores and found metacognition had a higher positive correlation than intelligence when predicting academic achievement (Gomes et al, 2014). Other studies also considered the connection between metacognition, intelligence, and academic achievement. In one such study van de Stel and Veenam (2008) investigated the connection between first-year secondary school students’ (N = 32) use of metacognitive skills and their academic performance. For the purposes of this study, metacognitive skills were divided into four areas: orientation, planning and systematical orderliness, evaluation, and elaboration. Metacognitive use included both domain-specific (e.g., history, mathematics) and general activities. For
example, in the orientation area, general metacognitive skills involved activating prior knowledge and goal setting, and mathematics-specific strategies included estimating an answer. Although no specific metacognitive skills were identified, intelligence and metacognitive skillfulness were moderately correlated and influenced the learning process, with metacognitive skillfulness being significantly correlated across academic domains (van der Stel & Veenman, 2008). Overall, the process of thinking about thinking, which includes self-regulation and metacognition, is integral to student learning and to academic achievement. Just as a student’s approach to learning can influence academic achievement and outcome, a school’s context can influence a student’s educational experience as well.

**Context of Problem - The Independent School**

A school can shape a student’s educational experience, and independent or private schools have characteristics that provide a framework for students’ experience and academic outcomes. Former head of the National Association of Independent Schools, Esty (1982), explained that even though there are broad differences among independent schools, there are overarching similarities. The core element that defines independent schools is the manner in which they operate. These schools are privately funded and governed (Esty, 1982). Because these schools are not required to follow public school reform initiatives, the teachers and administrators design the curriculum and program, both of which can have a particular value orientation (Kane, 1991). Dependent on tuition dollars to fund their programs, these schools often create unique identities with traditions and a set of values to compete with public schools and other independent schools (Deal,
1991). In fact, independent schools try to provide different or specialized programs to legitimate the tuition (Kane, 1991).

Independent schools play a role in the American educational system, and several studies have investigated possible differences between public and private schools. Coleman, Hoffer, and Kilgore (1981) conducted a study for the National Center of Education Statistics and researched several assumptions about private schools. These assumptions included: private school students have better cognitive outcomes than public school students; private schools are safer, more disciplined, and more orderly environments than public schools; and private school teachers and students have greater contact due to smaller class size. After interviewing students and gathering data from public and private schools ($N = 1015$), the researchers were unable to confirm many premises. They did conclude, however, that private and Catholic schools provide stronger academic programs than public schools, and that private school students had higher levels of self-esteem and felt more in control of their educational experience (Coleman et al., 1981).

Many researchers questioned Coleman and colleague’s (1981) conclusions and considered their report controversial. Page and Keith (1981), for example, wondered if the private school setting produced these outcomes or if other factors increased student achievement. Although Page and Keith found that independent schools tended to enroll “abler and more fortunate” students, a student’s socioeconomic status had a stronger influence on student achievement than enrollment at a private school (p. 16). These authors cautioned that researchers need to control for student background including parent education, occupation, income, and home environment (Page & Keith, 1981).
Extending the research on these school contexts, Dronkers and Robert (2008) investigated factors that contribute to scholastic achievement in private and public schools. The social composition of the private school student body led to higher cognitive outcomes than that from other schools (Dronkers & Robert, 2008). These findings align with the seminal Coleman Report (Coleman et al., 1966), which found a school’s funding or program has little to do with student outcome; rather, the student’s socioeconomic status and background had a greater impact. Gamoran and Long (2007) later confirmed these findings.

The use of learning strategies, by school type, can provide additional information on the differences in educational contexts. For example, Jaleel and Premachandran (2016) wondered if school characteristics, including location (i.e., rural and urban settings) and type of school (i.e., public or private), might impact a secondary school student’s metacognitive awareness. Students (N = 180) completed surveys that measured their metacognitive awareness. Metacognition was conceptualized as the understanding of the depth of one’s knowledge as well as an awareness of the tools that guide cognitive tasks and direct learning approach. No significant difference existed among the students’ metacognitive awareness, across school locale and type of school. Therefore, public and private school students, as well as students from rural or urban settings, show no difference in the use of learning strategies or in metacognitive awareness (Jaleel & Premachandran, 2016).

Investigations on educational settings can extend to the manner in which a school provides learning support services. Many independent school mission statements and admission and enrollment policies, for example, include a statement about meeting
individual student needs. To research strengths and weaknesses of such student services, Taylor (2005) interviewed independent school principals. He found that independent schools did little to address their students’ learning needs or offer inclusion programs including educational services or learning support within a general classroom. These schools’ faculties felt responsible to offer learning support for their enrolled students, yet these programs often did not exist. This discontinuity caused frustration for teachers, students, administrators, and parents. Additionally, many private school administrators had little knowledge of the laws that govern public schools’ obligation to meet the needs of students with specific learning needs. Private school students received accommodations and services only when administrators had a better knowledge base on programs that meet student needs (Taylor, 2005).

Research focused on independent schools yields several conclusions. First, independent schools tend to establish and create unique programs for their students, often without providing learning support within the classroom setting (Taylor, 2005). Second, independent school students tend to have higher levels of self-esteem and perform well academically (Coleman et al., 1981; Page & Keith, 1981). The social composition of the student body, however, has a stronger influence on academic achievement than the school’s program (Dronkers & Robert, 2008). Finally, the location and type of school does not influence a student’s SRL development (Jaleel & Premachandran, 2016). While the independent schools might not offer learning support services, characteristics and professional development activities of their teachers can inform factors on SRL use and development within this context.
The Independent School Teacher

Independent school faculty have qualities central to educating children and have a field of content knowledge, yet independent school teachers may or may not have had formal teacher training (Esty, 1982). In researching professional development initiatives in both public and private school settings, Murray (2012) discovered strong professional development initiatives in public schools. The same was not true in independent schools. Murray identified two common professional development activities employed at independent schools: individual teachers attended conferences or schools contracted with experts to speak to the entire faculty. Although these practices were intended to provide insight into pedagogical practices and on curricular change, often the activities had little impact within the private school setting (Murray, 2012). This research mirrored a growing call for increased professional development in independent schools. Patrick Bassett (2006), former head of National Association of Independent Schools, urged member schools to devote resources and energy to learning opportunities for independent school faculty.

The Independent School and Learning Support, A Summary

The research on independent schools reveal several factors on how and if these institutions support learning and foster student use of SRL (Dronkers & Robert, 2008; Murray, 2012; Page & Keith, 1981). First, the characteristics of independent school students, rather than the school’s academic program, are more likely to be responsible for any metacognitive strategy use or strong academic performance (Coleman et al., 1981; Dronkers & Robert, 2008; Jaleel & Premachandran, 2016). Second, private schools are not prepared to support students who have specific learning needs (Taylor, 2005).
Finally, professional development initiatives in private schools do not always impact teacher knowledge, curricular change, or pedagogical practices (Murray, 2012). Given that the school shapes the external environment in which students learn, one can wonder how a student’s characteristics, or internal forces, impact the development and use of SRL.

**Self-Regulation and Student Learning**

Students’ approach to building and using self-regulation strategies can impact the ways they are able to plan, monitor, and evaluate their learning process. As previously noted, researchers often use the terms metacognition and SRL interchangeably (Dinsmore et al., 2008). For this reason, research involving these constructs will be reviewed to identify factors on how student characteristics might impact the development and use of SRL strategies.

**Self-Regulated Learners: Student Characteristics**

With a focus on a student’s awareness of management control and regulation of learning and thinking, Leutwyler (2009) investigated how student characteristics impacted the use of metacognitive learning strategies (i.e., planning, monitoring, and evaluating activities) among students ($N = 1432$) in Grades 10 and 12. In this cross-sectional study, students described the manner in which they planned, monitored, and evaluated their learning; one cohort of students provided data at the beginning of Grade 10 and another cohort at the end of Grade 12. Although students’ self-reported strategy use showed no increase over time, student characteristics played a role in the frequency of use. Females reported using metacognitive learning strategies, particularly those related to planning, more often than males. However, the differences related to gender,
particularly for evaluation strategies, diminished over time. Additionally, students with higher socioeconomic status tended to use metacognitive strategies more frequently when compared to students with lower socioeconomic status (Leutwyler, 2009).

Also studying characteristics of self-regulated learners, Karlen and colleagues (2014) investigated how gender, socioeconomic status, and age differences might influence SRL development and use. Students experienced little development in metacognitive strategy knowledge between Grades 10 and 11. Females and students with higher socioeconomic status showed higher metacognitive strategy knowledge than males and students with lower socioeconomic status on the initial measurement. Additionally, gender did not predict any change in metacognitive strategy use over time, and socioeconomic status showed a small direct significant growth in SRL use over time (Karlen et al., 2014). While gender and socioeconomic status of students seem to influence how and when students leverage SRL and metacognitive strategy use, the student’s age appears to be a consideration.

To investigate if age predicts differences in the use of cognitive and metacognitive strategies for learning, Askell-Williams et al. (2012) worked with 11- to 15-year-olds (N = 1375) and identified differences by grade level (i.e., age) and gender. Cognitive strategies included repetition and self-questioning, and metacognitive strategies included monitoring and time management. Gender and grade level yielded significant effects. Younger males showed greater metacognitive strategy use than older males. There was no significant difference in use by younger males and females, yet older females were more likely to report higher use than older males. Askell-Williams et al. theorized that metacognitive use would increase as students mature but cited two
possible reasons for their contradicting findings. First, growth in strategy knowledge was not an automatic outcome of classroom learning. The second reason emerged after conversations with teachers, who suggested that their focus was on content rather than the explicit teaching and coaching of strategies. They assumed that students were already equipped with strong learning strategies (Askell-Williams et al., 2012). This research informs not only age and gender differences for when students leverage metacognitive strategies, but also provides information on how faculty might foster SRL, a topic discussed later in this chapter.

The research on student characteristics and their use of SRL and metacognitive strategies is telling. Although studies show greater use of SRL strategies for females and for students with higher socioeconomic status, differences diminish over time (Leutwyler, 2009). In fact, developmental growth seems to be a consideration. Increased use is assumed as students mature yet growth in SRL ability does not always occur (Askell-Williams et al., 2012; Karlen et al., 2014). Pursuing other characteristics, including an individual’s intelligence, might yield additional factors on a student’s ability to leverage SRL.

**Self-Regulated Learning and Student Intelligence: Is there a connection?**

Research on students’ intelligence and their use of SRL provides information for schools that might be interested in providing learning support for their academically talented, high-performing student body. Academically talented students may be classified as either gifted or high-achievers, and research on both gifted and high-achieving students will be included in this literature review due to the research context.
Specifically, many independent schools have rigorous admissions standards and aim to enroll high-achieving and gifted students.

Exploring possible differences in student characteristics and their use of SRL, Zimmerman and Martinez-Pons (1990) compared students in Grades 5, 8, and 11 from a highly selective school for the academically gifted to a similar population from non-selective schools located in the same city. Students at the academically gifted school scored at or above the 99th percentile on standardized tests of mental ability. All students came from middle-class homes, varied in race, and answered questions on their study practices via interviews. Strategies under consideration included self-evaluating, organizing, goal setting and planning, seeking information, monitoring, structuring the learning environment, seeking teacher support, and reviewing tests, notes, and texts. Older students showed an increased use of the strategies. Additionally, the gifted students used certain strategies more than non-gifted students; these strategies included organizing and transforming, self-consequence, and seeking assistance. Finally, the gifted students were more likely to seek adult assistance, particularly from parents, to aid the learning process (Zimmerman & Martinez-Pons, 1990).

Although Zimmerman and Martinez-Pons (1990) found that gifted students used SRL strategies more often than non-gifted students, Hannah and Shore (1995) found that gifted students, or students with exceptional intellect, could have deficits related to the learning process. These researchers investigated the manner in which metacognitive strategy use supports the highly able student as well as the gifted student with a learning disability. With a total sample size of 48 male students from Grades 5 and 6 as well as Grades 11 and 12, the researchers identified two levels of giftedness (i.e., gifted and not
gifted) and two levels of learning disability (i.e., learning disabled and not learning disabled). Gifted students with learning disabilities had more metacognitive knowledge than average-achieving students and students with learning disabilities. There was no statistically significant difference, however, between metacognitive skills of gifted students and average-achieving students at the secondary level. Additionally, gifted students with learning disabilities performed more like gifted peers than learning disabled peers (Hannah, & Shore, 1995). The relationship between achievement and self-regulation for the gifted student, especially the gifted student with learning disabilities, is important when considering student learning needs within school contexts that cater to a highly able student body.

To further inform how intelligence might influence a student’s approach to learning, Snyder, Neitfeld, and Linnenbrink-Garcia (2011) examined how gifted and average students leverage metacognitive strategies. Conceptualizing metacognition as the knowledge and regulation of metacognition, Snyder et al. (2011) worked with Grade 10 gifted and other public school students. Over the course of one semester, the researchers compared the students’ perspectives on their ability to regulate cognition with their performance on biology exams. Self-awareness of metacognitive ability was not significantly different between the gifted and the other student, but attributes of motivation appeared to have a greater impact on the gifted student’s academic achievement (Snyder et al., 2011).

Research on gifted students’ use of SRL strategies is inconclusive. One study showed that gifted students used SRL strategies more frequently than non-gifted students (Zimmerman & Martinez-Pons, 1990), yet in another study SRL and metacognitive
strategy use was not significantly different between these groups (Snyder et al., 2011). Furthermore, the gifted student with specific learning needs might employ more SRL strategies than non-gifted students (Hannah, & Shore, 1995). Perhaps the inconsistency in the research findings is a call to investigate how a school that caters to a student population with high academic potential might foster SRL to support the learning.

**Learning Strategy Selection and Use**

When or how a student employs acquired learning strategies could reveal issues for engaging SRL. Veenman, Kok, and Blote (2005) researched the frequency that secondary school students ($N = 41$) automatically engaged with self-regulation skills, including task analysis, goal setting, planning, and reflection. These students often knew learning strategies and acquired self-regulation skills, yet they did not often employ the skills unless cued to use them. When the teacher cued the skills, the student had better learning outcomes. Therefore, these secondary school students did not lack the ability to use learning strategies; rather, they lacked the process to identify, to select a strategy, and to produce those skills within the classroom environment and learning process (Veenman et al., 2005).

Strategy selection is an important component of SRL, and information on frequently used strategies explains patterns in student behavior and engagement. Dunlosky, Rawson, Marsh, Nathan, & Willingham (2013) selected 10 study strategies shown to improve academic success and evaluated them for student use and effectiveness. The strategies included elaborative interrogation, self-explanation, summarization, keyword mnemonic, imagery for text, practice testing, rereading, highlighting, and distributed and interleaved practice. Evaluative criteria included
students’ independent implementation of the strategy across domains, ease with which the student might use the strategy including materials needed, and the strategy’s effectiveness in educational settings. Students’ use of the strategies varied. Generally, students frequently used the strategies (i.e., rereading and highlighting) that had little impact on academic outcomes. Students less frequently used other strategies (i.e., interrogation or self-explanation) that rely on self-regulation skills. Dunlosky et al. identified several possible reasons why students relied on the more ineffective techniques. First, students might not be instructed on more effective study strategies. Second, teachers might not be aware of the strategies due to minimal or omission of coverage on these strategies in textbooks for teacher education courses. Finally, the problem might be based in the tendency for teachers to focus on content rather than learning strategies in classroom settings (Dunlosky et al., 2013). This conclusion aligned with Askell-Williams and colleagues’ (2012) finding that a possible reason for a student’s lack of engagement in cognitive and metacognitive strategy use is secondary school teachers’ increased focus on content and decreased application of learning strategies. A teacher’s influence appears to be a consideration when investigating how to support learning.

**Self-regulated Learning Strategies: Teacher Knowledge, Beliefs, and Practices**

While a student’s gender, age level, and intelligence can impact the development and the use of SRL, a teacher’s approach and knowledge might also impact a student’s SRL use. To understand a teacher’s role in fostering SRL strategy use and instruction, Wilson and Bai (2010) studied K-12 teachers’ general understanding of metacognition and thinking strategies as well as their pedagogical practices. These practices included
modeling thinking processes and questioning strategies. Two themes emerged from the mixed methods study. First, teachers’ metacognitive knowledge and their ability to teach students to be metacognitive were correlated. The higher the teacher’s understanding and knowledge of metacognition and SRL, the more likely the teacher incorporated SRL into pedagogical practices. Second, despite having knowledge about metacognition, the teachers did not always incorporate activities (e.g., reflecting on their learning processes, using language about thinking) known to help students become more metacognitive (Wilson & Bai, 2010).

A teacher’s knowledge regarding metacognition and SRL does not guarantee SRL within course content. In fact some teachers struggle to identify the difference between SRL strategies and task-oriented content strategies. Clift et al. (1990) investigated teachers’ ability, based on their knowledge of learning theory and strategies, to provide opportunities for students to use metacognitive strategies. The 37 elementary and secondary teachers had previously studied learning theory, completed coursework on learning strategies, and believed students used the strategies daily or weekly. However, these teachers were unable to distinguish between content, task-related, and cognitive processing strategies. Many teachers’ concepts of cognitive strategies disregarded the student’s involvement in strategic mental processes. Additionally, their expectation was that students would independently learn cognitive processing strategies, and their pedagogical focus was on content rather than learning how to learn the content (Clift et al., 1990). These findings align with Askell-Williams and colleagues’ (2012) research, including findings that teachers might believe that metacognitive and cognitive strategies are a focus of lower grades, and that secondary school students are already equipped with
learning strategies. Secondary school teachers, therefore, focus instructional practices on content rather than learning strategies (Askell-Williams et al., 2012).

Others have also investigated teacher beliefs, knowledge, and classroom practices involving metacognition and SRL. Spruce and Bol (2015) utilized the Zimmerman’s (2002) SRL cyclical model (e.g., planning, monitoring, evaluating of one’s learning) as a framework, assessed elementary and middle school teachers on their beliefs about implementing SRL, and observed their practices in the classroom setting. Even though the teachers believed in the benefits of SRL, they had gaps in their ability to integrate SRL into classroom practices. These gaps included a lack of knowledge around goal setting for a learning task and the evaluation of a learning event. The teachers stated that there was limited time and space in the curriculum to incorporate learning process strategies into their program; their focus was on content (Spruce & Bol, 2015). Consistent with this research, Joseph (2009) conducted a literature review on classroom practices that help students develop metacognitive awareness. Joseph concluded that not only do secondary school teachers focus instructional time on content, but they also do not naturally model self-reflective skills and mental processes found helpful in the learning process (Joseph, 2009).

Four factors influence a teacher’s ability to provide learning support and foster metacognitive practices and SRL. First, a teacher’s ability to model metacognitive awareness and embed SRL practices is related to their own metacognitive awareness (Wilson & Bai, 2010). Second, secondary school teachers often believe that their students are taught strategies in lower grades and enter secondary school with these skills (Askell-Williams et al., 2012; Clift et al., 1990). Third, teachers often confuse content-focused
strategies with cognitive processing strategies (Clift et al., 1990; Spruce & Bol, 2015). Finally, the increased focus on content at the secondary school level limits the instruction of self-reflection and self-monitoring skills critical to metacognition and SRL (Askell-Williams et al., 2012; Joseph, 2009; Spruce & Bol, 2015)

Conclusions

Students who are self-regulated have higher academic achievement and are self-directed learners (Bandura, 1986; Bransford et al., 2000; Kuhn and Dean, 2004; Magno, 2010; Pintrich, 2002; van der Stel & Veenman, 2008; Vygotsky, 1978; Wilson & Bai, 2010). There are still many unanswered questions, though, related to how students develop self-regulation skills and how teachers can incorporate opportunities for students’ to practice self-regulation into curriculum and pedagogical approaches (Schunk, 2008).

Independent schools tend to provide challenging curricula to what these schools consider to be academically strong students (Bassett, 2006; Coleman et al., 1981; Esty, 1982; Kane, 1991). The independent school curriculum, however, might not be the source of their students’ success. Rather, the composition of the student body might lead to their higher academic achievement when compared to public school students (Dronkers & Robert, 2008; Konstantopoulos, Modi, & Hedges, 2001; Page & Keith, 1981), as these schools tend to attract academically strong students. In fact, there is little difference in metacognitive awareness for students enrolled at private versus public or rural versus urban schools (Jaleel & Prehachandran, 2016). The lack of recent research on independent schools related to SRL is a limitation to this review and indicates a need for further research within this educational context.
Research on student characteristics informs the development and the use of self-regulation and metacognitive strategies. Female students tend to report higher use of metacognitive strategies than male students (Karlen et al., 2014; Leutwyler, 2009). Students from higher socioeconomic status employed more SRL strategies than student from lower socioeconomic status (Jaleel & Prehachandran, 2016; Karlen et al., 2014). Higher-achieving students do not have an advantage over average-achieving students in the development of these skills (Hannah & Shore, 1995; Snyder et al., 2011). Finally, students do develop the SRL skills but do not employ them or choose to use strategies that have a strong impact on learning (Dunlosky et al., 2013; Veenam et al., 2005).

For the secondary school teacher, the focus on instructional content limits the modeling and practice of SRL strategies and, in fact, has a negative impact on students’ maintaining and developing self-regulation skills (Askell-Williams et al., 2012; Clift et al., 1990). Teachers do not naturally think to teach these skills and can even confuse content strategies for learning strategies (Clift et al., 1990; Joseph, 2009; Spruce & Bol, 2015). However, when faculty members have a deep understanding of learning theory and are involved in professional development opportunities focused on self-regulation skills, they are more likely to model and incorporate SRL into the content of the academic program (Clift et al., 1990).

Whether the factors are focused on the independent school setting, on student characteristics and patterns, or on teacher practices and beliefs, there are various influences on both the development and the use of SRL. As Flavell (1979) reminds us, a call for increased cognitive monitoring in the world can not only support student learning but also increase the quality and quantity of thinking in the world. Therefore, considering
how an independent school creates an environment in which students leverage SRL to become empowered and engaged individuals is the next step.
Chapter 2

Learning Support at an Independent School

The purpose of this chapter is to present findings from a needs assessment study that informs how learning support is provided within a content-rich upper school program at an independent school. This investigation sought to answer research questions based on factors that influence the development and use of student self-regulation. The three areas of research were students’ perceptions of learning support, teachers’ pedagogical practices and perspectives on student learning approach, and program-related shifts or institutional approaches to support student learning at an independent school. After a description of the context of the study, a summary of the methodology provides the framework for the needs assessment and includes a description of the participants, the variables, the instrumentation, and the data collection and analysis methods. Finally, a summary of the findings addresses the research questions based on factors presented in Chapter 1.

Context of Study

This needs assessment study was conducted at one of the top 50 private schools in the United States as ranked by TheBestSchools.org (2013). Located in a midatlantic state, the school is one of many private institutions in a city where 17.6% of all kindergarten through Grade 12 students enroll in private schools. More specifically, the school, with a 44-acre campus, is located in a neighborhood where 78% of school-aged students attend private schools (Kolko, 2013). With an operating budget of $20 million dollars, the school is debt free and has an endowment of $32.5 million. The annual fund raises more
than $800,000 per year, and the school grants approximately $2,000,000 in need-based financial assistance to 24% of the students (Eldredge & Cockrell, 2014).

According the school’s website, the student body consists of approximately 700 students aged 3-years-old to Grade 12 of which 49% are boys and 51% girls. Twenty-five percent of the school’s student population is from diverse racial, ethnic, religious, and socioeconomic backgrounds. Approximately 11% of the student body is new to the school each year. In the upper school division, over 40% of the students score above the 95th national percentile in reasoning scores of standardized testing, with 22% scoring in the 99th national percentile in verbal reasoning and 18.2% scoring in the 99th national percentile in quantitative reasoning. In terms of intelligence testing, 25% of the upper school students have full-scale IQs in the very high or superior range (i.e., 120-129) and 16.9% score within the extremely high or very superior range (i.e., 130 or higher). The students’ average SAT scores are 120-136 points higher than the national averages of 494 in critical reading, 508 in math, and 482 in writing on an 800-point scale (College Board, 2016). With college counseling beginning in Grade 9 and a 100% graduation rate, students are admitted to top universities. Similar to Kane’s (1991) description of many private schools, the school is known for a content-rich curricula and fast-paced program, which includes arts and athletics requirements. Students in Grades 1-6 have physical education every day; students in Grades 7-12 are required to participate in at least two seasons of an interscholastic athletics program in which the school has earned 63 state championships from 22 varsity teams. The drama department supports 15 theater productions annually, and the school hosts eight art gallery shows per year. Character
education is woven throughout the preschool to Grade 12 program, and upper school students must fulfill a 40-hour community service requirement before graduation.

**Purpose of Study and Research Questions**

The purpose of the needs assessment study was to investigate learning needs for students enrolled at an independent school. In addition, this study examined whether and how the school curricula and teacher pedagogical practices support the development of learning strategies including planning, self-regulation, and evaluation. The investigation focused on the students’, teachers’, and administrators’ perspectives on whether the current student body meets the school’s academic demands and employs self-regulation skills that might support their learning.

Several research questions emerged from factors that impact how an independent school might support student learning. Seeking feedback from students, faculty, and school academic leaders and support staff, the research questions focused in three areas: student perspectives, faculty practices and perspectives, and pedagogical approaches.

Questions that focused on the students’ perspective on learning strategy use and support included:

- How do students assess their planning, monitoring, and evaluation of their learning?
- What are the students’ perceptions of teacher-led discussion of strategic learning behavior by subject area?

For faculty, the research question focused on their assessment of the student body’s ability to successfully manage the school’s academic program:

- What are teachers’ perceptions of student needs for learning support?
Finally, research questions that focused on the school program included:

- How does the independent school’s curriculum scaffold learning strategies that support students’ work in the upper school?
- What do administrators and academic leaders perceive as adjustments to the program to meet any changing student needs?

**Method**

The following section will contain information on research design. The discussion will include a description of the participants, the instruments, and procedures for recruitment, data collection, and data analysis.

**Research Design**

The study utilized mixed methods design to explore factors that support student learning (Creswell & Plano Clark, 2011).

**Participants**

The participants included students enrolled in Grades 9 to 12, faculty, school counselors, and academic department chairs in the upper school division of the targeted independent school.

**Students.** The entire upper school student body had the opportunity to participate in an online survey. Of 257 students, 75 (29%) returned consent forms containing parent signatures. From that group, 54 (72% of those returning consent forms and 21% of the entire population) completed the survey. Table 2.1 presents the frequency, by grade level, of the students’ gender and their first year enrolled at the independent school.
Table 2.1

Student Characteristics: Frequency by Grade Level

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade 9</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Number of Participants</td>
<td>14 (25.9)</td>
<td>10 (18.5)</td>
<td>11 (20.4)</td>
<td>19 (35.2)</td>
<td>54 (100.0)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11 (78.5)</td>
<td>6 (60.0)</td>
<td>4 (36.4)</td>
<td>11 (57.9)</td>
<td>32 (59.3)</td>
</tr>
<tr>
<td>Male</td>
<td>3 (21.4)</td>
<td>4 (40.0)</td>
<td>7 (63.6)</td>
<td>8 (42.1)</td>
<td>22 (40.7)</td>
</tr>
<tr>
<td>Division Entered THS</td>
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<td></td>
<td></td>
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<tr>
<td>Preschool (PK, K)</td>
<td>4 (28.5)</td>
<td>6 (60.0)</td>
<td>4 (35.4)</td>
<td>7 (36.8)</td>
<td>21 (38.9)</td>
</tr>
<tr>
<td>Lower School (Grades 1-4)</td>
<td>3 (21.4)</td>
<td>2 (20.0)</td>
<td>3 (27.2)</td>
<td>4 (21.1)</td>
<td>12 (22.2)</td>
</tr>
<tr>
<td>Middle School (Grades 5-8)</td>
<td>3 (21.4)</td>
<td>0 (0.0)</td>
<td>1 (9.0)</td>
<td>5 (26.3)</td>
<td>9 (16.7)</td>
</tr>
<tr>
<td>Upper School (Grades 9-12)</td>
<td>4 (28.5)</td>
<td>2 (20.0)</td>
<td>3 (27.2)</td>
<td>3 (15.8)</td>
<td>12 (22.2)</td>
</tr>
</tbody>
</table>

Faculty. The upper school faculty consisted of 45 members across multiple disciplines (53.3% female and 46.7% male) and had a range of teaching experience. The faculty taught in one of nine academic departments with departmental membership ranging from three to eight teachers. Twenty-four faculty members consented and participated in the study. The sample was distributed across academic departments and gender. Eighty-three percent of the participants held advanced degrees and focused professional development activities on content. While most of the participants (75%) took courses on learning theory in college, only 41% of them held state certification. Specific characteristics of the sample group are presented in Table 2.2.

Table 2.2

Faculty Characteristics as a Percentage of the Sample, n = 24

<table>
<thead>
<tr>
<th>Years at the School</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td>4 (16.7)</td>
</tr>
<tr>
<td>2-5 Years</td>
<td>7 (29.2)</td>
</tr>
<tr>
<td>6-10 Years</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>11-15 Years</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>More than 15 Years</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>Total Years Teaching</td>
<td>n (%)</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>1-5 Years</td>
<td>5 (20.8)</td>
</tr>
<tr>
<td>6-10 Years</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>11-15 Years</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>More than 15 Years</td>
<td>12 (50.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>5 (21.0)</td>
</tr>
<tr>
<td>History</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>Science</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>Language</td>
<td>4 (21.0)</td>
</tr>
<tr>
<td>Theatre</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Music</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Art</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Development Participation</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Specific</td>
<td>15 (62.5)</td>
</tr>
<tr>
<td>Learning Specific</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Both Learning and Subject Specific</td>
<td>4 (16.7)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (16.7)</td>
</tr>
<tr>
<td>No Professional Development in the last 5 Years</td>
<td>1 (4.2)</td>
</tr>
</tbody>
</table>

**School counselors.** Charged with supporting the academic and emotional needs of students and guiding faculty, the two school counselors hold advanced degrees in counseling and school psychology and participated in the study.

**Academic department chairs.** Three, from a total of six, core academic department chairs consented to be interviewed. The chairs’ responsibilities included oversight of their curricular area and supervision of their department’s faculty. Departments represented in the study included history, mathematics, and foreign language.
Instruments

Learning support at an independent school: Student version. The student online survey contained eight researcher-developed questions related to the student’s self-assessed learning strategies (see Appendix A). One purpose of this instrument was to gather the student’s perspective on the quality of and change in his or her learning strategies over time. Another area of focus was the student’s perspective on his or her need for instruction on learning skills (e.g., management of time, ability to evaluate content knowledge, ability to focus). Additionally, students assessed in what class, if at all, learning strategies were modeled or taught. For example, students assessed in what classes and to what degree there was discussion on strategic learning approaches from no discussion to a lot of discussion. The survey included demographic questions related to gender, grade level, and grade at which the student enrolled at the school.

Learning support at an independent school: Faculty version. The second researcher-developed online survey contained 15 items with the purpose of gathering both the faculty member’s perspectives of their students’ ability to handle the program as well as the students’ use of study strategies (see Appendix B). For example, one question stated: “Please consider your current students’ ability to manage the academic program and your former (from 5 years ago) students’ ability.” The respondent chose from the following options:

Option 1: More of my current students are able to better manage the academic program.

Option 2: My current students are similar to my former students.
Option 3: More of my current students are less able to manage the academic program.

The teacher then answered a follow-up question: “If you selected Option 1 (better able) or Option 3 (less able), please add a possible explanation for your answer.” The faculty also assessed students’ use of learning strategies that focused on management, regulation, and evaluation of learning, including management of time, focus, redirecting attention, and evaluation of content acquisition. Finally, the survey included questions on gender, number of years of teaching experience, educational background, professional development choices, and participation in professional development activities.

**Interview questions: Counselors.** The semi-structured interview protocol consisted of seven questions aimed to gather information about how the school counselors worked with students and faculty to support the academic and learning program (see Appendix C). Questions included: “Have you seen any changes in how self-regulation skills are being taught, both at the middle and the upper school level? If you look at how you spend your time working with students, is your focus more on academic support or emotional support? Has this changed in the past 5 years?”

**Interview questions: Department chairs.** The second semi-structured interview protocol focused on academic department changes and strategies (see Appendix D). The academic chairs assessed the school program from their specific departmental lens and provided descriptions on how their department supported students to meet academic demands. The semi-structured interview protocol included four questions focused on curricular change within the last 5 years, the teaching of learning strategies that support student achievement, the manner in which the department supports the needs of
struggling students, and the assessment of a need to increase instruction on strategic learning skills. For example, a question stated: “Does your department intentionally teach learning strategies that might support the program and the transition from middle school to upper school?” The department chairs then replied to a follow up question: “If so, at what levels and if not, would it be helpful?”

**Procedure**

The following section will contain information on participant recruitment, data collection, and data analysis.

**Participant recruitment.** All upper school students and faculty had the opportunity to participate in the study. To recruit student participants, the researcher introduced and explained the research study at an upper school assembly. All students received a copy of the consent and assent form (see Appendix E). The researcher asked the students to obtain a parent signature, sign the form themselves, and then return the signed form to the researcher. Several members of the senior class were 18-years-old and did not require a parent signature. Faculty received an email that provided an explanation of the research project and requested their participation in the data collection. Then they each received a consent form in their school mailbox (see Appendix F). Academic department chairs and school counselors received emails asking for their participation in the semi-structured interview.

**Data collection.** The student and faculty online surveys were created as Google Forms. All student and faculty participants received a personalized email that included a secure link to the appropriate survey; the survey was open for 2 weeks. The researcher conducted the semi-structured interviews with academic department chairs and school
counselors. During all interviews, the researcher took notes and attempted to accurately summarize the interviewee’s answers. All data were stored in a password-protected laptop. Only those involved in the research had access to the data.

Data analysis. For most of the quantitative data, descriptive statistics were calculated. To investigate if students believed that their study practices became stronger, the researcher compared the scores of the students’ current assessment of both their former and present study skills. The researcher then conducted a paired sample t test to identify statistical significant differences between these scores. A conventional content analysis emergent design for the qualitative data was employed. Salient themes were not predetermined but were identified during data analysis. The goal of this method was to allow for new insights to surface and explain needs and phenomenon (Hsieh & Shannon, 2005). A qualitative codebook helped to organize the data collected through surveys and from focus group transcripts (Saldaña, 2016). All student and faculty identifiers were removed prior to data analysis.

Findings and Discussion

The findings will be organized by research questions based on the student, faculty, and program perspective.

Student Perspective

The student perspective included three research questions. Each will be presented individually.

