Examining the use of self-regulated learning strategies by female collegiate rugby players

by

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Abstract

Research on the self-efficacy of athletes has indicated that self-efficacy beliefs of athletes influences their sport performance. Teaching athletes to develop the strategies to self-regulate has been identified as crucial to athletes' long-term maintenance of sport confidence. Self-regulated learning processes including self-monitoring and goal setting can have a positive effect on self-motivation beliefs including self-efficacy. In academic settings, self-regulation strategies have been successfully taught and linked to increases in both motivation and achievement. Specific to learning in a sporting context, self-regulated learning processes were found to enhance skill acquisition. There is limited research exploring the relationship between self-regulated learning processes such as process goal setting, and self-efficacy beliefs related to individuals in a team sport setting. This case study explores how collegiate women's rugby players use self-regulated learning strategies and processes, and how this influences their self-efficacy. Athletes identified using a variety of different self-regulated learning processes during training and competition, highlighting specifically how they learned from others, different strategies for planning and preparing, review and analysis of performance, and strategies to control emotions and focus. Athletes identified that several of these processes had a positive influence on their self-efficacy.

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Chapter 1: Introduction

As an adolescent I was an avid athlete in a variety of sports. This interest in sports led me to compete at the collegiate level in both wrestling and rugby while pursuing my undergraduate degree. Reflecting on my time as an athlete, a significant portion of my training required the use of self-regulated learning processes developed through sport, school, and work. I regularly set goals, reflected on them, and modified and set new goals. These goals were both related to training and competition, and focused on both performance, and outcome. Almost all early goal setting was informal and done independently. Some of my goals in university sport were made in conjunction with coaches or teammates. At times I did have some instruction as to how and when to set goals, but I rarely explicitly tracked or valued my use of different self-regulated learning strategies in sport. As a collegiate athlete my self-confidence was low, and both myself and my coaches recognized this deficit as a detriment to my performance. Despite this being an identified weakness, I was provided with very little assistance, and did not personally seek to try to improve my self-efficacy. Furthermore, I did not make any connection between my self-regulation in training, and my self-efficacy as an athlete.

As I transitioned from athlete to coach and teacher, I noted that my experience as an athlete seemed to be reflected in many of the young women I work with. I coach a variety of ages, from young adolescent to young adult, and most notably a college women's rugby team. Regardless of playing ability, negative self-efficacy is a significant psychological barrier for many athletes that I coach. Recently, in an informal survey of women's rugby players at the college at which I coach, all eighteen players identified a lack of confidence in either one or multiple areas as being a psychological skill they wished to improve upon.

Reflecting on this problem for my athletes and myself, I began to wonder how expert athletes experience self-efficacy. Using my own experience as a teacher, I identified self-regulated learning processes as a possible mediator that could facilitate improvements in self-efficacy for athletes. As a coach I find this very compelling because many of the strategies used in self-regulated learning processes are ones that we already incorporate in training sessions such as goal setting, reflecting on goals, and imagery. This interest has motivated me to gain more insight and knowledge into how expert athletes use self-regulation in their training both in individual training sessions or events, and over longer training blocks or seasons. My pursuit of a master's degree in Education was driven by this desire to become a better coach and better teacher, and I strive to provide other coaches with information so that they can successfully mentor and coach young female athletes.

Purpose

This case study research draws on research from two fields: 1) self-efficacy and 2) self-regulated learning to explore how athletes use self-regulated learning (SRL) strategies to foster self-efficacy in sport. This research asked athletes to reflect on and describe their use of self-regulation in training and competition. This study was driven by one enabling question and two sub questions.

1. How do expert women's rugby players experience the use of self-regulation strategies in training and competition?
    a. What SRL processes do athletes identify using in training and competition?
    b. How do athletes perceive the influence of self-regulation on their self-efficacy?

Conceptual Framework

This research borrows from two fields of literature, self-efficacy, and self-regulated learning. As such, this work is conceptually situated within Bandura's (1977, 1997) theory of self-efficacy and Zimmerman's (2002) theory of self-regulated learning.

