BE KIND TO YOURSELF: THE RELATIONSHIP BETWEEN SELF-COMPASSION, SELF-CONCEPT & SELF-REGULATED LEARNING IN UNIVERSITY STUDENTS WITH & WITHOUT HIGH-INCIDENCE EXCEPTIONALITIES

by

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Abstract

The concept of self-regulated learning (SRL) provides a lens for examining how students master their own learning, and for identifying particular behaviours that are effective in achieving learning goals (Schunk & Zimmerman, 2008). The ability to self-regulate is important at any stage in education, however, it may be especially important for post-secondary students who must navigate through a new environment with independence. The ability to self-regulate can be particularly difficult for some university students (Peverly et al., 2003), especially those students with high incidence exceptionalities including learning disabilities (LDs) and attention deficit hyperactivity disorder (ADHD). As the number of students with exceptionalities enrolling in postsecondary education increases each year, external support provided by the offices who serve these students are finding it difficult to keep up with the demands placed on them (Seagull, 2017). Therefore, it is important to seek out additional ways of supporting students with exceptionalities in postsecondary education. Specifically, a focus on developing social-emotional processes such as self-concept and self-compassion may be valuable ways of supporting self-regulated learning for these students. With little research investigating self-processes including global self-concept and self-compassion, the purpose of this study is to investigate the relationship among self-compassion, self-concept and self-regulated learning as they relate to students with and without disabilities in university.

A total of 240 university students (26 males; 194 females; 5 gender variant/non-conforming) took part in the study. The participants completed a 78-item questionnaire consisting of demographic questions and the following scales: the Self-Compassion Scale (SCS; Neff, 2003), the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1993) and the Personal Self-Concept Questionnaire (PSC; Goñi et al., 2011). Correlational analyses indicated that greater scores in self compassion were associated with greater scores in self-concept, self-efficacy learning strategies scores, and overall self-regulation. Greater scores in self-concept were associated with great scores in self-efficacy, learning strategies scores and overall self-regulated learning scores. Students who were formally identified with an exceptionality reported higher personal self-concept scores than their non-identified peers. Lastly, self-regulated learning was not statistically significant among the various groups. These findings suggest self-processes and internal strengths could serve as additional support related to self-regulated learning and academic resiliency for all students despite their disability status.
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Chapter 1

Introduction

The notion of self-regulated learning emerged into theory, research, and praxis roughly forty years ago, and continues to receive extensive coverage today. Self-regulated learning (SRL) refers to the activation and reflection of cognitive processes, positive affect, and particular behaviours directed toward learning goals in an academic context (Schunk & Zimmerman, 2008). Therefore, self-regulated individuals are often characterized as dynamic learners who take ownership of their education through the implementation of various strategies, including monitoring and reflection, in order to reach academic goals and outcomes (Wolters, 1998). The concept of SRL provides a lens for examining how students master their own learning, and for identifying particular behaviours that are effective in achieving learning goals (Schunk & Zimmerman, 2008).

The ability to self-regulate is important at any stage in education, however, it may be especially important for post-secondary students who must navigate through a new environment with independence. Moving away from home for the first time, learning new life skills, and juggling a social life in addition to maintaining grades in class sizes that are significantly larger than that of secondary school classes all require university students to become autonomous learners (Macaskill & Taylor, 2010), and therefore the necessity for SRL increases in order to achieve academic success (Hodge & Preston-Sabin, 1997; Ruban et al., 2003).

Prior research substantiates the belief that self-regulated learners often achieve better academic outcomes (Alexander & Judy, 1988; Pintrich & De Groot, 1990; Wolters,
This was demonstrated in a study conducted by Kitsantas (2002), who explored the effects of using self-regulated strategies for test preparation and performance in a college-level psychology class. The results of the study suggested that the use of more self-regulated strategies indicated higher performance on the test. Additionally, overall SRL and self-efficacy also predicted test performance. These results indicated the importance of SRL processes on academic outcomes, especially in higher education. However, the ability to self-regulate can be particularly difficult for some university students (Peverly et al., 2003), especially students with high incidence exceptionalities including those with learning disabilities (LD) and attention deficit hyperactivity disorder (ADHD). According to the Participation and Activity Limitation Survey conducted by Statistics Canada (2016), over half a million adults in the country are living with a learning limitation. Out of those adults, over seventy-three thousand between the ages of 15 to 64 were enrolled in a school or university. Additionally, 4.4% of university going adults with learning limitations held a bachelor’s degree and 4.0% had an education above a bachelor’s degree (Statistics Canada, 2016). In addition to students with LDs, approximately 2-12% of North American postsecondary students have ADHD symptoms (Nugent & Smart, 2014). With a 45.1% comorbidity rate (DuPaul et al., 2013) students with LD and/or ADHD exemplify some of the largest rising populations attending universities (Mull et al., 2001; Wolf, 2001). However, research has also identified some of the challenges faced by students with LD and ADHD once admitted to postsecondary education. Students identified with exceptionalities in postsecondary education have been found to possess weaker academic skills (Sparks & Lovett, 2009; Wolf, 2001), lower perceptions of academic self-efficacy (Ben-Naim et al., 2017; Tabassam et al., 2002), and
lower self-confidence in scholastic subjects, such as, mathematics and writing (Henderson, 2001) than their non-identified peers. Endorsing negative self-perceptions may affect one’s ability to engage in suitable self-regulation strategies, thus creating additional barriers to academic achievement, particularly for students with LD and ADHD that already face academic challenges related to their exceptionalities.

Grounded in social cognitive theory, Zimmerman & Moylan (2009) developed an updated version of Zimmerman’s original SRL model (2000), which consists of three cyclical phases, namely the forethought phase, the performance phase, and the self-reflection phase. Each phase further contains subprocesses that students can employ prior to, during, and after a task in order to effectively engage in self-regulation. The updated version of the model (2009) includes additional subprocesses within the performance phase and encompasses detailed explanations of each of the other processes and their connection to each other. As an example, within the forethought phase is a subprocess called task analysis which is made up of two strategies: goal setting and strategic planning. When studying for an exam, a student may set proximal goals for themselves and generate an action plan focused on the process of studying. In doing so, they are increasing their chances of success on the exam (performance phase), which will ultimately impact how they use feedback during the self-reflection phase to either improve the quality of or increase the number of strategies used within the forethought phase for subsequent tasks. Studies have shown that individuals who demonstrated use of multiple strategies within Zimmerman’s model were more likely to excel in their classes (DiBenedetto & Zimmerman, 2010).
While there is a wealth of research that focuses primarily on working to improve students’ cognitive and academic deficits through formal self-regulatory training—a body of research that has been valuable in shaping academic outcomes in areas such as mathematics or reading comprehension (Jitendra et al., 2018; Jozwik et al., 2019)—there remains a dearth of research focused on how social-emotional aspects or internal supports (e.g., self-compassion) can be used in supporting self-regulation (Willoughby & Evans, 2019). As the number of students with exceptionalities enrolling in postsecondary education increases each year, external support provided by the offices that serve these students are finding it difficult to keep up with the demands placed on them (Seagull, 2017). Therefore, it is important to seek out additional ways of supporting students with exceptionalities in postsecondary education. Specifically, a focus on developing social-emotional processes such as self-concept and self-compassion may be valuable ways of supporting self-regulated learning for these students.

Self-concept is defined as an individual’s collection of the perceptions they have about themselves (i.e., their ability, worth, value, and limitations). Past research has found that, although students with exceptionalities may have negative feelings regarding their self-efficacy related to academic abilities, they often maintain positive feelings of general self-concept, such as self-worth (Bear et al., 2002; Nelson, 2013). Further, self-worth has been shown to enhance motivation and facilitate self-regulation in the academic context (Crocker et al., 2006).

Self-compassion, a relatively new construct in the field of educational research was introduced by Neff (2003) as an “emotionally positive self-attitude that involves treating oneself with warmth and comprehension in problematic life situations” (Petersen,
Self-compassion is composed of the following three qualities: being kind to oneself, having awareness of one’s common humanity, as well as being mindful (Neff et al., 2005). Greater feelings of self-compassion have been coupled with improved life satisfaction, mastery goals, performance goals and lower feelings of depression and anxiety (Neff et al., 2005). A recent study conducted by Willoughby & Evans (2019) investigated the impact of self-compassion and self-acceptance of a disability on the motivation to engage in SRL in university students with LD and/or ADHD. The results revealed positive correlations between self-compassion, self-regulation, and self-efficacy scores. With only one study investigating the effects of self-compassion on self-regulation (Willoughby & Evans, 2019), the purpose of the present study aims to extend the work in this field and focus on exploring how social-emotional factors such as global self-concept and self-compassion can contribute to promoting academic self-regulation for students with LDs and/or ADHD.

By concentrating on positive global self-concept and the ability to turn warmth and understanding inwardly through self-compassion to improve SRL, this research is leveraging a strengths-based approach by providing the groundwork to develop empowering socioemotional-focused interventions to further support students with exceptionalities in inclusive settings. Further, by understanding the relationship among self-concept, self-compassion and self-regulated learning in relation to disability status, this study benefits parents and educators by identifying ways in which students with exceptionalities can be more compassionate toward themselves when faced with challenging tasks, and to focus on acknowledging and building on their strengths throughout their early developmental stages once identified with a disability.
Definition of Key Terms

The following is a list of definitions of the key terminology used throughout the study:

**Self-Processes**

Self-processes stimulate and encourage learning; self-processes are used as an umbrella term which includes self-concept, self-regulation, self-compassion, well-being, resiliency, and motivation (McInerney at al., 2008). Here forward, these socio-emotional processes will be referred to as self-processes.

**Self-Concept**

The self-concept theory was coined by Raimy (1943) and is defined as an individual’s composite perception of themselves, for example their ability, worth, value, and limitations. Self-concept consists of either a global measure of self-worth (e.g., general self-concept) or domain-specific (e.g., academic self-concept).

**Self-Regulated Learning (SRL)**

Self-regulated learning refers to the activation and reflection of cognitive processes, positive affect, and particular behaviours directed toward learning goals in an academic context (Schunk & Zimmerman, 2008).

**Self-Compassion**

Neff (2003b) conceptualizes self-compassion as recognizing and healing one’s grief or distress through the notion of kindness, instead of escaping or detaching from it. Self-compassion also consists of the awareness that you are not alone but instead part of a larger “human experience” (p.86). Neff (2003b) further theorizes self-compassion encompassing the following three qualities: self-kindness, common humanity, and mindfulness.
Disability Status

This term is used to refer to the status of individuals in the present study as having an exceptionality (i.e., LD, ADHD, comorbidity) or not. Further, the researcher made the distinction between self-identification and formal identification with an exceptionality. Here, self-identification may refer to individuals believing that they have one of the listed exceptionalities regardless of a formal identification, whereas formal identification refers to them having been formally identified with an exceptionality by a school team.

Learning Disabilities (LD)

“DSM-5 considers SLD to be a type of Neurodevelopmental Disorder that impedes the ability to learn or use specific academic skills (e.g., reading, writing, or arithmetic), which are the foundation for other academic learning.” (Tannock, 2014, p.1)

Attention Deficit Hyperactivity Disorder (ADHD)

The Diagnostic and Statistical Manual of Mental Disorders-IV (DSM; APA, 2000) defines ADHD based on two independent but correlated dimensions, which are inattention (IA) and hyperactivity/impulsivity (H/I). Individuals who meet six or more of either IA or H/I or both are typically diagnosed with ADHD.

25% of ADHD cases are typically the inattentive subtype (Faraone et al., 1998), characterized as cavalier, absentminded, and disinclined to engage in tasks (American Psychiatric Association, 2000). Hyperactivity/impulsivity on the other hand is referred to as restless, withdrawal, talkative, and disruptive (American Psychiatric Association, 2000).