Self-assessment of learning strategies. To examine students’ assessment of their planning, monitoring, and evaluation of learning, students rated both former skills and current skills as needs improvement, satisfactory, or very strong (see Table 2.3).
Table 2.3

Summary of Responses on Self-Assessment of Skills, Current and Former, as Percentage of Sample

<table>
<thead>
<tr>
<th></th>
<th>Former Skills</th>
<th>Current Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NI n (%)</td>
<td>S n (%)</td>
</tr>
<tr>
<td>Manner in which I manage my time</td>
<td>12 (22.2)</td>
<td>26 (48.1)</td>
</tr>
<tr>
<td>My ability to know what I need to study</td>
<td>14 (25.9)</td>
<td>32 (59.3)</td>
</tr>
<tr>
<td>My ability to identify what I know and what I don’t know</td>
<td>9 (16.7)</td>
<td>31 (57.4)</td>
</tr>
<tr>
<td>My ability to take notes</td>
<td>13 (24.1)</td>
<td>23 (42.6)</td>
</tr>
<tr>
<td>My ability to draw conclusions</td>
<td>24 (44.4)</td>
<td>22 (40.7)</td>
</tr>
<tr>
<td>My ability to stay focused</td>
<td>14 (25.9)</td>
<td>25 (46.3)</td>
</tr>
<tr>
<td>My ability to redirect when I become distracted</td>
<td>14 (25.9)</td>
<td>28 (51.9)</td>
</tr>
</tbody>
</table>

Note. Valid percent are reported for assessment of current skills. NI = Needs/needed improvement. S = Satisfactory. VS = Very Strong.

The former and current ratings for three skills (i.e., manage time, remain focused, the redirect when becoming distracted) were similar. For all other skills, there appeared to be improvement in these self-assessed ratings. Of particular note, however, a higher percentage of students (44.4%) believed that their ability to draw conclusions needed more support when they started in the upper school.

To investigate differences between the students’ ratings of former and current skills, the researcher performed a paired sample t test. The results revealed a significant difference, \( t(53) = 4.014, p < .001 \), between self-assessed former skills scores (\( M = 20.67, SD = 6.08 \)) and current skills scores (\( M = 24.59, SD = 6.06 \)) for the entire group.
**Embedded learning support.** To examine if the students believed that their teachers provided learning support within course content, students identified the academic classes in which specific study skills were discussed. From the student perspective, most classes had at least some, if not a lot, of discussion related to study skills (see Table 2.4). Half of the sample \((n = 27)\) identified mathematics classes as an academic area with a lot of discussion focused on study strategies. Only some students identified a lack of learning support; 7.4\% to 11.1\% of students indicated English, history, or foreign language classes did not include strategy discussion, and 16.7\%, identified a lack of study skills discussions and support in their mathematics instruction and 20.4\% in science instruction.

Table 2.4

| Level of In-Class Discussion on Study Skills by Department as Percentage of Sample |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|                                  | No Discussion \( n (\%) \) | Some Discussion \( n (\%) \) | A Lot of Discussion \( n (\%) \) | Not Enrolled \( n (\%) \) |
| English                          | 6 (11.1)                     | 24 (44.4)                     | 24 (44.4)                     | 0 (0.0)                      |
| History                          | 6 (11.1)                     | 26 (48.1)                     | 16 (29.6)                     | 6 (11.1)                     |
| Mathematics                      | 9 (16.7)                     | 18 (33.3)                     | 27 (50.0)                     | 0 (0.0)                      |
| Science                          | 11 (20.4)                    | 21 (38.9)                     | 20 (37.0)                     | 2 (3.7)                      |
| Foreign Language                 | 4 (7.4)                      | 23 (42.6)                     | 18 (33.3)                     | 9 (16.7)                     |

*Note. \( n = 54 \)*

The majority of students indicated a preference for at least some additional instruction in science (79.6\%) and in mathematics (59.2\%), as shown in Table 2.5.
Table 2.5

*Level of Request for Instruction on Study Skills in Each Class as Percentage of Sample, by Academic Area*

<table>
<thead>
<tr>
<th>Academic Area</th>
<th>Don’t Need More n (%)</th>
<th>Sometimes Want More n (%)</th>
<th>Definitely Want More n (%)</th>
<th>Not Enrolled n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>27 (50.0)</td>
<td>23 (42.6)</td>
<td>4 (7.4)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>History</td>
<td>25 (46.3)</td>
<td>16 (29.6)</td>
<td>7 (13.0)</td>
<td>6 (11.1)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>22 (40.7)</td>
<td>16 (29.6)</td>
<td>16 (29.6)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Science</td>
<td>9 (16.7)</td>
<td>17 (31.5)</td>
<td>26 (48.1)</td>
<td>2 (3.7)</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>24 (44.4)</td>
<td>16 (29.6)</td>
<td>6 (11.1)</td>
<td>8 (14.8)</td>
</tr>
</tbody>
</table>

*Note. n = 54*

**Summary from the student perspective.** Overall, students reported that their use of study skills improved over the course of their upper school experience. The majority of the students believed that teachers discussed study strategies in class. Finally, the majority of the students indicated that they did not require additional study skills instruction for their academic classes, and a higher percentage of younger students requested more support in science and mathematics. Specifically, 79.2% (n = 19) of students in Grades 9 and 10 requested additional learning support in science, and 57.1% of students in Grade 9 (n = 8) requested support in mathematics.

**Faculty Perspective on Students**

The majority of the faculty respondents (54.2%) believed that the student body was able to manage the academic program, and 41.7% of the respondents believed that more students were less able to manage the academic program than students enrolled 5 years ago (see Table 2.6). The faculty cited a wider range of student ability, student distractibility, and students’ inability to handle stress and rigor of the program as reasons why students struggled.
Table 2.6

Assessment of Students Body to Manage Academic Program, as Compared to Students of 5 Years Ago (N = 24)

<table>
<thead>
<tr>
<th></th>
<th>n  (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More of my current students are able to better manage the academic program.</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>My current students are similar to my former students.</td>
<td>13 (54.2)</td>
</tr>
<tr>
<td>More of my current students are less able to manage the academic program.</td>
<td>10 (41.7)</td>
</tr>
</tbody>
</table>

Comparing their current students’ ability to use specific learning strategies to those of 5 years ago, at least 50% of the faculty respondents identified current students as weaker in several areas (see Table 2.7). These areas included the student’s ability to manage time, take notes, and stay focused. Faculty identified four possible reasons for shifts in students’ ability to manage the program. First, faculty stated that the school’s admissions standards had changed, and the school was admitting students with a wider range of learning needs. Second, faculty noticed that students had difficulty with time management as seen by more being unprepared for class, submitting incomplete assignments, and missing deadlines. Third, several teachers believed the source of the learning strategy deficit was a lack of training and content exposure in middle school (i.e., Grades 5-8), and additional time should be focused on learning strategies in the lower grades. Finally, most faculty expressed they were concerned about the lack of learning support and saw an increase in stress and anxiety in their students. During the interview with the school counselors, they shared similar observations and stated that a higher volume of students needed additional learning support, particularly with executive functioning. From their perspective, more students did not complete assignments, did not seek extra help when needed, and were unable to meet deadlines. They assessed a
magnification in the volume and rigor of the required academic content as a source of this need.

Table 2.7

(*Faculty Assessment of Current Students’ Self-Regulation Skills Compared to Students of 5 Years Ago as Percentage of Sample (N = 24)*)

<table>
<thead>
<tr>
<th></th>
<th>Weaker n (%)</th>
<th>Same n (%)</th>
<th>Stronger n (%)</th>
<th>No Basis n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage time</td>
<td>13 (54.2)</td>
<td>9 (37.5)</td>
<td>1 (4.2)</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Know what to study</td>
<td>7 (29.2)</td>
<td>14 (58.3)</td>
<td>1 (4.2)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Identify what is known/not known</td>
<td>6 (25.0)</td>
<td>15 (62.5)</td>
<td>1 (4.2)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Take notes</td>
<td>12 (50.0)</td>
<td>7 (29.2)</td>
<td>3 (12.5)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Draw conclusions</td>
<td>8 (33.3)</td>
<td>8 (33.3)</td>
<td>3 (12.5)</td>
<td>5 (20.8)</td>
</tr>
<tr>
<td>Stay focused</td>
<td>12 (50.0)</td>
<td>11 (45.8)</td>
<td>0 (0.0)</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Redirect when distracted</td>
<td>9 (37.5)</td>
<td>12 (50.0)</td>
<td>1 (4.2)</td>
<td>2 (8.3)</td>
</tr>
</tbody>
</table>

Summary from the teacher perspective. Overall, faculty reported a higher percentage of students who needed to develop learning strategies as compared to students in the past. The faculty also identified that students would benefit from some type of additional learning support.

Program Related Practices and Shifts

Two research questions focused on program, specifically the manner in which the curriculum scaffolds learning support and any curricular adjustments to meet the student’s learning needs. The findings will be organized by question.

Scaffolds for learning support. School counselors informed the manner in which the school provided learning support. They witnessed many teachers supporting students through extra help sessions, published rubrics, and the supply of additional resources. The academic department chairs also noted that the primary support for struggling students was accomplished through extra help during mutual (i.e., student and teacher)
free periods, yet the schedule did not always facilitate that process. The department chairs, particularly in the areas of foreign language and history, were searching for ways to meet the needs of the student population and those students who struggled to meet academic requirements. From the school counselors’ perspective, however, in-class learning support decreased over time as students moved from the middle school into the upper school. They stated that the decrease in learning support ran concurrently with an increase in academic demands from perceived competitive college admissions processes.

**Program adjustments.** Data from the teacher survey as well as the semi-structured interviews with the department chairs identified possible program shifts to better accommodate student-learning needs. Approximately 46% of the faculty believed that they were covering the same amount of material as they did 5 years ago, yet 29.2% believed they were covering less material. Sixty percent of the English department’s faculty noted that they covered less material and cited the students’ slower reading pace and increased writing support needs as reasons for this shift. The academic leaders perceived a decreased ability in the students’ reading comprehension and management of the academic demands. Additionally, the department chairs described several curricular shifts reported as a reaction to college admissions needs, as supported by the College Board and advanced placement courses. These demands included the desire for solid test scores and stronger academic grades.

**Summary of program related practices and shifts.** Overall, the faculty, academic leaders, and school counselors described several shifts and changes in the school’s curricula due to outside forces such as college preparation as well as student learning needs. Given the structure of the school, teachers communicated that they tried
to respond to these needs, yet a lack of training and time limited their impact. Of particular note, these adults stressed that even though some students struggled and needed additional support, other students successfully navigated through the school’s demanding curricular program.

**Overall Summary**

Both qualitative and quantitative data indicated that many students were performing well within the structure of this academic setting. Faculty worked to meet the needs of the student body, yet these teachers reported a perceived broader ability base. Faculty, school counselors, academic leaders, and students spoke of a desire for some additional learning support particularly in time management, note taking, self-regulation and focus, and critical thinking, many of which are considered processes of SRL. Therefore, one could hypothesize that interventions aimed to foster SRL might support learning and academic performance for students, those who do and those who do not struggle, within the independent school context.
Chapter 3

Strategies that Support the Development and Use of Self-Regulated Learning

Many educators turn to research on SRL to identify strategies that support student learning and achievement. In this chapter literature on interventions that support learning through SRL will be discussed. A review of the needs assessment study conducted in the spring of 2015 provides the context for this research, and a theoretical framework for SRL will outline the concepts and components of SRL. Given the context of the research project, an intervention that aims to increase the use and the effectiveness of SRL strategies might support the learning process and impact student achievement in an independent school environment.

The purpose of the needs assessment study was to gather the students’, teachers’, and administrators’ perspectives on whether the student body met the school’s academic demands and engaged self-regulation skills that might support their learning, and how an upper school faculty fostered the development of self-regulation skills to support learning. The learning skills examined included self-reflection, time management, executive functions, note taking, and redirection. The majority of the students (79%) desired additional instruction on learning strategies in most academic areas. Likewise, faculty members (41.7%) reported more students struggled to successfully engage with the curriculum and needed help with time management and self-regulation. Overall, findings indicated a call for additional learning support and structure to scaffold how self-regulation skills might be leveraged to aid student learning within a fast-paced, content rich independent school curricular program.
Theoretical Framework

Bandura (1986), a social cognitive theorist, developed the model of reciprocal determinism, which links behavior to personal attributes, including emotions and cognition, as well as environmental factors. The interplay between these factors determines, shapes, and changes behavior. In terms of learning, the reciprocal nature of an individual’s thoughts, his or her behavior, and the environment can shift and alter learning, experiences, and ultimately affect how information is processed and stored. Individuals will react differently depending upon the circumstances (Bandura, 1986). Further, internal factors or capacities, such as attention, motivation, self-regulation, and self-reflection, influence the cognitive process. Bandura explained that self-regulation helps an individual evaluate reactions and allows for individual standards to be maintained; self-reflection aides in assigning meaning based on internal knowledge. Schunk (2008) defined these processes as learning goals or strategies and identified self-regulation and self-reflection as integral to cognitive processing theories in which learners control how they process information.

Schunk (1996) expanded Bandura’s (1991) work related to social cognitive theory and defined self-regulation as the management, control, and regulation of learning, which includes planning, reflecting, and evaluating. Schunk also identified self-evaluation, which is “a process comprising self-judgments of present performance and self-reactions to these judgments,” as an important component in SRL (p. 4). He concluded that self-evaluation is an effective approach to improve the use of self-regulation (Schunk, 1996).

Zimmerman (1989, 1995) defined SRL as a process by which participants initiate mental, behavioral, and motivational monitoring. In his model, SRL includes three
cyclical phases (see Figure 3.1). The first phase, forethought, focuses on goal setting and strategic planning, and includes self-motivation beliefs. Self-efficacy is an important component as it guides a student’s behavior. In the second phase, performance, the learner aims for self-control and self-observation. At this stage, an individual monitors his or her cognitive activity and results. The third phase involves self-reflection. In this phase an individual judges his or her performance against a chosen standard and then reacts to the conclusions. Each process provides feedback to the next phase and the cycle begins again; reflection informs planning and then impacts performance (Zimmerman, 1989, 1995, 2002, 2008).

*Figure 3.1 Phase Structure and Subprocesses of Self-Regulation*

*Figure 3.1. Cyclical phases of SRL showing feedback loop between phases, with specific subprocesses noted for each phase. Adapted from “Becoming a Self-Regulated Learner: An Overview,” by B. J. Zimmerman, 2001, *Theory into Practice, 41*(2), p. 67. Copyright*
Students’ use of self-regulatory processes and strategies is correlated with academic achievement (Zimmerman & Martinez-Pons, 1986). Schunk and Zimmerman (1994) found that self-regulatory strategies are teachable when SRL processes are modeled through activities and when students practice SRL subprocesses. These practices can impact both a student’s motivation and achievement (Schunk & Zimmerman, 1994). The practice of SRL is a proactive, intentional, and reflexive process (Leutwyler, 2009). Research on programs related to the acquisition and process by which students become self-regulated learners could guide the design of interventions aimed to improve the quantity and quality of a student’s self-regulatory processes in an independent school setting.

**SRL Strategies, Instruction, and Programs**

Meta-analyses provide an overview of interventions aimed to increase SRL and support learning. Hattie, Biggs, and Purdie (1996) conducted an early meta-analysis to identify features of study skills interventions through which the skills presented either have a direct impact on academic success in a specific course content or are transferable to other domains. The interventions, described in 51 research articles, fall into four categories: unistructural, multistructural, relational, or extended abstract. Unistructural interventions focus on instruction for one study strategy, such as the use of mnemonics or anxiety reduction. Multistructural interventions present a range of strategies without a self-regulation component. Relational studies are interventions suited for specific individual needs based on a self-assessment. These studies emphasize self-monitoring and self-regulation. The last type of intervention, extended abstract, focuses on self-
regulation with a goal of transferring skills from one domain to another. For example, extended abstract interventions cater to learning needs and stress student participation from one academic area to another. Relational programs are found to be highly effective, particularly for high ability and older students. Cognitive strategies, which are in both unistructural and multistructural interventions, are best taught in context, rather than as a part of stand-alone study skills interventions. Finally, situated training should extend beyond cognitive strategies and include higher self-regulation awareness and learner activity (Hattie et al., 1996).

In a more recent meta-analysis focused on primary school children, Dignath, Büttner, and Langfeldt (2008) studied the characteristics of treatment, type of outcome, and quality of instruments for self-regulation training programs. All interventions were conducted after 1992 at the elementary school level within a classroom setting and included SRL training directed by a teacher or researcher. Studies involving students with learning disabilities and those identified as gifted were eliminated. The most effective interventions were based on social-cognitive theory or a combination of social-cognitive theory and metacognition in which learners were active participants. Interventions that included both a domain-specific (e.g., mathematics, history) focus and a SRL component had the highest effect sizes. The duration of interventions did not reveal significant impact, yet the outcome effect sizes increased with a decreasing number of months. Overall, primary school students benefit from interventions that are implemented by researchers, are short in length, and include knowledge on and benefits of applying SRL strategies (Dignath et al., 2008).
Continuing their study of self-regulation programs and expanding to include a wider range of student age, Dignath and Büttner (2008) conducted two separate meta-analyses to investigate the impact of various SRL training programs on academic achievement, cognitive and metacognitive strategy use, and motivational aspects. One meta-analysis included 49 studies focused on primary students, and the other included 35 studies focused on secondary school students. Criteria for selecting the studies was as follows: all studies occurred after 1992, involved more than a single session, contained direct SRL strategy instruction in terms of informed training, had a pre-and post-control group design, included at least 10 students, and were conducted in an educational setting. Interventions with training on motivational and metacognitive reflection, such as planning, monitoring, evaluation, and self-regulation, led to larger effect sizes than those focused solely on cognitive strategies, such as processes used to encode information (e.g., copying, underlining, outlining). Additionally, larger effect sizes occurred when researchers, rather than classroom teachers, conducted the interventions and when the intervention was based on metacognitive learning theories, including knowledge about SRL strategies and the benefit of using them. Studies that extended over time and those that provided feedback to students in how to monitor, evaluate, and reflect led to higher effect sizes. Modeling was important at the primary levels and less important for older secondary school levels. Overall, the training programs for older students that incorporated both metacognitive strategies and complex cognitive strategies and reflection led to higher effect sizes (Dignath & Büttner, 2008).

The meta-analyses provide the following supportive evidence, which informs intervention design. First, students benefit from direct instruction of SRL strategies at all
age levels. Second, the best results occur when interventions are researcher-presented and contain content that combines information and instruction on SRL strategies and cognitive strategies. Third, even though the length of intervention varied, modeling and support led to more effective use of SRL strategies and to an increased positive impact on academic performance (Dignath & Büttner, 2008; Dignath et al., 2008; Hattie et al., 1996).

**Interventions for Fostering Self-Regulated Learning**

Shifting from meta-analysis to a discussion of specific research will help inform the design of interventions aimed to support student learning. The first focus is on learning support interventions for adolescents. Some of this research occurred within the structure of specific content areas, and others offered stand-alone programs. Some interventions’ content included many SRL strategies, and others narrowed the content to specific subprocesses of SRL. As the context of the proposed research is an academically rigorous college-preparatory school, learning support interventions at the college level will also be considered. The goal of this review will be to look for research characteristics that increase the effective use of SRL as a means to support learning.

**Research focused on adolescent participants.** To encourage the use of metacognitive strategies and self-reflection, Askel-Williams et al. (2010) studied the effect of students’ development of cognitive and metacognitive strategy use when instruction was explicitly embedded within a science curriculum. To encourage content acquisition and SRL, the researchers conducted an introductory lesson on learning strategies. Teachers then embedded a SRL activity with a scaffolding tool. Specifically students responded to a brief, written-response protocol and answered open-ended
questions aimed to assess their focus, their ability to process information, summarize content, and monitor their understanding. The study continued over three academic terms within one school year, in which each term was 9-11 weeks in length. The use of the brief written-response protocol encouraged the development of both academic content and self-regulatory skills. Positive outcomes were evident for attention focusing as well as diagramming and creating concept maps for content knowledge (Askell-Williams et al., 2010).

Other interventions have leveraged the power of scaffolding tools to encourage SRL, specifically two research projects focused on cognitive and SRL processes in a Grade 7 mathematics classroom in an urban setting for 1 year (Bell & Pape, 2014; Pape, Bell, & Yetkin, 2003). To encourage SRL, Pape and colleagues (2003) worked with Grade 7 mathematics students on strategic planning and self-evaluation. Additionally, the teachers incorporated SRL practices by embedding support within mathematics instruction. The use of a strategy observation tool, adapted from Zimmerman’s (1989) cyclical model, encouraged students to document their study plans (forethought), then monitor and record how they prepared (performance control and self-observation), and finally reflect on and make plans for their performance (self-reflection). To encourage forethought, students planned their approach to assignments and tests, noting their prediction of scores as well as their confidence in achieving that goal. The students recorded the approach with which they studied for the quiz. After receiving their quiz score, the students graphed the score, reflected on their result, and planned any strategy adjustment for subsequent quizzes. In addition to the use of these individual observation tools, the students engaged in whole-class discussion and one-on-one discussions with the
teacher, in which topics included strategies, support, and behavior. Teachers stressed the causal relationship between their actions and their results. The researchers collected field notes, videotapes of class sessions, and student notes on the strategy observation tool. The development and use of self-regulation was supported through classroom discussions and the use of scaffolding tools. Additionally, students engaged in self-regulated and strategic behavior when given explicit training and individualized guidance (Bell & Pape, 2014; Pape et al., 2003).

To test whether adolescents might benefit from instruction on metacognitive skills, Zepeda, Richey, Ronevich, and Nokes-Malach (2015) designed a 6-hour intervention to teach planning, monitoring, and evaluation of the learning process. A total of 49 students from two Grade 8 physics classes participated in the study and completed individual packets focusing on problem-solving practice. The researchers randomly assigned the students to two groups. Their teacher followed a script to aide in treatment fidelity and was unaware of which students were in each group. Both groups completed extensive problem-solving practice, and one group also completed activities aimed to build self-regulatory skills. Specifically, members of this experimental group answered embedded questions regarding their planning, monitoring, and evaluation. All students took pre- and posttests assessing metacognitive skills, motivational factors, and declarative knowledge. The students who received instruction on metacognition had a higher level of motivation and stronger results on a conceptual physics test as well as a self-guided learning activity. Of note, students gained SRL skills through direct instruction and embedded activities within a limited time frame (Zepeda et al., 2015).
Stand-alone courses have also shown to be an effective approach to engage students in SRL strategy use. Cleary and Zimmerman (2004) developed the Self-Regulation Empowerment Program (SREP) to encourage adolescents to increase and to improve the use of self-regulation strategies in the learning process. Designed for small group interaction, the SREP was an 11-week course with 23 sessions, each 50 minutes in length. Participants were Grade 9 students enrolled in honors or standard classes who had below average biology test scores. Students received training on how to use strategies that empowered them to be self-directed learners, or students who are self-sufficient and independent. The SREP includes three foci: student empowerment, the student’s repertoire of learning and study strategies, and the use of the SRL cyclical feedback loop. Topics in the SREP include goal setting, strategic planning, strategy training, and self-reflection; strategy training included concept maps and mnemonic devices (Cleary, Platten, & Nelson, 2008). Cleary and Zimmerman employed a mixed methods, pre- and posttest design to assess changes in students’ strategic use, motivation, beliefs, and test performance. A comparison group was used to assess the effectiveness of the SREP. Those students involved in SREP showed positive academic improvement over those from the comparison group. In addition, the students involved in SREP approached their work with more regulatory and strategic behavior. Teachers, parents, and students also perceived SREP as a highly favorable experience. Many areas of future research can be considered, including the use of SREP across a diverse group of students with varying academic achievement (Cleary et al., 2008; Cleary & Zimmerman, 2004). Aligning SRL interventions to the topics presented in the SREP would inform content design and approach.
In another intervention involving a stand-alone study skills course, Brigman, Webb, and Campbell (2007) evaluated the benefits of a program aimed to increase academic and social competence for students ($N = 220$) in Grades 5, 6, 8, and 9 from 12 schools. Students from six schools enrolled in a school counselor-led study success skills program with a curriculum of cognitive, social, and self-management skills. The students attended three 45-minute initial lessons and received training in goal setting, progress monitoring, and chunking information as well as anger and anxiety management and cooperative working skills. After the program’s conclusion, the school counselors provided weekly follow-up sessions for 8 weeks and then four monthly booster sessions. Using data from the school district, the researcher matched members of this treatment group to students who did not participate in the study skills course from the other six schools. Student achievement scores were compared to assess the effectiveness of the study skills program. Differences were not detected in reading scores, yet there were significant gains in mathematics proficiency and substantial improvement in behavior through this stand-alone study skills course (Brigman et al., 2007).

Some study skills interventions incorporate a variety of SRL subprocesses, and other interventions focus more specifically on narrower content. Kitsantas, Reiser, and Doster (2004) worked with high school students to investigate how goal setting, organizational signals, and self-evaluation impact a variety of affective outcomes, including self-efficacy, satisfaction with academic performance, and attributions of success, or lack of success, in acquiring skills. Using pre- and posttests, the researchers employed an experimental $2 \times 2 \times 2$ design. Students completed an assignment in a computing class after being assigned to one of eight possible treatment conditions based
on independent variables of setting instruction goals (process vs. outcome), self-evaluation (presence vs. absence), and organizational signals (presence vs. absence). The eight possible treatment conditions included goals alone, each goal with evaluation, each goal with organizational signals, and each goal with the two other independent variables. The goals were operationalized by instructions defining successful completion either through the result of a successful product (outcome) or successfully executing the skills (process). Those with the self-evaluation prompt compared their work to an example; organizational prompts helped students order the procedures.

The use of self-evaluation prompts had a positive effect on outcome performance, and self-evaluation was linked to achievement outcomes and one’s satisfaction and causal attributions of performance. Additionally, goal setting and self-evaluation improved the students’ satisfaction with their overall performance. The intervention was short in length, with participants completing the tasks in three sessions, each taking one hour. While the activities were structured within a specific context, both goal setting and self-evaluation had positive effect on the student’s learning experience (Kitsantas et al., 2004).

Shifting to other SRL subprocesses that might impact achievement and motivation, two studies used experimental designs and a control group for grade-school students (Stoeger & Ziegler, 2008; Tzohar-Rozen & Kramarski, 2014). In both studies, researchers trained teachers to model SRL strategies for a period of five weeks. Stoeger and Ziegler based the training content on Zimmerman, Bonner, and Kovach’s (1996) Developing Self-Regulated Learners and included strategic planning, time-management, and self-evaluation. Tzohar-Rozen and Kramarski’s study focused on metacognitive
strategies and motivational-emotional aspects of self-regulation. The metacognitive strategies included instruction on self-awareness of cognitive understanding and strategy and motivational-emotional regulation involved the student’s thoughts regarding effort, persistence, or emotions during academic tasks. All participants completed premeasures to assess metacognition and motivation before being split into two groups, one that focused on metacognitive strategies and the other on the motivational-emotional aspects of self-regulation. The students who received training on SRL strategies showed significantly positive improvement in time-management tasks, increases in perceptions of self-efficacy and motivation (Stoeger & Ziegler, 2008), and an increase in metacognition variables as well as stronger academic work (Tzohar-Rozen & Kramarski, 2014). Coaching and mentoring aided the use of self-reflection and self-evaluation. In both studies, the teachers encouraged and modeled the use of the strategies. Academic achievement, self-regulation, and metacognitive practices improved, yet, academic growth weakened toward the end of training (Stoeger & Ziegler, 2008; Tzohar-Rozen & Kramarski, 2014). Both studies recognized that there was no evidence that the training model was the source of improvement and that the increased focus on strategies might have led to the positive results.

There have been many studies that focus on SRL interventions for adolescent students. Students benefit from SRL, whether through direct instruction in stand-alone study skills courses or embedded with course context (Brigman et al., 2007; Cleary & Zimmerman, 2004; Zepeda et al., 2015). Leveraging scaffolding tools encourages self-monitoring and self-evaluation (Askel-Williams, 2010; Pape et al., 2003). Coaching and mentoring further supports SRL development and use in students (Stoeger & Ziegler,
One can theorize that an intervention design that includes intentional instruction on self-regulatory skills, is a stand-alone study skills course, and presented by a researcher can support learning and have positive effects on student outcome.

**Research extended to the college level.** The focus of research discussed thus far involved adolescents at the upper elementary school or secondary school level. Studies that focus on college level study skills courses with a SRL component can inform interventions to support student learning in an academic college-preparatory learning environment. Tuckman and Kennedy (2011) investigated how participation in a semester-long, online, stand-alone study skills course impacted learning for undergraduates whose academic ability and performance was in the bottom two quartiles of their class. The subjects in the experimental group completed a computer-assisted study skills course and were then matched with non-participants of similar background and ability. The self-paced course contained 10 modules focused on four learning strategies, eight substrategies and 200 learning and performance activities. The skills included self-regulation, self-confidence, and responsibility, as well as strategies to learn from lecture and text, to prepare for exams, and to manage the academic load as outlined in Tuckman, Arby, and Smith’s (2008) manual *Learning and Motivation Strategies, Your Guide to Success*. All skills were directly applied to course content. After the students completed the course, their GPAs were statistically significantly higher than their GPAs from previous terms when compared to those from the non-participant group. Additionally, more participants graduated than their matched counterparts in the non-participant group (Tuckman & Kennedy, 2011).
Tuckman and Kennedy (2011) noted that study skills embedded directly on content material might support learning and increase academic performance. To address the impact of learning strategies for specific course content, Nordell (2009) offered a one-hour advanced study skills workshop for students enrolled in a college level biology class. Following the completion of their first exam, a total of 68 students voluntarily attended the workshop, which focused on learning how to learn and included self-assessment and strategy modifications. Content and SRL learning strategies included learning in and out of the classroom, previewing chapters before lectures, passive versus active reading, self-assessment of knowledge, the use of concept maps, and time management. After eliminating unequal variance between the first exam and the second exam, Nordell analyzed changes in student performance and compared the students’ scores. Students who attended the workshop performed significantly better than those who did not. Additionally, students identified increased preparation for lectures and planning as having the most positive impact on their learning. As the study skills course was optional, Nordell notes that those who attended the workshop were high achieving and might have improved despite the study skills course. Students who earned lower grades on the first exam and were, therefore, most in need of learning support did not attend the workshop (Nordell, 2009). The results might have differed if the characteristics of the participants were more varied, but the study skills course does offer a model for an intervention that supports learning.

Similar to research involving adolescent students, some interventions focus on specific SRL strategies within the structure of a specific class. In Bercher’s (2012) study, college students enrolled in a semester-long anatomy class utilized a scaffolding tool, a
series of self-assessment surveys, to encourage self-monitoring and self-reflection. At the end of each lab, participants completed a required self-assessment sheet that encouraged self-evaluation of content knowledge. The student self-assessment sheet contained a list of objectives from course content, and students identified their level of mastery. To determine if the self-assessment sheet impacted learning, study practices, and academic performance, the researcher conducted a series of interviews. The majority of the students reported that completing the self-assessment surveys improved their preparation and increased achievement. Bercher (2012) concluded that the self-assessment survey on content objectives served as a self-monitoring tool and provided cognitive feedback that helped students identify when to continue or to stop studying. Students also noted increased awareness of learning strategies and an increased sense of control in their learning process (Bercher, 2012). The specific SRL focus of the intervention and the use of scaffolding tools are key considerations from this research.

Aligned with Bercher’s (2012) use of a scaffolding tool, Kurt (2007) developed an online learning log through which 24 college students in an advanced reading course reflected on their awareness, organization and planning, and monitoring and evaluation of their learning process. Over the course of a semester, students used the online learning log to answer open-ended questions focused on learning events. Using a qualitative approach to investigate if the process encouraged SRL, Kurt coded the participants’ comments for themes that included awareness, organization and planning, monitoring and evaluations. Participants made short-terms goals, requested additional information on course content, and changed study approaches. Kurt (2007) concluded that as students
evaluated their learning process, the ability to regulate their learning increased. The researcher also called for additional research on scaffolding tools that support SRL.

An integral component of SRL’s forethought stage, goal setting served as the topic of one research project. Cheung (2004) employed a mixed method design with 182 undergraduate students to study the impact that setting goals might have on academic improvement and success in a computing class. Each student predicted their expected grade for the course; their actual grade was then compared to their prediction. Those students who expected a higher outcome tended to score higher at the end of the term. The researchers held smaller focus groups to identify the source of the prediction. The focus group discussion revealed that students based predictions on several factors: their studying effort, their perspective of favorite course content, and their self-awareness of skill level entering the course work. Prior knowledge of course content played a key role in participants’ predictions (Cheung, 2004).

During the focus groups, Cheung (2004) investigated why students tended not to set goals. Participants explained that they did not know how to set goals and shared a belief that goal setting had little effects on academic performance. Yet, when students were guided to set goals, they increased motivation as well as began to set strategic directions in their studies. Cheung recommends that students practice goal setting due to its impact on motivation, however, goal setting does not guarantee academic success. The study shows that the use of appropriate performance strategies supports learning and leads to positive academic outcomes (Cheung, 2004).

Within the research focused on adolescents as well as college level students, several common characteristics emerge. First, there is positive growth in academic
achievement when students are given knowledge of SRL strategies and become active participants in their learning (Askell-Williams et al., 2010; Bell & Pape, 2014; Cleary & Zimmerman, 2004). Second, use of prompts and scaffolding tools encourage the use of SRL strategies (Bell & Pape, 2014; Bercher, 2012; Zepeda et al., 2015). Third, students benefit from SRL strategy instruction that is either embedded in specific classroom settings or included in stand-alone study skills classes. Fourth, mentoring and coaching can support the effective use of SRL strategies (Bell & Pape, 2014; Pape et al., 2003; Stoeger & Ziegler, 2008; Tzohar-Rozen & Kramarski, 2014).

Mentoring as Support for SRL Interventions

A component to consider for intervention design is the manner in which students receive support. Research reveals that mentoring can be used as a means to provide such support. Núñez, Rosário, Vallejo, and González-Pienda (2013) focused their research on the mentoring component in a middle school program designed to foster student use of SRL strategies. Using a quasi-experimental design, Núñez et al. (2013) researched the performance of 94 seventh graders within four classrooms. The classrooms were randomly split into a treatment and a nontreatment comparison group. Students in the treatment group enrolled in a weekly one-hour study skills with mentoring support. The comparison group did not participate in the SRL training or mentoring program. SRL content included goal setting, self-monitoring, self-reflection, strategic planning, and organizational strategies. Researchers trained the study skills instructors in SRL processes, strategies, and activities as well as mentoring practices. The mentoring practices encouraged students to reflect on their understanding of course content and the use of SRL strategies. The researcher compared academic achievement between the two
groups at baseline and then 3, 6, and 9 months later. While the change in academic performance was positive for both the experimental group and the comparison group, the magnitude of this positive change for the participants in the academic mentoring group was greater than that of the control group. The researchers considered this result as an indication that the experimental group’s participants had an increased ability to handle school demands (Núñez et al., 2013).