Self-Efficacy

Bandura's (1977, 1997) theory of self-efficacy provides an explanation of behavior through a social cognitive lens. The lens of social cognitive theory provides an alternative explanation to individuals being resigned to merely react to their environment passively. Instead, social cognitive theory views individuals as agents who can control or regulate their cognition, motivation, actions, and emotions (Feltz et al., 2007). Bandura defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action to produce given attainments" (Bandura, 1997, p. 3). Self-efficacy is not the belief that an action will produce a specific outcome, but rather the belief that one can perform an action that may lead to a specific outcome. What is unique about efficacy beliefs, is that they are not beliefs about the possession of skills or talents themselves. Efficacy beliefs are judgements that an individual makes regarding the actions they are capable of performing with their skills (Feltz et al., 2007). For example, a tennis player's belief that they have quick reflexes is not an efficacy belief, as it is a belief about a fixed attribute. The belief that they can consistently return the serve of an opponent is an efficacy belief as it is a determination of what actions the player can do with their quick reflexes (Feltz et al., 2007). Efficacy beliefs are specific to particular actions, tasks, or domains. The same tennis player who may possess strong self-efficacy regarding their ability to return an opponent's serve, may simultaneously hold low efficacy beliefs for other actions within the game of tennis such as their own serving ability. Efficacy beliefs are task-specific and not generalizable across multiple domains (Feltz et al., 2007).

Efficacy beliefs are not discrete entities - where one either has self-efficacy or does not - they are varied in scale across three dimensions: magnitude, strength, and generality (Bandura, 1977). The magnitude or level of efficacy beliefs determines how difficult a task the individual believes they can complete, from very simple to very difficult (Bandura, 1977). For example, a rugby player's belief that they can pass a rugby ball is moderated by the difficulty of the pass, so a player may have high self-efficacy for short passes, but lower self-efficacy for passes over a farther distance. The strength of an efficacy belief is on a spectrum of strong to weak. A strong efficacy belief is more resilient to change, thus, is more likely to be maintained even in the face of a disconfirming experience. A weak belief is more susceptible to change in the face of a disconfirming experience (Bandura, 1977). The strength of an efficacy belief may also be viewed as the certainty an individual has in the action being produced. For example, two rugby players may believe they can make two out of three penalty kicks in a game, but one player is more certain of this than the other (Feltz et al., 2007). If the player who is less certain misses all three kicks, they are more likely to have their efficacy beliefs change as a result of the disconfirming experience. Generality of efficacy beliefs determines how globalized beliefs are across multiple domains. In studies on self-efficacy in sport, generality is infrequently used as the focus of studies likely because studies focus on self-efficacy within a single sport, rather than transferability across sports (Feltz et al., 2007).

Four sources of efficacy information influence the development and nurturing of self-efficacy beliefs. These sources of information were categorized by Bandura (1977, 1997) as: past performance accomplishments (mastery), vicarious experiences, verbal persuasion, and physiological states. The processing of this information is complex and influenced by mitigating factors such as the context of the information, the source, the situation, and pre-existing efficacy beliefs (Bandura, 1977). Mastery is the repeated successes experienced by an individual in a specific domain or task. (Bandura, 1977). Through the self-appraisal of different experiences, self-efficacy will increase if performances are perceived as being successful and decrease if performances are perceived as being unsuccessful (Feltz et al., 2007). The most influential sources of efficacy information are developed through these self-appraisals of an individual's own experienced successes (Bandura, 1997). Vicarious experiences come from observations of and comparisons with others (Feltz et al., 2007). Watching others perform a task can provide the viewer with information that the task is possible as well as some instructional information. This type of experience generally has a weaker effect on efficacy beliefs than mastery, however, especially when the model and the task are very similar to the observer and their task, and when the individual cannot rely on their own mastery, these vicarious experiences can have more impact (Feltz et al., 2007). Verbal persuasion is easy and widely available making it a commonly used strategy for improving self-efficacy (Bandura, 1977). Verbal persuasion can come from the individual themselves in the form of self-talk or from others such as a coach, parent, or teammate, or, on an even broader level, a societal belief. While its influence on perceptions of efficacy is low, verbal persuasion can be effective at increasing an individual's persistence towards a task (Feltz et al., 2007). However, it can also have a strong debilitating effect on efficacy perceptions depending on the source of the persuasion – its credibility, expertise, and trustworthiness – the type of message used, and the tone used by the persuader (Feltz et al., 2007). Appraisals of one's physical ability including strength, fitness, fatigue, and pain provides physiological information which informs efficacy beliefs. This source of efficacy information is noted to be of particular importance for people engaging in athletics or physically demanding tasks (Feltz & Riessinger, 1990; Feltz et al., 2007). More recently some researchers have included emotional states and imaginal experiences in this list of sources (Feltz et al., 2007).