Organization of Thesis
The thesis is comprised of five chapters, with the introduction acting as the first chapter to provide context, purpose, rationale, and significance of the study. Chapter two provides a review of the literature related to self-concept, self-compassion, and SRL, as well as how LD and ADHD are related to SRL. Chapter three describes the research methodology including the participants, instruments, and procedures for data collection and analysis. Chapter four presents the results of the study, and chapter five includes a discussion of these results, including implications for future research and practice.
Chapter 2

Literature Review

This chapter begins with an overview of SRL followed by a focus on some of the major models of SRL. Then a review of the literature regarding the two self-processes (self-concept and self-compassion) is presented and lastly how high-incidence exceptionalities are related to SRL.

Self-Regulated Learning

Self-regulated learning is defined as the ability to engage in higher order cognitive processes such as goal setting, monitoring, and reflecting on one’s behaviour to reach particular learning goals in an academic setting (Schunk & Zimmerman, 2008). Therefore, self-regulated learners are proactive learners who are aware of their strengths and weaknesses, are able to set goals, exert control over their behaviour, emotions and thoughts, as well as engage in self-reflection, which often leads not only to greater academic achievement but a more positive outlook on one’s future (Zimmerman, 2002).

Self-regulated learning has emerged as essential in promoting life-long learning skills and plays a positive role in academic performance (Zimmerman, 2002). A study conducted by Lindner and Harris (1992) looked at the extent to which self-regulated learning contributed to academic performance in university students. 160 participants (121 females; 39 males) were recruited for this study. Participants completed a self-regulatory intervention scale which consisted of the following variables: metacognition, learning strategies, motivation, contextual awareness/sensitivity and environmental utilization/control. The researchers found a significant correlation between the total score of all of the variables within the self-regulatory intervention scale and grade point.
average (GPA). Additionally, effective self-regulation strategies improved based on age and academic experience. A more recent study also examined the relationship between self-regulated learning and academic achievement of 460 second-year undergraduate electrical engineering students from a university in Malaysia (Kosnin, 2007). Data analysis relied on self-reports of the Motivated Strategies Learning Questionnaire (MSLQ) as well as GPA scores, which assessed academic achievement of students from the semester that the study was conducted. A stepwise multiple regression analysis was conducted in order to determine which aspects of self-regulation predicted academic achievement. The results exhibited that SRL explained 35.2 percent of the variance in GPA, and that resource management strategies (e.g., time and study environment, effort regulation, peer learning and seeking help) and metacognitive learning strategies (rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation) were the substantial predictors. Self-efficacy was the only variable that did not contribute to overall academic achievement. Additionally, a median split technique was used to categorize two achievement groups: low achievement versus high achievement. A separate multiple regression analysis was carried out in order to investigate the impact of the predictor variables for each achievement group. According to these results, SRL predicted a greater variance in GPA for the high achievers (33.6%) compared to the low achievers (13.7%). For the high achievers, the predictor variables that had a positive impact on GPA included control of learning behaviour and resource management strategies. Whereas, for the low achievers, metacognitive learning strategies had a positive effect on their GPA. In both studies, researchers found that SRL had a significant
influence on GPA, and that high achievers were more likely to make use of more SRL strategies compared to the low achievers.

Self-regulated learning strategies can be used before, during and after engaging in a learning task. For example, a learner might think about setting proximal goals and tactically plan how to achieve these goals prior to engaging in a task. During a task, the learner may exert self-control by concentrating and upholding interest while engaging in the task and lastly, after the task is completed, students may use the feedback they receive to self-reflect by judging and evaluating their work, which is cyclical in that the assessments made during the self-reflection phase can influence the strategies they use for subsequent tasks (Panadero & Alonso Tapia, 2014). The quality and quantity of academic self-regulation strategies used by students has been shown to relate to academic success (Zimmerman & Pons, 1986). In 2009, Zimmerman and Moylan (2009) published an updated version of his original SRL model (2000), which breaks down the key processes through which individuals self-regulate before, during and after completing an academic task.

**Theoretical Framework**

Self-regulated learning is a multidimensional theory involving metacognitive, emotional and motivational learning and has provided major contributions in the realm of education. As this concept continues to evolve, several models of SRL have been developed to explain the common set of strategies that self-regulated students use in order to accomplish their academic goals (Boekaerts, 1991; Winne & Hadwin, 1998; Pintrich, 2000; Zimmerman & Moylan, 2009). Although the conceptualization of SRL is extremely convoluted and complex, many models share basic underlying features,
including the presence of various processes (i.e., goal directedness) and the common cyclical nature that allows feedback for strategies used in a previous task to inform one’s experience in subsequent tasks (Panadero & Alonso Tapia, 2014).

One of the earliest and most influential psychologists in the area of SRL is Boekaerts, whose model is still widely used today. Boekaerts created two conceptual frameworks in an effort to explain the concept of self-regulation. The first model (1991) is comprised of six components of SRL which are organized around two basic mechanisms: cognitive self-regulation and motivational-self-regulation. According to Panadero (2017), this model is used to gain a better understanding of the domain-specific workings of self-regulation. It is also used to create new instruments for research, and lastly, to train teachers. In 2011, Boekaerts published a second self-regulation model that started off as the Adaptable Learning Model in the 1990s, and later developed into the Dual Processing Model. The model aimed to address the interaction between learning goals and well-being goals. In this model, the student’s appraisal (top part of the model) determines which pathway is stimulated. For instance, when students are faced with a learning task that they deem to be too challenging or that threatens their well-being, bottom-up strategies are activated that help protect their ego from getting damaged and they move into the well-being pathway. On the contrary, if the student’s goals align with the task, their strengths and motivation generate positive emotions, which lead to top-down strategies in the mastery/growth pathway. Emotions play a big role in Boekaerts self-regulation model because the student’s emotion is activated and governs the strategies that are used within the pathway.
Winne and Hadwin (1998) created a self-regulation model which contributed to a slightly different perspective and understanding of self-regulated learning and was heavily influenced by a metacognitive perspective. In their first model, they explained that there are four phases of learning, which include: definition of the task, goals and plans, studying tactics, and adaptations to metacognition. Each of these phases were the outcome of the interaction between the learner’s conditions, operations, products, evaluations and standards (COPES). Their model was heavily influenced by the information-processing theory (Miller, 1956), which occurs within each of the learning phases (Greene & Azevedo, 2007). Another previous SRL model created by Butler and Winne (1995), emphasized the role that both internal and external feedback played for SRL. A second model presented by Butler and Winne emphasized the use of monitoring to evaluate the present state of a task compared to the profile of goals in order to generate strategies. In 1996, Winne developed an updated version of their model where they merged the two previous models into one and included an additional section for the metacognitive aspects that explain differences in self-regulation. Unlike Boekaerts’ SRL model, Winne et al. (1995; 1996; 1998) had no mention of emotions in their models, but rather, had strong metacognitive backgrounds and goal-driven approaches to the designs.

Pintrich was one of the first psychologists to investigate the relationship between SRL and motivation (Panadero, 2017). In 2000, Pintrich clarified the differences between metacognition and self-regulation and delved into the areas that required further research. They created one model of SRL in 2000, which consisted of the following four phases: forethought and planning; monitoring; control; and reaction and reflection. Further,
Pintrich outlined four areas for regulation including, cognition, motivation, behaviour, and context.

All the SRL models above offer unique perspectives on how an individual can engage in SRL by employing different learning strategies. Although all four models have the three cyclical phases – preparatory, performance, and reflection – in common, they all differ in the subprocesses used within each of the phases. For instance, within the preparatory phase, Boekaerts’ (2011) model includes the following components: identification, interpretation, primary and secondary appraisal, and goal setting. Pintrich’s (2000) model looks at forethought, planning and activation. Winne and Hadwin’s model (1998) have some overlap with Pintrich in that they also look at planning, task definition and goal setting. Zimmerman and Moylan’s (2009) model looks at forethought which is consisted of task analysis, and self-motivation. Together, the focus in this initial stage is on preparing to strategically engage in a task, though the terminology may differ among the models.

Though the nature of the other stages in these models is similar, there are some differences in terms of the constructs that they focus on. While Zimmerman and Moylan (2009) and Boekaerts (2011) emphasized motivation as a key aspect of SRL, Winne and Hadwin (1998) and Pintrich (2000) had a greater emphasis on metacognition within their models. Boekaerts (2011) focused on how the emotions in students’ goals activate different the top down/ bottom-up pathways and different SRL strategies, which can be particularly valuable when examining self-processes like self-concept and self-compassion.
Despite the value each model provides, and particularly, the emphasis on emotions within Boekaerts’ (2011) model, Zimmerman and Moylan’s (2009) model (see, figure 1) provides the best framework for examining self-processes for several reasons. Namely, this model incorporates both metacognitive and motivational processes, it is accessible and straightforward, and it explicitly names several subprocesses within each phase of the model. Zimmerman was one of the first psychologists who attempted to explain SRL, and his model continues to have the greatest number of citations within research (Moos & Ringdal, 2012) and is considered to be the most beneficial in serving educators (Panadero, 2017). Although, Zimmerman and Moylan’s (2009) model does not emphasize the importance of emotions, perhaps in part due to the complexity and challenge of measuring them (Panadero & Alonso-Tapia, 2014), it does include self-efficacy, which is a construct determined by one’s feelings regarding their ability to perform a task. According to Panadero and Alonso-Tapia (2014), state-oriented styles of coping related to failure and decisions regarding academic tasks include hesitation, overthinking, and surrendering to anxiety, criticisms, and denial. Therefore, these types of students rely heavily on emotions, which could cause disruptions depending on how they feel regarding their perceptions around their ability to complete a task successfully, which is similar to the concept of self-efficacy. Because the current study revolves around the notion of emotional self-processes, such as self-compassion and self-concept, it may perhaps inform the importance of adding emotions as a predictor for improving self-regulated learning and ultimately academic performance. Lastly, Zimmerman and Moylan’s (2009) model is grounded in social cognitive theory and consists of three phases: forethought, performance, and self-reflection.
Forethought Phase. The forethought phase is focused on preparing for engagement with a task, and therefore paves the way for the strategies used during the performance phase. As seen in Figure 1, the forethought phase is comprised of two subprocesses: task analysis and self-motivation beliefs. Task analysis encompasses goal setting and strategic planning. According to Zimmerman (2002), students who set specific and measurable goals for themselves are more likely to achieve academic success. Strategic planning involves generating an action plan on how to reach one’s learning goals.

Self-motivation is rooted in students’ attitudes toward their learning and the outcome expectations they have to achieve success. The four subprocesses within the
self-motivation beliefs phase include: self-efficacy, outcome expectations, task interest/value and goal orientation. Self-efficacy, best known as confidence, is an individual’s perception of their ability or potential to successfully engage in a necessary task (Zimmerman et al., 2017). Outcome expectations encompass an individual’s outlook on the outcome of a task. Intrinsic interest signifies the merit students place on a task based on personal interest and desire to learn, and lastly, learning goal orientation refers to an individual’s aspiration to mastering new skills and developing one’s capability.