SRL mentoring has also been investigated at the college level. Using a qualitative design, Renzulli (2015) studied the effectiveness of a learning skills course with students on academic probation. Nine students were randomly chosen from a group of 116 at-risk students. The sample size was kept small so that the researcher could interact with each individual. The course met twice a week for three weeks. Course content included self-regulation strategies, time management procedures, and cognitive strategies such as self-testing, note taking, and goal setting. After the conclusion of the course, the participants reported an increased amount of studying as well as a willingness to try different study approaches, including note cards and self-testing. The participants also identified time management and self-regulation as critical strategies that improved performance. Renzulli concluded that instruction on strategies only partly addressed learning support. Students also needed time to learn and practice the skills as well as mentoring for guidance and encouragement to use the various strategies (Renzulli, 2015).

Academic coaching or mentoring continues to be an important consideration when researching a student’s use of learning strategies. Volet (1991) conducted a 13-week study with university students enrolled in a computer science class. The research design included an experimental and a control group of 28 students each. Volet
introduced tutorial sessions to an experimental group who received instruction on metacognitive strategies for one hour each week. Teachers and tutors then modeled these strategies and coached participants. Strategies involved a five-step process including a metacognitive process of monitoring and evaluation, problem definition, conversation and collaboration, advanced planning, and creating visual representations of work required. The control group also attended tutoring sessions, but the tutors acted as consultants and did not model or coach strategies during the sessions. A significantly greater percentage of the students in the experimental group, those who were coached on strategies, passed the course than the percentage of students who were in the control group. Additionally, the students who were coached demonstrated an increased ability to apply the course content than those in the control group. The coaching had a long-term effect: the students who received the treatment continued to study computer science, and more students in the experimental group passed the second level course than students from the control group (Volet, 1991).

Even though this research indicates how coaches can foster metacognition, there were several limitations. The tutors who did not model metacognitive skills could have guided students to make connections and achieve a higher degree of success without modeling metacognitive skills. The study also did not address influences of a student’s natural growth and maturation as well as other supports that might have impacted a student’s performance. The study did, however, indicate that modeling and coaching of relevant metacognitive strategies might increase content knowledge and application both in the short and the long term (Volet, 1991).
Cuing strategies is an extension of modeling and coaching. In a study designed by Conner (2007), a classroom teacher cued metacognitive strategies to high school students preparing to write an essay for a national biology exam in New Zealand. Strategies focused on identifying prior knowledge, self-questioning on required content, and monitoring progress and comprehension. All students recorded observations in journals. Conner used an interpretative case study approach and interviewed the students to identify skills used during the learning process. Results indicated in-depth knowledge of their learning strengths and weaknesses, the development of strategies to address challenges, and increased reflection practices. The more aware the student was in the learning process, the higher the essay score. The teacher played an important role by providing guidance. Conner concluded that when the teacher cued students to use self-regulatory skills, students took more responsibility in their learning, and their academic performance increased (Conner, 2007).

These studies suggest that to build self-regulatory skills, mentoring and coaching might be an integral part of guiding a student’s effective use of SRL strategies (Conner, 2007; Núñez et al., 2012; Renzuilli, 2015; Volet, 1991). To provide an overview of the literature presented in this chapter, Table 3.1 outlines specific components of each study. As the table indicates, several research projects combine SRL instruction with cognitive strategies. In fact, results from the meta-analyses suggest that the most effective learning support combines SRL instruction with options for cognitive strategies. When designing an intervention geared to provide learning support to students, identifying the appropriate cognitive strategies to include is an important consideration. Research can inform the selection of these cognitive strategies.
Table 3.1

Summary of Research on Learning Support Interventions

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Age</th>
<th>Delivery</th>
<th>Duration</th>
<th>Content</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Askell-Williams, Lawson, &amp; Skrzypiec (2012)</td>
<td>Secondary School</td>
<td>Stand Alone</td>
<td>Science</td>
<td>Year</td>
<td>SRL X, Specific skill(s) X</td>
</tr>
<tr>
<td>Bell &amp; Pape (2014)</td>
<td>Grade 7</td>
<td>Embedded</td>
<td>Year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bercher (2012)</td>
<td>Undergraduate</td>
<td>X</td>
<td>Anatomy</td>
<td>Semester</td>
<td>X</td>
</tr>
<tr>
<td>Brigman, Webb, &amp; Campbell (2007)</td>
<td>Grades 5, 6, 8, 9</td>
<td>X</td>
<td>SSS</td>
<td>3 45-min with follow-up</td>
<td>X, X, X</td>
</tr>
<tr>
<td>Cleary, Platten &amp; Nelson (2008)</td>
<td>Grade 9</td>
<td>X</td>
<td>Biology</td>
<td>11 weeks</td>
<td>X</td>
</tr>
<tr>
<td>Kurt (2007)</td>
<td>Undergraduate</td>
<td>X</td>
<td>Reading</td>
<td>Semester</td>
<td>OLL</td>
</tr>
<tr>
<td>Nordell (2009)</td>
<td>Undergraduate</td>
<td>X</td>
<td>Biology</td>
<td>1 Session</td>
<td>X</td>
</tr>
<tr>
<td>Núñez, Rosário, Vallejo, González-Pienda (2013)</td>
<td>Grade 7</td>
<td>X</td>
<td>School Year</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pape, Bell, Yetkin (2003)</td>
<td>Grade 7</td>
<td>Math</td>
<td>Year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Age</td>
<td>Delivery</td>
<td>Duration</td>
<td>Content</td>
<td>Components</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
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<td>-----------------------</td>
</tr>
<tr>
<td>Renzulli (2015)</td>
<td>Undergraduate</td>
<td>X</td>
<td>3 weeks</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stoeger &amp; Ziegler (2008)</td>
<td>Grade School</td>
<td>X</td>
<td>Year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tuckman &amp; Kennedy (2011)</td>
<td>Undergraduate</td>
<td>X</td>
<td>Semester 10 modules Year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tzohar-Rozen &amp; Kramarski, (2014)</td>
<td>Grade School</td>
<td>X</td>
<td>Year</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Volet (1991)</td>
<td>Undergraduate</td>
<td>X</td>
<td>13 weeks</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zepeda, Richey, Ronevich &amp; Nokes-Malach (2015)</td>
<td>Grade 8</td>
<td>Physics</td>
<td>6-hours</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Cognitive Strategies

Within Zimmerman’s (1989) model for SRL, self-evaluation sets the stage for adjusting strategies and setting new goals. An extension of the SRL cycle, the SRL Learning Circle illustrates the relationship between the need to strategize and to adapt practices to affect change (Stoeger & Ziegler, 2008; Zimmerman et al., 1996) (see Figure 3.2). The results of the meta-analysis indicate that the most effective study skills courses combine SRL strategies with cognitive strategies. Research can inform which cognitive strategies to include in an intervention aimed to support learning. This review will begin with a meta-analysis and then shift to literature focused on specific strategies.

Figure 3.2 SRL Learning Cycle

Figure 3.2. The four steps of Zimmerman’s (1996) SRL learning cycle in which one step informs the next. Adapted from “Evaluation of a Classroom Based Training to Improve Self-Regulation in Time Management Tasks During Homework Activities with Fourth Graders,” by H. Stoeger and A. Ziegler, 2008, Metacognition and Learning, 3(3), p. 208. Copyright 2008 by Springer Science + Business Media, LLC.

To investigate the effectiveness of study strategies in postsecondary settings, Hadwin and Winne (1996) conducted a literature review of empirical studies to identify effective learning tactics that could be embedded within course content to support student
learning. The strategies also supported SRL and offered strategic approaches for students. The researchers restricted the studies to those in which postsecondary students used a strategy within the context of a course. Specifically, these strategies were embedded within the structure of the class and students were required to practice them within authentic contexts. From a total of 52 studies, only 16 projects aligned with the meta-analysis focus. Hadwin and Winne cautioned that strategies were best acquired when used and modeled within specific courses, and they recommended that concept mapping, self-questioning, and monitoring performance and effort be included in study strategy courses due to their positive impacts on student achievement. Blending academic content with study strategies was an important consideration when designing content for stand-alone study skills interventions (Hadwin & Winne, 1996).

In a more recent meta-analysis Dunlosky et al. (2013) evaluated 10 often used strategies shown to improve student academic outcome. Techniques included elaborative interrogation, self-explanation, summarization, keyword mnemonic, imagery for text, practice testing, rereading, highlighting, and distributed and interleaved practice. To select these strategies, the researchers considered whether students could implement the strategy across domains and without guidance from teachers. The researchers analyzed these strategies in terms of implementation issues, ease of use within a learning condition, materials needed, student characteristics, as well as effectiveness in educational situations. Some techniques (e.g., rereading, highlighting) have little impact on student academic outcomes because these activities do not require active participation; ironically, students use these strategies frequently. Strategies that increase student engagement, such as elaborative interrogation or self-explanation, have a positive impact
on learning. The strategies identified in this meta-analysis can be implemented without teacher support, however this research includes meager analysis related to informing students and teachers of the strategies usability (Dunlosky et al., 2013). Further investigation on specific strategies could inform the content of interventions aimed to support learning.

**Studies on specific cognitive strategies.** Students who use strategies to retain information from lectures and classroom settings have academic gains (Wong, 1985). Research guides the identification of cognitive strategies that have positive impacts on academic achievement: self-questioning (King, 1991, 1992; Wong; 1985), mind maps (Tanriseven, 2014), and matrix organizers with self-monitoring prompts (Kauffman, 2004).

King (1991, 1992) researched a variety of strategies through which students learn from lecture. Using an experimental design, King worked with Grade 9 students who used self-questioning, summarizing, or notetaking-review, and then compared the students’ academic outcome results. For the purposes of this research self-questioning was described as a cognitive strategy by which students self-test to monitor their learning and understanding of content. The students, enrolled in an honors world history class, attended two 45-minute sessions and received training in the self-questioning method. The students practiced the cognitive strategy and then took a test on their understanding of the course content. Students who used the self-questioning strategy showed better understanding of the classroom lectures than students who independently reviewed class notes (King, 1991).
In another stage of her research, King (1992) compared the use of self-questioning, summarizing, and notetaking-review with students’ ability to gain understanding from lectures. The study involved undergraduates enrolled in a remedial reading and study skills course. Students were randomly assigned to one of three conditions. Two of the groups received training in either self-questioning or summarizing. The students using the summarizing strategy wrote original overviews of the lecture. The third group served as a control group since they received no training and relied on their existing notetaking-review approach. The intervention design included a pretreatment, posttreatment, and retention tests. Performance on content tests was stronger for students who used the self-questioning and summarizing methods both for the posttreatment and retention tests. Those students using self-questioning outperformed those who used the notetaking-review method. Additionally, students reported that both self-questioning and summarizing were helpful for their learning process (King, 1992). These results were similar to an investigation by Wong (1985) who evaluated the use of self-questioning as a cognitive strategy for Grade 9 students. With only 1 hour of instruction, students who used self-questioning outperformed those who did not (Wong, 1985). Due to this positive impact on academic performance found in research, self-questioning is a viable cognitive strategy to be included in interventions focused on learning support.

While self-questioning is one option for strategy choice, identifying other study approaches would increase the variety of strategy options and could enhance the design of an intervention. Tanriseven (2014) suggests another strategy option, mind maps. Students use mind maps to create a visual representation of the main ideas for a topic and
then show relationships between and among any subthemes. With a primary focus on how self-regulation skills impact task planning, Tanriseven worked with 60 teacher candidates enrolled in a teaching theory course. These teacher candidates received three hours of instruction of task planning through the use of mind maps to plan and regulate information. This group then continued to use mind maps throughout the 13-week semester. This quasi-experimental design included a control group that did not receive instruction on creating mind maps. The two groups showed little difference on a pretest that assessed self-regulation, yet the experimental group that employed mind maps showed stronger task planning as well as improved SRL skills. These SRL skills included planning, monitoring, and regulating cognitive control. As the sample was teacher candidates, this study might be considered limited in scope. The participants were already predisposed to learning theory and learning strategy. The research, however, offers a practical approach that introduces a cognitive strategy that encourages self-regulatory and metacognitive skills (Tanriseven, 2014). Additionally, mind maps are closely aligned to concept maps that were shown to be effective in study skills courses (Askell-Williams et al., 2012; Cleary & Zimmerman, 2004; Tuckman & Kennedy, 2011; Nordell, 2009). Mind maps, therefore, might be a consideration for a strategy in an SRL intervention.

Finally, to increase student SRL strategy use when taking notes, Kauffman (2004) investigated cognitive strategy use, metacognitive processing, and motivational beliefs. A total of 119 undergraduate students read a 3,532-word chapter on educational measurement and then took either free-form notes or used a matrix organizer that identified topics and categories from the reading. Additionally, when reading the online text, some participants received self-monitoring prompts to assess their understanding as
well as academic self-efficacy; the prompts occurred three times in one hour. After reading the chapter, the students completed a series of tests of their declarative knowledge. Students who received the self-monitoring prompts and used matrix notes achieved higher scores compared to those who did not receive prompts. In terms of note taking, those completing the matrix organizer achieved higher scores than did students who took free-form notes (Kauffman, 2004). This research indicated that structured note taking and self-monitoring strategies support student achievement (Kauffman, 2004). Including a structured note-taking method, such as Tanriseven’s (2014) use of the mind map, combined with self-monitoring practices should be considered in the curricular design of the study skills workshop.

When considering cognitive strategies to accompany SRL strategies within an intervention, meta-analysis guides the process and identifies strategies that might be considered (Dunlosky et al., 2013; Hadwin & Winne, 1996). The ineffectiveness of some strategies, such as underlining, highlighting, and notes review, might be discussed (Dunlosky et al., 2013; King, 1992), and other strategies could be reviewed and encouraged. The cognitive strategies to consider include self-questioning (Hadwin & Winne, 1996; King, 1992; Wong, 1985), concept or mind maps (Tanriseven, 2014), and matrix organizers with self-monitoring scaffolds (Kauffman, 2004).

**Overview of Proposed Intervention and Conclusions**

Interventions that foster and encourage the effective use student SRL skills provide critical information to researchers who design similar studies. While there is a plethora of research available on specific self-regulation study skills and how these strategies impact learning and achievement (Dignath & Büttner, 2008), none take place in
the independent school setting where the academic culture is unique and academic expectation is high (Kane, 1991). Additionally, the research on study skills courses reveals the benefits of student involvement in these experiences (Brigman et al., 2007; Cleary et al., 2008; Tuckman & Kennedy, 2011). Aligning the intervention with recommendations from research to include both SRL as well as cognitive strategies (Dignath & Büttner, 2008 Dignath et al., 2006) would guide the design.

The intervention should include intentional instruction related to the SRL cycle (Zimmerman, 1986, 1989) and review strategies focused on goal setting, strategic planning, self-reflection, self-evaluation, and time management (Brigman et al., 2007; Cleary & Zimmerman, 2004; Tuckman & Kennedy, 2011). The use of scaffolds or prompts would aide the development and use of SRL strategies (Askell-Williams et al., 2012; Bell & Pape, 2014; Zepeda et al., 2015). As with the online learning log employed by Kurt (2007), the development of online tools should be considered. Another important component will be the role of a mentor to encourage, support, and foster student use of SRL strategies (Núñez et al., 2012; Renzuilli, 2015; Volet, 1991).

Finally, incorporating cognitive strategies into the intervention aligns with research recommendations to merge SRL strategies and cognitive strategies. Recommended strategies include self-questioning (Hadwin & Winne, 1996; King, 1991, 1992; Wong, 1985), mind or concept maps (Dunlosky et al., 2013; Tanriseven, 2014), and matrix organizers with self-monitoring prompts (Kauffman, 2004). Since the time frames on the research varies from situation to situation, and the intervention will need to respect the available time at the targeted school. Due to the complex nature of developing and acquiring SRL strategies, students who participate in the intervention would benefit
from follow-up support over a period of time (Bell & Pape, 2014; Brigman et al., 2007; Pape et al., 2003; Tzohar-Rozen & Kramarski, 2014).

In summary, research has consistently shown that interventions focused on the effective use of SRL strategies supports student learning and have a positive impact on achievement (Bercher, 2012; Dignath & Büttner, 2008; Tanriseven, 2014). For the intervention design, content should include instruction on the three phases of SRL (Zimmerman, 1989). For the forethought phase, content could include goal setting, time management, and strategic planning approaches (Dignath & Büttner, 2008; Renzulli, 2015; Stoeger & Ziegler, 2008; Tuckman & Kennedy, 2011). For the performance phase, instruction and modeling of cognitive strategies could prove beneficial (Dunlosky et al., 2013; Kauffman, 2004; King, 1991, 1992). For the self-reflection phase, self-evaluation frameworks and strategies could be provided (Bercher, 2012; Cleary & Zimmerman, 2004; Cleary et al., 2008). Recognizing that students benefit from feedback when developing SRL use (Conner, 2007; Schofield, 2012; Volet, 1991), the intervention could include a means by which a student’s use and growth with SRL will be monitored and encouraged (Núñez et al., 2012; Renzuilli, 2015).

By addressing these considerations, an intervention based on a study skills workshop for upper school students at an independent school would add to this field of study and could potentially guide curricular and program redesign that fosters SRL to support and enrich the learning experience and positively impact academic outcome.
Chapter 4

Intervention Design: Method and Procedure

To address a growing need to support learning among students enrolled in an academically challenging independent school setting, the intervention involved the implementation of a study skills workshop aimed to increase self-regulation skills and strategic study approaches. As discussed in Chapter 3, many SRL strategies support student learning and can impact academic performance. Based on research and the needs assessment findings at the targeted independent school, the intervention aimed to introduce the three phases of SRL and encourage the students to use a variety of learning strategies. These strategies included goal setting, time management, and strategic planning strategies (Dignath & Büttner, 2008; Tuckman & Kennedy, 2011), verbalization, self-questioning (Dunlosky et al., 2013; King, 1991, 1992), reflective note taking (Kauffman, 2004; Tanriseven, 2014), and self-evaluation of content knowledge to engage self-reflection (Cleary et al., 2008; Pape et al., 2003). These strategies were presented in a stand-alone study skills workshop for members of the freshman class at the independent school.

Purpose of the Study

The purpose of this study was to investigate the impact of participation in a study skills workshop on a student’s independent use of learning strategies and academic performance. The research study tested the hypothesis that students who participated in the study skills workshop would increase awareness and use of SRL strategies and would differ from a treatment-naïve cohort in terms of their academic achievement. The research questions for this research study addressed both process and outcome
evaluations. The research questions included:

Process Research Questions:

RQ1: To what extent did the implementation of the study skills workshop align with the intended research design?

RQ2: What was students’ overall experience with the study skills workshop?

RQ2A: What was the students’ self-reported level of engagement during the workshop?

RQ2B: What were the students’ perceptions of the quality of instruction and subsequent support?

RQ2C: What components of the study skills workshop do students report as having the greatest value?

Outcome Research Questions:

RQ3. To what extent does participation in the study skills workshop change a student’s knowledge and practice of self-regulated learning?

RQ3A. What are the students’ self-reported use of and usefulness of the SRL strategies?

RQ3B. To what extent does participation in the study skills workshop affect the students’ SRL awareness and SRL strategy use?

RQ4. To what extent does participation in the study skills workshop impact the student’s academic performance when compared to students who did not participate in the intervention?

Research Design

A quasi-experimental and embedded mixed methods design was employed
(Creswell & Plano Clark, 2011). The design included pre- and posttests and a naïve treatment group (Henry, 2010; Shadish, Cook, & Campbell, 2002). The combination of quantitative and qualitative data provided a more complete understanding of the intervention’s effect on the students’ learning process and academic achievement as well as the students’ experience with the intervention. The mixed-method design included quantitative data from pre- and posttest measures as well as qualitative data collected from focus groups, an observer report, and researcher field notes. The logic model for the intervention illustrates the relationships between student inputs, activities, outputs, and the short-, medium-, and long-term outcomes (see Appendix G). The outcomes included SRL knowledge, use of SRL strategies, SRL skills, an ability to manage academic requirements, and academic performance.

To conclude that an outcome was the result of a specific intervention, one must analyze the fidelity of implementation of the intervention. Should expected outcomes occur, high fidelity of implementation helps the researcher conclude that the intervention led to the expected outcomes. An overview of implementation of fidelity is provided to inform the research design.

**Fidelity of implementation**

Fidelity of implementation refers to the extent of a match between how an intervention is planned and how the intervention is delivered (Dusenbury, Brannigan, Falco, & Hansen, 2003; Nelson, Cordray, Hulleman, Darrow, & Sommer, 2012). Key to high fidelity, as indicated by O’Donnell (2008), is a link to high specificity in the design of the intervention. Therefore, high fidelity will occur if the study skills workshop was presented as planned, including content, pedagogical approach, the number of sessions,
the students’ attendance, and the students’ engagement. Specific indicators will guide the process of assessing the fidelity of implementation. The indicators in this evaluation plan are grouped in areas as described by Dusenbery et al. (2003) including adherence to the program, dosage, participant responsiveness, and quality of program delivery. Discussion is presented by indicator and will include how these indicators fit into the logic model and theory of treatment.

**Indicators of adherence to program design.** Fidelity in this area means that the content was delivered as designed. Specifically, the topics were covered during the sessions as modeled by research (Dusenbery et al., 2003). The students, the researcher, and an observer who attended all study skills workshop sessions provided data to measure adherence to program design. The researcher took extensive field notes to indicate details on topics presented and to note any adjustments made to the design model. Additionally, the observer monitored the content and the time on each topic to further inform adherence to program design. The students also provided feedback at the conclusion of each session.

**Indicators of intervention dose.** There were two primary indicators involving dose: the amount of time engaged in the study skills workshop and the student’s attendance (Dusenbury et al., 2003). The time allotted for each activity was carefully planned. The observer noted the actual instructional time for each concept. To address the second indicator of dose, the observer took attendance and noted if students left before the end of each session.

**Indicators of program differentiation.** To document other potential learning support or programs that may impact the outcomes noted in the logic model, program
differentiation aims to compare the course content to other learning support that the students might have received either in previous or current courses. To assess program differentiation, students identified strategies that they had used or on which they had received instruction in the past.

**Indicators of participant responsiveness.** As summarized by Dusenbury et al., (2003), investigations that focus on whether students feel respected and are engaged can measure student responsiveness. To that end, students measured their responsiveness and involvement through daily surveys and responded to inquiries in focus groups after the study skills workshop was completed. To provide additional perspectives, the researcher took note of student responsiveness in field notes.

**Indicators of program quality.** Two indicators of quality were instructor effectiveness and usefulness of the topics (Dusenbury et al., 2003). Instructor effectiveness was determined by the manner in which the researcher demonstrated the content and led the students through the course. The selection of the workshop’s content was based on previous research studies, which showed high validity (Brigman et al., 2007; Cleary et al., 2008; Dignath & Büttner, 2008; Dunlosky et al., 2013; Tuckman & Kennedy, 2011). Poor pedagogical approaches, however, could impact students’ responsiveness and ultimately affect possible outcomes. At the end of each session the students assessed their understanding of the strategies and the attainment of knowledge to apply the strategy in their studies. The quality of the program was also addressed during the first round of focus group discussions that occurred after the conclusion of study skills workshop.
Comments on the indicators to measure fidelity of implementation. These indicators, if appropriately assessed, were aligned with the theory of treatment, which linked participation in the study skills workshop with short- and long-term outcomes outlined in the logic model. Employing a mixed methods design allowed for further assessment of the fidelity of the implementation of intervention.

Outcome evaluation

As shown in the logic model, several proximal outcomes were measured: students’ knowledge and awareness of SRL, students’ use and application of SRL and cognitive strategies, and change in the students’ academic performance. Focus group interviews, responses from open-ended survey questions, academic grades, and SRL surveys were used to inform outcome results. Finally, the impact of the intervention on academic performance was examined through the use of a treatment-naïve comparison group. Quantitative data were collected and included academic grades and scores from SRL instruments.

Methods

This section includes descriptions of the treatment group and the treatment-naïve comparison group, instrumentation, and the procedure including a description of the intervention, data collection, and data analysis.

Participants

The treatment group students were members of the Grade 9 class at a prekindergarten through Grade 12 independent school in the fall of 2016. The group was 60% male and 56.7% Caucasian. The majority of the group was enrolled in accelerated mathematics (53.3%) and science (63.3%) classes, as well as art courses (60%). They
were also involved in a variety of extracurricular options including concert band (36.7%), clubs (90%), drama (20%), and out-of-school activities (70%). Some of the students were returning to the school having attended in Grade 8 and enrolled as early as prekindergarten (37%); others (26.7%) were newly enrolled students. Thirty students assented to participate in the study.

Members from Grade 10 made up the treatment-naïve comparison group. This group was 58.1% male and 80.6% Caucasian. Twenty-two percent first enrolled at the school during Grade 9 or Grade 10. Fewer treatment naïve students, than treatment group students, enrolled in accelerated classes in Grade 9 with only 25.8% in mathematics and 41.9% in science. Additionally, only 12.9% were in the concert band. The majority participated in clubs (77.4%), art (51.6%), or out-of-school activities (51.6%). Thirty-one students in this treatment naïve group assented to participate in the study.

A comparison of the demographic characteristics of the treatment and the treatment-naïve groups revealed no association between the cohorts on the basis of gender, grade enrolled at the independent school, mathematics section, science section, and ethnicity (see Table 4.1). The proportion of students did not differ within these categories across the two cohorts in all areas but ethnicity.

Table 4.1

<table>
<thead>
<tr>
<th>Demographic Characteristics of Treatment and Treatment Naïve Cohorts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Treatment $N = 30$</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Grade Enrolled at School</td>
</tr>
</tbody>
</table>

86
| Activity participation levels of the two groups are outlined in Table 4.2. |
|---|---|

Table 4.2

*Activity Participation, by Treatment and Treatment Naïve Cohorts*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Treatment</th>
<th>Treatment Naïve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N = 30 )</td>
<td>( n ) (%)</td>
</tr>
<tr>
<td></td>
<td>( N = 31 )</td>
<td>( n ) (%)</td>
</tr>
<tr>
<td>Clubs</td>
<td>27 (90.0)</td>
<td>24 (77.4)</td>
</tr>
<tr>
<td>Art courses</td>
<td>18 (60.0)</td>
<td>16 (51.6)</td>
</tr>
<tr>
<td>Music groups</td>
<td>13 (43.2)</td>
<td>8 (24.8)</td>
</tr>
<tr>
<td>Drama</td>
<td>8 (26.7)</td>
<td>1 (3.2)</td>
</tr>
<tr>
<td>Out-of-school activity</td>
<td>21 (70.0)</td>
<td>16 (51.6)</td>
</tr>
</tbody>
</table>

**Instruments and Materials**

Both instruments and materials used for this research will be described. For instrumentation, there were two critical areas. First, four instruments were used to measure the fidelity of implementation or process evaluation. Second, seven instruments were used to assess outcomes including SRL awareness, knowledge, strategy use, and
impact on academic achievement.

**Process evaluation instruments.** Four instruments were used to assess the fidelity of implementation. They included participant attendance sheet, the participant daily survey, a study skills workshop observer report, and interview protocol for the first round of focus groups.

**Attendance sheet.** An attendance sheet was used to note the actual time spent by each student in each session (see Appendix H). Data collected from this instrument measured the dosage or the time each student attended the intervention.

**Participant daily survey (PDS).** The participant daily survey was a means through which the students provided feedback after each session (see Appendix I). Questions focused on session content, the students’ level of understanding, their ability to apply the strategies, their likelihood of using the various strategies, and the perceived value of the strategies. Additionally, the students answered questions on whether they felt respected, were engaged, and found a strategy helpful. For example, using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), the students indicated their level of agreement to the following statement: “I found the information on self-regulated learning useful.” Both quantitative and qualitative data collected through this instrument provided measures on instructor effectiveness, the value of topics, participant engagement, and previous exposure to and use of workshop content.

**Study skills workshop observer report.** An observer used the study skills workshop observer report to provide feedback on differences between the intervention design and the intervention implementation (see Appendix J). The observer tracked time on each topic and took notes on the presentation. These data measured adherence to the
design and participant engagement.

**Focus group interview protocol: Round one (FG1).** To gather information on the quality of the study skills workshop, semi-structured interviews occurred within focus groups (see Appendix K). Questions focused on the student’s experience in the workshop, including the value of the topics, key takeaways (i.e., important topics or main ideas), and the usefulness of the strategies. For example, one question was: “What would make it easier for you to use the strategies presented in the Study Skills Workshop?” This qualitative data measured instructor effectiveness, value of the topics, student engagement in the workshop, and previous exposure to the topics.

**Outcome evaluation instruments.** Six outcome evaluation instruments were used to determine whether attendance in the workshop impacted the student’s awareness of SRL knowledge and strategies, use of specific learning strategies, and academic achievement.

**Participant demographic survey.** A researcher-designed participant demographic survey included questions on topics such as previous school(s) attended, gender, ethnicity, and any extra-curricular involvement that might impact predicted outcomes (see Appendix L). The data were also used to compare the treatment group to the treatment naïve group.

**Metacognitive Awareness Inventory.** The 52-item instrument, Metacognitive Awareness Inventory (MAI; Schraw & Dennison, 1994), was developed to measure two constructs, knowledge about cognition and regulation of cognition (see Appendix M). The knowledge about cognition section includes three subscales that measure declarative, procedural, and conditional knowledge. The five regulation of cognition subscales
measure planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation (see Table 4.3). Participants were asked to indicate whether each statement were true or false of themselves. Higher scores indicate that the individual is strong in the specified area. The MAI was found to have internal consistency with a Cronbach’s alpha of .95 (Schraw & Dennison, 1994).

Table 4.3

Metacognitive Awareness Inventory (MAI) Constructs, Item Numbers, Sample Questions

(Schraw & Dennison, 1994)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>N</th>
<th>Item Number</th>
<th>Sample Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about Cognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Declarative Knowledge</td>
<td>Knowledge about facts needed for learning</td>
<td>8</td>
<td>5, 10, 12, 16, 17, 20, 32, 46</td>
<td>I am a good judge of how well I understand something.</td>
</tr>
<tr>
<td></td>
<td>Knowledge about one’s skills and abilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedural Knowledge</td>
<td>Knowledge about how to implement learning strategies</td>
<td>4</td>
<td>3, 14, 27, 33</td>
<td>I am aware of what strategies I use when I study.</td>
</tr>
<tr>
<td>Conditional Knowledge</td>
<td>Knowledge about when and why to use learning procedure</td>
<td>5</td>
<td>15, 18, 26, 29, 35</td>
<td>I learn best when I know something about the topic.</td>
</tr>
<tr>
<td>Regulation of cognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>Strategies for planning, goal setting and resource allocation</td>
<td>7</td>
<td>4, 6, 8, 22, 23, 42, 45</td>
<td>I set specific goals before I begin a task.</td>
</tr>
<tr>
<td>Information Management Strategies</td>
<td>Skills for organizing, elaborating, summarizing</td>
<td>10</td>
<td>9, 13, 30, 31, 37, 39, 41, 43, 47, 48</td>
<td>I slow down when I encounter important information</td>
</tr>
<tr>
<td>Comprehension Monitoring</td>
<td>Assessment Skills on learning and strategy use</td>
<td>7</td>
<td>1, 2, 11, 21, 28, 34, 49</td>
<td>I ask myself periodically if I am meeting my goals.</td>
</tr>
<tr>
<td>Debugging Strategies</td>
<td>Strategies to correct performance and comprehension errors</td>
<td>5</td>
<td>25, 40, 44, 51, 52</td>
<td>I change strategies when I fail to understand.</td>
</tr>
<tr>
<td>Construct</td>
<td>Definition</td>
<td>N</td>
<td>Item Number</td>
<td></td>
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<td>--------------</td>
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</table>

*Note.* Cronbach’s alpha scores for subscales were available as ranges and not as individual alphas for each subscale.

**Self-Regulation Strategy Inventory – Self Report (SRSI-SR).** The 28-item Self-Regulation Strategy Inventory – Self-Report was employed to measure self-regulation strategy use (see Appendix N). Students identified how they manage their environment and behavior, seek and learn information, and identify maladaptive regulatory behavior by using a 7-point Likert-type scale ranging from 1 (*never*) to 7 (*always*) (see Table 4.4). The instrument contains three subscores that provide measures on the frequency students regulate their study practices (i.e., Factor I), seek help or use study strategies (i.e., Factor II), and engage in maladaptive self-regulation behaviors (i.e., Factor III). For factor III, high scores indicate that a student does not approach learning in a focused manner; these scores are reversed prior to attaining a total score. Students with high scores show strong self-regulation strategy use. The survey has high internal reliability with a Cronbach’s alpha score of .92 and internal consistency with subscales ranges of .72 to .88 (Cleary, 2006).
Table 4.4

Self-Regulation Strategy Inventory – Self Report (SRSI-SR) Factors, Item Numbers, Sample Questions (Cleary, 2006)

<table>
<thead>
<tr>
<th>Factor I: Managing environment and behavior</th>
<th>N</th>
<th>Item Number</th>
<th>Sample Question</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>1, 2, 6, 7, 8, 9, 16, 21, 24, 25, 27, 28</td>
<td>I make a schedule to help me organize my study time.</td>
</tr>
<tr>
<td>Factor II: Seeking and learning information</td>
<td>8</td>
<td>3, 4, 5, 14, 15, 17, 18, 22</td>
<td>I make pictures or drawings to help me learn concepts.</td>
</tr>
<tr>
<td>Factor III: Maladaptive regulatory behavior</td>
<td>8</td>
<td>10, 11, 12, 13, 19, 20, 23, 26</td>
<td>I give up or quit when I do not understand something.</td>
</tr>
</tbody>
</table>

**Participant status update survey (SUS).** To provide data on continued use and knowledge of SRL strategies and skills as well as an assessment of strategy usefulness, students completed a researcher-developed survey (see Appendix O). The survey had two sections. In the first section students indicated how often they used the strategies from the workshop on a scale ranging from 1 (never) to 5 (very often). In the second section students indicated whether the strategies supported their learning using a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Two open-ended questions followed each section and students explained their choices. For example after the first section on the student’s assessment of strategy use, they responded to the following question: “Explain why you use the strategies listed above as “often” and “very often.” For the section on the level they agreed the strategy supported their learning, they responded to: “If you agree or strongly agreed with any statements above please explain why the strategies supported your learning.”