There are several tools that athletes, coaches, and teachers can utilize that facilitate components of the four sources of efficacy. Specifically, self-regulated learning strategies can provide many opportunities for athletes to foster self-efficacy through the four sources. For example, SRL processes include a prominent self-reflection phase, where athletes engage in self-appraisal of previous experience providing efficacy information through the reviewal of their own mastery. During the performance phase of self-regulated learning, athletes may engage in self-instruction, a form of self-talk, which provides efficacy information through verbal persuasion.

Self-Regulated Learning

This study will use Zimmerman's (2002) framework of self-regulated learning where SRL is defined in terms of metacognitive processes that learners engage in when completing a task or activity. Learners set their own goals, evaluate strengths and weaknesses through self-monitoring, and develop strategies to attain goals. Self-monitoring behavior is beneficial for learners as it increases motivation, self-satisfaction, and optimism about the future (Zimmerman, 2002). Furthermore, young learners who can detect small improvements in performance through self-monitoring, increase their self-efficacy (Schunk, 1983). Self-regulation also benefits performance outcomes, as research has demonstrated self-regulation of learning leads to greater academic achievement (Zimmerman, 2002) and skill acquisition (Kitsantas & Zimmerman, 1998).

Self-regulatory processes are used throughout learning, but specific processes are used at different times in the learning cycle. The learning cycle is comprised of three phases: forethought, performance, and self-reflection (Zimmerman, 2002). The forethought phase occurs before a learning event takes place where the learner analyzes the task, sets specific proximal goals, and makes plans to achieve these goals. The performance phase consists of processes the learner engages in during the learning event. These include strategies the learner applies to the task specifically such as imagery, self-instruction, and attention focusing. During the performance phase the learner also engages in self-observation processes such as self-recording, and self-experimentation where the learner compares multiple events under different conditions and makes comparisons. The self-reflection phase occurs after the learning event is completed and consists of two classes of self-reflection: self-judgement and self-reaction. Self-judgement can take the form of a self-evaluation comparing the performance to a standard. Self-judgements may also involve causal attribution, where the learner makes judgements regarding the cause of error or success in the performance. Attributions related to controllable processes have a positive influence on self-motivation of learners (Zimmerman, 2002).

Self-regulation strategies are teachable. Due to the numerous benefits of self-regulation, teachers, coaches, instructors, and parents should facilitate the use of SRL processes by students. (Zimmerman, 2002). Zimmerman (2002) notes self-regulation is not an inherently antisocial or solitary endeavor and can be learned from others. Proficient self-regulated learners will often seek feedback from instructors such as coaches and teammates to help improve learning.

In athletics and sport, psychological factors including self-efficacy, often referred to as sport confidence, are critically important to athletes' performance (Feltz et al., 2007). Despite this importance, there are considerable differences in the self-efficacy beliefs held by different athletes. Understanding and applying the four sources of efficacy and how these can be facilitated in a sporting context may be a useful tool for athletes and coaches to utilize to improve self-efficacy, and performance. Many of the self-regulated learning strategies listed in Zimmerman's (2002) theory correlate with the four sources of efficacy described by Bandura (1977, 1997). This correlation suggests that using self-regulated learning strategies in training and competition could foster opportunities for athletes to increase their self-efficacy.

Chapter 2: Literature Review

Self-Efficacy

Vealey (1986) coined the term “sport-confidence” to describe self-confidence that is sport specific. The term sport-confidence is defined as the general belief an individual athlete holds in their ability to be successful in sport (Vealey, 1986, 2001). Self-efficacy is one of several approaches used to study sport-confidence along with perceived competence and performance expectancy (Vealey, 1986). Self-efficacy theory significantly contributed to the field of sport-confidence by providing the foundation for many interventions designed to increase self-confidence (Beaumont et al, 2015; Vealey, 2001).