**Performance Phase.** The performance phase is comprised of the strategies utilized during engagement with a task and is made up of the following major subprocesses: self-control and self-observation. The types of self-control techniques include the use of task strategies, self-instruction, imagery, time management, environmental structuring, help-seeking, interest incentives, and self-consequences. In an article written by Zimmerman (2002), he explained how a student used certain self-control strategies to learn the Spanish word for bread, ‘pan’. The student used imagery to create a visualization of a bread pan by focusing all her attention by removing the distracting items away from her studying space. Further, to learn more effectively, she decided to use task-strategy by grouping the word ‘pan’ with other related words for food. Additionally, self-observation strategies such as monitoring could also be used while studying. These might include self-recording or tracking the amount of time spent studying. Another strategy that could be used during this phase is self-experiment, which refers to testing different learning methods to find the most suitable option. An example of this is if a student realized that they completed their homework quicker when completing it alone compared to working with a group of friends (Zimmerman, 2002).
**Self-Reflection Phase.** In the self-reflection phase, students use strategies to evaluate and assess their performance on a task to adjust or modify the approaches used within the other two phases in ensuing academic tasks. The self-reflection phase consists of self-judgement and self-reaction. Self-evaluation, a form of self-judgement, refers to an individual’s performance against a standard. Causal attribution refers to the consideration of the sources of outcomes; one might consider their actions, learning conditions, or other variables to explain their successes and failures with specific tasks. Individuals with a growth mindset often look at failure as a steppingstone to progress and improvement, whereas individuals with a fixed mindset attribute their errors as personal failure, which can be damaging to one’s motivation to keep learning.

Self-satisfaction and positive affect are two types of self-reaction. According to Zimmerman and Schunk (2001), increased feelings of self-satisfaction contribute to increased motivation, whereas decreased feelings of self-satisfaction cause limitations in one’s desire to continue learning. Adaptive reactions refer to one’s ability to alter or correct a strategy in order to increase effective learning. Defensive reactions on the other hand are harmful in the learning process because these reactions include avoiding opportunities such as dropping a course.

Zimmerman and Moylan’s (2009) self-regulated learning model is cyclical in that the strategies used during the forethought phase will instigate motivation to use strategies during the performance phase and the self-reflection phase. Self-reflection completed for previous tasks informs the strategies that need to be corrected or attuned during the forethought phase for subsequent tasks. Previous research has found that learners’ who use strategies within the forethought phase will be more likely to use strategies within the
performance and self-reflection phases as well. For example, “students who set specific proximal goals are more likely to self-observe their performance in these areas, more likely to achieve in the target area, and will display higher levels of self-efficacy than students who do not set goals” (Zimmerman, 2002, p. 68).

**Self-Concept**

Previous research has demonstrated a bidirectional relationship between self-efficacy and self-regulation (Golombek et al., 2018). The objectives and benchmarks that students set for themselves, and the ways in which they monitor, evaluate, self-reflect and are aware of their thinking and behaviour together comprise aspects of self-regulation. Students who sustain positive beliefs regarding their ability to overcome learning obstacles through self-regulatory strategies will have better achievement outcomes (Pajares, 1997). Synonymous with self-beliefs, the term self-concept was coined by Raimy (1943) and is defined as an individual’s composite perception of themselves; this perception encompasses judgements of one’s own ability, worth, value, and limitations. Rogers (1959) later proposed the idea that self-concept consists of three main aspects: self-image, self-worth and the ideal self. A substantial amount of research has examined the reciprocal relationship between academic self-concept and academic achievement (Marsh & Craven, 1997; Marsh et al., 1999; Guay, et al., 2003). Additionally, there has also been a significant amount of global self-concept research for children and adolescents (Dyson, 2003; Griffin et al., 1981; Kloomok, & Cosden, 1994). However, there remains a shortage of research examining global self-concept and academic achievement in university students. Wylie (1961) stated that, because domain-specific self-concept focuses on particular constructs, they are more valuable in predicting
academic achievement as opposed to a broader global self-concept (Altmann & Dupont, 1988). Further, Marx and Winne (1980) raised doubts regarding the influence of global self-concept on academic achievement. These uncertainties and complexities around global self-concept might explain the lack of research in this area.

A study conducted by Altmann and Dupont (1988), investigated whether either domain-specific self-concept or global self-concept was a better predictor of report card marks for elementary students. Almost 200 participants (91 female; 107 males) in grades 3-6 were asked to complete two questionnaires: the Piers-Harris Children’s Self-Concept Scale (CSCS; Piers & Harris, 1964) and the Student’s Perception of Ability Scale (SPAS; Chapman et al., 1983). A multiple regression analysis was conducted to determine which self-concept scale contributed more to overall academic achievement. The results of the study indicated that the SPAS scale accounted for 21.8% of the total variance whereas the CSCS scale accounted for only 5%. This finding suggests that academic self-concept predicted academic achievement more than global self-concept.

Another study investigated the global self-concept, academic self-perception, social competence, and behavioural problems of 19 children with LDs compared to their close-age non-diagnosed biological siblings (Dyson, 2003). The children with LDs and their siblings were invited to complete a set of questionnaires, which included the CSCS (Piers & Harris, 1964), which measures the self-concept of children aged 8-18, and the Perception of Ability Scale for Students: How I Feel About Myself in School (PASS; Boersma et al., 1979), which assesses children’s perception of their academic abilities and achievement. The parents filled out the Child Behaviour Checklist (CBCL; Achenbach & Edelbrock, 1983), which assesses their child’s social competence and
behaviour problems, and the Questionnaire on Resources and Stress-Short Form (QRS-F; Friedrich et al., 1983), which is used to evaluate the impact of a family member with a disability had on other family members. The researcher found no differences between the children with LD and their non-LD sibling regarding global self-concept and academic self-perception. The finding that individuals with LDs did not differ from their non-LD siblings in these particular variables may be due in part to their upbringing in the same environment. However, the outcomes of the study may be different if students with LDs were compared with their non-LD peers as opposed to their siblings.

Gans et al., (2003), conducted a study that investigated whether global self-concept differed for students with LDs and their non-identified peers. One hundred twenty-four students in grades 6, 7 and 8 were invited to complete the CSCS (Piers & Harris, 1994). This instrument was used to measure students’ global self-concept within the following domains: physical appearance and attributes, anxiety, intellectual and school status, behaviour, happiness and satisfaction, and popularity. The results of this study found that although non-identified students scored higher in the domain-specific self-concept section of the questionnaire (e.g., intellectual and school status), there were no differences between the two groups for global self-concept.

Nelson (2013) conducted a study which explored self-concept in college students with and without ADHD and found that students with ADHD reported similar patterns of self-concept when compared to their non-ADHD peers. In a meta-analysis conducted by Bear et al. (2002), the results of the study indicated that there were no differences in self-concept of students in special education compared to their peers without disabilities. Together, these studies seem to indicate that students with high-incidence disabilities like
LDs and ADHD do not differ significantly from their peers in global self-concept—both populations appear to generally have overall positive perceptions of themselves in areas beyond academic skills.

**Self-Compassion**

Self-compassion, though not formally recognized by Zimmerman’s (2002) model of SRL, concerns one’s attitude, warmth, and acceptance toward themselves when faced with a challenging situation. Neff (2003) conceptualizes self-compassion as being composed of three different components: self-kindness, common humanity, and mindfulness. Self-kindness involves reducing self-judgement in the face of challenges and being kind to oneself. Common humanity is the awareness of one’s own experiences and how it connects to others experiences throughout time. Mindfulness refers to being open and accepting of one’s own emotions without being judgmental of how to think or feel in a given situation and living in the present moment. Self-compassion has been positively associated with mastery goals, emotion-focused coping strategies (Neff et al., 2005), and a big predictor of academic success (Conway, 2007). Further, self-compassion can facilitate self-regulation by lowering negative emotions that interfere with self-regulation as well as self-blame (Terry & Leary, 2011).

A study conducted by Neff et al., (2005), examined the relationship between self-compassion, academic achievement goals, and coping with perceived academic failure among undergraduate students. A total of two hundred twenty-two students (138 female; 84 male) were recruited from a psychology subject pool to take part in the study. Students were invited to complete a questionnaire consisting of the following scales: the self-compassion scale (Neff, 2003b), a revised version of the goal orientation scales (Midgley
et al., 1998) within the patterns of adaptive learning survey (PALS; Midgley et al., 1998), the measure of fear of failure (Herman, 1990), the perceived competence for learning scale (Williams & Deci, 1996), a section of the learning self-regulation questionnaire (Williams & Deci, 1996), and the Spielberg state trait anxiety inventory trait form (Spielberger et al., 1970). Additionally, academic achievement was measured by acquiring a self-reported GPA. Self-compassion appeared to partially facilitate the learning process by freeing students of the burdens of judgement and criticism, as well as encouraging feelings of using failure as an opportunity to learn. Self-compassion was positively associated with mastery goals and negatively associated with performance goals. This insinuates that those students who are more self-compassionate tend to use failure as a steppingstone compared to those who are less compassionate and instead implement performance goals such as performance-avoidance goals.

A similar study conducted by Iskender (2009) examined the relationship among self-compassion, self-efficacy, and control belief for learning in Turkish university students. Close to 400 university students were invited to complete three questionnaires: the self-compassion scale (Neff, 2003), the self-efficacy scale, and the control beliefs for learning subscales of the motivated strategies for learning questionnaire (MSLQ; Pintrich et al., 1993). Correlational analyses were conducted in order to investigate whether or not there were relationships among the three constructs. The results suggested that self-kindness was positively correlated with self-efficacy and control belief for learning. Self-judgement had a negative correlation with self-efficacy. Common humanity had positive correlations with self-efficacy and control belief for learning and had negative correlations with self-judgement. Lastly, mindfulness was positively correlated with self-
efficacy and control belief for learning and was negatively correlated with judgement and isolation. These findings suggest that self-compassion plays a positive role in students’ perception of their self-efficacy as well the belief that their efforts to learn will result in positive academic outcomes.

A recent study conducted by Beaton and colleagues (2020) also expanded on Willoughby and Evans’ (2019) study by understanding the relationship between self-compassion and individuals with and without ADHD and whether criticism plays a role in the differences among self-compassion for these two groups. Over 1200 participants who either self-identified or did not identify with ADHD and were between the ages of 18 and 82 years took part in the study. Participants were invited to complete a series of questionnaires which consisted of demographic questions, questions related to a diagnosis of ADHD, coinciding mental health conditions, ADHD traits, self-compassion, and perceived criticism. The results of the study suggested that participants who self-identified had lower levels of self-compassion compared to those who did not identify as having ADHD. Further, participants with ADHD reported higher levels of perceived criticism compared to those who did not identify as having ADHD. These findings imply that a diagnosis of ADHD was correlated with lower levels of self-compassion and higher levels of criticism.

Although internal emotional processes such as self-concept and self-compassion are not officially acknowledged within Zimmerman and Moylan’s (2009) framework, all of the reviewed studies found within the literature demonstrate the significant impact these self-processes can have on self-regulated learning and ultimately academic performance. Therefore, the current study focuses on how these internal strengths can act
as a new marker for academic resiliency and may be valuable to include in future self-regulated learning models.

**Self-Regulation and High-Incidence Exceptionalities**

Self-regulated learning involves approaching academic tasks “that students learn through experience and self-reflection” (Pintrich, 1995, p. 8) and becomes a necessity especially in university settings where students are required to be more autonomous. Taking greater ownership over one’s own learning can be particularly challenging for students with LDs who often report being weaker in SRL compared to their counterparts (Hodge & Preston-Sabin, 1997; Ruban et al., 2003; Sparks & Lovett, 2009).

Similarly, to students with LDs, Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common disorders among young people. The DSM-IV introduced three distinct subtypes associated with ADHD, which included: inattentive, hyperactive/impulsive and combined (Epstein, & Loren, 2013). According to Weyandt and Dupaul (2012), approximately 2-8% of individuals diagnosed with ADHD attend college. However, even though they may have initially been accepted into college, students with ADHD often face many challenges including having a lower overall high school and college grade point average (GPA) than their non-ADHD counterparts (Advokat et al., 2011; Rabiner et al., 2008). Additionally, students with ADHD are more likely to be on academic probation (Weyandt & Dupaul, 2006) and require a greater amount of academic support (Wolf, 2001). University and colleges require a lot more independence when it comes to learning as well as they are often less structured than high school. Therefore, the lack of structure, autonomy and academic challenges faced by
students with ADHD may explain why they are ill-equipped for all the added requirements placed on them (Wolf, 2001).