**Focus group interview protocol: Round two (FG2).** This semi-structured interview protocol was used to assess the quality of the study skills workshop, interface with the instructor, and the student’s use and knowledge of the SRL strategies and skills.
(see Appendix P). Questions focused on the student’s experience after the workshop, including the value of the topics, key takeaways, and the assessment of their continued use of the strategies. For example, questions included: “How was your experience since your participation in the workshop?” and “Has the information you learned in the workshop been helpful?”

**Standardized test scores.** The targeted independent school used the Comprehensive Testing Program Version 4 (CTP4), created by the Educational Testing Services for the Educational Records Bureau. The CTP4 included several subtests: Verbal Reasoning, Reading Comprehension, Quantitative Reasoning, and Algebra 1. Table 4.5 shows the reliability coefficient and the scale score range for each subtest.

**Table 4.5**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Scale Score Range</th>
<th>Reliability Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Reasoning</td>
<td>249 to 424</td>
<td>0.84</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>237 to 413</td>
<td>0.82</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>263 to 464</td>
<td>0.90</td>
</tr>
<tr>
<td>Algebra 1</td>
<td>26 to 70</td>
<td>0.93</td>
</tr>
</tbody>
</table>


**Materials.** Four documents supported the students during and after the study skills workshop.

**Study skills workshop presentation PowerPoint.** A PowerPoint guided the discussion for the workshop and framed the topic presentation (see Appendix Q).

**Student resource packet.** All students received a summary of workshop’s content, both in paper and digital form (see Appendix R).

**Participant SRL online tool.** A shared online instrument used by students and the
researcher, this researcher-developed Google Form was based on the work of Cleary et al. (2008) and Bell and Pape (2014) (see Appendix S). The top section served as a predated assignment book, in which students entered assignments and due dates. Students could document goals and priorities for the week, as well as reflect on any test work they completed. Additionally, students could predict their test outcome using a 5-9 scale representing test scores in the 50’s or 90’s respectively. They were also asked to rate their confidence in that score using –1 for low confidence, 0 for neutral, and +1 for high confidence. The last section was a location in which the student and researcher could write messages to each other.

** Participant SRL test observation and strategy tool (SRL TOAST).** A shared online instrument used by students and the researcher, this researcher-developed Google Form provided a scaffold for students to monitor academic performance and was based on the work of Bell and Pape (2014) (see Appendix T). Participants entered test grades into a spreadsheet, which were automatically plotted on a scatter plot. Participants could comment on the process by which they studied, to reflect on the reason for the result, and to modify strategies for future academic situations. There was also a comment box in which students could dialogue with the researcher.

**Procedure**

This section provides a description of the intervention, including participant recruitment, a timeline of activities, data collection, and data analysis.

**Participant Recruitment**

To recruit participants for the treatment group, several activities occurred. At the completion of Quarter 1 of the school year, the researcher spoke with the freshman class
to describe the study. Concurrently, the Upper School Division Head sent an email to Grade 9 students’ parents to introduce the researcher, the study, and the study skills workshop (see Appendix U). Shortly after the first email, the researcher sent a follow-up email that contained more details (see Appendix V). This email included two links: one for parental consent and one for parents who wished to decline participation (see Appendices W and X). Through the online consent parents provided an electronic signature to allow their child to participate in the study skills workshop and allow for data collection. Following the completion of the online consent, parents received a confirmation email indicating their consent (see Appendix Y). After 1 week, the investigator sent a follow-up email to parents who had not responded, either by consent or decline, after the first round of email solicitation (see Appendix Z).

To recruit participants for the treatment-naïve group, the researcher presented the research goals to the Grade 10 students and then sent an email to parents of the sophomore class. The email explained the study and asked parents to consent or decline consent (see Appendix AA). This email included two links: one by which parents provided online consent and another by which parents declined (see Appendices BB and CC). Parents completed a combined consent and assent form, through the use of an electronic signature, stating their child could participate in the study and that data could be collected on their child. Following the completion of the online consent, the parents received a confirmation email indicating their consent (see Appendix DD). After 1 week, the investigator sent a follow-up email to parents who did not respond, either by consent or decline, after the first round of emailing (see Appendix EE).
**Intervention**

The study skills workshop objectives and specific activities are outlined in Appendix FF. The process evaluation tool, Study Skills Workshop Observer Report, provides an overview of the specific activities of the intervention. Invention content, by session, will be included in this discussion.

**Pre-Session.** In the initial 1-hour session of the study skills workshop, the students first signed an assent form (see Appendix GG). The researcher provided an overview of the workshop topics and concepts (see slides 2-14 in Appendix Q). The students then completed several surveys, including the Participant Demographic Survey, the MAI (Schraw and Dennison, 1994), and the SRSI-SR (Cleary, 2006). The surveys served as the premeasures for the study.

**Session 1.** This 2-hour session followed the structure of the Renzulli’s (2015) learning skills course and the framework of Tuckman and Kennedy’s (2011) study skills workshop. After receiving a resource packet, the researcher presented an overview of self-regulation, including theory, strategies, and benefits of self-regulation (see slides 15-63 in Appendix Q). The first strategies focused on the forethought phase of SRL and on a student’s ability to manage time, plan strategies, and set goals (Schunk, 2001; Zimmerman, 2008). As shown by Stoeger and Ziegler (2008), strategic planning involved setting goals for the week based on an evaluation of the previous week’s approach. The concept of cause and effect on degrees of success was highlighted. The core focus was to introduce to the participant SRL online tool as an online planner and time management and goal-setting tool. By using this online tool, students could track both assignments due, time commitments, test dates, and then set goals based on reflections of the week.
As a bring-your-own-device school, encouraging technology use aligned with the school’s existing curricular goals. The researcher communicated that she would monitor the students’ use of this shared online document and would provide feedback. At the end of the session, the students discussed key takeaways and completed a daily survey (PDS). The instructor then previewed the focus and activities of the next session. The school’s counselor, Fran Henkel, attended all sessions and completed an observer’s report. The school’s counselor role at the school is to support the students’ emotional and educational needs. He works with students in Grades 5-12 and has knowledge of the student’s educational testing and specific learning needs, and the school’s curriculum and faculty.

**Session 2.** This 2-hour session focused on both SRL as well as a cognitive study strategy (see slides 64-107 in Appendix Q). The SRL focus included self-monitoring, self-evaluation, and strategic planning, using the SRL online tool as a scaffold. After a brief presentation of effective and ineffective study strategies (Dunlosky et al., 2013), discussion focused on cognitive strategies that support the performance phase of SRL and learning from lecture and class. Specific cognitive strategies included notes review, summarizing, and self-questioning, which required students to verbalize and then compose and answer questions for specific course content. The researcher informed the students that self-questioning reinforced course concepts and encouraged self-regulation (King, 1991, 1992). Questions reviewed included: “Do I understand the material?” “What is my strategy?” “What are the key ideas?” “What do I understand?” “What do I not understand?” After the researcher introduced and modeled the strategy, the students used an existing assignment to practice the skill. The session ended with a discussion of key
takeaways and students completed a daily survey. The instructor then previewed the focus and activities of the next session.

**Session 3.** After a review of the previous session’s topics, the final scheduled 2-hour session involved cognitive strategies focused on learning from text (see slides 108-139 in Appendix Q). These strategies included mind maps (Tanriseven, 2014) and matrix organizers with self-monitoring prompts (Kauffman, 2004). The use of mind maps, a process to conceptualize ideas and to create a visual model of material, provided a framework to help individuals make connections between topics as well as serve as a planning tool for projects (Tanriseven, 2014). The researcher then presented a second note-taking process, a matrix format that included a self-monitoring prompt (Kauffman, 2004). The matrix format included a section to organize the reading content and establish a table with key ideas such as new terms, concept connections, and general conclusions. Self-reflection, the third phase of SRL was woven throughout the note-taking strategies.

Participants practiced adding a self-reflecting or self-monitoring component when taking notes (Bercher, 2012; Cleary et al., 2008; Pape et al., 2003). For example, the students reflected on two questions to provide cognitive feedback: “What percent of the material do I understand?” “Do I need to reread any section or need additional support?” The researcher shared that combinations of these methods, a mind map and a self-assessment prompt within the structure of a matrix note taking process, might increase self-regulation and encourage student use of SRL strategies. The final topic of the session was the introduction of the SRL TOAST. Students began to enter information based on their academic grades. The researcher then informed the students about available support
through the shared online tools. As with Sessions 1 and 2, the students discussed key takeaways and completed the participant’s daily survey.

Post workshop activities. Immediately following the study skills workshop, the school psychologist conducted the first series of focus groups. The school psychologist has a Ph.D., provides emotional and educational support to all students (i.e., prekindergarten through Grade 12), and served as a member of the researcher’s dissertation committee. For the focus groups, the school psychologist followed the established protocol and conducted all semi-structured interviews through four focus groups. A total of 23 students participated in these group conversations.

Over the course of two marking periods, the researcher communicated to the students through the shared online tools as well as through a series of emails. If the students requested additional support, they could meet with the researcher throughout the following two academic terms.

The students who participated in the study skills workshops were asked to complete two researcher-developed status update surveys, one at the end of Quarter 2 (SUS1) and the second at the end of Quarter 3 (SUS2). At the end of all data collection, the school psychologist conducted a second round of focus groups. The researcher also collected the students’ Quarter 1 and Quarter 3 numeric grades.

Data collection

Both process- and outcome-evaluation data were collected at specific times throughout the intervention and addressed respective research questions (see Appendix HH). The model followed a convergent design in which both quantitative and qualitative data were collected concurrently, and then analyzed separately. The two data sets were
prioritized equally (Creswell & Plano Clark, 2011). The qualitative data were used to assess the researcher’s reflections and the student’s experience with the intervention and provided depth and descriptions to the analysis (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004). Data were collected in four formats: individual online surveys, small group recorded focus groups, student school records, and the observer’s report. All students were assigned a confidential participant number and pseudonym before data collection.

**Process evaluation.** To evaluate the intervention’s process, data were collected from several sources. At the beginning of each session, the researcher took attendance using the Attendance Sheet to measure dosage for the students; the observer noted if a student was unable to attend the entire session. To monitor shifts between design and implementation, the researcher took field notes and an outside observer used the Study Skills Workshop Observer Report to note if the presentation followed the designed objectives and activities. The observer also noted observations on student engagement and researcher presentation. The researcher’s field notes provided information on additions, omissions or shifts in presentation, observations on participant engagement, and any reflections related to the intervention.

Student data were gathered through two measures. At the end of each session, all students completed the online survey, the Participant Daily Survey, via a link from an email. The focus group interviews were recorded and then transcribed.

**Outcome evaluation.** Outcome evaluation measures and instruments provided data to analyze the intervention’s impact. To provide data regarding any change in awareness of SRL, the students completed the MAI (Schraw & Dennison, 1994) and the
SRSI-SR (Cleary, 2009) as a pre- and postintervention measure via an online link. The preintervention data were collected during the pre-session. At the end of Quarter 3, the researcher met with the students to complete the postintervention measures.

To gather additional data about the students’ engagement with the strategies, students completed two status update surveys. A link to the first online survey was sent, via email, to the students at the end of January 2017. At this time, the students had just completed their first semester work, including mid-term exams. The researcher monitored the activity on this survey and sent an email reminder to those students who did not complete the survey. A total of 25 students completed this survey.

In April 2017, 25 students completed the second status update survey and all postmeasures during one of two onsite meetings. One of these students completed part of the survey, and a different group of 25 students completed the survey in April than the status survey sent in February; only 23 of the students completed both status update surveys in their entirety. After these two meetings occurred, the researcher sent two emails that included links to the postintervention measures to those students who did not attend one of the on-site meetings. Of the students who received these email requests, none completed the postmeasures.

At the end of Quarter 3, a second series of focus groups occurred and marked the end of data collection. To gather this qualitative data, the school psychologist followed the established protocol and conducted semi-structured interviews through three focus groups in which a total of 19 students participated. The focus groups were recorded and then transcribed.

To explore the intervention’s impact on academic performance, data from the
treatment-naïve comparison group were used. The researcher met members of the treatment naïve group in December 2016 at one of three meetings during which the students completed three surveys, the MAI, the SRSI-SR, and the demographic survey. The treatment naïve participants received links to these online surveys via email.

**Data management**

All data were kept on a password-protected laptop and recordings from the focus groups were kept in a locked secured location. Only those involved in the research had access to the data. All surveys were electronic versions created through Google Forms, and data were collected in Google Sheets. Students enrolled in the school are required to own a laptop. Participants, therefore, used their own devices to complete all measures. All student identifiers were eliminated. Access to online surveys was closed after data collection. Prior to analysis of qualitative data, pseudonyms were substituted for the participants’ names to de-identify the data. A list of student identification, participant numbers, and pseudonyms was stored in a file separate from the data.

**Data analysis**

This section outlines the statistical tests and the coding for the quantitative and qualitative data as shown in the summary matrices (see Tables 4.6, 4.7, 4.8, 4.9, & 4.10). The process and outcome research questions determined the manner in which the data were analyzed and is discussed within the context of each research question.

**Quantitative Data.** Survey data were cleaned, entered into SPSS, and then coded by established rubrics. To score the MAI, the researcher assigned 1 point for each true statement and then calculated subscores for the eight constructs within its design. The SRSI-SR score was calculated as the sum of all scores. Scores for items of maladaptive
behavior were reversed prior to calculating the total score. Subscores on the three factors on SRSI-SR were also calculated. An analysis of descriptive statistics for the items that used 5-point Likert-scale from the Participant Status Update Survey allowed for exploration of process evaluation around engagement, quality of instruction and subsequent support, and components of the workshop that students report as having the greatest value as well as outcome evaluation of students’ strategy use.

To analyze the homogeneity of the treatment and the treatment naïve groups, descriptive statistics were calculated for demographic information. A MANOVA was used to determine if the groups differed on more than one dependent variable, including metacognitive and SRL strategy use as well as academic achievement. Scores on the MAI and SRSI-SR, as well as standardized testing and academic grades were used. Students who were not enrolled at the school during their freshman year were eliminated from the treatment naïve group for this analysis.

To explore if participation in the study skills workshop changed a student’s knowledge and practice of SRL (Outcome RQ3), a paired sample $t$ test was performed on both pre- and postmeasures of the MAI and the SRSI-SR. Additionally, descriptive statistics were calculated and a change analysis was performed to explore how frequently the students used the various strategies over the length of the entire intervention.

To answer outcome RQ4, which focused on if participation in the workshop impacted academic performance when compared to other students who did not participate, the researcher first calculated both Quarter 1 and Quarter 3 academic averages as well as a weighted 4-point GPA by using the school’s established formula (see Appendix II). Then the researcher performed an ANCOVA between the treatment
and the treatment naïve group’s academic grades with Quarter 1 academic grades as the
covariates. A correlation and regression analysis provided additional information on this
data.

**Qualitative Data.** The researcher employed a conventional content analysis in
which codes were defined during data analysis. A conventional analysis allowed the
researcher to gather information that might explain and describe a phenomenon.

Categories and themes were not predetermined to allow for new insights to emerge
(Hsieh & Shannon, 2005). For each collection of qualitative data, all transcripts were
examined and the researcher recorded initial impressions about the text on the transcript
pages. The researcher then analyzed for themes, including the identification of various
workshop content and the mention of SRL subprocesses. New categories were generated
from these themes. A qualitative codebook was established to organize the data collected
through surveys and from transcripts for the focus groups. Through this process, the
researcher was able to gain an increased understanding of any influences in the
intervention (Hsieh & Shannon, 2005).

**Summary matrices.** Summary matrices show alignment between the measures of
instrumentation that operationalize the variables, data collection, and data analysis (see
Tables 4.6, 4.7, 4.8, 4.9, and 4.10). This series of matrices presents the components in
terms the various research questions, both for process evaluation and outcome evaluation
as well as control variables for the creation of the comparison group.
Table 4.6

Process Evaluation Summary Matrix: Fidelity of Implementation

RQ1: To what extent did the implementation of the study skills workshop align with the intended research design?

<table>
<thead>
<tr>
<th>Variable</th>
<th>Instrumentation</th>
<th>Data Collection Source(s)</th>
<th>Frequency</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adherence to the program</td>
<td>Researcher Field Notes</td>
<td>Researcher</td>
<td>At the end of each session (4)</td>
<td>Inductive thematic coding</td>
</tr>
<tr>
<td>Match of course presentation and course design components</td>
<td>Study Skills Workshop Report (Appendix J)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure/Dose</td>
<td>Study Skills Workshop Observer Report (Appendix J)</td>
<td>Observer</td>
<td>During each session (3)</td>
<td>Inductive thematic coding</td>
</tr>
<tr>
<td>Time for topics covered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance of students</td>
<td>Attendance Sheet (Appendix H)</td>
<td>Researcher Observer</td>
<td>During each session (4)</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>Program differentiation</td>
<td>Participant Daily Survey (Appendix I)</td>
<td>Treatment Group</td>
<td>At the end of session 1, 2,</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td>Previous exposure to and use of course content</td>
<td></td>
<td></td>
<td>and 3 (3)</td>
<td>Inductive thematic coding</td>
</tr>
</tbody>
</table>

Table 4.7

Process Evaluation Summary Matrix: Students’ Overall Experience

RQ2: What was students’ overall experience with the study skills workshop?

RQ2A: What was the students’ self-report of their level of engagement during the workshop?

RQ2B: What were the students’ perceptions of the quality of instruction and subsequent support?

RQ2C: What components of the study skills workshop do students report as having the greatest value?
<table>
<thead>
<tr>
<th><strong>Variable</strong></th>
<th><strong>Instrumentation</strong></th>
<th><strong>Data Collection</strong></th>
<th><strong>Data Analysis</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant responsiveness</strong></td>
<td>Participant Daily Survey (Appendix I)</td>
<td>Treatment Group</td>
<td>At the end of session 1, 2, and 3 (3)</td>
</tr>
<tr>
<td><strong>Engagement in the session and with the content (RQ2A)</strong></td>
<td>Researcher Field Notes</td>
<td>Researcher</td>
<td>At the end of each session (4)</td>
</tr>
<tr>
<td></td>
<td>Study Skills Workshop Observer Report (Appendix J)</td>
<td>Observer</td>
<td>During each session (3)</td>
</tr>
<tr>
<td><strong>Quality of program delivery</strong></td>
<td>Focus Group (Appendix K)</td>
<td>School Psychologist</td>
<td>At conclusion of SSW</td>
</tr>
<tr>
<td><strong>Instructor effectiveness (RQ2B)</strong></td>
<td>Participant Daily Survey (Appendix I)</td>
<td>Treatment Group</td>
<td>At the end of session 1, 2, and 3 (3)</td>
</tr>
<tr>
<td></td>
<td>Focus Group (Appendix K)</td>
<td>School Psychologist</td>
<td>At conclusion of SSW</td>
</tr>
<tr>
<td></td>
<td>Study Skills Workshop Observer Report (Appendix J)</td>
<td>Observer</td>
<td>During each session (3)</td>
</tr>
<tr>
<td><strong>Quality of program delivery</strong></td>
<td>Participant Daily Survey (Appendix I)</td>
<td>Treatment Group</td>
<td>At the end of session 1, 2, and 3 (3)</td>
</tr>
<tr>
<td><strong>Value of topics (RQ2C)</strong></td>
<td>Focus Group (Appendix K)</td>
<td>School Psychologist</td>
<td>At conclusion of SSW</td>
</tr>
</tbody>
</table>

*Note. SSW = study skills workshop.*
### Table 4.8

**Outcome Evaluation Summary Matrix: Self-Regulated Learning Skills and Their Use**

**RQ3.** To what extent does participation in the study skills workshop change a student’s knowledge and practice of self-regulated learning?

**RQ3A.** What are the students’ self-reported use of and usefulness of the SRL strategies?

**RQ3B.** To what extent does participation in the study skills workshop affect the students’ SRL awareness and SRL strategy use?

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Instrumentation</th>
<th>Data Collection</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student use of skills (RQ3A)</strong></td>
<td>Researcher Field Notes</td>
<td>Researcher</td>
<td>Inductive thematic coding</td>
</tr>
<tr>
<td></td>
<td>Participant Status Update Survey (Appendix O)</td>
<td>Treatment Group</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Change Analysis</td>
</tr>
<tr>
<td><strong>Usefulness of SRL strategies (RQ3A)</strong></td>
<td>Participant Status Update Survey (Appendix O)</td>
<td>Treatment Group</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Change Analysis</td>
</tr>
<tr>
<td><strong>SRL awareness (RQ3B)</strong></td>
<td>MAI (Schraw and Dennison, 1994) (Appendix M)</td>
<td>Treatment Group</td>
<td>Paired sample $t$ test</td>
</tr>
<tr>
<td><strong>Self-regulation strategy use (RQ3B)</strong></td>
<td>SRSI-SR (Cleary, 2006) (Appendix N)</td>
<td>Treatment Group</td>
<td>Paired sample $t$ test</td>
</tr>
</tbody>
</table>
Table 4.9

*Comparison Analysis between Treatment and Treatment Naïve Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Instrumentation</th>
<th>Data Collection Source(s)</th>
<th>Frequency</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive Awareness</td>
<td>MAI (Schraw and Dennison, 1994)</td>
<td>Treatment and Treatment Naïve Groups</td>
<td>Beginning of Intervention (1)</td>
<td>MANOVA</td>
</tr>
<tr>
<td></td>
<td>(Appendix M)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Regulation Strategy Use</td>
<td>SRSI-SR (Cleary, 2006) (Appendix N)</td>
<td>Treatment and Treatment Naïve Groups</td>
<td>Beginning of Intervention (1)</td>
<td>MANOVA</td>
</tr>
<tr>
<td>Standardized Testing</td>
<td>CTP4 Scores</td>
<td>Treatment and Treatment Naïve Groups</td>
<td>Beginning of Intervention (1)</td>
<td>MANOVA</td>
</tr>
<tr>
<td>Academic Achievement</td>
<td>Quarter 1 Grades Quarter 1 4-point GPA</td>
<td>Treatment and Treatment Naïve Groups</td>
<td>Beginning of Intervention (1)</td>
<td>MANOVA</td>
</tr>
</tbody>
</table>

Table 4.10

*Outcome Evaluation Summary Matrix: Academic Performance*

RQ4. To what extent does participation in the study skills workshop impact the student’s academic performance when compared to students who did not participate in the intervention?

<table>
<thead>
<tr>
<th>Variable</th>
<th>Instrumentation</th>
<th>Data Collection Source(s)</th>
<th>Frequency</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic achievement</td>
<td>Quarter 1 and Quarter 3 Grades</td>
<td>School record</td>
<td>Pre- and Post- intervention (2)</td>
<td>ANCOVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment and Treatment Naïve Groups</td>
<td></td>
<td>Correlation Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Regression Analysis</td>
</tr>
<tr>
<td></td>
<td>Quarter 1 and Quarter 3 4-point GPA</td>
<td>School record</td>
<td>Pre- and Post- intervention (2)</td>
<td>ANCOVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment and Treatment Naïve Groups</td>
<td></td>
<td>Correlation Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Regression Analysis</td>
</tr>
</tbody>
</table>
**Researcher Subjectivity**

As the researcher was the instrument of measure for all data, a statement of potential biases is necessary (Hatch, 2002). Her professional work, personal experiences, and educational activities were factors in the implementation of the intervention and the data collection and analysis. The goal of this section is to make any subjectivities transparent, to guide the reader’s conclusions from the participants’ experience with the intervention and any possible impact on their learning processes (Hatch, 2002).

The researcher worked at the targeted school for 30 years, serving as a middle school mathematics teacher and a member of the senior administrative team. Her administrative roles included Director of Student Learning and Director of Curriculum Development. As a faculty member, she taught the honors section of Grade 8 algebra. Several of the students in the treatment group were in her class the previous year, and other participants were siblings of former students. This relationship might have had a bearing on their voluntary participation in the intervention. Their responsiveness and engagement might have been impacted as a result of this relationship. Through her administrative roles, she worked with students to support their learning, served as a resource to parents, collaborated with faculty on curriculum issues and shifts, and teamed with administrators to plan and execute program initiatives and professional development activities. Her interest in providing learning support was piqued through these various roles and interactions.

In addition to her perspective from a professional lens, the researcher also viewed the school through a parental lens. Her two sons enrolled at the school as 4-years olds. Both scored in the 99th percentile on standardized testing; each, however, had specific
learning needs and found different levels of success at the school. Prior to this study, one son left the school during his junior year and graduated from another private school that caters to students who need specific learning support. Her other son was a current Grade 11 student at the time of the research. As a parent, she gained an understanding of the school’s academic expectations and became increasingly aware of challenges that students with different learning needs might face, which further piqued her interest for the topic of this research.

Merging these two perspectives, she often questioned the ways in which students become empowered learners who actively engage in educational experiences. To that end, she enrolled in a doctoral program to increase her knowledge base and understanding of learning support programs as well as an awareness of 21st century curricular initiatives. Although she left the school 6 months before the study was conducted, her hope was to design a program with the potential to support learning for students with a variety of educational needs. The researcher has a personal stake in the results of this study as she hopes to work in higher education with preservice teachers and other educators to increase their awareness of providing appropriate learning support for all students.
Chapter 5

Findings and Discussion

The purpose of this chapter is to discuss the findings of a SRL study skills intervention for Grade 9 students enrolled at an independent school. The intervention occurred during late November and early December of 2016. Both process and outcome research questions will frame the findings and discussion, which will include how these findings relate to theories and prior studies. The focus will then turn to limitations of the study and implications for research and practice. Finally, a conclusion will specifically outline overall recommendations and next steps for independent schools aiming to increase learning support at the upper school level.

The researcher collected both quantitative and qualitative data in order to address process and outcome questions. The research questions are:

Process Research Questions:

RQ1: To what extent did the implementation of the study skills workshop align with the intended research design?

RQ2: What was students’ overall experience with the study skills workshop?

RQ2A: What was the students’ self-reported level of engagement during the workshop?

RQ2B: What were the students’ perceptions of the quality of instruction and subsequent support?

RQ2C: What components of the study skills workshop do students report as having the greatest value?
Outcome Research Questions:

RQ3. To what extent does participation in the study skills workshop change a student’s knowledge and practice of self-regulated learning?

RQ3A. What are the students’ self-reported use of and usefulness of the SRL strategies?

RQ3B. To what extent does participation in the study skills workshop affect the students’ SRL awareness and SRL strategy use?

RQ4. To what extent does participation in the study skills workshop impact the student’s academic performance when compared to students who did not participate in the intervention?

These research questions will provide the framework for the discussion on findings.

Fidelity of Implementation

To answer RQ1 related to fidelity of implementation, the process of implementation will be described. Included in the discussion will be a discussion of any additions, omissions, or shifts in presentation. Informing this analysis will be data from the researcher’s field notes as well as the report prepared by an observer who attended all sessions of the study skills workshop. The observer’s role was to document his perspective on the students’ involvement and engagement and monitor the researcher’s presentation. The following summary of the researcher’s field notes and the observer’s notes will be organized according to the workshop sessions. The workshop PowerPoint serves as a visual model for the topics included in the workshop.

Session 1

Session 1 occurred in early December 2016. Twenty-eight students were in
attendance. One student was unable to attend due to a required athletic try-out, and another student was involved in an off-campus all-day extra-curricular activity. Both of these students worked with the researcher, one-on-one, before Session 2 to complete all activities. Two students who did not attend the pre-session arrived early for this session in order to complete the necessary premeasures for the intervention. All students received a participants’ resource packet that contained information on the topics to be covered; the students also received, via email, a digital copy of this packet in order to have the information available when needed. The researcher projected a PowerPoint to frame the discussion and add a visual representation of the all concepts. The researcher provided support for the students and guided them to consider the ways they might write goals that are specific, measurable, and attainable. The students drafted goals and shared them with each other. The workshop observer noted that the students appeared engaged, with only a few sitting in the back of the room seeming distracted as evident by their occasional private conversations and work on their computers. Prior to the session the researcher created and shared an individualized Google Doc copy of the tool with each student, and then introduced the tool during this session. Students began to use the SRL online tool by entering both assignments as well as goals within its framework. The students worked through all topics as planned within 45 minutes and responded to questions about SRL concepts. After completing the participant daily survey (PDS1) for the session, the students used the remainder of the two-hour session to practice the presented skills by applying their homework topics.

Session 2

On the following Monday, 4 days later, 28 students attended Session 2. To review
the topics from Session 1, the researcher used an online poll site to survey their understanding of the concepts. The students were engaged in this activity and enjoyed the challenge and the camaraderie of sharing their knowledge. The observer noted that the students asked questions and applied the concepts to their current work. During this review both the researcher and the observer witnessed that the students quickly verbalized the concepts of SRL from Session 1 and shared that they had already set goals.

To encourage the students to evaluate their current study strategies and approach, the researcher presented data that outlined which cognitive strategies were considered strongest in supporting learning (Dunlosky et al., 2013). Many students shared that they employed strategies that are low on the utility rating scale, specifically highlighting and underlining. The students asked for suggestions on more effective strategies. After the researcher presented the self-questioning strategy, the students worked in small groups, created questions based on the self-questioning model, and quizzed each other for an upcoming biology test. At this time, eight students left to attend a required athletic practice, per request of their coach, in order to prepare for a sports match. The students who remained stated that they appreciated the opportunity that the workshop allowed them time to work on homework. The observer speculated that the students’ level of engagement contributed to the afternoon’s activities going smoothly and ending earlier than anticipated. All students completed the participant’s daily survey (PDS2) for Session 2. The two students who did not attend this session worked with the researcher, one-on-one, before Session 3 to review the topics covered during Session 2.

**Session 3**

Twenty-seven students attended the last workshop session that occurred 1 week
after Session 2. Following a review of the previous session’s topics, the focus turned to
using mind maps as a cognitive tool, evaluating test performance, and building learning
strategies. The researcher used a video to introduce mind maps and shared several mind
mapping websites. The students then accessed these sites to build maps based on the
current biology class topics, energy production, the mathematics class concept of linear
functions, and topics for an upcoming test in their history class. The self-determined
collaborative groups shared vocabulary to brainstorm how to apply mind mapping to their
learning process. The researcher guided their activity by making suggestions and
monitoring their work. Six students worked together to use the mind mapping
application, and four other students searched the web for existing mind maps for their
current biology concept. After this mind-mapping application activity, the researcher
introduced the concept of matrix organizers for note taking and learning from lecture.
The students immediately recognized this method of note taking as the required approach
for their biology class. Overall, the observer noticed that the students quickly engaged
with creating mind maps for both the biology concepts and the history information,
however no student chose to use the structured note-taking method.

The discussion then turned to the SRL subprocesses involved with monitoring,
evaluating, and building strategy. After reviewing the practice of estimating the students’
percent of understanding to encourage monitoring and evaluating their learning, the
researcher shared and introduced the second online tool, the SRL TOAST. The students
started to enter grades into their individualized online document and tried to evaluate the
strategies they used to achieve their scores. The researcher encouraged the students to
engage the SRL Learning Cycle (Stoeger & Ziegler, 2008) by reflecting on their
approach, adjusting strategies for future assessments, and setting goals for future outcomes (see Figure 3.2). The observer noted that the SRL TOAST offered opportunities for high levels of self-reflection and required both focus and time from students. At the conclusion of the session, the researcher reviewed how to engage and contact the researcher should the students require or want support. As with the other sessions, all students completed the PDS for Session 3. Within two weeks after Session 3, the three students who did not attend Session 3 meet individually with the researcher to review the presentation and complete the activities.

**Follow-up Communication from the Researcher**

After the completion of the study skills workshop, the researcher sent weekly emails to all students. The content of these emails included suggestions of how to use the two online SRL tools and how to employ the SRL and cognitive strategies demonstrated during the workshop. For example, after the students completed their first round of midterms, the researcher sent an email with the following items for the students to consider:

Think about using what you learned in the study skills workshop as you approach your studies. Using the SRL online tool will help you stay organized and provide a process to reflect and to strategize.

Analyze your approach to midterms exams. I have added a sheet to the SRL TOAST in which you can put in your midterm grades, as you receive them, and take a couple of minutes to think about how you studied and strategize for finals. This reflection will help you in June; you may think you will remember, but details
will be lost if you wait until June (C.A. Pepper, personal communication, January 24, 2017).

Additionally, the researcher monitored the students’ use of the online tools on a weekly basis, for a total of 9 weeks. She made note of the students’ use and provided the students with feedback inserting comments in these shared documents. This process continued until the end of February 2017. No student requested support from the researcher. Eleven students requested that the SRL online tool be extended through Quarter 4, and the researcher added these weeks to the students’ copy of this Google Sheet.

**Fidelity of Implementation: A Summary**

For fidelity of implementation (RQ1) to be met, the intervention must adhere to program design, students must attend the sessions, and any differentiation of program must be identified. The workshop was presented as designed, in terms of content and time per session. The researcher created the PowerPoint to align to the planned content and to provide a visual framework for discussion; the students saw all slides. Additionally, the observer reported that all information was presented.