Self-efficacy and other psychological factors related to sport-confidence have been identified as being important factors in athletes’ performance in sports and athletics (Feltz et al, 2007). Many studies have been conducted investigating the relationship between self-efficacy and performance in sport. Feltz et al. (2007) suggested that most of the existing research was focused on the influence of self-efficacy on performance. In a meta-analysis of 45 studies, Moritz et al. (2000) found that self-efficacy beliefs had a positive and moderate relationship with the sport performance of individuals. Feltz and Lirgg (2001) evaluated literature addressing the relationship between self-efficacy and athletic performance and found that most studies demonstrated a significant relationship between the two variables. These researchers also noted that many studies demonstrated self-efficacy as consistently being a stronger predictor of performance success compared to other variables studied. Feltz et al. (2007) categorized research on the influence of self-efficacy in sport on different components of athletic functioning: performance, behavior, goals, self-regulation, thought patterns, and emotional reactions. Self-efficacy beliefs have been found to influence a variety of task-specific behaviors. High self-efficacy has a positive impact on effort, persistence, performance, thought patterns, emotional reactions, and choice of activities and goals (Feltz et al., 2007). Individuals with high self-efficacy will expend more energy while striving for a goal and persist longer when faced with obstacles. High self-efficacy also influences thought patterns of individuals, as they are more task-oriented and can shift focus away from negative emotions (Feltz et al., 2007; Feltz & Lirgg, 2001).

Self-Efficacy and Performance

Self-efficacy as a predictor of performance persists across different sporting contexts (Moritz et al., 2000). For example, the relationship between self-efficacy and performance was evident in both males and females, in novice and experienced athletes, and in athletes of different ages (Moritz et al., 2000). The relationship between self-efficacy and performance also persisted across different sporting contexts including both individual and team-based sports. Two examples of research on individual sporting contexts are in gymnastics and dart-throwing. McCauley (1985) conducted studies on 39 female undergraduate students being taught a novel gymnastics skill. The subjects engaged in different modelling and instructional treatments designed to increase self-efficacy through vicarious experience. Subjects in treatment groups described higher efficacy beliefs and performed better at the gymnastics task. Similar results were described in a study of adolescent girls' dart throwing skills (Kitsantas & Zimmerman, 1998), as subjects in the study who reported higher self-efficacy performed better on the dart throwing task. Examples of research on team-based sports included one on baseball athletes and another involving Sri Lankan national team athletes from nine different sports. George (1994) conducted research on the relationship between self-efficacy and hitting performance in male college and high school baseball players over nine baseball games. Results demonstrated higher self-efficacy related to increased hitting performance and higher effort. Thus George (1994) concluded his research provided moderate support to Bandura's (1977) self-efficacy theory. Research conducted on 308 subjects playing on one of nine different team sports at the national level in Sri Lanka confirmed a positive relationship existed between self-efficacy and performance (Perera et al., 1999). It should be noted that despite this research confirming the relationship between self-efficacy and performance in athletes of team sports, these athletes have been studied less frequently than athletes competing in individual sports (Feltz and Lirgg, 2001).

Sources of Efficacy for Athletes

Efficacy beliefs in athletes are susceptible to change over time. Self-efficacy beliefs are malleable and, while this is beneficial as they can be strengthened, they can also be weakened over time or after setbacks (Jackson et al., 2020). Self-efficacy beliefs in athletes are fostered by the principal four sources of efficacy information identified by Bandura in skill acquisition or learning (Feltz et al., 2007): mastery, vicarious experiences, verbal persuasion, and physiological states. Maddux (1991) alternatively classified physiological states as emotional arousal, highlighting the connection between physiological states and emotional responses such as doubt or anxiety. This distinction led Maddux to classify emotional states as a separate category from physiological states in his later work (Maddux, 1995).