Self-regulation is an important component of the learning process, and self-regulatory interventions have proven to be effective in increasing academic performance for students with exceptionalities. A recent study conducted by Beckman et al. (2019), demonstrated this through the use of a self-monitoring application, goal setting, and reinforcement to measure the impact on academic performance and engagement of on-task behaviours of two students with autism spectrum disorder. The researchers found that on-task behaviours increased for both students during the implementation of the self-monitoring application. For students with other high-incidence exceptionalities, it is possible that equipping them with the appropriate strategies for self-monitoring may increase their motivation to engage in difficult tasks.

A study by Ruban et al. (2003), examined the relationship between university students’ self-reports and their judgements regarding the usefulness academic self-regulatory strategies and academic achievement. The researchers recruited 470 students for the study from two different universities; among the sample, 53 of those students were formally diagnosed with LDs and 417 students did not have an LD. Participants were invited to complete the Learning Strategies and Study Skills (LSSS) survey, which assessed university students’ study performances in general learning circumstances. The researchers identified a strong relationship between conceptual skills and GPA for students with LDs. Despite this relationship, students with LDs did not perceive that there was a meaningful benefit to using conceptual skills. This could indicate that students with LDs may need specific instructions or interventions to learn how to effectively use
specific self-regulatory strategies. Further, scaffolding for interventions related to casual attributions may be necessary to help students with LDs understand that despite their perceptions regarding conceptual skills, using these strategies will lead to increases in academic achievement.

Willoughby and Evans (2019), conducted a study to examine how self-processes, including self-compassion and self-acceptance of a disability impact self-regulated learning in university students with LDs and/or ADHD. Undergraduate (n = 67) and graduate (n = 11) students were recruited from a university in Southwestern Ontario to participate in the study. Participants completed an online questionnaire which consisted of the following four scales: the Self-Compassion Scale (SCS; Neff, 2003); the Self-Acceptance Disability Scale (SADS; short form, Li & Moore, 1998; Linkowski, 1971); the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1991) and the Positive and Negative Affect Schedule (PANAS; Thompson, 2007). For this study, the MSLQ was adapted and separated into scores based on subcomponents of the measure. The learning strategies score was comprised of five subscales which focused on behaviour regulation: organization, metacognitive regulation, time and environment, and effort regulation. The second score was the Self-Efficacy for Learning and Performance (SELP) subscale, which was used to measure the motivation to use the learning strategies. Results indicated that learning strategies scores were positively correlated with SADS scores but not with SCS scores. A multiple regression analysis was conducted to control for negative affect but results still indicated that learning strategies remained positively correlated with SADS (p = 0.001). SELP scores were significantly positively correlated with both SADS and SCS at the same magnitude (p = 0.004). These results
suggest that both undergraduate and graduate students who have a higher self-acceptance of their disability and higher self-compassion, have higher self-efficacy and report being more motivated to engage in self-regulated learning strategies.

A study conducted by Raesar et al. (2007) investigated the learning and study strategies of students with ADHD and compared them to students with learning disabilities and those without any disabilities. A total of 150 undergraduate students were invited to participate in the study and the number of participants were split evenly across all three groups. Participants were asked to complete the second edition of the Learning and Studies Strategies Inventory (LASSI; Weinstein & Palmer, 2002), which was designed to assess a student’s awareness about their attitudes toward learning and study strategies related to skill, will and self-regulation. A MANOVA was employed to test the group differences among the 10 subscales of the LASSI. The results of the study suggested that participants in the non-disability (ND) group and the learning disability (LD) group scored in a more positive direction than those in the ADHD group. Further, there were four areas where the individuals in the ADHD group scored lower than those both in the ND and LD group. These areas included: time management, concentration, the ability to select main ideas on tests and test strategies. This suggests that students with ADHD may have a more difficult time staying focused on the task and managing their time. Additionally, they may lack the capability to pay attention to details, recognize significant ideas within the task or even understand the task required of them.

Another study examined the way college students with ADHD (inattention and hyperactivity/impulsivity) and sluggish cognitive tempo (SCT) used SRL strategies (Shelton et al., 2019). Participants were invited to fill out a questionnaire which consisted
of the Barkley Adult ADHD Scale (BAARS-IV; Barkley, 2011), which was designed to measure adult ADHD, and the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1991). The results of the study suggested that there were negative relations between hyperactivity/impulsivity and all three of the SRL strategies. Additionally, as inattention increased, expectancy strategies decreased. The differences between the two different subtypes of ADHD regarding self-regulation strategies is significant. For instance, according to the literature (Rabiner et al., 2008; Shelton et al., 2019), inattention in college students was associated with lower grade point averages (GPA), increased academic problems as well as decreased study skills, compared to hyperactivity/impulsivity. These results suggest that students in postsecondary education who are diagnosed with inattentive ADHD may have a more difficult time employing effective SRL strategies compared to students diagnosed with hyperactivity/impulsivity. According to Shelton and colleagues (2019), interventions that focus on SRL strategies will help improve academic outcomes for students with ADHD in college.

Students with high-incidence exceptionalities such as LDs and/or ADHD may lack the appropriate self-regulated skills they need in order to succeed academically. By understanding the strategies guided by Zimmerman and Moylan’s (2009) self-regulated learning framework in conjunction with how internal supports including self-compassion and global self-concept can impact student success, this study aims to explore additional ways to improve self-regulated learning skills for these groups of students.

**Summary and the Present Study**

As the above literature review indicates, students with LDs and/or ADHD often struggle with using appropriate self-regulated learning strategies (Raesar et al., 2007;
Ruban, et al., 2003; Shelton et al., 2019) and may believe that there is no benefit in using them (Ruban et al., 2003). Additionally, self-compassion and self-concept have shown to be meaningful predictors of academic success (Conway, 2007; Guay et al., 2003; Marsh & Craven, 1997; Marsh et al., 1999). Further, although students with exceptionalities may not be confident in their academic abilities, research has suggested that they are able to uphold overall positive evaluations of themselves. By using Zimmerman and Moylan’s (2009) theoretical framework to guide the exploration of this study, the goal of the proposed research is to contribute to our understanding of how the focus can shift from academic and cognitive interventions to the use of social-emotional factors such as self-compassion and global self-concept as additional indicators to influence SRL in university students. To address this aim, the following research questions guided the study:

**Research Question 1A:** What are the relationships among self-compassion, self-concept and self-regulated learning in university students?

**Research Question 1B:** How do these relationships differ for university students based on their disability status (with and without LD and/or ADHD)?
Chapter 3

Methodology

The purpose of this study was to explore the relationships between self-compassion, self-concept and SRL within a group of university students based on their disability status. A quantitative research design was used in order to address the purpose of this study. Additionally, this chapter focuses on data collection including, participants and the procedure of the study; measures, including details about the standardized scales used within the questionnaire; data analysis, which discusses missing data and then lastly the preliminary and main analyses, which concentrates on the specific inferential analyses used to answer each of the research questions.

Data Collection

Participants

A total of 240 university students across all disciplines (26 males; 194 females; 5 gender variant/non-conforming) from a mid-sized university in Ontario, Canada, participated in this study. The mean age of participants was 19.11 years (SD = 1.897). Fifty percent of all participants were in their first year their undergraduate degree. This made up a greater proportion of the sample compared to the rest of the population, where 26.4% reported being in second year, 8.8% in their third year, 2.1% in their fourth year, 3.8% in fifth year, 1.7% in their sixth year, and 1.7% pursuing either a masters or doctoral level degree.

Regarding disability status, two questions were asked to determine identification of either having a high-incidence exceptionality or not. The first question asked participants if they self-identified as having an exceptionality (i.e., LD, ADHD, or
comorbidity). The second question asked participants whether they were formally identified with an exceptionality. Of the 240 participants, 185 reported not having an exceptionality, 28 reported having both a self and formal identification, 13 solely self-identified as having an exceptionality, one participant reported exclusively having a formal identification and 13 did not respond to this question.

**Procedure**

After obtaining clearance from the university research ethics board, participants were invited to complete a questionnaire comprising of demographic questions, the shortened version of the Self-Compassion Scale (SCS; Neff, 2003), a modified version of the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1993) and the Personal Self-Concept Questionnaire (PSC; Goñi et al., 2011). The questionnaire was administered through an online survey software called Qualtrics. Recruitment took place through university listservs as well as contacting instructors in each department through email, asking to place the link of the research study on the universities learning management system so that students could access the questionnaire. Participants were informed that the questionnaire was anonymous, voluntary and comprised of demographic questions and questions related to self-compassion, self-concept and self-regulated learning. The questionnaire took approximately an average of eight-minutes to complete, and participant data remained anonymous. If participants wished to withdraw from the study, they did so by closing their browser. Upon withdrawal, data was destroyed securely and was not used in any part of the study.

**Measures**
A 78-item questionnaire was used as the sole instrument for data collection.
Following six questions focused on demographic information, including gender, age,
level of education (i.e., first, second, third or fourth year), program discipline, and
disability status (both self and formal identification), three other scales were used to
measure self-processes. These scales included the Personal Self-Concept Questionnaire
(PSQ), the Self-Compassion Scale (SCS), and the Motivated Strategies Learning
Questionnaire (MSLQ).

**The Personal Self-Concept Questionnaire (PSQ)**

The personal self-concept questionnaire is made up of 18-items which are divided
into four categories: self-fulfillment, autonomy, honesty, and emotional self-concept.
Personal self-concept refers specifically to “the way in which a person sees themselves as
an individual” (Goñi et al., 2011; p. 511), and therefore provides an accurate
representation of an individual’s overall self-concept score. Self-fulfillment refers to
individuals’ views of themselves in relation to their ability to accomplish a goal they have
set out. An example of a self-fulfillment statement is “I am satisfied with what I am
achieving in my life”. Autonomy depicts an individuals’ ability to make independent
decisions. An example of a negatively worded statement within the questionnaire is, “in
order to do anything, I first need other people’s approval”. Honesty represents how
truthful and authentic and individual perceives themselves to be, which includes
statements such as “I am a trustworthy person” or “I am a decent, honest person”, and
lastly, emotional self-concept is described as how a person views themselves in a
situation where they are required to regulate. A statement which describes emotional self-
regulation in the questionnaire is “I am an emotionally strong person”. The questionnaire
consists of a 5-point Likert scale ranging from “1 = totally disagree” to “5 = totally agree”. This study yielded a Cronbach’s alpha of .574.

**The Self-Compassion Scale (SCS)**

This scale, which consists of 12 items is used to measure Neff’s (2003) conceptualization of self-compassion, which focuses on three components: self-kindness, common humanity, and mindfulness. Some of the positively worded items included in the questionnaire are, “when I’m going through a very hard time, I give myself the caring and tenderness I need” or “when I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people”. Some of the negative items include, “When I fail at something important to me, I become consumed by feelings of inadequacy” and “I’m disapproving and judgmental about my own flaws and inadequacies”. The items of the SCS are rated on a 5-point Likert scale ranging from “1 = almost never” to “5= almost always”. An overall self-compassion score was computed by adding the reverse scores of the negative items (1, 4, 8, 9, 11 & 12) and the positive items. The Cronbach alpha for this study is .862.