In terms of dosage, student participation levels are noted in Table 5.1. Attendance varied by session, and some students did not complete a variety of instruments and activities. Not all students attended the sessions for the full duration. For the students who missed a workshop session, the researcher worked with these students individually to review the content and guide them through the activities.
Table 5.1

Participation Levels, by Activity or Instrument, N = 30

<table>
<thead>
<tr>
<th>Subtest</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Session</td>
<td>28</td>
<td>(93.3)</td>
</tr>
<tr>
<td>Session 1</td>
<td>28</td>
<td>(93.3)</td>
</tr>
<tr>
<td>Session 2</td>
<td>28</td>
<td>(93.3)</td>
</tr>
<tr>
<td>Session 3</td>
<td>27</td>
<td>(90.0)</td>
</tr>
<tr>
<td>Focus Group – Round 1</td>
<td>18</td>
<td>(60.0)</td>
</tr>
<tr>
<td>Focus Group – Round 2</td>
<td>17</td>
<td>(56.7)</td>
</tr>
<tr>
<td>Completion of Instruments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic Survey</td>
<td>30</td>
<td>(100.0)</td>
</tr>
<tr>
<td>Participant’s Daily Survey – Session 1</td>
<td>29</td>
<td>(96.7)</td>
</tr>
<tr>
<td>Participant’s Daily Survey – Session 2</td>
<td>26</td>
<td>(86.7)</td>
</tr>
<tr>
<td>Participant’s Daily Survey – Session 3</td>
<td>27</td>
<td>(90.0)</td>
</tr>
<tr>
<td>MAI – Pretest</td>
<td>30</td>
<td>(100.0)</td>
</tr>
<tr>
<td>MAI – Posttest</td>
<td>27</td>
<td>(90.0)</td>
</tr>
<tr>
<td>SRSI-SR – Pretest</td>
<td>30</td>
<td>(100.0)</td>
</tr>
<tr>
<td>SRSI-SR – Posttest</td>
<td>25</td>
<td>(83.3)</td>
</tr>
<tr>
<td>Status Update Survey 1</td>
<td>25</td>
<td>(83.3)</td>
</tr>
<tr>
<td>Status Update Survey 2</td>
<td>25</td>
<td>(83.3)</td>
</tr>
</tbody>
</table>

Involvement in All Activities and Instruments 8 (26.7)

In order to address any program differentiation from a participant’s previous exposure to and use of the course content, participants identified the strategies that they had used or are currently using (see Table 5.2). The majority of the students had never or seldom set goals, used mind maps, or engaged with self-monitoring prompts. The strategy to which the participants had the highest previous exposure was the self-questioning method, with 41.4% of the students using the strategy either often or very often. Given this information, one will be able to conclude that the study skills workshop might be the source of impact to outcome variables.
Table 5.2

Students’ Previous Use of Strategies

<table>
<thead>
<tr>
<th></th>
<th>Never/ Seldom n (%)</th>
<th>Sometimes n (%)</th>
<th>Often/ Very Often n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting goals (n = 29)</td>
<td>18 (62.1)</td>
<td>8 (27.6)</td>
<td>3 (10.3)</td>
</tr>
<tr>
<td>Self-questioning (n = 29)</td>
<td>9 (31.0)</td>
<td>8 (27.6)</td>
<td>12 (41.4)</td>
</tr>
<tr>
<td>Mind maps (n = 27)</td>
<td>15 (55.6)</td>
<td>9 (33.3)</td>
<td>3 (11.1)</td>
</tr>
<tr>
<td>Self-monitoring (n = 26)</td>
<td>15 (57.5)</td>
<td>9 (34.6)</td>
<td>2 (7.7)</td>
</tr>
</tbody>
</table>

Overall, fidelity of implementation was maintained for the intervention, since the study skills workshop was presented as planned, including content, pedagogical approach, the number of sessions, and dosage. Other components of fidelity of implementation including participant responsiveness and quality of program delivery will be discussed within the findings for RQ2 on the students’ overall experience. Subquestions RQ1A, RQ1B, and RQ1C will focus specifically on the measures of student engagement, the quality of instruction, and program value.

The Participants’ Overall Experience

The second process research question (RQ2) explores the students’ overall experience with the intervention. To explore specific aspects of this process question, three subquestions organize the findings.

Participants’ Self-Reported Engagement in the Workshop (RQ2A)

Data from the participant’s daily workshop surveys (PDS) as well as comments from the focus groups were analyzed to answer the first process subquestion on the students’ self-reported engagement and to address fidelity of implementation on the levels of participant responsiveness. Table 5.3 provides participant ratings of their agreement with the statement, “I was engaged and focused during this session,” which is
an indication of their engagement for the three sessions. The majority of the students felt they were engaged and focused. Specifically, 72.4% \((n = 29)\) of the students in Session 1, 67.9% \((n = 28)\) in Session 2, and 81.5% \((n = 27)\) in Session 3 agreed or strongly agreed with the statement. The observer reported the students were involved in the discussion, replied to questions posed, and readily completed activities within the sessions (F. Henkel, December 2016). This information confirms high fidelity of implementation with respect to the levels of participant responsiveness.

Table 5.3

<table>
<thead>
<tr>
<th>Student Self-Reported Level of Engagement in Workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree/Strongly Disagree</td>
</tr>
<tr>
<td>(n )</td>
</tr>
<tr>
<td>Session 1 ((n = 29))</td>
</tr>
<tr>
<td>Session 2 ((n = 28))</td>
</tr>
<tr>
<td>Session 3 ((n = 27))</td>
</tr>
</tbody>
</table>

Participant’s Perception of Quality of Instruction (RQ1B)

To answer process research subquestion B and assess fidelity of implementation for quality of program delivery, three sets of data were collected: the participant daily survey, focus group discussion, and the observer’s report.

Students answered questions on the participant daily surveys to assess the quality of the instructor’s explanation of the information and whether they had enough information to use the strategies presented. On a 5-point Likert scale, 93% agreed or strongly agreed with the statement: “I believe the instructor explained the information well.” Table 5.4 provides students’ ratings for each category of agreement.
Table 5.4

Participant’s Assessment of Quality of Instruction

<table>
<thead>
<tr>
<th></th>
<th>Disagree/</th>
<th>Sometimes</th>
<th>Agree/</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>n (%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Session 1 (n = 29)</td>
<td>0 (0.0)</td>
<td>2 (6.9)</td>
<td>27 (93.1)</td>
</tr>
<tr>
<td>Session 2 (n = 29)</td>
<td>0 (0.0)</td>
<td>2 (6.9)</td>
<td>27 (93.1)</td>
</tr>
<tr>
<td>Session 3 (n = 27)</td>
<td>0 (0.0)</td>
<td>1 (7.4)</td>
<td>25 (92.6)</td>
</tr>
</tbody>
</table>

Students believed they had the knowledge to engage and use the strategies presented during the workshop. The majority of the students, with percentages ranging from 77.7% to 86.2%, agreed or strongly agreed that they could use each specific strategy (see Table 5.5).

Table 5.5

Students’ Belief in Their Ability to Use Strategies, by Strategy

<table>
<thead>
<tr>
<th></th>
<th>Disagree/</th>
<th>Sometimes</th>
<th>Agree/</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>n (%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Setting Goals (n = 29)</td>
<td>0 (0.0)</td>
<td>4 (13.8)</td>
<td>25 (86.2)</td>
</tr>
<tr>
<td>SRL Online Tool (n = 29)</td>
<td>0 (0.0)</td>
<td>4 (13.8)</td>
<td>25 (86.2)</td>
</tr>
<tr>
<td>Self-Questioning (n = 29)</td>
<td>0 (0.0)</td>
<td>6 (20.7)</td>
<td>23 (79.3)</td>
</tr>
<tr>
<td>SRL Online Tool to Set Goals (n = 29)</td>
<td>0 (0.0)</td>
<td>4 (13.8)</td>
<td>25 (86.2)</td>
</tr>
<tr>
<td>Mind-Maps (n = 27)</td>
<td>0 (0.0)</td>
<td>4 (14.8)</td>
<td>23 (85.1)</td>
</tr>
<tr>
<td>Self-Monitoring Prompt (n = 27)</td>
<td>0 (0.0)</td>
<td>6 (22.2)</td>
<td>21 (77.7)</td>
</tr>
<tr>
<td>SRL TOAST (n = 27)</td>
<td>0 (0.0)</td>
<td>5 (18.5)</td>
<td>22 (81.4)</td>
</tr>
</tbody>
</table>

The information from these survey questions indicates that the students believed that instruction was of quality and provided the knowledge and the skills to use and to apply the various strategies.

Data gathered from the focus group discussions and the observer report supports the findings from the surveys. During the December focus group discussions, Victor stated that the researcher answered questions and took time to address the students’
concerns (FG1). Charles added that the students knew that the researcher was qualified and was not “saying random stuff” (FG1). The observer also noted that the presentation was clear and that the PowerPoint provided the students with a clear visual aide. Later he stated: “The students are picking these ideas up very quickly” (F. Henkel, December 2016). Finally, the observer stated that there seemed to be a positive relationship between the presenter and the students that supported the learning process. These data provide strong evidence for high fidelity of implementation in terms of quality of program delivery metrics.

**Workshop Components with Greatest Value (RQ1C)**

For the third process research subquestion related to components of the study skills workshop that students reported as having the greatest value, data collected from the daily surveys as well as December focus groups informs the findings. The discussion will be organized by session and will include both quantitative and qualitative data.

**Session 1 strategies.** The core content of Session 1 was instruction on information and knowledge about SRL, the process of setting goals, and the use of the SRL Online Tool. When asked about the usefulness of this information, 89.7% (n = 27) of the students agreed or strongly agreed with the statement “I found the information on self-regulated learning useful.” In addition, 93.1% (n = 29) and 86.2% of the students agreed or strongly agreed that setting goals and using the SRL online tool, respectively, will be helpful (see Table 5.6).
Table 5.6

Students’ Perspective on Whether Session 1 Strategies Will be Helpful, \( n = 29 \)

<table>
<thead>
<tr>
<th></th>
<th>Disagree/Strongly Disagree ( n (%) )</th>
<th>Sometimes ( n (%) )</th>
<th>Agree/Strongly Agree ( n (%) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Goals</td>
<td>0 (0.0)</td>
<td>2 (6.9)</td>
<td>27 (93.1)</td>
</tr>
<tr>
<td>SRL Online Tool</td>
<td>0 (0.0)</td>
<td>4 (13.8)</td>
<td>25 (86.2)</td>
</tr>
</tbody>
</table>

The students also answered open-ended questions on the daily survey to identify what they had learned during the session and to include any key takeaways, or most important information gleaned, from the session. During the first session, 68.9\% \( (n = 29) \) of the students mentioned setting goals. Carl commented that setting goals “will help me in preparing and studying for future assignments” (PDS1). Brian noted that the process of setting goals “will have a huge positive impact on my academic performance” (PDS1). During the focus group Andrea felt that she would continue to set goals, stating that she “will be able to use it forever, in and out of school. It doesn’t have to be just for academic work” (FG1).

Several other students (44.8 \%, \( n = 29 \)) identified the use of the SRL online tool as a key takeaway. Donald noted the SRL online tool will help him manage his time and allow him to “see” future tests and assignments (PDS1). In the focus group conversations, students described the SRL online tool as helping them get a visual representation of their work and progress. Focusing more specifically on SRL, Phoebe said she learned strategies to help prepare for assignments and projects, stating that it is important to “analyze during and examine progress afterwards” and that “planning and staying organized are key” (PDS1).

**Session 2 strategies.** When asked about the usefulness of Session 2 content,
86.2% \((n = 29)\) of the students agreed or strongly agreed that the self-questioning method would be useful, and 89.7% \((n = 29)\) of the students believed that the SRL online tool would be helpful as a framework to set goals (see Table 5.7).

Table 5.7

*Students’ Perspective on Whether Session 2 Strategies Will be Helpful, \(n = 29\)*

<table>
<thead>
<tr>
<th></th>
<th>Disagree/Strongly Disagree</th>
<th>Sometimes</th>
<th>Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n (%))</td>
<td>(n (%))</td>
<td>(n (%))</td>
</tr>
<tr>
<td>Self-Questioning</td>
<td>0 (0.0)</td>
<td>4 (13.8)</td>
<td>25 (86.2)</td>
</tr>
<tr>
<td>SRL Online Tool to Set Goals</td>
<td>0 (0.0)</td>
<td>3 (10.3)</td>
<td>26 (89.7)</td>
</tr>
</tbody>
</table>

In their responses to the open-ended questions, students noted two areas most useful. The discussion of self-questioning was a key takeaway for 75.8% \((n = 29)\) of the students. Many noted the practice of quizzing themselves will increase their understanding of information. Embedded within the session’s content was a discussion of effective versus ineffective study strategies (Dunlosky et al., 2013). Rose stated that she liked the discussion about effective strategies; she shared that during the previous night’s assignment she shifted from highlighting to a re-writing strategy. She discovered that she was monitoring and evaluating her learning process and recognized that “some of the most effective strategies are those that I am already using” (FG1). When comparing effectiveness of strategies, Phoebe recognized that summarizing is “better than highlighting or underlining” (PDS2), and Nova confessed that “highlighting isn’t as effective of a strategy as I once thought it was” (PDS2). The observer noted that the students were particularly struck by this information. He wrote: “Many students offered that they employ strategies that are rated low on the utility rating scale. No doubt many are highlighting and underlining only. Students seem very interested in learning more
“effective strategies” (F. Henkel, December 2016). During the focus group discussions, several students mentioned this specific information as helpful.

**Session 3 strategies.** In terms of Session 3 content, 74.0% ($n = 27$) of the students agreed or strongly agreed that mind maps would be useful; 77.8% ($n = 27$) of the students believed that employing a self-monitoring prompt and 74.0% ($n = 27$) predicted that using the SRL TOAST would also be helpful (see Table 5.8).

Table 5.8

<table>
<thead>
<tr>
<th></th>
<th>Disagree/Strongly Disagree</th>
<th>Sometimes</th>
<th>Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$ (%)</td>
<td>$n$ (%)</td>
<td>$n$ (%)</td>
</tr>
<tr>
<td>Mind-Maps</td>
<td>1 (3.7)</td>
<td>6 (22.2)</td>
<td>20 (74.0)</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>1 (3.7)</td>
<td>5 (18.5)</td>
<td>21 (77.8)</td>
</tr>
<tr>
<td>SRL TOAST</td>
<td>0 (0.0)</td>
<td>7 (25.9)</td>
<td>20 (74.0)</td>
</tr>
</tbody>
</table>

During Session 3 the discussion focused on learning from lecture and approaches to note taking. Many students continued to mention an increased awareness of components of SRL, including the need to monitor, reflect, evaluate and plan. Nova confessed: “Self-evaluation may be a hard thing to do, but it’s extremely helpful in the long run” (PDS3). Hugo recognized the importance of being organized by leveraging the online tools, tracking progress and work, and self-monitoring (PDS3). For this session 70.3% ($n = 27$) of the students identified the use of mind maps as a key takeaway on the daily survey.

**Summary of components rated as greatest value.** Overall the students found value in the strategies and information that were presented over the course of the workshop. Of particular note was setting goals, using the SRL online tool, self-questioning, and mind maps. The students’ use and sustained opinions on these strategies
will be evaluated when looking at the outcome research questions focused on knowledge and use of SRL strategies.

The Students’ Overall Experience

Using an inductive coding approach in which both attribute and magnitude coding was employed (Saldaña, 2016), several salient themes emerged. These themes are framed around time issues, the student’s concern about using the various strategies, and general evaluation of the quality of the workshop. The primary data source for this information was the transcripts from the first round of focus group discussions (FG1).

In terms of engagement and benefits of attending the workshop, many students valued being given time at the end of the school day to focus on their homework and studies. The students found the workshop to be very organized, and the content provided practical useful strategies. Gloria appreciated the opportunity to apply the strategies “to something that we actually had to do for class” (FG1). Other comments affirmed the benefits of applying the strategies to homework (Rose and Alexandra, FG1). While confessing that he had yet to try all the strategies, Frank stated the workshop “was really helpful” and liked the opportunity to study together (FG1). The observer noted: “Time is such a precious commodity for the students. Learning these strategies and getting some of their work done is a sure bet” (F. Henkel, December 2016).

Several students expressed some concern about their ability and their incentive to use and apply the information from the workshop. To address this concern, Victor wondered if there was a way to apply these strategies through an activity “like a ‘live’ process where we were all studying for the same thing” (FG1). When asked about the
actual use of the strategies, Frank stated that even though he found the study tools beneficial, he was “a little lazy” and had not yet used them (FG1).

Overall the students believed that participating in the study skills workshop was a positive experience and looked forward to engaging in the strategies and using the online tools. Charles planned to apply the strategies during his high school career (FG1), and Tiberius believed that the information helped to “shore up,” or strengthen, skills that he already had (FG1). While “not necessarily the most organized person in general,” Spencer stated: “The workshop helped to organize stuff” and believed his participation in the study skills workshop provided “considerable amount of help” (FG1). In summary Carl stated: “From the first session I realized that this was going to be a good experience and help me with my studying skills, which are not as good right now. And [the study skills workshop] was very good” (FG1).

**SRL Knowledge and Strategy Use**

The first outcome research question (RQ3) focuses on the impact of participation in the study skills workshop on a student’s knowledge and practice of SRL. The two subquestions associated with the investigation will frame this section. First, the discussion will explore the students’ use of and usefulness of the strategies presented in the workshop (RQ3A). Second, any change in self-reported SRL awareness and SRL strategy use will be presented (RQ3B).

**Use and Usefulness of SRL Strategies and Tools (RQ3BA)**

Two areas are explored for this outcome research subquestion: use of the workshop’s strategies and the students’ perception of these strategies’ usefulness. To capture moments in time and the students’ self-report of strategy use, a total of 25
students completed two status update surveys (SUS). The researcher compared the self-reports on strategy use between Quarter 2 and Quarter 3 (see Table 5.9). On all strategies, except for monitoring knowledge and setting goals, the number of students who used the strategies decreased over time. By the end of the intervention time frame, most students (64.0%, \( n = 25 \)) seldom or never used the SRL TOAST tool. The strategy used most frequently by the highest number of students (48.0%, \( n = 25 \)) was verbalization.

Table 5.9

| Students’ Self-Report of Strategy Use after Quarter 2 and Quarter 3 Academic Terms |
|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
|                                | Never/ Seldom \( n (%) \) | Sometimes \( n (%) \) | Often/ Very Often \( n (%) \) |
|                                | Q2 | Q3 | Q2 | Q3 | Q2 | Q3 |
| Setting Goals                  | 5 (20.0) | 6 (24.0) | 9 (36.0) | 8 (32.0) | 11 (44.0) | 11 (44.0) |
| SRL Online Tool                | 4 (16.0) | 10 (40.0) | 11 (44.0) | 7 (28.0) | 10 (40.0) | 8 (32.0) |
| Self-Questioning               | 6 (24.0) | 13 (52.0) | 10 (40.0) | 6 (24.0) | 9 (36.0) | 6 (24.0) |
| Mind Maps                      | 9 (36.0) | 11 (44.0) | 7 (28.0) | 10 (40.0) | 9 (36.0) | 4 (16.0) |
| Self-Monitoring               | 4 (16.0) | 8 (32.0) | 17 (68.0) | 9 (36.0) | 4 (16.0) | 8 (32.0) |
| SRL TOAST                      | 12 (48.0) | 16 (64.0) | 8 (32.0) | 6 (24.0) | 5 (20.0) | 3 (12.0) |
| Verbalization                  | 1 (4.0) | 5 (20.0) | 9 (36.0) | 8 (32.0) | 15 (60.0) | 12 (48.0) |

Note. A total of 25 students completed each survey. One student completed only the Quarter 2 survey; another student completed only the Quarter 3 survey. A total of 24 students completed both surveys.

To look more specifically at if students increased or decreased the level of strategy use over time, the researcher completed a change analysis and calculated the total mean and type of change (see Table 5.10). Overall, the mean of change for the group indicates a drop in frequency of use, with the highest drop being for the SRL online tool at -0.63 points. However, more than half of the students indicated no change or an increase in strategy use between self-reported ratings of Quarter 2 and Quarter 3.
Table 5.10

Mean of Group’s Self-Reported Strategy Use Change and Category of the Change Across Two Academic Terms, by Strategy

<table>
<thead>
<tr>
<th>Strategy</th>
<th>M</th>
<th>SD</th>
<th>Decrease n (%)</th>
<th>No Change n (%)</th>
<th>Increase n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Goals</td>
<td>-0.17</td>
<td>1.17</td>
<td>9 (37.5)</td>
<td>8 (33.3)</td>
<td>7 (29.2)</td>
</tr>
<tr>
<td>SRL Online Tool</td>
<td>-0.63</td>
<td>0.97</td>
<td>11 (45.8)</td>
<td>11 (45.8)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Self-Questioning</td>
<td>-0.50</td>
<td>0.83</td>
<td>11 (45.8)</td>
<td>11 (45.8)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Mind Maps</td>
<td>-0.50</td>
<td>0.89</td>
<td>10 (41.7)</td>
<td>12 (50.0)</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>0.00</td>
<td>1.06</td>
<td>4 (16.7)</td>
<td>12 (50.0)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>SRL TOAST</td>
<td>-0.54</td>
<td>0.78</td>
<td>12 (50.0)</td>
<td>11 (45.8)</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Verbalization</td>
<td>-0.33</td>
<td>1.20</td>
<td>11 (45.8)</td>
<td>6 (25.0)</td>
<td>7 (29.2)</td>
</tr>
</tbody>
</table>

Note. A total of 24 students completed both status surveys.

Students shared their perspective on the use of these tools by answering the following two questions on the participant status update survey (SUS): “Explain why you use the strategies listed as ‘often’ and ‘very often’” and “Explain why you do not use each of the strategies listed as ‘never’ or ‘seldom’ used.”

From the first status update survey (SUS1), students cited a variety of reasons why they used specific strategies. Students identified the cognitive strategies of verbalization and mind maps as being useful to understand the material and to provide a visual model of the material. Twenty-eight percent of the students (n = 7) set goals, stating “setting goals is helpful because it gives you something to strive for and work towards as motivation” (Phoebe, SUS1). Ten students commented that they leveraged the SRL online tool and SRL TOAST to stay organized, monitor their progress, and reflect on their work. Nova shared: “The SRL online tool helps me organize what subject I have homework in and how much time I need to dedicate to understanding that subject” (SUS1).
At the end of Quarter 2 three themes emerged as reasons why strategies were not used. These themes included the students’ preference for other strategies, a forgetfulness to use the strategy, and lack of time. Ten students (40.0%) commented that the strategies did not work for them or that the strategies were inefficient or ineffective. Overall, if a strategy aligned with what the students found helpful, they would use the approach, otherwise they used a different, more preferred approach.

The concept of time emerged as a key consideration for strategy use and was first suggested during the December focus groups (FG1). When asked what might make it difficult, or create barriers, for using the strategies, students described a lack of time to focus on the strategies. Alexandra stated: “I feel like I don’t have time to do these [strategies], because I already have so much work to do” (FG1). Similar comments from both status update surveys included: “[the strategy] takes me too much time” (Cody, SUS1), “these processes take longer” (Andrea, SUS1), and “I don’t have enough time to do it” (Brian, SUS1).

Students mentioned the issue of time on the second participant’s status update survey (SUS2) completed in April 2017. Concerns over the “time-consuming” (Andrea, SUS2) nature of the strategies continued to be a reason why the students decreased use. Students again noted other preferred strategies and their forgetfulness to use the strategies as reasons for less use. As one student shared: “I virtually forgot them in the big pile of ‘things to remember’ that’s overfilled in my head” (Nova, SUS2).

Perhaps the decrease in use indicated by the responses on the status update surveys can be explained by the students’ assessment of their usefulness. To gather this information, the researcher asked the students to indicate the degree to which specific
strategies were useful in supporting their learning on a 5-point Likert scale. Students provided this information two times, one at the end of Quarter 2 in January 2017 and the other at the end of Quarter 3 in April 2017. The number of responses in each category for all strategies is shown in Table 5.11. The majority of the students continued to believe that most strategies, with the exception of the use of the SRL TOAST and mind maps, supported their learning. Even though attending the study skills workshop is not a specific learning strategy, 80% \((n = 25)\) of the students believed attendance was beneficial at the end of Quarter 2, and 83% \((n = 24)\) of students at the end of Quarter 3.

Table 5.11

*Students’ Assessment of Strategy’s Usefulness Over Two Academic Terms*

<table>
<thead>
<tr>
<th></th>
<th>Disagree/Strongly Disagree</th>
<th>Neither</th>
<th>Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q2 (n=25)</td>
<td>Q3 (n=24)</td>
<td>Q2 (n=25)</td>
</tr>
<tr>
<td>Setting Goals</td>
<td>1 (4.0)</td>
<td>3 (12.5)</td>
<td>6 (24.0)</td>
</tr>
<tr>
<td>SRL Online Tool</td>
<td>2 (8.0)</td>
<td>2 (8.3)</td>
<td>7 (28.0)</td>
</tr>
<tr>
<td>Self-Questioning</td>
<td>0 (0.0)</td>
<td>1 (4.2)</td>
<td>9 (36.0)</td>
</tr>
<tr>
<td>Mind Maps</td>
<td>6 (24.0)</td>
<td>7 (29.2)</td>
<td>7 (28.0)</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>2 (8.0)</td>
<td>3 (12.5)</td>
<td>10 (40.0)</td>
</tr>
<tr>
<td>SRL TOAST</td>
<td>1 (4.0)</td>
<td>3 (12.5)</td>
<td>13 (52.0)</td>
</tr>
<tr>
<td>Verbalization</td>
<td>0 (0.0)</td>
<td>3 (12.5)</td>
<td>8 (32.0)</td>
</tr>
</tbody>
</table>

*Note.* A total of 25 students completed this section of the status update survey at the end of Quarter 2. A total of 24 completed the section at the end of Quarter 3.

The frequency of the direction of change, as well as the group’s mean rating, are reflected in Table 5.12. While the mean of any change in the students’ perspective showed an overall decrease in rating, the majority of the students maintained or increased their rating that the strategies support learning.
At the end of the Quarter 3, the students shared perspectives on their knowledge and use of SRL practices. Overall their comments focused on specific strategies. Andrea (FG2) summarized many students’ experiences. She noted that setting goals is an important skill, stating that the process “can apply anywhere” describing it as “efficient and smart.” She further stated that even though she had not been using the tools as much, she did not have enough to use all the strategies, particularly the SRL TOAST. Several students agreed that the SRL TOAST took too much time. These students relied on the school’s learning platform to monitor their progress where grades were plotted by course. Andrea stated that she believed it was important to go through the process of reflecting on and analyzing academic progress and wondered if the SRL TOAST framework could be incorporated to the school’s learning network. Many students approved of this idea (FG2). Since an offsite company manages the school’s learning network, this approach was not possible for the intervention. Finally, students continued to cite a lack of time as a restriction on when and how they practiced SRL and used the strategies.
Self-reported SRL Awareness and Practice (RQ3B).

The second subquestion investigated if participation in the workshop impacted a student’s self-reported knowledge and practice of SRL. The researcher collected and compared pre- and postmeasures from the MAI and the SRSI-SR. Additionally, the researcher performed paired sample $t$ tests on the scores and subscores from each of these instruments. Qualitative data gathered from the participants’ Status Update Survey (SUS1 and SUS2) and transcripts from the April 2017 focus group (FG2) discussions inform these findings.

Metacognitive Awareness Inventory (MAI). The MAI measures several areas associated with metacognition. For this study, the MAI was shown to have high internal consistency with a Cronbach’s alpha of 0.795 on the premeasure total score and an alpha of 0.827 on the postmeasure total score. The premeasure MAI total score ranged from 31 to 52, and the postmeasure MAI total score ranged from 30 to 52, with 52 being the highest possible score. Only one score was a 52 on each measure, from a different student for each measure. With the exception of the mean for the debugging strategies subscore, which dropped from 4.30 to 4.22 pre- to postmeasure, the mean of all other subscores increased from pre- to postmeasure.

The researcher compared pre- and postintervention MAI scores (see Table 5.13). A paired sample $t$ test revealed no significant findings, $t(24) = 1.921$, $p = .066$, between the preintervention total score ($M = 34.93$, $SD = 6.39$) and postintervention MAI score ($M = 38.04$, $SD = 7.20$). This score with $p = 0.066$, along with the subscore from conditional knowledge with $p = .070$, might indicate a trend toward significance. Overall findings from this statistical analysis reveal that there is no significant change in a student’s
metacognitive awareness, as measured through the MAI, from participation in the study
skills workshop.

Table 5.13

*Mean (SD) and Paired Sample t Test of the Metacognitive Awareness Inventory (MAI)*

*Scores*

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
<th>Paired Sample t test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 27$</td>
<td>$n = 25$</td>
<td>$t$</td>
</tr>
<tr>
<td>Total Score</td>
<td>M 34.93</td>
<td>M 38.04</td>
<td>1.921</td>
</tr>
<tr>
<td>Knowledge about Cognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Declarative Knowledge</td>
<td>M 5.70</td>
<td>M 6.19</td>
<td>1.517</td>
</tr>
<tr>
<td>Procedural Knowledge</td>
<td>M 2.74</td>
<td>M 3.07</td>
<td>1.302</td>
</tr>
<tr>
<td>Conditional Knowledge</td>
<td>M 3.52</td>
<td>M 3.93</td>
<td>1.893</td>
</tr>
<tr>
<td>Regulation of Cognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>M 4.11</td>
<td>M 4.56</td>
<td>.959</td>
</tr>
<tr>
<td>Information Management</td>
<td>M 6.59</td>
<td>M 7.15</td>
<td>1.298</td>
</tr>
<tr>
<td>Strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension Monitoring</td>
<td>M 4.37</td>
<td>M 4.93</td>
<td>1.140</td>
</tr>
<tr>
<td>Debugging Strategies</td>
<td>M 4.30</td>
<td>M 4.22</td>
<td>-.337</td>
</tr>
<tr>
<td>Evaluation</td>
<td>M 3.56</td>
<td>M 4.00</td>
<td>1.295</td>
</tr>
</tbody>
</table>

**Self-regulation Strategy Inventory – Self-Report (SRSI-SR).** The SRSI-SR measures several areas associated with SRL strategy use. The instrument provides both a
total score as well as subscores on three factors: management of environment and
behavior, seeking and learning information, and maladaptive regulatory behavior. For the
present study the researcher calculated Cronbach’s alpha to assess the internal
consistency or reliability of the SRSI-SR; these values demonstrated a high internal
consistency with an initial overall alpha of .81 and follow-up overall alpha of .74. The
subscores demonstrated high internal consistency with alpha scores for the premeasures
ranging from .72 to .86 and postmeasures ranging from .82 to .87. The preintervention
SRSI-SR total score ranged from 104 to 179, and the postintervention SRSI-SR score
ranged from 112 to 190, with 190 being the highest possible score. The means of all subscores increased from pre- to postintervention.

The researcher compared pre- and postintervention SRSI scores (see Table 5.14). A paired sample *t* test revealed no significant difference, *t*(24) = 1.614, *p* = .156, between the total preintervention SRSI-SR score (*M* = 142.40, *SD* = 11.64) and postintervention SRSI-SR score (*M* = 147.40, *SD* = 23.32). However, there was a statistically significant difference, *t*(24) = 2.498, *p* = 0.02, between the preintervention SRSI Factor II subscore (*M* = 38.84; *SD* = 7.48) and postintervention SRSI Factor II subscore (*M* = 42.68, *SD* = 6.95). This result suggests that the students’ self-reported ability to seek and learn information improved after attending the study skills workshop.

Table 5.14

*Mean (SD) and Paired Sample *t* Test of the Self-Regulation Strategy Inventory – Self-Report (SRSI-SR) Scores*

<table>
<thead>
<tr>
<th></th>
<th>Pre <em>n</em> = 27</th>
<th>Post <em>n</em> = 25</th>
<th>Paired Sample <em>t</em> test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>M</em></td>
<td><em>SD</em></td>
<td><em>M</em></td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>142.40</td>
<td>21.27</td>
<td>147.40</td>
</tr>
<tr>
<td><strong>Factor I:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage environment</td>
<td>58.56</td>
<td>11.64</td>
<td>61.28</td>
</tr>
<tr>
<td>and behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Factor II:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek and learn</td>
<td>38.84</td>
<td>7.48</td>
<td>42.68</td>
</tr>
<tr>
<td>information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Factor III:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maladaptive</td>
<td>19.00</td>
<td>5.75</td>
<td>20.56</td>
</tr>
<tr>
<td>Regulatory Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Impact on Academic Performance (RQ4)**

The second outcome research question focused on any possible impact of students’ participation in the study skills workshop on academic performance when compared to academic performance from a group of students who did not participate. A treatment naïve cohort served as a comparison group. The researcher first conducted a
MANOVA to see if the treatment and the treatment naïve groups differed on more than one dependent variable and if there was homogeneity of covariance between the two groups. The researcher then conducted an ANCOVA to see if there was an impact in academic performance. The covariates were Quarter 1 academic grades and weighted 4-point GPA, and Quarter 3 marks and GPA were dependent variables.

**Test for Homogeneity between Cohorts**

For the MANOVA, dependent variables included premeasures of the MAI and SRSI-SR, as well as standardized testing (CTP4) scores, Quarter 1 (Q1) grades, and 4-point weighted GPA. Table 5.15 presents the results of this analysis. There were six significant differences from eight possible areas. For the SRSI-SR a significant difference, \( F(1, 55) = 9.783, p = .003 \), existed between the treatment group’s SRSI-SR score (\( M = 141.63, SD = 19.84 \)) and that of the treatment naïve group (\( M = 123.42, SD = 21.42 \)), meaning the treatment group had a stronger self-reported understanding and use of SLR strategies. For the standardized tests (CTP4) there were significant differences between the cohorts in three subscores: verbal reasoning, quantitative reasoning, and Algebra 1. The treatment group’s CTP4 verbal reasoning subscore mean (\( M = 387.07, SD = 24.23 \)) was significantly higher, \( F(1, 55) = 6.167, p = .016 \), than that of the treatment naïve group’s score (\( M = 373.28, SD = 18.49 \)). The treatment group’s CTP4 quantitative reasoning subscore mean (\( M = 383.14, SD = 21.03 \)) was significantly higher, \( F(1, 55) = 4.492, p = .039 \), than that of the treatment naïve group’s score (\( M = 371.07, SD = 18.88 \)). Finally, the treatment group’s CTP4 Algebra 1 subscore mean (\( M = 373.24, SD = 33.04 \)) was significantly higher, \( F(1, 55) = 8.565, p = .005 \), than that of the treatment naïve group’s score (\( M = 351.79, SD = 20.18 \)). These significant differences in the standardized
test subscores suggest that the treatment group had stronger verbal and quantitative reasoning skills as well as Algebra 1 knowledge than the treatment naïve group. The treatment group’s mean Quarter 1 average \( (M = 85.69, SD = 7.61) \) and that of the treatment naïve group \( (M = 83.49, SD = 4.96) \) were significantly different, \( F(1, 55) = 4.034, p = .039 \), indicating that the treatment group had a higher Quarter 1 grade average during their freshman year than that of the treatment naïve group. As one would suspect, the weighted Quarter 1 GPA also shows significant difference. The treatment group’s weighted 4-point Quarter 1 GPA mean \( (M = 3.6, SD = .65) \) was significantly higher, \( F(1, 55) = 3.86, p = .005 \), than that of the treatment naïve group’s mean GPA \( (M = 3.4, SD = .49) \). Again, this significant difference indicated a stronger academic performance baseline measure for the treatment group than the treatment naïve group.