**The Motivated Strategies for Learning Questionnaire (MSLQ)**

This 81-item questionnaire (Pintrich et al., 1991) is designed to measure university students’ expectancy for success in their courses, their confidence in their ability to perform a particular task, and the processes that make up metacognitive self-regulatory activities such as, planning, monitoring, and regulating. The MSLQ is divided into two major subscales: learning strategies subscales and motivation subscales. The motivation subscale is further broken down into 6 subscales and asks about a student’s motivation and attitude toward a course. The subscales include: intrinsic goal orientation
(i.e., in a class like this, I prefer course material that really challenges me so I can learn new things); extrinsic goal orientation (i.e., getting a good grade in this class is the most satisfying thing for me right now); task value (i.e., I think I will be able to use what I learn in this course in other courses); control of learning beliefs (i.e., if I study in appropriate ways, then I will be able to learn the material in this course); self-efficacy for learning and performance (i.e., I believe I will receive an excellent grade in this class); and text-anxiety (i.e., when I take a test I think about how poorly I am doing compared with other students). The learning strategies subscales assess study skills and are broken down into 9 subscales: rehearsal (i.e., when I study for this class, I practice saying the material to myself over and over); elaboration (i.e., when I study for this class, I pull together information from different sources, such as lectures, readings, and discussions); organization (i.e., when I study for this course, I go through the readings and my class notes and try to find the most important ideas); critical thinking (i.e., when a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence); metacognitive self-regulation (i.e., if course readings are difficult to understand, I change the way I read the material); time/study environmental management (i.e., I make good use of my study time for this course); effort regulation (i.e., I work hard to do well in this class even if I don’t like what we are doing); peer learning (i.e., I try to work with other students from this class to complete the course assignments); help seeking (i.e., I ask the instructor to clarify concepts I do not understand well). The items are rated on a 7-point Likert scale and ranged from “1 = not true at all” to “7 = very true of me”. This study will use an adapted version of the MSLQ, which was used in a similar study exploring self-processes and self-regulated learning
A total of 40 items will generate two scores from the MSLQ for the present study. The first score is the learning strategies score which consists of the following subscales: *Organization, Metacognitive Regulation, Time and Environment, Effort Regulation and Elaboration.*

Organization refers to the learner picking key details and making connections within the text. Metacognitive regulation refers to the way learners monitor their cognitive processes. An example of this includes a learner recognizing when a strategy is not working and adjusting it accordingly for future tasks. Time and environment refer to the learner’s ability to manage their time and space. For time, this includes making sure to schedule effective and efficient studying time. Managing environment refers to ensuring that the space the learner is working in has no distractions, is quiet, and organized. Effort regulation refers to one’s capacity to continue achieving academic goals despite learning challenges and distractions. Lastly, elaboration refers to strategies including paraphrasing, creating analogies, and making connections so that the learner can store information they learned into their long-term memory (Pintrich, et al., 1991).

The second score is Self-Efficacy for Learning and Performance (SELP), which will act as a stand-alone subscale. This score will be used to assess the motivation for the use of the learning strategies. According to Willoughby and Evans (2019), the data set used in their study produced adequate reliability for the composite learning strategies scale (\(a = 0.82\)) as well as for the SELP scales (\(a = 0.91\)). This study produced a Cronbach’s alpha of .892.

**Data Analysis**
Data were analyzed using IBM SPSS statistics version 26. The data set was screened for missing data before preliminary analyses took place. The self-compassion scale and the personal self-concept questionnaire consisted of both positively and negatively worded items which needed to be reversed scored prior to data analyses.

**Missing Data**

A total of 28 participants were removed from the overall sample because they did not respond to majority of the items, including large portions of the subscales which measured self-compassion, self-concept and SRL scores. This resulted in a total of 212 participants for statistical analysis. Earlier techniques such as complete case analysis replaced missing data by simply removing participants with any missing values. However, this is now considered insufficient and previous research has validated that the multiple imputation method is situated higher up than complete case analysis and other ways of handling missing data (Hardt et al., 2012).

The multiple imputation (Rubin, 1987) method is used to replace missing values by generating copies of multiple imputed datasets developed from the original data set. A stochastic algorithm gauges the existing values in order to replace the missing ones through randomization. Multiple imputation is becoming a favoured technique for handling missing data among research studies (Hardt et al., 2012). This particular method was used for this particular study because the overall summary of the missing values as shown in figure 1 as well as the missing values pattern in figure 2 demonstrated a randomized missing data set. Multiple imputation integrates a degree of randomness that reduces any biases within missing values (Royston, 2004). Typically, complete case analysis is used as the primary analysis when ratios of the missing data are below 5%.
(Jakobsen et al., 2017). However, Figure 1 indicates that out of all the possible values in the data set, 7.507% were missing or incomplete, therefore the multiple imputation method is justifiable for replacing the missing data. Another reason where complete case analysis may be a sufficient method to use is when only the dependent variables had missing values and if auxiliary variables were not distinguished (Jakobsen et al., 2017). Figure 2 indicates that other variables besides the dependent variables within the data set also have missing values and that there are no auxiliary variables present. Lastly, if the data is missing at random (MAR) as opposed to missing completely at random (MCAR) then multiple imputation should be used (Jakobsen et al., 2017). A formal way of determining the type of missing data set is through Little’s MCAR test (Little & Rubin, 1989). A Missing Values Analysis determined a statistically significant result, $X^2 = 1281.419$, DF = 1191, $p = 0.034$, thus rejecting the null hypothesis and concluding that the values within the data set are not completely missing at random. These three assumptions determine that the multiple imputation was the appropriate method for handling missing data in this study.

**Figure 1**

*Overall Summary of Missing Values*
Note. 64 variables included missing or incomplete data. 52 participants are missing at least one value. Out of all the possible values in the data set, 7.507% are incomplete.

Figure 2

Missing Value Patterns

Note. The graph above indicates that the missing values demonstrate randomization.

Preliminary and Main Analyses

For the preliminary analyses, descriptive statistics and normality tests were conducted for the independent and dependent variables for all participants \( (N = 212) \). For the main analyses, research questions 1A and 1B were examined.

**Research Question 1A:** What are the relationships among self-compassion, self-concept and self-regulated learning in university students?

In order to determine the relationships among self-compassion, self-concept and SRL in university students with and without exceptionalities, a bivariate Pearson
correlational analysis was conducted. A correlational matrix was generated to determine whether there were significant correlations among each of the constructs.

**Research Question 1B:** How do these relationships differ for university students based on their disability status (with and without LD and/or ADHD)?

A multivariate analysis of variance analysis (MANOVA) was used to determine the differences among the groups of different disability status (with LD, with ADHD, comorbidity, without exceptionalities) with respect to their self-compassion, self-concept and SRL scores. Due to the small number of students in the LD, ADHD and comorbidity groups, the researcher opted to cluster the original groups into a single group called ‘students with exceptionalities’. To answer this second research question, any participant that answered yes to formal identification was counted as a student with exceptionalities. Additionally, because this data set violated normality assumptions, nonparametric analyses were performed to examine research question 1B.
Chapter 4

Results

The focus of this chapter is to present the data and respond to the research questions. Following a description of the sample after data the data set was cleaned, general results are presented for all variables before more focused analyses for each research question.

For the 212 participants that remained in the sample following data cleaning, percentages, means, and standard deviations are summarized in Table 1. The results displayed in Table 1 indicate that following data cleaning, the remaining usable data still consists predominantly of females. The mean age was 19.11-years, and most of the population was in their first year of their bachelor’s degree. The majority of participants were completing their degree in the faculty of education at the time of data collection. Students were asked to self-identify as having an exceptionality as well as to indicate whether or not they had received a formal identification. This is because the researcher was interested in understanding whether students who self-identify and those who are formally identified differ in the way that they internalize their exceptionality. More students solely self-identified (N = 12) than those who indicated they had received just a formal identification (N = 1) of having an exceptionality (LD, ADHD, comorbidity); 25 participants identified as being both self – and formally identified. The majority of participants did not self-identify with these exceptionalities (N=185), and a similar amount reported not being formally identified with an exceptionality (N = 196).
Table 1. Descriptive Statistics for Demographic, Independent and Dependent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (female)</td>
<td>85.8 (N=182)</td>
<td></td>
</tr>
<tr>
<td>Gender (male)</td>
<td>11.8 (N=25)</td>
<td></td>
</tr>
<tr>
<td>Non-conforming/gender variant</td>
<td>1.4 (N=3)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>19.14 (1.94)</td>
<td></td>
</tr>
<tr>
<td>University Year (1st Year)</td>
<td>53.3 (N=113)</td>
<td></td>
</tr>
<tr>
<td>Only self-identified</td>
<td>5.6 (N=12)</td>
<td></td>
</tr>
<tr>
<td>Only formally identified</td>
<td>.5 (N=1)</td>
<td></td>
</tr>
<tr>
<td>Self and formally identified</td>
<td>11.8 (N=25)</td>
<td></td>
</tr>
<tr>
<td>Exceptionalities*</td>
<td>12.3 (N=26)</td>
<td></td>
</tr>
<tr>
<td>Non-identified</td>
<td>82.1 (N=174)</td>
<td></td>
</tr>
<tr>
<td>Program discipline (Education)</td>
<td>41.0 (N=87)</td>
<td></td>
</tr>
<tr>
<td>Self-compassion</td>
<td>33.44 (8.08)</td>
<td></td>
</tr>
<tr>
<td>Self-concept</td>
<td>57.11 (3.54)</td>
<td></td>
</tr>
<tr>
<td>Self-regulated learning</td>
<td>191.56 (27.82)</td>
<td></td>
</tr>
<tr>
<td>SELP</td>
<td>35.43 (7.76)</td>
<td></td>
</tr>
<tr>
<td>Learning strategies</td>
<td>156.13 (23.34)</td>
<td></td>
</tr>
</tbody>
</table>

Note. * = any students who reported being formally identified. These scores do not reflect imputed data.

Relationships Among Self Processes

In examining research question 1A, a Bivariate Pearson correlational analyses was conducted to determine the relationships among self-compassion, self-concept and self-regulated learning. As seen in Table 2, self-compassion was positively correlated with self-concept (r = .207, p < .001), overall self-regulated learning (r = .343, p < .001), learning strategies (r = .293, p < .001) and self-efficacy scores (r = .354, p < .001).
Greater scores in self compassion were associated with greater scores in self-concept, self-efficacy learning strategies scores, and overall self-regulation.

Self-concept was also positively correlated with overall self-regulated learning scores (r = .231, p < .001), learning strategies scores (r = .172, p < .001), and self-efficacy scores (r = .313, p < .001). Greater scores in self-concept were associated with great scores in self-efficacy, learning strategies scores and overall self-regulated learning scores.

Table 2. Correlations among self-compassion, self-concept and self-regulated learning

<table>
<thead>
<tr>
<th></th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-compassion</td>
<td>.203**</td>
<td>.341**</td>
<td>.291**</td>
<td>.351**</td>
</tr>
<tr>
<td>2. Self-concept</td>
<td></td>
<td>.225**</td>
<td>.163*</td>
<td>.320**</td>
</tr>
<tr>
<td>3. MSLQ</td>
<td></td>
<td></td>
<td>.969**</td>
<td>.679**</td>
</tr>
<tr>
<td>4. Learning Strategies</td>
<td></td>
<td></td>
<td></td>
<td>.478**</td>
</tr>
<tr>
<td>5. SELP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. For all the correlations among the independent and dependent variables, Pearson’s correlation was used to calculate the strength of the relationship.

Self-Processes and Disability Status

Due to the small sample size of students in each of the populations, the researcher collapsed all the students who indicated that they had an exceptionality into one group. To answer research question 1B (understanding how these relationships differ based on disability status), analyses were run based on the two groups: students with exceptionalities compared to their non-identified peers. The students with exceptionalities group were only made up of students who had indicated a formal identification.
A series of Mann-Whitney U tests were used to understand differences in the relationships between self-compassion, self-concept and SRL based on disability status (i.e., exceptionalities and non-identified students) and gender. According to normality tests performed – kolmogorov-smirnov (p < 0.01) and shapiro-wilks (p < 0.01), the null hypothesis was rejected. This indicates that values within the data violated normality assumptions and because the Mann-Whitney U-test is the non-parametric alternative to the independent samples t-test, this was the most appropriate test to use.

There was a strong association between students who did not identify with an exceptionality and self-compassion. This finding suggests that students without a high-incidence exceptionality are more self-compassionate than their identified peers. There were no significant correlations between self-concept and self-regulated learning and disability status.

Additionally, reporting of a formal identification was associated with higher levels of overall personal self-concept (r = .156, p = .029), which differed from students who self-identified with an exceptionality where there were no significant correlations for self-concept scores. Lastly, there were no significant correlations among overall self-regulated learning scores and formal disability status.
Table 3. Mann-Whitney U test results for formally identified exceptionalities and non-identified peers.

<table>
<thead>
<tr>
<th></th>
<th>Mean rank</th>
<th>Median</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-compassion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally Identified</td>
<td>509.86</td>
<td>31.00</td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Non-identified</td>
<td>645.97</td>
<td>34.00</td>
<td>69017.00</td>
<td></td>
</tr>
<tr>
<td><strong>Self-concept</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally Identified</td>
<td>702.41</td>
<td>51.00</td>
<td></td>
<td>.009</td>
</tr>
<tr>
<td>Non-identified</td>
<td>622.66</td>
<td>57.00</td>
<td>78899.00</td>
<td></td>
</tr>
<tr>
<td><strong>MSLQ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally Identified</td>
<td>617.64</td>
<td>193.00</td>
<td></td>
<td>.966</td>
</tr>
<tr>
<td>Non-identified</td>
<td>616.33</td>
<td>191.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally Identified</td>
<td>623.91</td>
<td>160.00</td>
<td></td>
<td>.808</td>
</tr>
<tr>
<td>Non-identified</td>
<td>616.55</td>
<td>155.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SELP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formally Identified</td>
<td>623.87</td>
<td>36.10</td>
<td>86021.00</td>
<td>.914</td>
</tr>
<tr>
<td>Non-identified</td>
<td>620.58</td>
<td>36.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 indicates that students formally identified with exceptionalities (median = 31.00, mean rank = 509.86) scored lower on self-compassion than the comparison group of non-identified students (median = 34.00, mean rank = 645.97). Mann-Whitney U value was statistically significant (U = 69017.00, p = <.001). Formally identified students (median = 51.00, mean rank = 702.41) reported higher on self-concept than their non-identified peers (median = 57.00, mean rank = 622.66). Although formally identified
students did score higher on the other variables (learning strategies and SELP), the Mann-Whitney U value was not significant.

**Additional Findings**

Although research question 1B, concerning differences in self-processes according to disability status, was answered using only the distinction of receiving a formal identification, additional analyses were conducted to determine whether differences existed between groups based on disability status while factoring in self-identification.

**Table 4. Mann-Whitney U test results for exceptionalities and non-identified peers.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Exceptionality</th>
<th>Non-identified</th>
<th>Mean rank</th>
<th>Median</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-compassion</td>
<td>78.45</td>
<td>112.43</td>
<td>2274.00</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-concept</td>
<td>105.17</td>
<td>106.78</td>
<td>3185.00</td>
<td>.876</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSLQ</td>
<td>94.57</td>
<td>109.02</td>
<td>2797.50</td>
<td>.194</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Strategies</td>
<td>94.71</td>
<td>108.99</td>
<td>2816.00</td>
<td>.214</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELP</td>
<td>99.83</td>
<td>107.91</td>
<td>3016.00</td>
<td>.513</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Further analyses were conducted by partitioning out students who indicated a self or formal identification or both. Descriptive statistics indicate that students with exceptionalities (median = 30.00, mean rank = 78.45) scored lower in self-compassion than the comparison group of non-identified students (median = 34.00, mean rank = 112.43). Mann-Whitney U value was statistically significant ($U = 2274.00, p = .004$). Although non-identified students did score higher on the other variables (self-concept, MSLQ, learning strategies and SELP), the Mann-Whitney U value was not significant.

| Table 5. Mann-Whitney U test results for self-identified exceptionalities and non-identified peers. |
|-------------------------------------------------|-----|-----|-----|-----|
|                                                    | Mean rank | Median | U   | p   |
| **Self-compassion**                               | 78099.00  | <.001 |
| Self-identified                                   | 464.39    | 30.00 |
| Non-identified                                    | 664.11    | 34.00 |
| **Self-concept**                                  | 113449.00 | .510  |
| Self-identified                                   | 618.97    | 57.00 |
| Non-identified                                    | 636.62    | 57.00 |
| **MSLQ**                                          | 93718.00  | <.001 |
| Self-identified                                   | 542.38    | 186.00|
| Non-identified                                    | 632.85    | 192.00|
| **Learning Strategies**                           | 95557.00  | .002  |
| Self-identified                                   | 550.89    | 152.46|
| Non-identified                                    | 632.22    | 155.45|
| **SELP**                                          | 97998.00  | .006  |
Correlational analyses indicated that self-identification with an exceptionality was associated with lower overall self-regulated learning scores ($r = .115$, $p < .001$), lower learning strategies scores ($r = .111$, $p < .001$), and lower self-efficacy scores ($r = .80$, $p = .009$). These results aligned with further analyses, which indicated, as seen in table 5, compared to their non-identified peers, participants who self-identified as having an exceptionality reported significantly lower levels of self-compassion ($U = 78099.00$, $p < .001$), self-regulated learning ($U = 93718.00$, $p < .001$), learning strategies ($U = 95557.00$, $p = .002$) and SELP scores ($U = 97998.00$, $p = .006$). Self-concept scores were not statistically significant between the two groups.

Lastly, supplementary analyses were conducted to explore the relationships between demographic variables, self-processes and SRL constructs. Age was positively correlated with both self-concept ($r = .075$, $p = .014$) and self-efficacy ($r = .105$, $p < .001$) scores. Higher age was associated with higher perceptions of overall self-concept and self-efficacy compared to students with a lower age. Further, university year was positively correlated with self-efficacy ($r = .116$, $p < .001$) and negatively correlated with learning strategies scores ($r = -.101$, $p = .001$). Being in the earlier years of an undergraduate degree was associated with higher learning strategies scores and lower self-efficacy scores compared to students in the later years of their undergraduate degree.

**Table 6. Relations among Additional Variables**

<table>
<thead>
<tr>
<th></th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>.810**</td>
<td>.029</td>
<td>-.001</td>
<td>.059</td>
<td>.075*</td>
<td>-.019</td>
<td>-.058</td>
<td>.105**</td>
</tr>
</tbody>
</table>
Note. *p < .05 (2-tailed), **p < .01(2-tailed). For all the correlations among the independent, dependent and additional variables, Pearson’s correlation was used to calculate the strength of the relationship.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>.031</th>
<th>.036</th>
<th>-.045</th>
<th>.003</th>
<th>-.053</th>
<th>-.101**</th>
<th>.116**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>University Year</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Self-identified disability status</td>
<td>.770**</td>
<td>.229**</td>
<td>.033</td>
<td>.115**</td>
<td>.111**</td>
<td>.080**</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Formally identified disability status</td>
<td>.151**</td>
<td>-.068*</td>
<td>.026</td>
<td>.030</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Self-compassion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Self-concept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>MSLQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Learning Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>SELP score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05 (2-tailed), **p < .01(2-tailed). For all the correlations among the independent, dependent and additional variables, Pearson’s correlation was used to calculate the strength of the relationship.
Chapter 5

Discussion

The purpose of the present study was to investigate the relationships among self-processes and self-regulated learning for university students as well as the differences between these relationships based on disability status. The following research questions addressed the purpose of this study:

Research Question 1A: What are the relationships among self-compassion, self-concept and self-regulated learning?

Research Question 1B: How do these relationships differ based on disability status?

This chapter explores the results for each of the research questions in more depth by assessing previous and existing empirical research. Following the discussion of results, other findings will be discussed followed by implications for practice and research. Limitations of the present study will be reviewed along with suggestions for future research. Lastly, final thoughts will be offered in the conclusion.

Relations Between Self-Processes & Self-Regulation

Correlational analyses revealed that self-compassion and self-concept were both positively correlated with self-regulated learning. Additionally, both self-processes were associated with learning strategies scores and self-efficacy. These findings suggests that students who possess higher self-compassion also maintain a higher overall personal self-concept and are therefore more likely to use self-regulated learning strategies in order to achieve their academic goals. It may be that students who are self-compassionate focus more on mastery goals and emotion-focused coping strategies rather than performance goals or avoidance-oriented strategies (Neff et al., 2017). Therefore, compassionate
individuals typically seek task-related growth and therefore are more likely to use more self-regulated learning techniques as well as use the feedback they receive on previous tasks to modify strategies used for subsequent tasks.

The findings of this study are not surprising in that those students who maintain a more positive global self-concept will likely be more self-compassionate and effectively use a variety of self-regulated learning strategies to attain their academic goals. Previous research has determined that academic or domain specific self-concept are predictors of academic achievement (Brookover et al., 1964; Choi, 2005; Reynolds et al., 1988).

However, due to the lack of empirical studies looking at global or general self-concept in the area of self-regulated learning, it is hard to compare the results of this study to previous research specifically in the area of self-concept. To the researcher’s knowledge, this is the first study that specifically explores the relationship between global self-concept, self-compassion, and self-regulated learning in university students with and without high incidence exceptionalities.

**Self-Compassion**

Correlational analyses revealed that both a formal and self-identification with having an exceptionality were associated with lower levels of self-compassion. Upon further examination, the results of the Man-Whitney U test yielded significant differences based on disability status, where both groups (self and formally identified students) reported lower levels of self-compassion compared to their non-identified peers.

Limited empirical research exists regarding the relationships between self-compassion for students who self-identified as having an exceptionality compared to those who were formally identified. However, a study conducted by Willoughby and
Evans (2019), also discovered that university students who self-identified as having LDs/ADHD were associated with lower levels of self-compassion. The current study extends this finding by comparing self and formally identified students to their non-identified peers. By asking students whether they self-identify as having an exceptionality regardless of a formal identification, this research aims to further understand how the internalization of an exceptionality can impact academic performance. Since self-compassion and self-identification of an exceptionality are both internal practices, it can be determined that students who focus solely on their deficits may have a more difficult time leaning on positive inner resources such as self-compassion. The knowledge gained from understanding an individual’s perception of their exceptionality may be useful in helping students concentrate more on the strengths of their exceptionality as well as develop inner qualities that increase their ability to better self-regulate.

Negative self-perceptions accompanying an exceptionality may lead to a hinderance or obstacle in one’s learning, which could ultimately result in a student being less forgiving and hypercritical of themselves, resulting in lower compassion levels compared to their non-identified peers. A study that supports this inference explored the relationships between self-compassion and other constructs including, compassion for humanity, empathetic concern, perspective taking, personal distress, altruism, and forgiveness (Neff et al., 2017). The results of the study indicated that for undergraduate students, although self-compassion was significantly associated with perspective taking, personal distress and forgiveness, there were no significant associations between self-compassion and compassion, empathy or altruism. These findings may contribute to the understanding that perhaps university students with exceptionalities may lack the ability
to detach themselves from the negative feelings associated with their given label. Therefore, when under pressure to perform well on an academic task, they may have difficulties engaging in empathy and concern for themselves and instead question their ability to do well.