Table 5.15

*Results of a MANOVA to Identify Differences between the Treatment and Treatment Naïve Groups*

<table>
<thead>
<tr>
<th></th>
<th>Treatment ( N = 30 )</th>
<th>Treatment Naïve ( n = 29 )</th>
<th>MANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAI</td>
<td>35.03 ( M ), 6.22 ( SD )</td>
<td>36.42 ( M ), 7.33 ( SD )</td>
<td>.728 ( F ), .397 ( p = )</td>
</tr>
<tr>
<td>SRSI</td>
<td>141.63 ( M ), 19.84 ( SD )</td>
<td>123.42 ( M ), 21.42 ( SD )</td>
<td>9.785 ( F ), .003 ( p = )</td>
</tr>
<tr>
<td>Standardized Testing (CTP4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Reasoning</td>
<td>387.07 ( M ), 24.23 ( SD )</td>
<td>373.28 ( M ), 18.49 ( SD )</td>
<td>6.167 ( F ), .016 ( p = )</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>373.24 ( M ), 24.82 ( SD )</td>
<td>367.86 ( M ), 18.60 ( SD )</td>
<td>1.072 ( F ), .305 ( p = )</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>383.14 ( M ), 21.03 ( SD )</td>
<td>371.07 ( M ), 18.88 ( SD )</td>
<td>4.492 ( F ), .039 ( p = )</td>
</tr>
<tr>
<td>Algebra 1</td>
<td>373.24 ( M ), 33.04 ( SD )</td>
<td>351.79 ( M ), 20.18 ( SD )</td>
<td>8.565 ( F ), .005 ( p = )</td>
</tr>
<tr>
<td>Academic Performance (Q1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>85.69 ( M ), 7.61 ( SD )</td>
<td>83.49 ( M ), 4.96 ( SD )</td>
<td>4.034 ( F ), .039 ( p = )</td>
</tr>
<tr>
<td>4-point GPA</td>
<td>3.6 ( M ), 0.65 ( SD )</td>
<td>3.40 ( M ), 0.49 ( SD )</td>
<td>3.486 ( F ), .005 ( p = )</td>
</tr>
</tbody>
</table>

*Note.* Two members of the Treatment Naïve group were eliminated from this data since they were not enrolled at the targeted school during their Grade 9 year.
These results indicate that six of the eight covariates showed significant differences between these two groups. These differences increase the likelihood of a Type II error. Despite not achieving homogeneity of covariance between the two groups, analysis continued due to the self-selecting process that established the composition of these two groups. This result will be noted as a limitation in the research.

**Investigation on any Impact on Academic Performance**

To investigate whether participation in the study skills workshop had an impact on the students’ academic performance when compared to students who did not participate, the researcher conducted an ANCOVA. This test analyzed if the treatment and the treatment naïve groups differed in their Quarter 3 average, Quarter 3 course grades, and 4-point weighted GPA given their Quarter 1 marks. Additionally a correlation analysis measured the type of change, and a regression analysis was used to compare the rate of change between the two groups.

There was no significant difference, $F(1, 56) = 0.004, p = .952$, between the Quarter 3 means of the treatment group and the treatment naïve group when adjusting for the Quarter 1 average (see Table 5.16). Additionally, there was no significant difference, $F(1, 55) = 0.646, p = .425$, between these groups in the mean of the weighted 4-point Quarter 3 GPA when adjusting for the Quarter 1 GPA. This result suggests that by attending the study skills workshop, the students’ academic performance is not significantly different than those students who did not participate.
Table 5.16

Results of an ANCOVA of the Impact on Academic Grades from Participation in Study Skills Workshop

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter Average</td>
<td>.004</td>
<td>.952</td>
</tr>
<tr>
<td>4-point weighted GPA (Q3)</td>
<td>.646</td>
<td>.425</td>
</tr>
</tbody>
</table>

In an analysis of the means for grades by cohort, the mean grades range between 83.43 to 91.21 for the treatment group and 79.07 to 86.41 for the treatment naïve group (see Table 5.17). In all but one subject (i.e., foreign language), the means for the treatment group were higher. Regardless of participation in the study skills course, grades and averages improved, overall, between Quarter 1 and Quarter 3.

Table 5.17

Means of Quarter 1 and Quarter 3 Academic Grades, by Treatment Group

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Treatment Naïve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 30</td>
<td>n = 29</td>
</tr>
<tr>
<td></td>
<td>Quarter 1</td>
<td>Quarter 3</td>
</tr>
<tr>
<td>Academic Average</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>85.69</td>
<td>7.61</td>
</tr>
<tr>
<td>Weighted GPA</td>
<td>3.64</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Course Grades

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Treatment Naïve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 30</td>
<td>n = 29</td>
</tr>
<tr>
<td></td>
<td>Quarter 1</td>
<td>Quarter 3</td>
</tr>
<tr>
<td>History</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>85.97</td>
<td>8.26</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>83.43</td>
<td>9.88</td>
</tr>
<tr>
<td>Biology</td>
<td>91.21</td>
<td>7.48</td>
</tr>
<tr>
<td>Mathematics</td>
<td>83.83</td>
<td>8.81</td>
</tr>
<tr>
<td>History</td>
<td>84.70</td>
<td>9.60</td>
</tr>
</tbody>
</table>

As one would suspect, the Quarter 1 and Quarter 3 grades show a high positive correlation for both groups (see Table 5.18). The correlation coefficients, $r = .431$, $p = .020$, reveal a strong positive relationship between each cohort’s Quarter 1 and Quarter 3 grades.
Table 5.18

Correlation Analysis for Academic Performance Measures, by Treatment Group

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th></th>
<th>Treatment Naïve</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 30$</td>
<td>$n = 29$</td>
<td>$n = 30$</td>
<td>$n = 29$</td>
</tr>
<tr>
<td>Academic Average</td>
<td>.902$^a$</td>
<td>.000</td>
<td>.882$^a$</td>
<td>.000</td>
</tr>
<tr>
<td>Weighted GPA</td>
<td>.899$^a$</td>
<td>.000</td>
<td>.901$^a$</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. $^a$ = Correlation is significant at the 0.01 level (2-tailed).

Finally, Quarter 1 grades significantly predicted Quarter 3 averages for both the treatment and treatment naïve groups (see Table 5.19). For the treatment group Quarter 1 average significantly predicted Quarter 3 average, $\beta = .958$, $t(28) = 11.087$, $p < .001$. Quarter 1 average also explained a significant proportion of variance in Quarter 3 averages, $R^2 = .814$, $F(1,28) = 122.924$, $p < .001$. For the treatment naïve group Quarter 1 average significantly predicted Quarter 3 average, $\beta = .921$, $t(27) = 9.744$, $p < .001$. Quarter 1 average also explained a significant proportion of variance in Quarter 3 averages, $R^2 = .779$, $F(1,27) = 94.946$, $p < .001$.

Table 5.19

Regression Analysis of Quarter Averages, by Treatment Group

<table>
<thead>
<tr>
<th></th>
<th>Quarter Average</th>
<th></th>
<th></th>
<th>$F$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$t$</td>
<td>$p$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>.958</td>
<td>11.087</td>
<td>.000</td>
<td>122.924</td>
<td>.814</td>
</tr>
<tr>
<td>Treatment Naïve</td>
<td>.921</td>
<td>9.744</td>
<td>.000</td>
<td>94.946</td>
<td>.779</td>
</tr>
</tbody>
</table>

The regression analysis for Quarter 1 and Quarter 3 4-point GPA also revealed similar results (see Table 5.20). Of particular note, the rate of change for the treatment group is slightly higher than that of the treatment naïve group. Although there is no significant difference between the groups according to the ANCOVA, this regression
analysis suggests that participation in the study skills workshop had a slightly positive impact on academic performance in terms of change over time.

Table 5.20

*Regression Analysis of Quarter 4-Point GPA, by Treatment Group*

<table>
<thead>
<tr>
<th></th>
<th>4-Point GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td>Treatment</td>
<td>1.035</td>
</tr>
<tr>
<td>Treatment Naïve</td>
<td>.923</td>
</tr>
</tbody>
</table>

**Discussion**

This researcher tested the hypothesis that students who participate in a study skills workshop will report greater SRL knowledge and use of SRL strategies, which will positively impact academic performance. This section will discuss the findings and offer information to explain and describe any phenomenon. Literature will be referenced to further inform the results. The process and outcome research questions provide a framework to organize the discussion.

**Fidelity of Implementation (RQ1)**

Fidelity of implementation focuses on whether the intervention aligned to the intended research design. Design components to be considered include the workshop’s structure and components (i.e., adherence), the amount of time students participated (i.e., dosage, exposure), and students’ previous knowledge that might impact results (i.e., differentiation).

The workshop’s structure aligned with research recommendations that suggest stand-alone interventions can provide learning support (Cleary et al., 2008; Tuckman & Kennedy, 2011). The addition of online tools and scaffolds also supported the students as they engaged in SRL (Kurt, 2007, Pape & Bell, 2014). This process proved effective
in workload organization, time management, and SRL strategy practice. The decrease in sustained use of the online tools, however, indicated that students need additional coaching or mentoring support, as recommended by Renzuilli (2015) and Volet (1991). Even though the researcher offered support, the students did not request additional aid. The lack of such requests might be an indication that the students did not know in what ways they needed support or did not have the time to engage in this support. Additionally, work between the researcher and the students might have increased had the researcher been at the school on a daily basis. However, more students reported seeking extra help from their teachers or the school’s learning specialist between Quarter 2 and Quarter 3.

During the second round of focus groups, students considered changes in the workshop design. One suggestion was to shift when the workshop was offered. Most students believed that they needed the workshop’s information and instruction earlier in the year. They stated that if they had practiced SRL and used the strategies and online tools from the start of the year, changing established patterns of behavior would not have been necessary. Another suggestion was to extend the workshop over a longer period of time, perhaps one hour each week for 7 weeks, a process similar to Cleary and colleague’s (2008) SREP program. The students also wondered if the skills could be incorporated within the structure of their classes, an approach found effective in domain specific interventions (Askell-Williams et al., 2012; Bell & Pape, 2014; Connor, 2007; Zepeda et al., 2015).

In terms of workshop content, SRL and cognitive strategies were woven throughout the three sessions (Dignath & Buttner, 2008). Since the PowerPoint was
designed to frame the workshop’s activities, all content was presented as planned. This content, however, might not have addressed the students’ needs. During the focus group discussions, several students suggested a shift from a focus on cognitive strategies to an increased emphasis of SRL processes. Specifically, the students wanted information on time management skills and strategies. Alexandra, for example, believed that students needed help on balancing their busy schedules with the academic demands, including planning the time to complete assignments in order to “stay on top of [the work] and try to get as much done and be productive” (FG2). Spencer agreed and summarized his experience:

I feel like I walked in [to the workshop] thinking I didn’t have enough [cognitive] skills, but as I went through it, I was ok with these. It was more about time management for me. Personally, my time management skills are lacking (FG2).

Charles confirmed that he did not need information on the cognitive strategies, because he was “already doing the techniques and didn’t need to do them as much as the others might needed to do” (FG2). When thinking about high school and learning needs, Victor concluded: “We are in high school and we’re still having trouble organizing our time” (FG2).

The student’s desire for time management and organizational support informs another area of fidelity of implementation, dosage or the student’s amount of time in the workshop. Despite the administration’s assurance that students would be excused from academic and athletic obligations to attend all the workshop sessions, students were still required to participate in athletic practices. Several students missed a part of
the sessions, which meant a loss of SRL practice. The researcher did meet with those students to review any missed topics, however this approach altered the experience for these individuals.

Finally, students who had previous exposure with any of the SRL or cognitive tools might have influenced the study’s findings. Specifically previous training, rather than the intervention, might be the source of any outcome. Since very few students had been exposed to the concepts before the workshop, differentiation does not impact fidelity of implementation. A comment from focus group discussion is of particular note: “Why is it that this stuff [SRL information] seems really new; none of my teachers even mention it” (Victor, FG2).

Overall, fidelity of implementation was maintained, yet two considerations for future research arise. These considerations include shifts in content to better align with the students’ needs and the opportunity to attend the sessions in their entirety.

**Students’ Overall Experience (RQ2)**

The second process RQ focused on the students’ experience, specifically their level of engagement, their perceptions of quality of instruction, and components of greatest value. The students maintained a belief that their participation in the workshop was beneficial. Atticus shared: “I liked the techniques and got good guidance from someone with experience. And I know that I’m going on the right path, and it helps, and the [workshop] helped me figure out what’s good and what works” (FG2). Donald indicated: “I’m going to continue to use the SRL online tool” and noted his continued use of effective learning strategies (FG2). The students found the workshop resources helpful. Rose confessed that at times she was unsure how to approach her studies, yet
she began to reference the student resource packet to identify alternate and perhaps more effective ways. She stated that attending the study skills workshop changed her “study process a little bit” (FG2). Alexandra summarized: “It’s simply reflecting on what strategies are working the best for me” (FG2).

Second, many students identified positive benefits of participation. Charles stated: “I think it was good to participate in the workshop and to learn about the different ways to regulate your learning and good ways to study” (FG2). Kathy agreed and stated:

I felt the workshop, going there, and her teaching us the strategies was really good, because you always think there’s just one way of doing things, but the workshop opened up my mind to different ways that can help you with the learning (FG2).

The students offered suggestions on content change, as discussed earlier in this section. However, these requests did not change the students’ perception of the usefulness of or their ability to use the strategies. Overall, the students reported a positive experience at the workshop, with continued high ratings for participation in the study skills workshop on the status update survey.

Students’ Knowledge and Practice of SRL (RQ3)

The researcher examined both the students’ self-reported use and usefulness of SRL strategies. There was an increase in the students’ repertoire of useful strategies yet a decrease in SRL strategy use across two academic terms. Additionally, the students reported an increased ability to shift to different strategies based on a discussion about effective and ineffective cognitive strategies (Dunlosky et al., 2013). However, the
students’ self-reported SRL knowledge and strategy use did not show statistically significant change from pre- and postmeasures in any area except their ability to seek and learn information. Two factors may have influenced these results, including dedicated time to engage in SRL and the instruments in the research design.

Discussions from the focus groups indicated that the students did not believe they had sufficient time to fully engage in the SRL and cognitive strategies. The students who enroll at this independent school have full academic and athletic schedules. A student’s schedule influences the time available to engage in SRL. For example, should a student enroll in art courses or participate in music or drama, the student has less time to work independently on schoolwork. In an analysis of the descriptive statistics for the treatment group, one can see a high percent of involvement in these activities. Zimmerman (2008) noted that time is required to fully engage in SRL, particularly in the forethought phase around goal-setting and strategic planning. Given the academic requirements and full schedules, the students might not have had sufficient time to engage in the complex SRL practices and subprocesses.

SRL is a difficult construct to assess, and the instruments used to measure SRL are an important consideration. When discussing emerging issues in SRL research, Zimmerman (2008) traces the development of reliable measures to investigate a student’s self-reported SRL knowledge and strategy use. Even though he states that SRL measures provide useful information, Zimmerman urges additional research in this area. Most SRL interventions that use a pre- and posttest design measure academic performance (Dignath & Büttner, 2008). An exception is the work of Cleary et al. (2008) in which there was statistically significant positive change in students’ SRSI-SR pre- and posttest results. To
inform this analysis, Cleary and colleagues used a reliability change index to investigate any significant change for individual students. Using this statistical test in the current study may have shifted the results and provided additional information on individual student results.

In this study both positive and negative changes occurred in the students’ MAI and SRSI-SR pre- and postmeasures. An increase might indicate that the student gained SRL knowledge and strategy use due to participation in the study skills workshop. Similarly a drop might indicate a loss in SRL awareness and strategy use. Perhaps, instead, these drops indicate the students gained a perspective on their SRL knowledge and practices. Self-evaluation and self-monitoring might have led to a more realistic, albeit lower, self-reported postmeasure score.

The use of other measures and additional questions might have informed the research. For example, the instruments might have contained more open-ended questions regarding the manner in which students monitored or evaluated their learning process. One-on-one interviews with the participating students might have further informed if a student leveraged SRL processes. Zimmerman (2008) suggests that SRL assessments involve a “dynamic feedback loop” where subtle changes can be detected over a period of time (p. 181). Further study appears to be warranted on observation tools and interview protocols that extend beyond instruments based on self-reported measures.

Finally, participation in this research was a SRL activity. When the students completed the daily surveys, participated in focus group discussions, and answered questions on the status update surveys, these individuals engaged in SRL practices. Even though these activities were designed as a means to collect data and not intended
to be dedicated and deliberate SRL activities, participation in all aspects of the research design required self-reflection, self-evaluation, and self-monitoring, which are all processes in the SRL cycle. While the objective of the intervention was to increase SRL knowledge and practices, the research activities provided many opportunities for the students to engage in SRL.

**Academic Performance (RQ4)**

Findings indicate that there was no statistically significant change in academic performance between the treatment and treatment naïve groups. This result can be interpreted in several ways. First, these finding may suggest that the SRL intervention had no impact on academic performance. It may, however, be that the composition and characteristics of the treatment and the treatment naïve groups limits the results. Additionally, considerations on extra academic support as well as instruments used in the research design inform these findings.

Composition and characteristics of the two cohort groups must be considered. A higher percentage of the treatment group was enrolled in accelerated classes and had stronger standardized testing scores. Enrollment in accelerated and advanced courses impact the calculation of the weighted GPA in addition to increasing academic expectations for those enrolled. Additionally, the treatment group’s stronger standardized testing scores and higher premeasure Quarter 1 averages suggest an academically stronger and more capable class. The source of these differences might be based on the self-selecting nature of the cohort groups. The two grade levels might be more similar, and yet those who chose to participate in the study caused the difference. The difference in the groups’ compositions might also be explained by any admissions activities when
the students initially enrolled at the school. The grade level in which students enroll can explain their curricular baseline knowledge as well as the individuals’ learning habits and processes. These abilities can establish both strengths and weaknesses for the individual students.

Learning support can also explain academic performance outcomes. Members of the treatment group sought out-of-class learning support over the course of the intervention. This activity shows a possible external event that impacted academic performance. At the end of Quarter 2, 72% of the workshop students sought extra help from their teachers and by the end of Quarter 3, 88% of the students sought teacher support. This situation suggests that any change in academic performance might be the result of this additional learning support and not participation in the study skills workshop. Or perhaps the intervention helped these students become more aware of their academic needs which led to them to seek extra academic support.

Finally, the measures used in this study might be a factor. Academic averages can be subjective and can include other grades that extend beyond knowledge of specific course content, such as scores on class participation or homework completion. This study was unlike other SRL research. Many SRL interventions measure academic performance through specific course assessments (Cleary & Zimmerman, 2004; Pape et al., 2003; Zepeda et al., 2015). Had this research accessed more domain-specific tests to measure academic performance, the results might have been different. Measures of academic performance are an important consideration for future SRL research and interventions.
Limitations

There are six limitations on this research including the sample size and composition, the school environment, the issue of time, the stand-alone nature of the study skills workshop, and the instruments selected for research design.

The actual size of the student body at the targeted school limits the sample size and the scope of the generalizability of the findings. Of the students available to participate in the study, 48% \((n = 62)\) of the Grade 9 students made up the treatment group, and 49% \((n = 65)\) of the Grade 10 served as members of the treatment naïve group. Additionally, the self-selection nature of the treatment and treatment naïve groups determined the composition. It is possible that the students who participated in the study skills workshop had an increased inclination to seek learning and academic support, and those who did not participate have either strong learning strategies or have an academic background similar to the treatment naïve group. The question of the homogeneity of the two groups, as noted earlier in the chapter, might have limited the results.

The school’s characteristics, including educational environment, structure of the program, academic expectations, and required athletics and arts participation, may limit the application to other school environments and student bodies. Literature informed this intervention’s design, yet the school shaped its structure. Similar programs may not be appropriate for other schools.

Third, the students’ lack of time restricted their involvement in the workshop and their ability to engage with the strategies that foster SLR and impact academic achievement. Time required for the students to meet their academics, arts, and athletics
requirements conflicted with any desire to leverage the SRL processes and strategies and use of the SRL online tools developed for the research.

Fourth, the stand-alone nature of the workshop might have limited exposure to and support of SRL knowledge and strategy use. As research indicates, when teachers embed and model SRL strategy use within course content, there is an impact on both SRL and academic performance (Hattie et al., 1996). Had this intervention linked to academic coursework, a more significant outcome effect may have occurred.

Fifth, the instruments used to measure outcomes may not have provided appropriate data. The self-reporting nature of the SRL instruments, the lack of interview protocol to assess subtle changes in SRL practices, and the broad basis of the academic grades and 4-point averages restricted supporting information on the findings.

Finally, given the findings one might question if the intervention had an impact on the students’ educational experience. Perhaps the lack of statistically significant results is not an indication that these students did not gain knowledge and practice in SRL. Instead, exposure to these theories, to a variety of study strategies, and the time to focus on learning approach will provide eventual and long-term benefits. Should the students start to monitor their learning, reevaluate their approach, adjust their learning strategy, or feel more empowered and more self-regulated in their learning, the benefits may go beyond the statistical significance.

Implications for Research

There are three main implications for research including themes related to cohort composition, availability of time to work on and with the strategies, and research design. First, a larger sample size with better homogeneity of cohort groups
is an important consideration. Seeking students from different school environments will increase generalizability of the findings. Additionally student characteristics might need further investigation. It is possible that students who do not see the need or the benefits of SRL may already have knowledge or may already use SRL strategies.

Second, schools engaged with SRL interventions might devote, designate, and preserve time for the intervention. Students need time to practice the SRL over an extended period of time. Should the intervention involve shorter sessions for a longer time frame, the students might find it easier to engage in the activities. Additionally, if the intervention is introduced earlier in the school year, the students might use the strategies without the need to adjust and adapt existing patterns of behavior. Perhaps a more sustained intervention would yield results that reflect important considerations for students’ use of SRL knowledge and strategies.

Different design elements might be considered. Embedding the strategies into course content might better support intervention design (Hadwin & Winne, 2005). Conversely, the intervention design might incorporate classroom activities to support its stand-alone nature. This shift would align with literature that suggests the importance of teacher involvement and content application. Faculty could provide needed coaching and support. When teachers focus pedagogical practices on SRL and model or cue strategies, student SRL practices and academic performance improve (Connor, 2007; Schofield, 2012; Volet, 1991). Finally, considering additional or different instruments to measure both SRL practices and academic performance could lead to an increased understanding of the impact of the SRL intervention.
**Implications for Practice**

This research shows evidence that students can benefit from programs focused on teaching SRL knowledge and introducing a variety of SRL and cognitive strategies. A program infused with SRL feeds directly to active and empowered learners. If schools consider offering these types of workshops, this study suggests that students be allowed time to practice SRL and leverage the strategies. To do so, school administrations should consider designating time in the schedule to respect the goals and activities of a workshop and to provide the students the opportunity to engage with SRL.

Another critical implication of practice is a faculty’s participation to diffuse a SRL innovation into their current practices. To do so, administrations must commit PD to both the instruction of specific SRL concepts as well as possible shifts of pedagogical approaches. As with the student-focused programs, faculty involvement relies on an administration’s commitment of time and funding. An administration would need to provide support to achieve these goals, as well as faculty accountability measures to insure alignment with these initiatives.

**Conclusions**

In their seminal book, *How People Learn*, Bransford and colleagues (2000) comment on the relationship between researcher and teacher. They note that not long ago teachers and cognitive researchers were not connected. The researcher’s and the teacher’s work seemed not to apply to each other. Bransford et al. then state that researchers are now working more with teachers to adapt to see how “different settings and classroom interactions influence applications of their theories” (p. 3). They conclude that “the goal of education is better conceived as helping students develop the
intellectual tools and learning strategies needed to acquire the knowledge that allows people to think productively about history, science and technology, social phenomena, mathematics, and the arts” (Bransford et al., 2000, p. 5).

Once described as the “fusion of skill and will,” SRL supports active, independent, and empowered students (Montalvo & Torres, 2004, p. 22). Programs that aim to help students develop and leverage tools that support the learning process foster SRL. The benefits of participation in these programs may not be apparent through the research findings yet be apparent in the student’s acquisition of knowledge and in the student’s approach to thinking and learning.

The capacity to learn is a gift;

the ability to learn is a skill;

the willingness to learn is a choice.

~Brian Herbert
References


The College Board announces surge of students taking new SAT® suite of assessments, creating an opportunity pathway for more then six million students. (2016,


Appendix A

Student Survey: Learning Support at an Independent School – Needs Assessment

Introduction
For my doctoral studies at Johns Hopkins University, I am studying how metacognition (strategic learning skills) support the learning process. To better understand the development of these learning skills, from the student's perspective, I am asking for your help. This short survey will assess your impressions of how you are doing in your classes as well as ask you to assess the types of study strategies that support your learning. Your responses will be held in confidence. Thank you for your help; I appreciate your honest responses! ~Ms. Pepper

---

1. There are many skills that help students feel successful in the learning process. Please consider how you approach your classes (your study skills) and complete these sentences with the appropriate description. 5 = very strong; 3 = satisfactory, 1 = need improvement.

*Mark only 1 oval per row.*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>3</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The manner in which I manage my time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to know what I need to study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to identify what I know and what I don’t know</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process by which I take notes . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to draw conclusions from the topics I study . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to stay focused . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to redirect my attention when I get unfocused . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
2. Reconsider these study skills and assess your former ability (*when you entered* upper school). 5 = very strong; 3 = satisfactory, 1 = need improvement.  
*Mark only 1 circle per row.*

<table>
<thead>
<tr>
<th>Study Skill</th>
<th>1 Needed improvement (I needed help)</th>
<th>3 Was satisfactory (I was able to get by.)</th>
<th>5 Was very strong (I had no issues at that time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The manner in which I manage my time . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to know what I need to study . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to identify what I know and what I don’t know . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process by which I take notes . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to draw conclusions from the topics I study . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to stay focused . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My ability to redirect my attention when I get unfocused . . .</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Consider your classes. Do your teachers work with you on developing study skills that would support your learning? Choose the answer that best applies for each of your academic classes.  
*Mark only 1 circle per row.*

<table>
<thead>
<tr>
<th>Subject</th>
<th>There is no discussion about how I should approach this class</th>
<th>There is some discussion</th>
<th>There is a lot of discussion on methods that would be helpful in my learning</th>
<th>I am currently not enrolled in this class</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish/French/Latin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Would you like additional support on how to best learn the material in these specific classes? Choose the answer that best applies for each of your academic classes:  
*Mark only 1 circle per row.*
<table>
<thead>
<tr>
<th>Subject</th>
<th>No, I don't need this support</th>
<th>Sometimes I wish there was more</th>
<th>Yes, I definitely would like more help!</th>
<th>I am currently not enrolled in this class</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>History</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Math</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Science</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Spanish/French/Latin</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

For questions 5-8, please select identify your:

5. Gender: *Mark only one box.*
   - Male
   - Female

6. Identify your current grade level: *Mark only one box.*
   - Grade 9
   - Grade 10
   - Grade 11
   - Grade 12

7. Please identify the grade level when you first enrolled at the school: *Mark only one box.*
   - Prekindergarten
   - Kindergarten
   - Grade 1
   - Grade 2
   - Grade 3
   - Grade 4
   - Grade 5
   - Grade 6
   - Grade 7
   - Grade 8
   - Grade 9
   - Grade 10
   - Grade 11
8. Please estimate your cumulative GPA: *Mark only one box.*

- A range (90-100)
- B+ (87-89)
- B (83-86)
- B– (80-82)
- C+ (77-79)
- C (73-76)
- C– (70-72)
- D range (60-69)

Thank you for your input!
Appendix B

Faculty Survey: Learning Support at an Independent School – Needs Assessment

**Introduction:**
For my doctoral studies at Johns Hopkins University, I am studying how metacognition (strategic learning skills) support the learning process. To better understand the development and need of these learning skills, from the teacher's perspective, I am asking for your help. This short survey will ask you to assess your impressions of our student's work and study habits, to identify any changes in curriculum in the last several years, and to comment on how you might help build metacognitive skills for your students. Your responses will be held in confidence. Thank you for your help; I appreciate your honest responses! ~Carol Pepper

1. Please identify the number years you have taught at this school.  
   *Mark only one box.*
   - [ ] This is my first year
   - [ ] 2-5 years
   - [ ] 6-10 years
   - [ ] 11-15 years
   - [ ] more than 15 years

2. Please identify the total number of years you have worked in education.  
   *Mark only one box.*
   - [ ] 0-5 years
   - [ ] 6-10 years
   - [ ] 11-15 years
   - [ ] more than 15 years

3. In the last 5 years have you participated in professional development opportunities outside of the school’s professional development, and if so, please identify the focus of these experiences. *Check all that apply.*
   - [ ] Subject specific (for example NCTM, NCTE conventions)
   - [ ] Learning theory (for example, Learning and the Brain conference)
   - [ ] I have not participated in professional development in the last 5 years.

4. Please consider the difference in abilities of your current students to those you taught *five years ago,* and then rank these students in each of the following categories. If you have been at this school for less than 5 years, please select the “No basis to compare” option.
Mark only one circle per row.

<table>
<thead>
<tr>
<th>More students <strong>are stronger</strong>, in this area than in the past.</th>
<th>Current students <strong>are the same</strong> as former students</th>
<th>More students <strong>are weaker</strong>, in this area than in the past.</th>
<th>No basis for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing time</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Understanding what to study</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Identifying what they know and what they don’t know</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Taking notes</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Drawing conclusions from the reading</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Staying focused</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Redirecting their attention when they get unfocused</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

5. Please think about the courses that you teach. Please identify the amount of material you are able to cover in a school year compared to what you covered 5 years ago. **Mark only 1 box.**

- 1. I am covering more curriculum during a school year than I did 5 years ago.
- 2. I am covering the same amount of curriculum during a school year than I did 5 years ago.
- 3. I am covering less curriculum during a school year than I did 5 years ago.

6. If you selected more or less material (option 1 or 3) for the preceding question, please offer a possible explanation for your answer. [text box]

7. Please consider your current students’ ability to manage the academic program and your former (from 5 years ago) students’ ability. Then select your assessment of how they compare: **Mark only 1 box.**

- 1. More of my current students are able to better manage the academic program.
- 2. My current students are similar to my former students.
- 3. More of my current students are less able to manage the academic program.
8. If you selected “better” or “less able” (option 1 or 3) for the preceding question, please add a possible explanation for your answer. [text box]

9. Please identify your gender: Mark only 1 box.
   - Male
   - Female

10. Please identify the highest degree achieved: Mark only 1 box.
    - Bachelors
    - Masters
    - Doctorate

11. Do you have teacher certification? Mark only 1 box.
    - Yes
    - No

12. Did you take courses on learning theory in college or graduate school? Mark only 1 box.
    - Yes
    - No

13. Please identify the department(s) in which you teach. Check all that apply.
    - English
    - History
    - Math
    - Science
    - Foreign Language
    - Visual Art and Design
    - Theatre
    - Music

14. Please identify the grade levels you teach. Please select all that apply.
    - Grade 9
    - Grade 10
    - Grade 11
    - Grade 12

15. Please feel free to share any thoughts you might have about our students’ need and/or development of strategic study skills.

Many thanks for your help.
Appendix C

School Counselor Interview Questions – Needs Assessment

Note. The data gathered from these interviews will be qualitative, taking a narrative format.

- **Student Focus**
  - How would you assess the level of our student’s metacognitive skills?
  - How do these skills compare to the skills of our former students (from 5 years ago)?

- **Faculty/Program Focus**
  - How would you assess the ability of our faculty to teach/help student build metacognitive skills?
  - How do these skills compare to the skills of our former faculty (from 5 years ago)?
  - Have you seen any changes in how metacognitive skills are being taught, both at the middle and the upper school level?

- **School Counselor Focus**
  - If you look at how you spend your time working with the school’s students, is your focus more on academic support or emotional support? Has this changed in the past 5 years?
  - If you look at how you spend your time working with the school’s faculty, is your focus more on academic support or emotional support? Has this changed in the past 5 years?
Appendix D

Department Chair Interview Questions – Needs Assessment

Note. The data gathered from these interviews will be qualitative, taking a narrative format.

The chairs from the following departments will be interviewed: English, Math, History, Science, Foreign Language

- Has your department adjusted its curriculum in the last 5 years?
  - If so, how?
  - If so, why?

- Does your department intentionally teach learning strategies* that might support the program and the transition from middle school to upper school?
  - If so, at what levels?
  - If not, would it be helpful?

- What practices do you use to support any instructional change to meet the needs of struggling students?

- Does your department see the need to increase strategic learning skills* instruction?
  - If so, at what levels?
  - Why?

* Examples will be provided. These examples include note-taking strategies, identifying themes in reading, determining the difference between what a student knows or does not know.
Appendix E

Student Consent Form – Needs Assessment

Protocol Number:   Student Participant Code:____________   Instructor Participant Code:____________

Johns Hopkins University
Homewood Institutional Review Board (HIRB)

Student Assent and Parental Informed Consent

Title: Examining how metacognitive skills support the learning process in a content-rich curricular program — School, City

Principal Investigator: Carol Anderson Pepper, Doctoral Student, School of Education

Date: March 27, 2015

PURPOSE OF RESEARCH STUDY:
The purpose of this research study is to determine whether metacognitive skills would support the learning process, develop critical thinking skills, and increase academic performance for students participating in an upper school, content-rich curricular program.

We anticipate that approximately 40 teachers, and a maximum of 200 students will participate for one year.

PROCEDURES:
There will be several components for this study:

1. Your son or daughter will be asked to complete a brief online survey during the week of April 20, 2015.
2. Your son or daughter’s prior achievement and standardized testing scores (CTP4 and WISC IV or WPPSI, if available) and GPA will be collected (without their name attached to these scores).

Time required: Your son or daughter will be asked to participate in this study for one school year. The survey will be completed outside of class time and will take approximately 15 minutes to complete.

RISKS/DISCOMFORTS:
There are no anticipated risks to students.

BENEFITS:
Potential benefits are an increased understanding of how teachers can model metacognitive skills and how students can use these skills to support the learning process. It is believed that students who use metacognition develop strong strategic learning skills and the potential for improved academic achievement.
Title: Examining how metacognitive skills support the learning process in a content-rich curricular program — School, City
PI: Carol Anderson Pepper
Date: March 27, 2015

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:
Your child’s participation in this study is entirely voluntary. You choose whether to allow your child to participate, and your child will indicate below whether he or she agrees to take part in the study. If you decide not to allow your child to participate, or your child chooses not to participate, there are no penalties, and neither you nor your child will lose any benefits to which you would otherwise be entitled.