**Self-Concept**

Self-concept was negatively correlated with formally identified students compared to their non-identified peers. However, no significant correlations appeared for self-identified students compared to those who did not identify. Additionally, the Mann-Whitney U Test determined that formally identified students had significantly higher overall personal self-concept scores compared to their non-identified peers. There were no significant differences between self-identified students and their non-identified peers. These findings suggest that although those students who indicated a formal identification may have lower levels of self-compassion, they clearly rely on other positive core assets, such as global self-concept to achieve academic success. With very little research conducted on global self-concept in university students, it is hard to compare the results of this study with others. However, self-concept researchers have argued that global self-concept may not be a valuable construct because it makes more sense to measure achievement in a particular subject (e.g., science) using a domain-specific construct such as academic self-concept (Marsh, 1993). The results of this study conflict with this argument, given that formally identified students did benefit from upholding a positive self-concept. Perhaps internal strengths are now becoming a significant predictor of academic resiliency.
What is interesting to note is that in this study, compared to their non-identified peers, self-identified students had comparable scores whereas those who also indicated a formal identification had higher levels of self-concept. More research will be needed to understand why these differences occurred.

**Self-Regulated Learning**

Self-identification with an exceptionality was associated with lower levels of overall self-regulated learning scores as well as lower self-efficacy and lower learning strategies scores (Organization, Metacognitive Regulation, Time and Environment, Effort Regulation and Elaboration). Reporting of formal identification was not associated with overall self-regulated learning scores, self-efficacy and learning strategies scores. Upon further investigation, the Mann Whitney U test yielded similar results. These findings are somewhat perplexing because of the noteworthy differences found between the two groups. This finding suggests that students who self-identify may be at risk for internalized ableism compared to those who did not self-identify. This is perhaps due to the fact that some students who self-identify may not necessarily have an appropriate diagnostic label, which can become problematic in a number of areas. For instance, without the formal paperwork, students who self-identify may have a harder time receiving suitable support and resources from university disability service offices. By not receiving applicable academic guidance specific to their exceptionality, students who self-identify may be more likely to get frustrated and give up when faced with challenging tasks, ultimately blaming their exceptionality and seeing it as a hindrance to achieving their full learning potential. Additionally, when symptoms related to adult ADHD are present but have gone without a childhood diagnosis, other related
exceptionalities may be formally diagnosed such as depression, bipolar disorder, or generalized anxiety disorder, despite the individual having ADHD (Murphy & Adler, 2004). This can cause challenges, because individuals who receive a misdiagnosis may not be receiving appropriate help for their particular exceptionality.

It is interesting to note that despite having lower levels of self-compassion, students formally identified had no differences in their overall self-regulated learning scores compared to their non-identified peers. From this finding, it can be inferred those students who are formally identified may be leaning on different internal strengths, such as their overall personal self-concepts rather than their ability to be kind to themselves when forced to confront a particular challenging situation or task. Although there is more research regarding domain-specific self-concept and little research actually exists on the impact of global self-concept, a number of researchers have determined the role of self-concept on academic persistence and attainment (Brown et al., 1989; Lent et al., 1986). It would be interesting to understand why one group seems more successful in their ability to use effective self-regulated learning strategies compared to the other.

**Additional Findings**

The following additional findings do not fit within the research questions asked but are meaningful for future research in the area of self-compassion, global self-concept and self-regulated learning for university students with and without high-incidence exceptionalities.

University year and age were both associated with self-efficacy scores. This result makes sense because as students’ progress through each year of their undergraduate degree, they pick up on various self-regulated learning techniques to use while studying.
Therefore, their confidence in their ability to complete assignments and exams successfully continues to increase as each year goes on. This finding aligns with a study conducted by Lindner and Harris (1992), who found that age and academic experience had a positive impact on self-regulated learning. Additionally, there is a strong correlation between age and university year (.810, p <0.01), which explains why university year and age both have significant correlations with self-efficacy scores. Additionally, age was strongly associated with self-concept (p < 0.05). This aligns with other studies that have indicated that self-concept becomes more secure with age (Guay et al., 2003; Marsh et al., 1999).

It is important to note that although university year and age were both associated with self-efficacy scores, and age was associated with self-concept scores, the observed effect size was quite low. This indicates limited practical applications. For instance, the association between self-efficacy scores and university year and age are negligible. Future research may benefit from exploring the relationship between self-efficacy and university year and age in more depth to see whether the effect size increases.

**Limitations**

A few methodological and sampling limitations may have affected the results of study. Firstly, with the initial second research question, I hoped to examine the differences between self-compassion, self-concept and self-regulated learning for university students based on their disability status for four different populations, LDs, ADHD, both, and none. However, out of the two-hundred twelve participants who took part in the study, only seven self-identified as having an LD, twenty-two self-identified as having ADHD, and eight self-identified as having both LD and ADHD. Further, seven
were formally identified with LDs, twelve were formally identified as having ADHD, and seven were formally identified as having both. Unfortunately, with such a small sample size of students within each of the populations, the researcher collapsed all three groups – LDs, ADHD, comorbidity – into one group called high-incidence exceptionalities. Future research would benefit from having a larger sample size of students in each of the exceptionality’s groups to examine whether there are differences in self-compassion, self-concept, and self-regulated learning by separating students out who have LDs, ADHD, or both.

Secondly, systematic error variance could have affected the data since an online questionnaire was used and relied exclusively on self-reporting (Podsakoff et al., 2003). Therefore, some of the possible common method biases that could have occurred from self-reporting includes consistency motif, implicit theories, social desirability, and leniency biases, among many others. Additionally, because this study relied on self-report measures, it is not clear how students interpreted all of the questions. For example, the questions that asked participants to determine whether they self or formally identified with one of the following high-incidence exceptionalities may have been ambiguous, which makes it difficult to know whether the information given was entirely accurate. When asked if they self-identify, students may have thought they were being asked whether they have disclosed their exceptionality publicly. The intended questions, however, were asked to understand whether those students who did not necessarily have an official formal identification, still considered themselves as having an exceptionality. Future research could benefit from using additional methods of data collection that go beyond just the quantitative approach. For instance, a mixed-methods design could be
valuable by building on current findings to further understand how students’ view their exceptionality and the impact these internal core beliefs have on their learning journey. Additionally, given that the participants in the current study have found ways to help them succeed in postsecondary, it may be advantageous for future research to collect data using focus groups of students’ who represent each of the exceptionalities to further learn about the strengths these groups of students are leaning on based on their disability status.

Another limitation that could have affected the findings of this study may be due to the low Cronbach alpha for the PSQ (Goñi et al., 2011) scale. Reasons for this might include that the measure did not include enough questions to test overall self-concept. Adding more applicable questions may increase the alpha. Another reason for a low alpha level could be due to the sample size. Future studies that include more participants may yield a higher alpha level. Lastly, the internal consistency for this particular demographic may need to be revised if the alpha remains low despite a larger sample size. Two studies which had a sample size of N=506 and N=1,135 used the PSQ, which yielded a Cronbach’s alpha of .85 and .83 respectively (Goñi et al., 2011). The Cronbach’s alpha within these studies suggests that the PSQ is a reliable measure of global self-concept and future studies that include larger sample sizes may produce a higher alpha level.

Lastly, because of the limited empirical research regarding the impact of global self-concept on self-regulated learning especially for students in university, it is hard to know why some of the findings yielded the results they did. For example, the current study found that compared to their non-identified peers, self-identified students had comparable scores whereas formally identified students had higher levels of self-concept.
Future research would need to be conducted in this area to understand why these differences occurred.

**Implications for Practice/Research**

The results of this study suggest that it is important to shift the focus from academic and cognitive interventions to consider some of the positive impacts social-emotional aspects can have on self-regulated learning. Students who are more self-compassionate and sustain a positive overall self-concept are more likely to increase the number of self-regulated learning strategies used as well as improve the quality of these strategies used when completing academic tasks. Understanding the relationships between these constructs is the first step in determining interventions and resources to develop in order to improve these strategies for all students regardless of their disability status.

Correlational analyses revealed a 0.77 association between students who self-identified as having an exceptionality and those who were formally identified. Although, the overlap between both groups was high, there were still some participants who solely reported having a self-identification. Out of the 212 participants in total, 174 reported not having any high incidence exceptionalities, 25 reported having both a self and formal identification; twelve reported having only a self-identified exceptionality and lastly, only one participant reported exclusively having a formal identification. It is interesting to note that only one participant reported having only a formal identification, while the rest of the participants who reported having a formal identification also self-identified as having an exceptionality. This is in contrast with the twelve participants who solely self-identified as having an exceptionality, which suggests that those students do not
necessarily have a formal identification but rather personally associate with a particular exceptionality. Participants who self-identify may feel as though they do not necessarily need a confirmed diagnosis to believe that they have an exceptionality.

Out of the twelve participants who self-identified, ten of them identified having ADHD, one identified having both LD and ADHD, and one identified having just an LD. This finding might suggest that these students may not have been identified during childhood and may have continued to remain unidentified into adulthood (Weiss & Murray, 2003; Able et al., 2007). Another possible reason could be that students are forced to undergo expensive testing in order to be formally diagnosed, which often leads to remaining undiagnosed. This is problematic as postsecondary students are finding it difficult to access equitable support (Centre for ADHD Awareness, Canada, 2015). It is interesting to note that in this study, out of the twelve students who solely self-identified as having an exceptionality, eleven of them reported having ADHD. This finding may imply that these students believe they have ADHD but may not have sufficient documentation to provide evidence of it or the disability just simply remained undiagnosed.

Because it is common for adults to either be mis- or undiagnosed, it could be explained that those adults who self-identify may believe that they have all the symptoms despite not obtaining a formal identification. Additionally, because the World Health Organization has developed an Adult ADHD self-report scale (ASRS; Kessler et al., 2005), it is easy for adults to use this self-screening tool to see whether their symptoms match that of ADHD. Internalizing ADHD might be more common than self-identifying as having a LD because postsecondary education institutions require students to provide
thorough documentation presenting evidence of having a disability. For ADHD, sufficient documentation includes classifying the exceptionality along with specific impairments, details regarding the negative impact these impairments have on students’ academic performance as well as accommodations to current impairments (Centre for ADHD Awareness, Canada, 2016). Because a simple diagnosis of ADHD is insufficient documentation, it might just be easier for postsecondary students to simply self-identify versus going through the hassle of providing such a detailed document to their educational institution.

The results of the present study also indicate that there are differences in patterns among students who self-identify as having an exceptionality and those who are formally identified. For instance, one of the findings was those students who were formally identified upheld a higher global self-concept score compared to their non-identified peers and students who solely self-identified had no significant differences compared to their non-identified peers. This could suggest that there are differences in the way these two groups are internalizing their exceptionality. Perhaps students who do not have a formal identification but instead self-identify may have the limiting belief that their exceptionality is rooted in their identity. This belief could have a hindrance on their academic success. Whereas students who are formally identified may have a different perspective regarding their disability where they use their roadblock as a way to overcome their challenges and reach their full potential using a strengths-based perspective. Additionally, students who are formally identified may be receiving an abundance of support that students who self-identify may struggle receiving. If educators and parents teach children at a young age to be kind to themselves when faced with
challenges, they will be more likely to uphold positive judgments of themselves throughout their academic journey. Further, if students are taught the skills that make up self-compassion – kindness, the ability to recognize the shared aspects of their experiences, as well as mindfulness practices – they may have a better understanding of how to reframe failure during academic challenges rather than seeing it as a reflection of their self-worth or overall self-concept.

Lastly, the following study may act as the foundation to inform a potential contribution to Zimmerman and Moylan’s (2009) model by demonstrating the important role that emotions and self-processes play for self-regulated learning. For instance, students who may not necessarily be self-efficacious could lean on other constructs (e.g., self-compassion, self-concept) during the forethought phase, leveraging the strategies used within the other two phases in order to improve academic outcomes. By adding internal self-processes to Zimmerman and Moylan’s (2009) model, students will have a variety of strategies to utilize during each of the three phases when completing academic tasks.

**Future Research Directions**

With very little research done in the area of self-compassion and global self-concept in an educational context and more specifically self-regulated learning, the current exploratory study provides a concrete foundation for future research.

As mentioned previously, an area for future research direction could include exploring the differences in self-compassion, global self-concept related to self-regulated learning in university students who exclusively have LDs or ADHD. Because of the small
sample size in each of the groups, the three populations – LDs, ADHD and comorbid groups were clustered into a single group called high-incidence exceptionalities.

Another area for future research could specifically look at global self-concept and self-regulated learning. A number of studies focus on academic or domain-specific self-concept (Gans et al., 2003; Jackson et al., 1994). However, to the researcher’s knowledge, this is the first study to specifically explore the impact of global self-concept on self-regulated learning for university students with and without high incidence exceptionalities.

Finally, future research would benefit from using additional methods of data collection including a mixed-methods design. The current quantitative research study provided the groundwork to understand the relationships among the desirable constructs and the differences between them based on disability status. It would be advantageous if future research focuses on how students with exceptionalities are leaning into their internal strengths. Additionally, conducting an experimental design that demonstrates the extent to which these self-processes are contributing to self-regulated learning would be applicable to developing tangible interventions for students to use in a practical setting.

**Conclusion**

The purpose of this research is to examine the relationships between self-compassion, self-concept and self-regulated learning for university students with and without high incidence exceptionalities such as LDs and ADHD. Additionally, this study aims to further understand how these relationships differ based on disability status (self- or formally identified with an exceptionality). The present study expanded on the work done by Willoughby and Evans (2019) who conducted a study focusing on social-
emotional processes impacting self-regulated learning in university students with LDs and ADHD. The current study did this by filling in the knowledge gap that exists regarding social-emotional aspects related to self-regulated learning, and more specifically the processes related to self-compassion and global self-concept. This study went a step further to distinguish between students who self-identified with an exceptionality and those who were formally identified, which provides more details regarding the effects of internalizing one’s exceptionality and the impact that has on self-regulated learning. The results of the study indicated that there were significant associations among all three constructs – self-compassion, self-concept and self-regulated learning – in university students. An association between global self-concept and formally identified students were found. Additionally, both students who self-identified and those who were formally identified reported lower levels of self-compassion compared to their non-identified peers. Lastly, unlike students who self-identified as having an exceptionality, those who were formally identified did not differ in self-regulated learning scores compared to their non-identified peers. These findings have significant implications for students, educators and various other stakeholders. With the increasing number of students with exceptionalities entering post-secondary as well as with unprecedented incidences such as a global pandemic, it is important for students to seek out alternative supports instead of solely relying heavily on external assistance. By leveraging a strengths-based approach by considering internal assets as a new indicator for academic resiliency, students with exceptionalities may have a better understanding of how to effectively use self-regulated learning strategies to further improve their learning outcomes. Future research may benefit from an experimental design that determines
whether using these internal core beliefs (self-compassion and global self-concept) do in fact improve students’ self-regulated learning skills in an academic setting.
References


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Appendix A

Letter of Information & Consent Form

**Study Title:** Be Kind to Yourself: The Relationship Between Self-Compassion, Self-Concept & Self-Regulated Learning in University Students with and without Learning Disabilities and/or ADHD.

**Name of Researcher:** Sunaira Tejpar, Faculty of Education, Queen’s University

**Name of Supervisor:** Dr. Ian Matheson, Faculty of Education, Queen’s University

I am inviting undergraduate and graduate students from across all disciplines at Queen’s University to take part in a research study examining the relationships between self-compassion, self-concept and self-regulated learning in students with and without learning disabilities and/or ADHD. The concept of self-regulated learning (SRL) provides a lens for examining how students master their own learning, and for identifying particular behaviours that are effective in achieving learning goals (Zimmerman & Schunk, 2008). The self-concept theory is defined as an individual’s composite perception of themselves, for example their ability, worth, value, and limitations. Neff (2003b) conceptualizes self-compassion as “being touched by and open to one’s own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one’s suffering and to heal one-self with kindness. If you agree to take part, you will be invited to complete a 20-30-minute online questionnaire. There is a risk that some of the questions within the Self-Compassion scale may cause an emotional reaction. You have a right to withdraw from the study at any time during the survey. You can also access mental health services through Empower Me at 1-833-628-5589, which is a 24/7 helpline or Good2Talk at 1-866-925-5454 or text 686868 to get in touch with trained professionals. Other Canada-wide resources may include Crisis Services Canada at 1(833) 456-4566 or text 45645 and the Canadian Crisis Hotline at 1(888) 353-2273.

There is no obligation for you to say yes to take part in this study. You don’t have to answer any questions you don’t want to. You can stop participating at any time during the survey without penalty. If you wish to withdraw from the study, you can do so by simply closing your browser. Though data may be saved temporarily saved the researcher will destroy the data by removing all data for any individuals that did not complete the questionnaire and formally submit. However, since the survey is anonymous, participants will not be able to withdraw after submitting the questionnaire. The researcher will ensure that the questionnaire on Qualtrics will remain anonymous by enabling the anonymizing the responses as well as distributing an anonymous link. While there are no direct benefits to you as a participant, study results will help inform how self-compassion and self-concept impact self-regulated learning in university students.

I will keep your data securely for at least five years, and the study data will be stored on an encrypted hard drive on Queen’s University servers. Only myself and my supervisor will have access to your data, however, the Queen’s General Research Ethics Board
(GREB) may request access to study data to ensure that the researcher(s) have or are meeting their ethical obligations in conducting this research.

If you have any ethics concerns, please contact the General Research Ethics Board (GREB) at 1-844-535-2988 (Toll free in North America) or chair.GREB@queensu.ca.

If you have any questions about the research, please contact Sunaira Tejpar at sunaira.tejpar@queensu.ca or Dr. Ian Matheson at ian.matheson@queensu.ca or 613-533-6000 ext. 77298.

This Letter of Information provides you with the details to help you make an informed choice. All your questions should be answered to your satisfaction before you decide whether or not to participate in this research study. You have not waived any legal rights by consenting to participate in this study.

Please indicate your informed consent by clicking “Yes” on the questionnaire to begin.
Appendix B

Study Questionnaire

Demographic Questions
1. What is your age (provide space to input age)?
2. To which gender identity do you most identify?
   a. Female
   b. Male
   c. Gender Variant/Non-Conforming
   d. Not Listed (provide a space for them to input answer)
   e. Prefer Not to Answer
3. What year of university are you currently in?
   a. First
   b. Second
   c. Third
   d. Fourth
   e. Fifth
   f. Sixth
   g. Other
4. What program discipline are you majoring in (provide a list of university disciplines to choose from)?
5. Have you ever been formally identified as having any of the following?
   a. Learning Disability (LD)
   b. Attention Deficit Hyperactivity Disorder (ADHD)
   c. Both LD and ADHD
   d. None of the above
6. Do you identify as having any of the following?
   a. Learning Disability (LD)
   b. Attention Deficit Hyperactivity Disorder (ADHD)
   c. Both LD and ADHD
   d. None of the above

Personal Self-Concept Questionnaire (PSQ)

Respond to the following items by indicating how much you agree with each statement on a scale of 1 to 5, where 1=totally disagree and 5=totally agree.

1. I am satisfied with what I am achieving in my life.
2. If I’m feeling down, I find it hard to snap out of it.
3. So far, I have achieved every important goal I have set myself.
4. I am a trustworthy person.
5. In order to do anything, I first need other people’s approval.
6. I consider myself to be a very uptight and highly strung person.
7. I have yet to achieve anything I consider to be important in my life.
8. I am a person of my word.
9. I find it hard to embark on anything without other people’s support.
10. I am more sensitive than the majority of people.
11. I have always overcome any difficulties I have encountered in my life.
12. When taking a decision, I depend too much on other people’s opinions.
13. If I could start my life over again, I would not change very much.
14. I find it difficult to take decisions on my own.
15. I am an emotionally strong person.
16. I feel proud of how I am managing my life.
17. I suffer too much when something goes wrong.
18. My promises are sacred.

**Self-Compassion Scale (SCS)**

Respond to the following items by indicating how much you agree with each statement on a scale of 1 to 5, where 1=totally disagree and 5=totally agree.

1. When I fail at something important to me, I become consumed by feelings of inadequacy.
2. I try to be understanding and patient towards those aspects of my personality I don’t like.
3. When something painful happens, I try to take a balanced view of the situation.
4. When I am feeling down, I tend to feel like most other people are probably happier than I am.
5. I try to see my failings as part of the human condition.
6. When I am going through a very hard time, I give myself the caring and tenderness I need.
7. When something upsets me, I try to keep my emotions in balance.
8. When I fail at something that’s important to me, I tend to feel alone in my failure.
9. When I’m feeling down, I tend to obsess and fixate on everything that’s wrong.
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I’m disapproving and judgemental about my own flaws and inadequacies.
12. I’m intolerant and impatient towards those aspects of my personality I don’t like.

**Modified Version of the Motivated Strategies for Learning Questionnaire (MSLQ)**

Respond to the following items by indicating how much you agree with each statement on a scale of 1 to 7, where 1=not at all true of me and 7=very true of me.

1. I believe I will receive an excellent grade in this class.
2. I’m certain I can understand the most difficult material presented in the readings for this course.
3. I’m confident I can understand the most complex material presented by the instructor in this course.
4. I’m confident that I can do an excellent job on the assignments and tests in this course
5. I expect to do well in this class
6. I’m certain I can master the skills being taught in this class
7. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class
8. When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.
9. I try to relate ideas in this subject to those in other courses whenever possible.
10. When reading for this class, I try to relate the material to what I already know.
11. When I study for this course, I write brief summaries of the main ideas from the readings and the concepts from the lectures.
12. I try to understand the material in this class by making connections between the readings and the concepts from the lectures.
13. I try to apply ideas from course readings in other class activities such as lecture and discussion.
14. When I study the readings for this course, I outline the material to help me organize my thoughts.
15. When I study for this course, I go through the readings and my class notes and try to find the most important ideas.
16. I make simple charts, diagrams, or tables to help me organize course material.
17. When I study for this course, I go over my class notes and make an outline of important concepts.
18. During class time I often miss important points because I’m thinking of other things. (REVERSED)
19. When reading for this course, I make up questions to help focus my reading.
20. When I become confused about something I’m reading for this class, I go back and try to figure it out.
21. If course materials are difficult to understand, I change the way I read the material.
22. Before I study new course material thoroughly, I often skim it to see how it is organized.
23. I ask myself questions to make sure I understand the material I have been studying in this class.
24. I try to change the way I study in order to fit the course requirements and instructor’s teaching style.
25. I often find that I have been reading for class but don’t know what it was all about. (REVERSED)
26. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.
27. When studying for this course I try to determine which concepts I don’t understand well.
28. When I study for this class, I set goals for myself in order to direct my activities in each study period.
29. I usually study in a place where I can concentrate on my course work.
30. I make good use of my study time for this course.
31. I find it hard to stick to a study schedule. (REVERSED)
32. I have a regular place set aside for studying.
33. I make sure I keep up with the weekly readings and assignments for this course.
34. I attend class regularly.
35. I often find that I don't spend very much time on this course because of other activities. (REVERSED)
36. I rarely find time to review my notes or readings before an exam. (REVERSED)
37. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do. (REVERSED)
38. I work hard to do well in this class even if I don't like what we are doing.
39. When course work is difficult, I give up or only study the easy parts. (REVERSED)
40. Even when course materials are dull and uninteresting, I manage to keep working until I finish.