You or your child can stop participation in the study at any time, without any penalty or loss of benefits. If you want to withdraw your child from the study, or your child wants to stop participating, please contact Carol Anderson Pepper via phone or email: (302) 575-0550, ext. 257, cpepper1@jhu.edu.

CONFIDENTIALITY:
Any study records that identify you or your child will be kept confidential to the extent possible by law. The records from your child’s participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the Office for Human Research Protections. (All of these people are required to keep your identity and the identify of your child confidential.) Otherwise, records that identify you or your child will be available only to people working on the study, unless you give permission for other people to see the records.

All measures will be examined by the Principal Investigator and research affiliates only (including those entities described above). No identifiable information will be included in any reports of the research published or provided to school administration. A participant number will be assigned to all surveys and the student’s achievement scores.

Surveys will be collected in either electronic or paper format. Survey data completed electronically will be collected via a password protected Survey Monkey account that belongs to JHU School of Education. If the student is unable to complete the surveys electronically, paper copies will be provided. In both electronic and paper format, these data will not include identifiable information.

All research data including paper surveys will be kept in a locked office. Electronic data will be stored on the PI’s computer, which is password protected. Any original tapes or electronic files will be erased and paper documents shredded, ten years after collection.

Only group data will be included in publication; no individual achievement data will ever be published.

COMPENSATION:
Your child will not receive any payment or other compensation for participating in this study.
Title: Examining how metacognitive skills support the learning process in a content-rich curricular program —School, City
PI: Carol Anderson Pepper
Date: March 27, 2015

IF YOU HAVE QUESTIONS OR CONCERNS:
You and your child can ask questions about this research study at any time during the study by contacting Carol Anderson Pepper via phone or email: (302) 575-0550, ext. 257, cpepper1@jhu.edu.

If you [or your child] have questions about your child’s rights as a research participant or feel that your child has not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

WHAT YOUR SIGNATURE MEANS:
Your signature below means that you understand the information in this consent form. Your signature also means that you agree to allow your child to participate in the study. Your child’s signature indicates that he or she agrees to participate in the study.

By signing this consent form, you and your child have not waived any legal rights your child otherwise would have as a participant in a research study.

_____________________________________________________________________
Child’s Name

_____________________________________________________________________
Child’s Signature         Date

_____________________________________________________________________
Signature of Parent or Legal Guardian      Date

_____________________________________________________________________
Signature of Person Obtaining Consent (Investigator or HIRB-Approved Designee)      Date
Appendix F

Faculty Consent Form – Needs Assessment

Protocol Number:

Student Participant Code: ____________  Instructor Participant Code: ____________

Johns Hopkins University
Homewood Institutional Review Board (HIRB)

Informed Consent Form

Title: Examining how metacognitive skills support the learning process in a content-rich curricular program — School, City

Principal Investigator: Carol Anderson Pepper, Doctoral Student, School of Education

Date: April 17, 2015

PURPOSE OF RESEARCH STUDY:
The purpose of this research study is to determine whether metacognitive skills would support the learning process, develop critical thinking skills, and increase academic performance for students participating in an upper school, content-rich curricular program.

We anticipate that approximately 40 teachers, and a maximum of 200 students will participate for one year.

PROCEDURES:
There will be several components for this study:
1. Upper School faculty will be asked to complete a brief online survey during the week of April 20, 2015.
2. Upper School Department Chairs and counselors will be interviewed during the week of April 20, 2015.
3. Upper School students will be asked to complete a brief online survey during the week of April 20, 2015.

Time required: The survey can be completed in approximately 15 minutes to complete. The interviews should last approximately 30 minutes.

RISKS/DISCOMFORTS:
There are no anticipated risks to individuals in this study.

BENEFITS:
Potential benefits are an increased understanding of how teachers can model metacognitive skills and how students can use these skills to support the learning process. It is believed that students who use metacognition develop strong strategic learning skills and the potential for improved academic achievement.
VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:
Your participation in this study is entirely voluntary. You choose whether to participate. If you decide not to participate, there are no penalties, and you will not lose any benefits to which you would otherwise be entitled.

If you choose to participate in the study, you can stop participation in the study at any time, without any penalty or loss of benefits. If you want to withdraw from the study, please contact Carol Anderson Pepper via phone or email: (302) 575-0550, ext. 257, cpepper1@jhu.edu or cpepper@towerhill.org.

CONFIDENTIALITY:
Any study records that identify you will be kept confidential to the extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the Office for Human Research Protections. (All of these people are required to keep your identity confidential.) Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

All audiotapes or measures will be examined by the Principal Investigator and research affiliates only (including those entities described above). No identifiable information will be included in any reports of the research published or provided to school administration. A participant number will be assigned to all surveys and the student’s achievement scores.

Surveys will be collected in an electronic format. Survey data completed electronically will be collected via a password-protected account. If the student is unable to complete the surveys electronically, paper copies will be provided. In both electronic and paper format, these data will not include identifiable information.

Audio data from interviews may be transcribed by an outside agent (transcriptionist), who will de-identify all transcripts by deleting all names from the transcript and only a participant number or pseudonym will be included on these transcripts.

All research data including audiotapes will be kept in a locked office. Electronic data will be stored on the PI’s computer, which is password protected. Any original tapes or electronic files will be erased and paper documents shredded, ten years after collection.

Only group data will be included in publication; no individual achievement data will ever be published.
COMPENSATION:
You will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:
You can ask questions about this research study at any time during the study by contacting Carol Anderson Pepper via phone or email: (302) 575-0550, ext. 257, cpepper1@jhu.edu.

If you have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

WHAT YOUR SIGNATURE MEANS:
Your signature below means that you understand the information in this consent form.
Your signature also means that you agree to participate in the study.
By signing this consent form, you have not waived any legal rights you otherwise would have as a participant in a research study.

Participant’s Signature

Date

Signature of Person Obtaining Consent
(Investigator or HIRB-Approved Designee)

Date
Appendix G

Intervention Logic Model

**Problem**
Students want additional learning support.
Teachers believe students need additional learning support.

**Target Population**
Grade 9 Students
At an independent School

**Study Skills Workshop Intervention**
Activities include:
- Learn and apply SRL concepts and strategies
- Practice and apply cognitive strategies
- Receive online SRL digital tools

**Student Engagement**
- Use online SRL tools and strategies
- Receive feedback from researcher
- Request coaching, if desired

**Outcomes**

<table>
<thead>
<tr>
<th>Short Term</th>
<th>Medium Term</th>
<th>Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students gain knowledge of SRL</td>
<td>Students apply SRL and cognitive strategies to course content to support their learning process</td>
<td>Students gain stronger SRL strategies</td>
</tr>
<tr>
<td>Students experiment with and practice the SRL and cognitive strategies</td>
<td></td>
<td>Students’ academic performance improves</td>
</tr>
</tbody>
</table>

**Intervention Logic Model**
### Appendix H

Study Skills Workshop Attendance Sheet

<table>
<thead>
<tr>
<th>Participant</th>
<th>Time in each session</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-session</td>
<td>Session 1</td>
</tr>
<tr>
<td>Nova</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phoebe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiberius</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix I

Participant Daily Survey – All Sessions

Participant Daily Survey
Session 1

Use the 5-point scale, ranging from 1 = “strongly disagree” to 5 = “strongly agree,” to indicate your agreement level for each of the statements below.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I found the information on self-regulated learning useful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I found setting S.M.A.R.T. Goals easy to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have enough information &amp; knowledge to write S.M.A.R.T. Goals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I believe setting S.M.A.R.T. Goals will be helpful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I found the SRL Online Tool easy to use.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I have enough information and knowledge to use the SRL Online Tool.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I believe using the SRL Online Tool will be helpful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I was engaged and focused during this session.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I believe the instructor explained the information well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use the 5-point scale, ranging from 1 = “never” to 5 = “very often,” to indicate your use of the strategies from this session.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. I have set S.M.A.R.T. Goals in the past.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Using your own words describe what you learned in this session? Include any key takeaways (most important information) from this session.
Participant Daily Survey
Session 2

Participant’s ID #: ____________________________

Use the 5-point scale, ranging from 1 = “strongly disagree” to 5 = “strongly agree,” to indicate your agreement level for each of the statements below.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Sometimes</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>1.</td>
<td>I found the strategy Self-Questioning easy to do.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2.</td>
<td>I have enough information and knowledge to use the Self-Questioning strategy when reviewing notes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3.</td>
<td>I believe Self-Questioning will be helpful.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4.</td>
<td>I have enough information and knowledge to use the SRL Online Tool to evaluate and to set goals for my learning.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5.</td>
<td>I believe using the SRL Online Tool will be helpful.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6.</td>
<td>I was engaged and focused during this session.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7.</td>
<td>I believe the instructor explained the information well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Use the 5-point scale, ranging from 1 = “never” to 5 = “very often,” to indicate your use of the strategies from this session.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Seldom</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
</tr>
<tr>
<td>8.</td>
<td>I have used the Self-Questioning strategy in the past.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

9. Using your own words describe what you learned in this session? Include any key takeaways (most important information) from this session.
Participant Daily Survey  
Session 3

Participant’s ID #: ________________________________

Use the 5-point scale, ranging from 1 = “strongly disagree” to 5 = “strongly agree,” to indicate your agreement level for each of the statements below.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I found the strategy <em>Mind-Maps</em> easy to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I have enough information and knowledge to use the <em>Mind-Maps</em> strategy when learning from text.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>I believe <em>Mind-Maps</em> will be helpful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I found the strategy <em>Self-Monitoring Prompts</em> easy to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>I have enough information and knowledge to use <em>Self-Monitoring Prompts</em> when learning from text.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I believe <em>Self-Monitoring Prompts</em> will be helpful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I have enough information and knowledge to use the <em>SRL Test Observation and Strategy Tool (TOAST)</em> to evaluate and to set goals for my learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I believe using the <em>SRL Test Observation and Strategy Tool (TOAST)</em> will be helpful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>I was engaged and focused during this session.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>I believe the instructor explained the information well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>I understand how I can receive support in the</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
coming months through dialogue with Ms. Pepper.

Use the 5-point scale, ranging from 1 = “never” to 5 = “very often,” to indicate your use of the strategies from this session.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Sometimes</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. I have used Mind-Maps in the past.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I have used Self-Monitoring Prompts in the past.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Using your own words describe what you learned in this session? Include any key takeaways (most important information) from this session.
Appendix J

Study Skills Workshop Observer Report

Pre-session

Observer’s Name: _________________________

To complete this form, please note the time spent on each activity providing details in the Notes column. For additional observations, please use the space below or on the back of the sheet. Many thanks in your help.

<table>
<thead>
<tr>
<th>Objective/Activity</th>
<th>Time Spent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To obtain participants’ assent to participate in the study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To introduce the study to the participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To collect base-line data on the participants’ metacognitive awareness and self-regulation strategy knowledge and use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Self-Regulation Strategy Inventory Self-Report (SRSI-SR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Metacognitive Awareness Inventory (MAI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To collect demographic information on the students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Participant Demographic Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To provide an overview of the Study Skills Workshop</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Notes from Pre-session
### Study Skills Workshop Observer Notes

**Session 1**

**Observer’s Name:**

To complete this form, please note the time spent on each activity providing details in the Notes column. For additional observations, please use the space below or on the back of the sheet. Many thanks in your help.

<table>
<thead>
<tr>
<th>Objective/Activity</th>
<th>Time Spent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To introduce participants to the concepts of Self-Regulated Learning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Key Concepts include:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The three phases of self-regulated learning (forethought, performance, self-reflection)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cause and effect in degrees of success (includes analysis of external causes and internal causes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The connection between self-regulated learning and Cause and effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To engage students in the practice of developing S.M.A.R.T. Goals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Key Concepts include:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The characteristics of S.M.A.R.T. Goals (specific, measurable, attainable, relevant, and time based)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To introduce participants to the Learning Circle of SRL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Key Concepts include:</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Components of the cyclical SRL Learning Circle (self-evaluation, goal setting and strategic planning, strategy implementation and monitoring, strategic outcome monitoring)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To introduce and to engage participants in the use of the SRL Online Tool</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Key Activities/Concepts include</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Share SRL Online tool and guide students to begin to enter information in their personalized copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To engage in a discussion of key takeaways from the session.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To provide information on Session 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>To evaluate Session 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Activity: Complete Participant’s Daily Survey</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Notes from Session 1
Study Skills Workshop Observer Notes
Session 2

Observer’s Name: ________________________________

To complete this form, please note the time spent on each activity providing details in the Notes column. For additional observations, please use the space below or on the back of the sheet. Many thanks in your help.

<table>
<thead>
<tr>
<th>Objective/Activity</th>
<th>Time Spent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To review concepts from Session 1, including the Learning Circle of SRL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To engage students in using the SRL Online tool to monitor, evaluate and strategize learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Key SRL Focus:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self-Monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self-Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Strategic Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To review utility of various learning (cognitive) strategies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To introduce the Record and Revise method for Learning from Class/Lectures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To integrate the Cognitive Strategies into the Revise phase of learning from class/lectures</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Strategy Options/Activities include:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Notes Review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Summarizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self-Questioning (the 5 R’s: Record, Revise, Reflect, Recap, Reason)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Provide examples of three types of questions for Self-Questioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Engage in practicing the self-questioning using current class notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To engage in the use of the SRL OT, focusing on evaluate and then strategize</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To review an example of a completed SRL OT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To practice using the SRL OT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To engage in a discussion of key takeaways from the session.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To provide information on Session 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To evaluate Session 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activity:</strong> Complete Participant’s Daily Survey</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Notes from Session 2
Study Skills Workshop Observer Notes  
Session 3

Observer’s Name: ____________________________

To complete this form, please note the time spent on each activity providing details in the Notes column. For additional observations, please use the space below or on the back of the sheet. Many thanks in your help.

<table>
<thead>
<tr>
<th>Objective/Activity</th>
<th>Time Spent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To review concepts from Session 2, including the Learning Circle of SRL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To teach participants strategy options for learning from text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategies include:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mind Maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Provide information on the 7 steps to create mind maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Provide examples of various mind maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Share possible web-based sites to create mind maps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Engage in creating a mind map based on current class notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Note-taking formats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Encourage incorporating a SRL prompt to reflect/assess understanding of assigned reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To introduce SRL Observation and Strategy Tool (SRL TOAST)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key Activities/Concepts include</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Share SRL TOAST and guide students to begin to enter information in their personalized copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To provide information on next steps in Learning Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Support includes dialoging with the research via the SRL OTs and seeking face-to-face support with the researcher during specific times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Receive weekly emails to discuss the participant’s use of the SRL OT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To engage in a discussion of key takeaways from the session.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To evaluate Session 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity: Complete Participant’s Daily Survey</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Notes from Session 3
Appendix K

Focus Group Protocol – Round One

Opening Script:

“Thank you so much for agreeing to participate in this discussion. I appreciate how busy your day is, and Ms. Pepper appreciates your willingness to share your thoughts.

As you know Ms. Pepper is doing research on how self-regulated learning can support your educational experience and potentially impact your academic performance. Your parents have already consented for you to participate in this focus group. The purpose of this discussion is to give you the opportunity to share your perspective of the study skills workshop.

I will not be sharing your name with anyone other than Ms. Pepper, her advisors, dissertation committee and peers. At no time will your name or other identifying information will be shared. In fact, you will choose a pseudonym for this discussion. I will be recording this to be sure your comments are accurately recorded. You do not have to answer any question that makes you feel uncomfortable.”

Are there any questions before we start?

I would like to start by having you state your pseudonym for this discussion.

Let’s talk about the workshop.”

Interview Questions  The questions are designed to be open and the prompts will be used when necessary.

Questions to include are:

- How was your experience in the workshop?
- Was the workshop helpful?
- Did you find the content of the study skills workshop useful? In what ways?
- How might you use the strategies from the workshop?
- What additional support do you need to use the strategies?
- Is there anything that would make it difficult for you to use the strategies presented in the Study Skills Workshop? If so, what?
- What would make it easier for you to use the strategies presented in the Study Skills Workshop? If so, what?
- What are your thoughts about the practice activities in the workshop?
- What are some key takeaways from the workshop?

Closing Script:
Thank you so much for speaking with me today. I appreciate your time and thoughtful responses to my questions. If a thought or idea occurs to you after our discussion, please feel free to stop by my office or to email me.
Appendix L

Participant Demographic Survey

Participant number: ________

Please complete the following questions by selecting the appropriate box.

1. Did you attend The school in Grade 8?
   □ Yes
   □ No. If no, please provide the name of the school ______________________

2. Identify the grade level when you first enrolled at The school: Mark only one box.
   □ Prekindergarten
   □ Kindergarten
   □ Grade 1
   □ Grade 2
   □ Grade 3
   □ Grade 4
   □ Grade 5
   □ Grade 6
   □ Grade 7
   □ Grade 8
   □ Grade 9

3. Identify your extra-curricular activities for this year. Check all that apply.
   □ Concert Band
   □ Stage/Jazz Band
   □ Chorus
   □ Vocal Ensemble
   □ Fall Drama Production
   □ Clubs

4. Are you enrolled in Art Foundations.
   □ Yes
   □ No

5. Identify your Fall sport?
   □ Cross Country
   □ Field Hockey
   □ Football
   □ Soccer
   □ Volleyball
   □ Opting-Out for the Fall play
   □ Opting Out for involvement in a non-school sport
6. Identify your Winter Sport?
- Basketball
- Swimming
- Winter Track
- Wrestling
- Opting-Out for the Spring play
- Opting Out for involvement in a non-school sport

7. Are you involved in non-school activities (such as sports, volunteer, or church activities) outside of school?
- Yes
- No
- If yes, please specify noting time required

8. Gender:
- Male
- Female
- Other

9. Choose the ethnicity that best describes you:
- African American
- Asian American
- European American
- Hispanic American
- Middle Eastern American
- Multiracial American
- Native American
- Pacific Islander American
- International
- Unsure
- Other, please specify. ____________________
# Appendix M

## Metacognitive Awareness Inventory (MAI)

Mark each of the statements below true or false as appropriate.

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I ask myself periodically if I am meeting my goals.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>2</td>
<td>I consider several alternatives to a problem before I answer.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>I try to use strategies that have worked in the past.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>4</td>
<td>I pace myself while learning in order to have enough time.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>5</td>
<td>I understand my intellectual strengths and weaknesses.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>6</td>
<td>I think about what I really need to learn before I begin a task.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>7</td>
<td>I know how well I did once I finish a test.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>8</td>
<td>I set specific goals before I begin a task.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>9</td>
<td>I slow down when I encounter important information.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>10</td>
<td>I know what kind of information is most important to learn.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>11</td>
<td>I ask myself if I have considered all options when solving a problem.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>12</td>
<td>I am good at organizing information.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>13</td>
<td>I consciously focus my attention on important information.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>14</td>
<td>I have a specific purpose for each strategy I use.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>15</td>
<td>I learn best when I know something about the topic.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>16</td>
<td>I know what the teacher expects me to learn.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>17</td>
<td>I am good at remembering information.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>18</td>
<td>I use different learning strategies depending on the situation.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>19</td>
<td>I ask myself if there was an easier way to do things after I finish a</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>task.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I have control over how well I learn.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>21</td>
<td>I periodically review to help me understand important relationships.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>22</td>
<td>I ask myself questions about the material before I begin.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>23</td>
<td>I think of several ways to solve a problem and choose the best one.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>24</td>
<td>I summarize what I’ve learned after I finish.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>25</td>
<td>I ask others for help when I don’t understand something.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>26</td>
<td>I can motivate myself to learn when I need to.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>27</td>
<td>I am aware of what strategies I use when I study.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>28</td>
<td>I find myself analyzing the usefulness of strategies while I study.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>29</td>
<td>I use my intellectual strengths to compensate for my weaknesses.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>30</td>
<td>I focus on the meaning and significance of new information.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>31</td>
<td>I create my own examples to make information more meaningful.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>32</td>
<td>I am a good judge of how well I understand something.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>33</td>
<td>I find myself using helpful learning strategies automatically.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>34</td>
<td>I find myself pausing regularly to check my comprehension.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>35</td>
<td>I know when each strategy I use will be most effective.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>36</td>
<td>I ask myself how well I accomplish my goals once I’m finished.</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>I draw pictures or diagrams to help me understand while learning.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>I ask myself if I have considered all options after I solve a problem.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>I try to translate new information into my own words.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>I change strategies when I fail to understand.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>I use the organizational structure of the text to help me learn.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>I read instructions carefully before I begin a task.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>I ask myself if what I’m reading is related to what I already know.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td>I re-evaluate my assumptions when I get confused.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>I organize my time to best accomplish my goals.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>I learn more when I am interested in the topic.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>I try to break studying down into smaller steps.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>I focus on overall meaning rather than specifics.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>I ask myself if I learned as much as I could have once I finish a task.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>I ask myself questions about how well I am doing while learning something new.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>51.</td>
<td>I stop and go back over new information that is not clear.</td>
<td>T  F</td>
<td></td>
</tr>
<tr>
<td>52.</td>
<td>I stop and reread when I get confused.</td>
<td>T  F</td>
<td></td>
</tr>
</tbody>
</table>

Appendix N

Self-Regulation Strategy Inventory – Self-Report (SRSI-SR)

Use the 7-point scale, ranging from 1 = “never” to 7 = “always,” to indicate how often you do each of these behaviors when completing homework.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I make sure no one disturbs me when I study.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. I try to study in a quiet place.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. I think about the types of questions that might be on a test.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I ask my teachers about the topics that will be on upcoming tests.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I rely on my class notes to study.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. I study hard even when there are more fun things to do at home.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>7. I quiz myself to see how much I am learning during studying.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8. I make a schedule to help me organize my study time.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. I use binders or folders to organize my study materials.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10. I lose important handouts or materials.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>11. I avoid going to extra-help sessions.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>12. I wait to the last minute to study for tests.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13. I try to forget about the topics that I have trouble learning.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>14. I try to see how my notes from class relates to things I already know.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>15. I try to identify the format of upcoming tests.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>16. I try to study in a place that has no distractions (e.g., noise, people talking).</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>17. I ask my teacher questions when I do not understand something.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>18. I make pictures or drawings to help me learn concepts.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>19. I give up or quit when I do not understand something.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>20. I forget to bring home my materials when I need to study.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>21. I tell myself exactly what I want to accomplish during studying.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>22. I look over my homework assignments if I don’t understand something.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>23. I avoid asking questions in class about things I don’t understand.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>24. I tell myself to keep trying when I can’t learn a topic or idea.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>25. I carefully organize my study materials so I don’t lose them.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Never</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>-------</td>
</tr>
<tr>
<td>26.</td>
<td>I let my friends interrupt me when I am studying.</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>I think about how best to study before I begin studying.</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I finish all of my studying before I play video games or with my friends.</td>
<td></td>
</tr>
</tbody>
</table>

Appendix O

Participant Status Update Survey

Participant ID#____________________

Use the 5-point scale, ranging from 1 = “never” to 5 = “very often,” to indicate how often you used the following strategies (a through g) by checking the appropriate column. Then answer questions 1 and 2 in the space provided.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Explain why you use the strategies listed above as “often” and “very often.”

2. Explain why you do not use each of the strategies listed above as “Never” or “Seldom” used.”.

Use the 5-point scale, ranging from 1 = “strongly disagree” to 5 = “strongly agree,” to indicate the level you agree that the following strategies (a through h) supported your learning by checking the appropriate column. Then answer questions 3 and 4 in the space provided.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Method supported my learning.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. Using Mind Maps supported my learning.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>f. Evaluating my percent of understanding supported my learning.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g. Setting S.M.A.R.T. Goals supported my learning.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>h. Attending the Study Skills Workshop supported my learning.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

3. If you agreed or strongly agreed with any statements above, please explain why the strategies you supported your learning.

4. If you disagreed or strongly disagreed with any statements above, please explain why the strategies you supported your learning.

**Answer the following question by checking all that apply.**

5. I have received the following academic support this term.
   - Extra help with a teacher
   - Support from the school’s learning specialist
   - Time with an outside tutor
   - Time with my parent(s).
Appendix P
Focus Group Protocol – Round Two

Opening Script:

“Thank you so much for agreeing to participate in this discussion. I appreciate how busy your day is, and Ms. Pepper appreciates your willingness to share your thoughts.

As you know Ms. Pepper is finishing research on how self-regulated learning can support your educational experience and potentially impact your academic performance. Your parents have already consented for you to participate in this focus group. The purpose of this discussion is to give you the opportunity to share your perspective of your experience since you attended the study skills workshop.

I will not be sharing your name with anyone other than Ms. Pepper, her advisors, dissertation committee and peers. At no time will your name or other identifying information will be shared. In fact, you will choose a pseudonym for this discussion. I will be recording this to be sure your comments are accurately recorded. You do not have to answer any question that makes you feel uncomfortable.

Are there any questions before we start?

I would like to start by having you state your pseudonym for this discussion.

Let’s talk about the workshop.”

Interview Questions The questions are designed to be open and the prompts will be used when necessary.

Possible questions include:

• Let’s talk about your experience since the workshop.
• How was your experience since your participation in the workshop?
• Has the information you learned in the workshop been helpful?
• How have you used the strategies from the workshop?
• What additional support did you need to use the strategies?
• Was there anything that made it hard for you to use the strategies presented in the Study Skills Workshop? If so, what?
• What are some key takeaways from your experience since the workshop?

Closing Script:
Thank you so much for speaking with me today. I appreciate your time and thoughtful responses to my questions. If a thought or idea occurs to you after our discussion, please feel free to stop by my office or to email me.
Appendix Q

Study Skills Workshop PowerPoint

My Idea

What study strategies might support student learning and impact academic performance?

Why be involved?

Ever feel like...

- your learning process is inefficient?
- there are some leaks in your study plan?

or...

“Why’s in it for me?”

Develop skills in:
- Self-regulation
- Self-monitoring
- Self-evaluation
- Self-reflection
- Good-setting
- Learning Strategies

With a goal of becoming a Smart learner!
What's the process?

PreSession Agenda
- Today's Tasks
  - Assent Form
  - Self-Regulation Strategy Inventory (SRSI)
  - Metacognitive Awareness Inventory (MAI)
  - Participant Demographic Survey
- Overview of Study Skills Workshop...
- What to Expect

Assent Form

SRSI-SR

MAI

Demographic Information
For Session 1

Session 1 Agenda
- Self-Regulated Learning
- Strategies: Learning Management & Goal Setting
- SRL: Online tool
- Daily Survey

Learning Activities
- Adapting strategies
- Monitoring progress
- Setting goals
- Reassuring physical/social context to be compatible with goals
- Managing time efficiently
- Evaluating study strategies
- Adapting future goals
- Noticing how actions impact results

Session 1

Learning Strategies Self-regulated learning

Self-Regulated Learning
SESSION 1
Cause and Effect

- "I did well, because I'm smart."
- "I did well, because the test was easy."
- "I did well, because I studied a lot."
- "I didn't do well, because the test was difficult."
- "I didn't do well, because I didn't have time to study."
- "I didn't do well, because I didn't know the material."

"Shallow men believe in luck. Strong men believe in cause and effect."
- Ralph Waldo Emerson

"Life is a perpetual instruction in cause and effect."
- Ralph Waldo Emerson

Cause and Effect

- External Causes
- Internal Causes
- Effort
- Action
- Outcome
- Self-judgment
- Performance Phase
- Behavioral Phase
Setting Goals

- Objective: Establishing short-term and long-term goals
- Use sequences to set/adjust goals (Clara and Effo)
- Objective: Develop plans for learning
- Objective: Analyze and identify what makes successful studying and test performance
- Identify opportunities for work (don't work)

S.M.A.R.T. Goals

1. Specific
2. Measurable
3. Achievable
4. Relevant
5. Time-bound

- Define the goal as much as possible using direct language.
- What, where, why, which?
- What do I want to accomplish?
- Where will it be done?
- Why am I doing this (reasons, purpose)?
- Which constraints/requirements do I have?

- From and to
- Can you track the progress and measure the outcome?
- How much, how many, how will I know when my goal is accomplished?

- How
- Is the goal reasonable enough to be accomplished? How so?
- Make sure you can reach the goal or that it is not below current level.
SMART Goals

- When
  - Your objective should include a time limit
  - It will establish a sense of urgency and prompt you to better time management.

SMART. Goals

Examples:
- For the next Math test, I am going to complete the practice problems and read Mr. Smith's notes and try to improve my score from the last test.
- To make sure I don't turn in my next English paper late this time, I will write a paragraph each night this week. Before passing it in, I'll be sure to spell check the document.

SMART Goals - Practice

“Goals are dreams with deadlines.”
~Diana Scharf Hunt
Today’s Key Take-Aways?

Top 3...

... Ideas

... Bits of information

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For Session 2

Session 2 - Agenda

- Questions/Comments from Session 1?
- SRL Focus:
  - Self-Monitoring
  - Self-Evaluation
  - Strategy Planning
- Strategy Options for Learning from Lectures
  - Self-Questioning
  - Verbalization
  - Daily Survey

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Daily Survey

Participant’s Survey - Session 1

* Required

Participant ID

Your answer

Use the 5-point scale ranging from 1 - “strongly disagree” to 5 - “strongly agree” to indicate your agreement level for each of the

Learning from Lectures

SESSION 2

Session 1 Recap

Follow link to answer the questions
Learning Circle of SRL

Strategize

- Self-evaluation and monitoring
- Goal setting and planning

Need Options

What strategies do you use?

Follow link to poll

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Learning Strategies

- Elaborate interrogation
- Distributed practice
- Highlighting/underlining
- Imagery for text
- Interleaved practice
- Keyword mnemonics
- Practice testing
- Rerereading
- Self-explanation
- Summarization

Learning Strategies

- Distributed practice
- Practice testing
- Elaborate interrogation
- Interleaved practice
- Keyword mnemonics
- Highlighting/underlining
- Imagery for text
- Rereading
- Self-explanation
- Summarization
Learning Strategies

- Distributed practice
- Practice testing
- Elaborate interrogation
- Interleaved practice
- Self-explanation
- Highlighting/underlining
- Imagery for text
- Keyword mnemonics
- Rereading
- Summarization

For more information on these strategies, there is a sheet in your resources packet that outlines each and gives suggestions for use.

Strategies For Learning from Class/Lectures

Lecture → Learn
Record → Revise

Recording Strategies

- Be selective
- Write down only main ideas & supporting facts.
- Listen for summary statements (beneath them down).
- Listen for signal words (e.g. main points).

Revising Strategies

- After the lecture/class, review your notes using learning strategies:
  - Graphic representations
  - Tree Diagrams
  - Flow Charts
  - Concept Maps
  - Two-dimensional Mind Map

Record + Revise

- Cornell Method
  - Main point is divided vertically.
    - Record class notes on one side.
    - Revise (rework) on the other side.

Revising Strategies

- Self-questioning
  - Asking and answering high-level questions during learning
- Summarizing
  - Outlining new summaries, try your own words, based on lecture/class discussion.
  - Find key ideas, reduce to key material.
  - Make connections between new material and old.

Note-taking: Review
- Read through notes after class.
What's best?

Self-Questioning
(better for long-term retention)

Summarizing

Learn
Review

Self-Questioning
- Information from class often answers future questions
- Identify: what question does the information answer?
- Find the question that the notes answer

Types of Questions:
- Reflection Questions: reflect on details and show connections
- Recap Questions: summarizes several ideas
different ideas
- Reasoning Questions: go beyond the information and ask for
applications

Self-Questioning - Reflection
- Reflection Questions: reflects on details and shows connections
- What is the definition of ________
- What is the description of ________
- Why does ________ occur or happen?
- How does ________ influence or change ________
- What is the cause and effect of ________
- How is ________ used/affected by ________
- To what extent does ________ affect or influence ________
- How can ________ be used or solved?

Self-Questioning - Recap
- Recap Questions: summarizes several different ideas
- What is the main idea of ________
- What are the strengths and weaknesses of ________
Self-Questioning - Reasoning
- Reasoning Questions - go beyond the information and ask for applications.
- What conclusions can I draw about ________?
- What is a new example of ________?
- What do I think would happen if ________?
- How is ________related to ________ that we studied earlier?
- How are ________and ________similar?

Self-Questioning - Next Steps
- Consider putting the following on your To Do List:
  - Write Reflection Questions for your notes
  - Write Recap Questions that address all Reflection Questions
  - Cover actual notes and answer each Reflection and Recap Question.
  - Find answers to questions you don’t know.
  - Write Reasoning Questions for notes, and then answer them.

Self-Questioning - Practice
- Take out notes, from today's work in teams, and write:
  - Reflection Questions
  - Recap Questions
  - Reasoning Questions

Learning Strategies
Another Option

Verbalization/Self-Explanation
- Verbally explain process in problem solving or drawing conclusions.
- Try to connect past knowledge with new information.
- Work across classes.

“It is not the answer that enlightens, but the question.”
- Eugene Bianrono
SRL Online Tool

Evaluate, then Strategize

SRL Online Tool - Practice

Open your copy of the SRL Online Tool.
- Fill in assignments, deadlines, and test dates.
- Write a goal you've set for yourself.
- Write a goal you've set for yourself.

Today's Key Take-Aways?

Top 3…
- Ideas
- Bits of information

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For Session 3

Date/Time: Monday, December 17th 2:00pm-4:30pm Math/Science Lecture Hall

Please bring the following items:
- Your student's work
- Your laptop
- Notes that you recently took in class
- Your thoughts on goals and note taking

Daily Survey

Participant's Survey - Session 2

- Agree
- Your survey

Use the 5-point scale, ranging from 1 = "strongly disagree" to 5 = "strongly agree" to indicate your agreement level for each of the statements below.
Session 3 - Agenda

- Questions/Comments from Session 2?
- Strategy Options for Learning from Text
  - Mind Map
  - Reflective Notebook
  - SRL Focus:
    - Self-Evaluation
    - SRL Test/Assessment Observation and Strategy Tool
    - SRL Online Tool – Next Steps
- Daily Survey

Learning Strategies

Mind Map

A visual representation of main ideas of content that shows relationships between and among any sub-themes.

Mind Maps – 7 Steps

1. Start in the center of a blank page
2. Draw a single large central idea
3. Keep it organized and use a consistent size
4. Include branches and sub-ideas
5. Use color throughout
6. Add images or icons
7. Use images

SESSION 3
Mind Map – Practice

Take out an assignment due tomorrow. Make a mind map for the assignment. You may work in teams for this practice. You may also use the Note-Taking Resources from Session 1 and do a mind map for the SRL.

Note-Taking Formats

- Organize material by topic and categories
- Scan text for highlighted words and subheadings
- Set up paper accordingly

Note-Taking Formats

- Organize material by topic and categories
- Scan text for highlighted words and subheadings
- Set up paper accordingly

Note-Taking Formats + SRL

- Organize material by topic and categories
- Scan text for highlighted words and subheadings
- Set up paper accordingly

SRL: Self-Evaluation and Strategy Prompt
Note-taking – Practice

Take out an assignment due tomorrow. Using the strategies we just discussed, start that assignment.

SRL Online Tool

Monitor & Evaluate

“Self-reflection is a humbling process. It’s essential to find out why you think, say, and do certain things … then better yourself.”

Sonya Teclai

SRL Test Observation & Strategy Tool (SRL TOAST)

SRL Test Observation & Strategy Tool (SRL TOAST)
SRL Test Observation & Strategy Tool (SRL TOAST)

Example

SRL Online Tools?

Enthusiastic
Academic
Responsibilities
Time Issues
Maintain Rest

SRL Online Tool- Practice

Open your copy of the SRL Online Tool.
- Put in assignments, deadlines, and time issues.
- If you have already completed an assignment, put your % mastery in the orange column.

SRL TOAST - Practice

Open your copy of the SRL Test Observation & Strategy Tool.
- Put any test grades and write assessments in the appropriate column.
- Write a note to Mr. Pepper.

Today’s Key Take-Aways?

Top 3...

... Ideas
... Edits of information

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Next Steps – SRL and Beyond
Appendix R

Study Skills Workshop – Student Resource Packet

Study Skills Workshop
Becoming a Smart Learner with Self-Regulated Learning

Participant Resource Packet

Study Skills Workshop
Becoming a Smart Learner with Self-Regulated Learning

Study Skills Workshop Agenda

PreSession
- Why are we here and what’s in it for me?
- Assess Form
- Self-Regulation Strategy Inventory (SRSI)
- Metacognitive Awareness Inventory (MAI)
- Participant Demographic Survey
- Overview of Study Skills Workshop…What to Expect

Session 1
- Self-Regulated Learning
- Strategy Learning Management & Goal Setting
- SRL Online Tool
- Daily Survey

Session 2
- SRL Focus:
  - Self-Monitoring
  - Self-Evaluation
  - Strategy Planning
- Strategy Options for Learning from Lectures:
  - Self-Questioning
  - Verbalization
- Daily Survey

Session 3
- Strategy Options for Learning from Text
  - Mind Map
  - Reflective Note Taking
- SRL Focus:
  - Self-Evaluation
- SRL Test/Assessment Observation and Strategy Tool
- SRL Online Tools – Next Steps
- Daily Survey
SRL Learning Circle

Determine if you reached your goal. Find links between plan and outcome to determine the effectiveness of plan. Restart circle based on conclusions.

Self-Evaluation and Monitoring

Judge personal effectiveness through observations and reflections. Think about what you already do well (strengths) and not so well (challenges).

Strategic Outcome Monitoring

Act on your plan. Monitor your ability to follow the plan. If you don’t think you will reach your goal, think about what you can do differently.

Goal Setting and Strategic Planning

Analyze learning task. Set appropriate goals. Plan strategy to achieve the goal based on what you want to improve.

Strategy Implementation and Monitoring

SRL Online Tool

References:

SMART Goals

“Goals are dreams with deadlines.”
-Diana Scherf Hunt

Specific
- What, where, why, who?
- What do I want to accomplish?
- Where will it be done?
- Why am I doing this (reasons, purpose)?
- Which constraints/requirements do I have?
- NOTE: Define the goal as much as possible using direct language.

Measurable
- From and To
- Can you track the progress and measure the outcome?
- How much, how many, how will I know when my goal is accomplished?

Attainable
- How
- Is the goal reasonable enough to be accomplished? How so?
- NOTE: Make sure you can reach the goal or that it is not below current level.

Relevant
- Worthwhile
- Is the goal worthwhile and will it meet your needs?
- Is each goal consistent with other goals you have established?
- Does the goal fit your short and long-term plans?

Time Based
- When
- When will you meet this goal?
- NOTE: Your objective should include a time limit; it will establish a sense of urgency and prompt you to have better time management.

References:

**Learning Strategy Options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
<th>Utility Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributed practice</td>
<td>Spreading study activities over a period of time</td>
<td>High</td>
</tr>
<tr>
<td>Practice testing</td>
<td>Self-testing or taking practice tests on material</td>
<td>High</td>
</tr>
<tr>
<td>Elaborate interrogation</td>
<td>Explaining why a stated fact or concept is true</td>
<td>Moderate</td>
</tr>
<tr>
<td>Interleaved practice</td>
<td>Mixing different topics/problems within a period of time</td>
<td>Low</td>
</tr>
<tr>
<td>Self-explanation</td>
<td>Explaining how new material is related to already learned material, or explaining process when problem solving</td>
<td>Low</td>
</tr>
<tr>
<td>Highlighting/underlining</td>
<td>Marking perceived important parts of material during reading</td>
<td>Low</td>
</tr>
<tr>
<td>Imagery for text</td>
<td>Creating mental images of material when reading or listening</td>
<td>Low</td>
</tr>
<tr>
<td>Keyword mnemonic</td>
<td>Using keywords or mental pictures to remember concepts</td>
<td>Low</td>
</tr>
<tr>
<td>Rereading</td>
<td>Rereading after first reading of the material</td>
<td>Low</td>
</tr>
<tr>
<td>Summarization</td>
<td>Writing summaries of material read in a text</td>
<td>Low</td>
</tr>
</tbody>
</table>

References:

**Self-Questioning Learning Strategy**

- **During lecture:**
  - Write down only main ideas & supporting facts.
  - Listen for:
    - summary statements (write them down).
    - signal words (“4 main ideas”).

- **After the lecture/class:**
  - Revise your notes using learning strategies:

**Information from class is often an answer to future questions:**
- Find the question that the notes answer.

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection Question</td>
<td>Reflects more than 1 detail and shows connections</td>
<td>- What is the definition/description of ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Why does ______ occur (cause)?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- How does ______ influence or change ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- What is the use/impact/effect of ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Into what subcategories can ______ be divided?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In what sequence does ______ fit?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- How can ______ be fixed or solved?</td>
</tr>
<tr>
<td>Recap Question</td>
<td>Summarizes several different ideas</td>
<td>- What is the main idea of ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- What are the strengths and weaknesses of ______?</td>
</tr>
<tr>
<td>Reasoning Question</td>
<td>Goes beyond the information and asks for application</td>
<td>- What conclusions can I draw about ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- What is a new example of ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- What do I think would happen if ______?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- How is ______ related to ______ that we studied earlier?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- How are ______ and ______ similar?</td>
</tr>
</tbody>
</table>

Consider putting the following on your to do list:
- Write Reflection Questions for your notes
- Write Recap Questions that address all Reflection Questions
- Cover actual notes and answer each Reflection and Recap Question.
- Find answers to questions you don’t know.
- Write Reasoning Questions for notes, and then answer them.

References:
# Mind Maps
## Learning Strategy

### Learning from Reading
A visual representation of main ideas of content that shows relationships between and among any sub-themes. Developed by Tony Buzan.

### Seven Steps for a Mind Map
1. Start in the center of a blank page
2. Turn the page sideways
3. Place the central idea in the center (use a picture, if possible)
   - Keeps you focused and helps you concentrate
4. Use colors throughout
   - Adds vibrancy and encourages creativity
5. Connect main branches to central theme
6. For structures and to link ideas
7. Make your lines curved
8. Use 1 big word per line to add power and fluency
9. Use images

---

**Online Tools:**
- Google: [https://google.it](https://google.it)
- Mind Maple: [http://www.mindmaple.com](http://www.mindmaple.com)
- Text to MindMap: [https://www.text2mindmap.com/](https://www.text2mindmap.com/)

---

**References:**
**SRL Test Observation and Strategy Tool (SRL TOAST)**

**Instructions for Use**

- **Your Name**: A place for self-assessment and self-reflection. Note any strategy modification in last column.

- **Date**: Enter your assessment result in this column. The score will automatically be graphed in the chart at the right.

- **Test Scores This Quarter**: A place for self-reflection. Ms. Pepper will dialogue with you in this purple box.

- **Example**: Use to find the appropriate spreadsheet.

---

### Example:

<table>
<thead>
<tr>
<th>Date</th>
<th>Score</th>
<th>Instructions</th>
</tr>
</thead>
</table>

---

### Control Commands:

- To go to the next line within a cell, **USE**: Control-Command-Return.
Appendix S

Participant’s SRL Online Tool  (SRL OT)
Appendix T

Participant SRL Test Observation and Assessment Tool (SRL TOAST)

<table>
<thead>
<tr>
<th>Date</th>
<th>#</th>
<th>Score</th>
<th>What I did to study</th>
<th>Reason for Poor</th>
<th>Strategy Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/11/2016</td>
<td>1</td>
<td>87</td>
<td>Reviewed Notes and looked over homework</td>
<td>Careless Errors and didn't know I concept</td>
<td>Complete practice problems</td>
</tr>
<tr>
<td>11/20/2016</td>
<td>2</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>60</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
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</tr>
<tr>
<td>6</td>
<td></td>
<td>98</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![](image_url)

Test Scores This Quarter

Score

Comments: Use this space to dialogue with Ms. Pepper
Dear Parents of the Class of 2020:

I am writing to inform you of an opportunity available to all incoming Grade 9 students. Carol Pepper, long-time teacher and administrator at our school, is involved in a research project to complete her doctorate at Johns Hopkins University School of Education. The focus of her study is to investigate how self-regulated learning skills, or a student's ability to monitor, to reflect and to evaluate his or her own learning, supports the educational experience and improves academic performance. As part of her research, she is offering a study skills workshop to all students in Grade 9. This workshop will instruct students in study strategies to increase self-regulation, time management, and goal setting. She also will review methods for note taking and ways to stay organized.

The voluntary study skills workshop will occur after the fall athletic seasons and will be held on the school’s campus. We anticipate that students will spend up to 7 hours in 4 sessions. In addition to the time in the study skills workshop, Ms. Pepper will be sharing online tools that help students to track and to reflect on academic responsibilities; she will then continue to dialogue with the students through these shared documents and provide additional support through the third quarter.

Please expect an email from Ms. Pepper in the near future. She will communicate more details about the study skills workshop and ask you to consent for your son or daughter to participate in this research project, should you wish.

name.
Head of Upper School
Appendix V

Email to Parents with Request for Consent – Treatment Group

Dear Parents of the Class of 2020:

Earlier this week you received an email from Dan Hickey, Head of the Upper School, that described an opportunity for the members of the Grade 9 class to participate in a study skills workshop offered after school at the beginning of Quarter 2. I am writing to provide additional information and to ask that you consider consenting for your child to participate in this workshop.

**Background and Information on the Study Skills Workshop and Subsequent Activities**

After years of working with students at the school, I became increasingly interested in how students learn and strategies that might support their educational experience. Toward that end I started to pursue my doctorate of education at Johns Hopkins University School of Education to focus on learning and curricular design. As part of this program, I am investigating how increased self-regulated learning practices, which include self-reflection, time management, goal setting, and organization, might support the learning process.

Self-regulated learning includes an individual’s ability to plan, monitor, manage, reflect on, and adjust the learning process. I have designed a study skills workshop that will support students to develop and practice these skills. The course will occur after Quarter 1 and will involve 4 sessions (a one-hour pre-session, and three two-hour sessions for a total of 7 hours) of instruction and practice. As part of the process, students will receive online tools where they can practice these strategies. I will monitor their use of the online tools and offer support and feedback directly through these documents, as well as be available for face-to-face support at least once per week.

Since the workshop is part of a research project, students will be completing several surveys that measure self-regulated learning and metacognition (one’s ability to monitor his or her own learning process). I will also compare academic grades before and after the workshop to identify any change. All student identifiers will be removed from these data. The specifics of this data collection are outlined in the consent form. After analyzing the data, I will share the research findings with The school’s administration with recommendations for possible curricular inclusion.

**Class Schedule:**

*To be determined before email sent.*
Next Steps:

*If you consent to your child participating in this research*, please follow this link to an online consent form. {Insert Link}. Please read the information and type your name at the end; your typed name serves as your signature.

*Should you decline this opportunity*, please follow this link {Insert Link}. Once you provide your name, I will omit you from all future email communication.

Please don’t hesitate to contact me should you have any questions or concerns.

Many thanks for your consideration.

Carol Anderson Pepper, Ed.M.
Doctoral Candidate
Investigator
Title: Fostering Student Self-Regulated Learning Practices

Principal Investigator: Stephen J. Pape, Ph.D.
Johns Hopkins University School of Education

Student Investigator: Carol Anderson Pepper, Doctoral Candidate
Johns Hopkins University School of Education

Date: October 6, 2016

PURPOSE OF RESEARCH STUDY:

The purpose of this research study is to determine how self-regulated learning strategies might support the learning process and increase academic performance for participating Upper School students.

We anticipate that up to 60 students will participate in this study.

PROCEDURES:

There will be several components of this study:

1. Participants will attend a study skills workshop that will teach self-regulated learning strategies, including planning, reflecting, monitoring, and adjusting learning practices, as well as skills, including time and organizational management and goal setting. The workshop will also focus on specific cognitive study strategies. This workshop will be offered after the conclusion of Quarter 1 (November 2016). The workshop will take place on the school’s campus and be offered by Carol Anderson Pepper. During the study skills workshop, there will be no required associated work outside of the class.

2. The participants’ achievement and available standardized testing scores will be collected from students’ school files.

3. Participants will complete online surveys at the beginning and end of the program as well as during each session to measure their understanding of the self-regulation skills presented and program delivery. Participants will also be asked to complete an online status update survey at the end of Quarter 2.

4. Students will be introduced to online self-regulated learning tools, which provide a means by which students can practice the skills learned in the workshop.
5. All participants will complete pre- and postassessments on their metacognitive and self-regulation skills.

6. Participants will be asked to participate in a focus group interview to reflect on their experience. These focus groups will be audiotaped.

Time required: Participants will attend the study skills workshop for 4 sessions, for a total of 7 hours of training. The Pre-Season will last no more than 1 hour, with each of the following sessions being approximately 2 hours. The online surveys at the end of Quarter 2 and Quarter 3 will take no more than 30 minutes to complete.

**RISKS/DISCOMFORTS:**

There are no anticipated risks to participants.

**BENEFITS:**

There are several benefits to your child from participating in this study. Participants may increase self-regulation practices and become more aware of their learning needs and more active in their learning process.

This study may benefit society if the results lead to an increased understanding of how self-regulated learning can be taught and employed to support student learning.

**VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:**

Your child’s participation in this study is entirely voluntary: You choose whether to allow your child to participate, and we will also ask your child whether he or she agrees to take part in the study. If you decide not to allow your child to participate, or your child chooses not to participate, there are no penalties, and neither you nor your child will lose any benefits to which you would otherwise be entitled.

If you and your child choose to participate in the study, you or your child can stop participation at any time, without any penalty or loss of benefits.

**CONFIDENTIALITY:**

All student identifiers will be removed from the data collected. Any study records that identify you or your child will be kept confidential to the extent possible by law. The records from your child’s participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the National Institutes of Health and the Office for Human Research Protections. (All of these people are required to keep your identity and the identity of your child confidential.) Otherwise, records that identify you or your child will be
available only to people working on the study, unless you give permission for other people to see the records.

All surveys will be completed in an electronic format; the data will collected via a password protected account. If the student is unable to complete the surveys electronically, paper copies will be provided. In both electronic and paper format, this data will not include identifiable information.

All research data including paper surveys will be kept in a locked location. Electronic data will be stored on the principal investigator’s computer, which is password protected. Any original tapes or electronic files will be erased and paper documents shredded, ten years after collection.

COMPENSATION:

Your child will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:

You and your child can ask questions about this research study now or at any time during the study, by emailing Carol A. Pepper, student investigator (cpepper@towerhill.org or cpepper1@jhu.edu) or Stephen J. Pape, principal investigator (Stephen.Pape@jhu.edu).

If you or your child have questions about your child’s rights as a research participant or feel that your child has not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

Typing your name below means that you understand the information in the consent form. Your typed signature also means that you agree to allow your child to participate in the study and have data collected on your child.

Electronic consent: I understand that by typing my name in the space below I am signing this form and therefore am providing informed consent for my child to participate in this study.

Your Name: ____________________________

Your Child’s Name: ______________________
Appendix X

Decline in Participation – Treatment Group

My child will be unable to participate in the Study Skills Workshop. Please remove my name from future email lists associated with this research project.

Many thanks for your response.

My name: ________________________________

My child’s name: ________________________________
Appendix Y

Email to Parents to Confirm Consent – Treatment Group

Dear [insert parent name]:

The purpose of this email is to confirm your consent for [insert student’s name] to participate in the Study Skills Workshop and all associated activities.

Please don’t hesitate to contact me should you have any questions or concerns.

Many thanks for your consideration. I look forward to working with [insert student’s name] in the coming months.

Carol Anderson Pepper, Ed.M.
Doctoral Candidate
Johns Hopkins University School of Education
Student Investigator
Appendix Z

Follow-up Email from Principal Investigator – Treatment Group

Dear Parents of the Class of 2020:

One week ago you received an email that described a free study skills workshop being offered to students in the Grade 9 class at the beginning of Quarter 2. This study skills workshop is based on the research for my doctoral studies.

Should you like your child to participate in the study skills course and subsequent research, please follow this link {insert link} to provide necessary information.

Many thanks for your response.

Carol Anderson Pepper, Ed. M.
Doctoral Candidate
Dear Parents of the Class of 2019:

I am writing you to ask that your child participate in a research study.

**Background and Information on the Research Activities**

After years of working with students at The school, I became increasingly interested in how students learn and what strategies that might support their educational experience. To that end I started to pursue my doctorate of education at Johns Hopkins University School of Education to focus on learning and on curricular design.

I am currently researching how self-regulated learning impacts an individual’s learning process. As part of the process, I need to gather information on students’ baseline self-regulated learning and metacognitive skills. To that end, I am asking if you might consent for your child to complete two surveys related to the strategies they use to learn in school. They would also take a brief demographic survey as well.

All student identifiers will be removed from these data. After analyzing the data, I will be happy to share the results of these assessments with you as well as provide some explanations of the meaning of their scores.

**Class Schedule:**

The assessments will be given during a free period at school.

**Next Steps:**

*If you consent to your child participating in this research*, please follow this link to an online consent and student assent form. {Insert Link}. Please read the information and type your name at the end; your typed name serves as your signature.

*Should you decline this opportunity*, please follow this link {Insert Link}. Once you provide your name, I will omit you from all future email communication.

Please don’t hesitate to contact me should you have any questions or concerns.

Many thanks for your consideration.

Carol Anderson Pepper, Ed.M.
Student Investigator
PURPOSE OF RESEARCH STUDY:

The purpose of this research study is to determine how self-regulated learning strategies might support the learning process and increase academic performance for participating Upper School students.

We anticipate that up to 60 students will participate in this study.

PROCEDURES:

There will be several components for this study:

1. Participants will complete two surveys to measure the strategies they use to learn in school. The two assessment are the Metacognitive Awareness Inventory (MAI) and the Self-Regulated Strategy Inventory – Self-Report (SRSI-SR). A brief demographic survey will also be administered.

   Time required: Participants will take the assessments during a free period within the school day. The total time needed to complete the online surveys will be no more than 60 minutes.

RISKS/DISCOMFORTS:

There are no anticipated risks to participants.

BENEFITS:

There are several benefits to your child from participating in this study. Participants will
receive information on their metacognitive awareness and self-regulated learning skills.

This study may benefit society if the results lead to an increased understanding of how self-regulated learning can be taught and employed to support student learning.

**VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:**

Your child’s participation in this study is entirely voluntary: You choose whether to allow your child to participate, and we will also ask your child whether he or she agrees to take part in the study. If you decide not to allow your child to participate, or your child chooses not to participate, there are no penalties, and neither you nor your child will lose any benefits to which you would otherwise be entitled.

If you and your child choose to participate in the study, you or your child can stop participation at any time, without any penalty or loss of benefits. If you want to withdraw your child from the study, or your child wants to stop participating, please contact Carol Anderson Pepper.

**CONFIDENTIALITY:**

All student identifiers will be removed from the data collected. Any study records that identify you or your child will be kept confidential to the extent possible by law. The records from your child’s participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the National Institutes of Health and the Office for Human Research Protections. (All of these people are required to keep your identity and the identity of your child confidential.) Otherwise, records that identify you or your child will be available only to people working on the study, unless you give permission for other people to see the records.

All surveys will be completed in an electronic format; the data will collected via a password protected account. If the student is unable to complete the surveys electronically, paper copies will be provided. In both electronic and paper format, this data will not include identifiable information.

All research data including paper surveys will be kept in a locked location. Electronic data will be stored on the principal investigator’s computer, which is password protected. Any original tapes or electronic files will be erased and paper documents shredded, ten years after collection.

**COMPENSATION:**

Your child will not receive any payment or other compensation for participating in this study.
IF YOU HAVE QUESTIONS OR CONCERNS:

You and your child can ask questions about this research study now or at any time during the study, by emailing Carol A. Pepper, student investigator (cpepper@towerhill.org or cpepper1@jhu.edu) or Stephen J. Pape, principal investigator (Stephen.Pape@jhu.edu).

If you or your child have questions about your child’s rights as a research participant or feel that your child has not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

Typing your name below means that you understand the information in the consent form. Your typed signature also means that you agree to allow your child to participate in the study. Your child’s name indicates that he or she agrees to participate in the study.

Electronic consent: I understand that by typing my name in the space below I am signing this form and therefore am providing informed consent for my child to participate in this study. By typing my child’s name, my child agrees to participate in this study.

Your Name: ________________________________

Your Child’s Name: ________________________________
Appendix CC

Decline in Participation – Treatment Naïve Group

My child will be unable to complete the surveys on self-regulated learning skills. Please remove my name from future email lists associated with this research project.

Many thanks for your response.

My name: _________________________________

My child’s name: _______________________________
Appendix DD

Email to Parents to Confirm Consent – Treatment Naïve Group

Dear [insert parent name]:

The purpose of this email is to confirm your consent for [insert student’s name] to complete surveys assessing [his or her] self-regulation practices and then receive feedback on their scores.

Please don’t hesitate to contact me should you have any questions or concerns.

Many thanks for your consideration. I look forward to working with [insert student’s name].

Carol Anderson Pepper, Ed.M.
Doctoral Candidate
Johns Hopkins University School of Education
Student Investigator
Appendix EE

Follow-up Email Reminder to Parents of Treatment Naïve Group

Dear Parents of the Class of 2019:

One week ago you received an email that requested your child’s participation in a research project designed to support self-regulated learning in an independent school. Your child would complete two surveys to measure self-regulated learning strategies and metacognition. The surveys will be administered.

Should you like your child to participate in the study skills course and subsequent research, please follow this link {insert link} to provide necessary information.

Should you decline this opportunity, please follow this link {insert link}.

Many thanks for your response.

Carol Anderson Pepper, Ed. M.
Doctoral Candidate

I am currently researching how self-regulated learning impacts an individual’s learning process. As part of the process, I need to gather information on students’ baseline self-regulated learning and metacognitive skills. To that end, I am asking if you might consent for your child to complete two surveys related to the strategies they use to learn in school. They would also take a brief demographic survey as well.

All student identifiers will be removed from these data. After analyzing the data, I will be happy to share the results of these assessments with you as well as provide some explanations of the meaning of their scores.

Class Schedule:

The assessments will be given during a free period at school.
Appendix FF

Study Skills Workshop Objective and Activities by Session

Presession (1-hour) Objective/Activity

- To obtain students’ assent to participate in the study
- To introduce the study to the students
- To collect premeasure data on the students’ metacognitive awareness and self-regulation strategy knowledge and use.
  - Complete Self-Regulation Strategy Inventory Self-Report (SRSI-SR)
  - Complete Metacognitive Awareness Inventory (MAI)
- To collect demographic information on the students
  - Complete Participant Demographic Survey
- To provide an overview of the Study Skills Workshop

Session 1 (2-hours) Objective/Activity

- To introduce students to the concepts of SRL
  - Key Concepts include:
    - The three phases of self-regulated learning (forethought, performance, self-reflection)
    - Cause and effect in degrees of success (includes analysis of external causes and internal causes)
    - The connection between SRL and cause and effect
- To engage students in the practice of developing S.M.A.R.T. Goals
  - Key Concepts include:
    - The characteristics of S.M.A.R.T. Goals (specific, measurable, attainable, relevant, and time based)
- To introduce students to the learning circle of SRL
  - Key Concepts include:
    - Components of the cyclical SRL Learning Circle (self-evaluation, goal setting and strategic planning, strategy implementation and monitoring, strategic outcome monitoring)
- To introduce and engage students in using the SRL online tool
  - Key Activities/Concepts include
    - Share SRL online tool and guide students to begin to enter information in their personalized copy
- To engage in a discussion of key takeaways from the session.
- To provide preview of Session 2
- To evaluate Session 1
  - Activity: Complete Participant’s Daily Survey

Session 2 (2-hours) Objective/Activity

- To review concepts from Session 1, including the learning circle of SRL
- To engage students in using the SRL online tool to monitor, evaluate and strategize learning
  - Key SRL Focus:
    - Self-Monitoring
    - Self-Evaluation
    - Strategic Planning
• To review utility of various learning (cognitive) strategies.
• To introduce the record and revise method for learning from class and lectures
• To integrate the cognitive strategies into the revise phase of learning from class/lectures
  o Strategy Options/Activities include:
    • Notes Review
    • Summarizing
    • Self-Questioning (5 R’s: Record, Revise, Reflect, Recap, Reason)
    • Provide examples of three types of questions for self-questioning
    • Engage in practicing the self-questioning using current class notes
• To engage in using the SRL online tool, focusing on evaluate and then strategize
• To review an example of a completed SRL online tool
• To practice using the SRL online tool
• To engage in a discussion of key takeaways from the session.
• To provide preview of Session 3
• To evaluate Session 2
  o Activity: Complete Participant’s Daily Survey

Session 3 (2-hours) Objective/Activity
• To review concepts from Session 2, including the learning circle of SRL
• To teach students strategy options for learning from text
  o Strategies include:
    o Mind Maps
      ▪ Provide information on the 7 steps to create mind maps
      ▪ Provide examples of various mind maps
      ▪ Share possible web-based sites to create mind maps
      ▪ Engage in creating a mind map based on current class notes
  o Note-taking formats
  o Encourage incorporating a SRL prompt to reflect/assess understanding of assigned reading
• To introduce SRL Observation and Strategy Tool (SRL TOAST)
  o Key Activities/Concepts include
    o Share SRL TOAST and guide students to begin to enter information in their personalized copy
• To provide information on next steps in learning support
  o Support includes dialoging with the research via the SRL online tools and seeking face-to-face support with the researcher during specific times
  o Receive weekly emails to discuss the student’s use of the SRL online tool
• To engage in a discussion of key takeaways from the session.
• To evaluate Session 3
  o Activity: Complete Participant’s Daily Survey

Post Workshop Objective/Activity
• To continue to dialogue with students through the two online SRL tools and emails.
• To provide support when requested by students
Appendix GG

Workshop Participant Assent Form

Johns Hopkins University
Homewood Institutional Review Board (HIRB)

Title: Fostering Student Self-Regulated Learning Practices

Principal Investigator: Stephen J. Pape, Ph.D.
Johns Hopkins University School of Education

Student Investigator: Carol Anderson Pepper, Doctoral Candidate
Johns Hopkins University School of Education

Date: October 6, 2016

What is a research study? A research study is a way to find out new information about something. You do not need to be in a research study if you don’t want to.

Why are you being asked to be part of this research study? You are being asked to take part in this research study because we are trying to learn more about study strategies that support the learning process. I will be providing a study skills workshop for Grade 9 students entering The school in the Fall of 2016.

If you join the study what will you be asked to do? If you agree to join this study, you will be asked to attend a study skills workshop for 4 sessions and a total of 7 hours. You will complete several online surveys to gather information about your existing study habits. You will then be taught several strategies and later asked to provide feedback on how you are using the strategies and whether you find them helpful. You will be introduced to online tools to help you practice some learning strategies; you will receive feedback from the researcher on these forms. You may also request additional support from the researcher while using these tools. You will be asked to participate in two group interviews where you will be asked to share your perspective on the study skills workshop and strategies you will learn. You will complete these activities outside of class time, which will not compete with other obligations at school.

Who will see the information collected about you? The information collected during this study will be kept safely locked up. No one will have access to your responses except the people doing the research. Your study information will not be given to your parents or teachers. Your name and any other personal identifiers will be removed.
**How will being in this study affect me?**  The study does not involve any risk or stress. We expect that the study will help you build study skills that might support your learning process and academic performance.

Before you say yes or no to being in this study, I will answer any questions you have. If you join the study, you can ask questions at any time. Just tell the researcher that you have a question.

If you want to be in this study, please sign your name below. You will get a copy of this form to keep.

---

**Sign your name here**
## Appendix HH

### Mixed Methods Data Collection and Timeline

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Quantitative</th>
<th>Qualitative</th>
<th>Data Collection Type</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researcher’s Field Notes</td>
<td>X</td>
<td></td>
<td>Transcripts</td>
<td>December 2016 to March 2017</td>
</tr>
<tr>
<td>Attendance Sheet (Appendix H)</td>
<td>X</td>
<td></td>
<td>Participation Records</td>
<td>December 2016</td>
</tr>
<tr>
<td>Participant Daily Surveys (PDS) (Appendix I)</td>
<td>X</td>
<td>X</td>
<td>Web-based Surveys</td>
<td>December 2016</td>
</tr>
<tr>
<td>Focus Group - Round One (FG1)</td>
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<td></td>
<td>Transcripts</td>
<td>December 2016</td>
</tr>
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<td>Participant Demographic Survey (Appendix L)</td>
<td>X</td>
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<td>Web-Based Survey</td>
<td>December 2016</td>
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<tr>
<td>MAI (Schraw and Dennison, 1994) (Appendix M)</td>
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<td></td>
<td>Web-Based Survey</td>
<td>December 2016 to April 2017</td>
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<tr>
<td>SRSI-SR (Cleary, 2006) (Appendix N)</td>
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<td>Web-Based Survey</td>
<td>December 2016 to April 2017</td>
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<tr>
<td>Participant Status Update Survey (SUS) (Appendix O)</td>
<td>X</td>
<td>X</td>
<td>Web-based Survey</td>
<td>February 2017 to April 2017</td>
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<tr>
<td>Focus Group – Round Two (FG2), Conclusion of Data Collection (Appendix P)</td>
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<td></td>
<td>Transcripts</td>
<td>April 2017</td>
</tr>
<tr>
<td>Grades and GPA (Appendix II)</td>
<td>X</td>
<td></td>
<td>School Records</td>
<td>SSW Participants Quarter 1 Grades (December 2016) Quarter 3 Grades (April 2017)</td>
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<td>Instrument</td>
<td>Quantitative</td>
<td>Qualitative</td>
<td>Data Collection Type</td>
<td>Timeline</td>
</tr>
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<tr>
<td>Standardized Test Scores (CTP4)</td>
<td>X</td>
<td>School Records</td>
<td>CTP4 Scores</td>
<td>Treatment-Naïve Freshman Quarter 1 and Quarter 3 Grades (December 2016)</td>
</tr>
</tbody>
</table>

*Note.* SSW = study skills workshop.
Appendix II

School Established Formula for Weighted 4-point Grade Point Average

4-Point Equivalences of Number and Letter Grades at the Independent School

<table>
<thead>
<tr>
<th>Number Grade</th>
<th>Letter Equivalent</th>
<th>Unweight GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100</td>
<td>A+</td>
<td>4.25</td>
</tr>
<tr>
<td>90-94</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>87-89</td>
<td>B+</td>
<td>3.75</td>
</tr>
<tr>
<td>83-86</td>
<td>B</td>
<td>3.5</td>
</tr>
<tr>
<td>80-82</td>
<td>B-</td>
<td>3.25</td>
</tr>
<tr>
<td>77-79</td>
<td>C+</td>
<td>2.75</td>
</tr>
<tr>
<td>73-76</td>
<td>C</td>
<td>2.5</td>
</tr>
<tr>
<td>70-72</td>
<td>C-</td>
<td>2.25</td>
</tr>
<tr>
<td>67-69</td>
<td>D+</td>
<td>1.75</td>
</tr>
<tr>
<td>63-66</td>
<td>D</td>
<td>1.5</td>
</tr>
<tr>
<td>60-62</td>
<td>D-</td>
<td>1.25</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

Grades earned in advanced or accelerated courses received an additional .5 points.

An A+ grade (95-100) in any course receives an additional .25 points.
Carol Anderson Pepper
2506 Fairlee Road, Wilmington, DE 19810 • CarolAPepper@comcast.net

Education

Johns Hopkins University Graduate School of Education, Baltimore, MD 2017
Ed.D.
Course Specialization: 21st Century Education and Curricular Design
Dissertation Focus: Fostering Self-Regulated Learning at an Independent School

Harvard University, Graduate School of Education, Cambridge, MA 1986
Ed.M.
Course focus:
■ Counseling: adolescent counseling issues, family counseling and a counseling practicum
■ Developmental Psychology: child, adolescent, moral, and social development

Dartmouth College, Hanover, NH 1983
A.B.
Departmental Certification in Educational Studies: Private School Studies

Fellowships

Aileen and Gilbert Schiffman Fellowship, Johns Hopkins University, Baltimore, MD 2016/2017

Klingenstein Center for Independent School Education Summer Institute Columbia University, New York, NY 1989

Professional Experience

Johns Hopkins University School of Education, Baltimore, MD 2017
Teaching Assistant: Doctoral Level Online Class: Technology and Creative Learning

Tower Hill School, Wilmington, DE 1986 – 2016
■ Director of Student Learning (2015-2016)
■ Director of Curriculum Development (2008-2015)
■ Assistant Head of Middle School (2006-2008)
■ Director, Summer Session (1989-1991)
■ Faculty Mentor (1993-present): guide and support new faculty members
■ Teacher (Grades 7-10): Assignments included: Pre-Algebra, Algebra 1, Algebra 2, Geometry, Psychology; Online courses: Algebra 1, Algebra 2
■ Head Class Advisor (Grade 7: 1986-1990; Grade 8: 1994-2006)

The Lexington School, Lexington, KY 1983 – 1985
Teacher: (Grades 4-9) General Mathematics, Pre-Algebra, Algebra, Geometry, English

St. Paul’s School, Concord, NH 1983
Intern: Finite Mathematics