Past Performances

Past performance accomplishments, also referred to as mastery experiences, have been identified as the most important source of self-efficacy information from both a theoretical standpoint (Bandura 1977, 1997) and in a practical standpoint through research conducted on self-efficacy in athletes (Feltz et al., 2007). Past performance as a source of efficacy information in sporting or athletic contexts has been studied extensively by researchers and results have persisted across genders, age, and sporting contexts, as noted with the following examples. In a study of 34 collegiate women's basketball players, past performance was the most important source of efficacy information for both individual and collective (team) efficacy. (Chase et al., 2003). Basketball players also referenced their performance in practices more frequently than games when addressing past performance. These findings also persist in other physical tasks, not purely those related to sport. For example, Feltz and Rissinger (1990) found study participants most frequently referenced performance accomplishments as the source of their efficacy beliefs in a muscular endurance task. Several researchers have studied the influence of mastery experiences on self-efficacy of athletes through the manipulation of performance data received by athletes. Researchers created either false failures or successes by informing athletes they had a specific outcome, such as lifting a specific weight or running a race in a certain time (Gernigon & Delloye, 2003). Research on elite sprinters by Gernigon and Delloye (2003) supported the findings of other researchers who found that a successful past performance demonstrated higher self-efficacy than athletes who had experienced failure.

Vicarious Experiences

Vicarious experiences in athletes are derived from watching others such as a coach, teammate, or professional athlete perform a task. Efficacy information is gained by observing others as a model or comparing to others performing a task (Feltz & Lirgg, 2001; Feltz & Rissinger, 1990). In sporting contexts, examples of vicarious experience include watching a skilled coach or peer perform a task, watching film of someone performing a skill or task, or watching recordings of one's own successful performance as a form of self-modeling (O'Neil, 2023). Studies on collegiate athletes participating across thirteen different sports determined that vicarious experiences provided sources of confidence for athletes (Machida et al., 2012).

Consistent with findings on sources of self-efficacy in athletes (Feltz & Lirgg, 2001), Machida et al. (2002) found that vicarious experiences were weaker sources of confidence than other sources. Research on sources of efficacy in youths aged thirteen to fourteen ranked comparison with others as the third most important source of self-efficacy in sport and physical education classes (Chase, 1998). Some research has classified imagery and imaginal experiences as vicarious experience, but for the purposes of this study imagery or imaginal experiences will be considered as physiological states.

Verbal Persuasion

Verbal persuasion as a source of efficacy in athletes is less influential than mastery experiences, however it is frequently used in sporting contexts as verbal feedback is easy to facilitate and readily available (Feltz et al., 2007). Most verbal feedback is provided by others, such as coaches, teammates, and parents, with the most influential feedback being from a source that the athlete deems as credible, trustworthy, and knowledgeable (Feltz et al., 2007). There are many types of verbal persuasion athletes are exposed to: feedback evaluating results, feedback evaluating performance, goal-setting, self-talk, and pre-game speeches.

First, feedback has been classified as having an evaluative role (Feltz et al., 2007). This evaluation provides athletes with either a knowledge of results of whether the athlete performed a skill or achieved a goal, or a knowledge of performance where the coach will comment on technique or form (Feltz et al., 2007). Secondly, feedback can provide athletes with information to help form attributions regarding their effort, or ability. The influence of this feedback varies depending on the context, for example Bandura (1977; 1997), stated that praising effort is an effective strategy to use with those who think effort leads to success, but ineffective for those who think ability is a fixed attribute. Research suggests that perceptions of one’s ability to acquire an athletic skill are malleable and can be influenced by an outside source telling an athlete that a skill can be learned with practice (Feltz et al., 2007).

The third type of verbal persuasion defined by Feltz and colleagues (2007) was goal-setting, which will be addressed later in this literature review as a form of self-regulated learning. The fourth type of verbal persuasion is a form of self-talk where an athlete dialogues to themselves, either internally (covertly) or externally (overtly) (Feltz et al., 2007). The purpose of self-talk is diverse, as athletes use it for instruction, emotion regulation, and motivation (Hardy, 2006; Feltz et al., 2007). Research suggests that successful athletes use self-talk frequently when compared to athletes who are not successful (Hardy, 2006). Self-talk can be both positive and negative. Positive self-talk, which enhances performance, uses praise, focuses on the present time, and highlights success (Hardy, 2006). Negative self-talk is usually detrimental to performance and includes criticism and thoughts that can cause or reinforce anxiety (Hardy, 2006). Feltz and colleagues (2007) note that the research around the use of self-talk is limited, and the exact nature of how self-talk is used should be explored further.

The last form of verbal persuasion categorized by Feltz and colleagues (2007) were pregame speeches. Bandura (1997) did not include short 'pep talks' as a form of verbal persuasion, however several researchers have determined that these pregame verbal speeches by coaches, or athletes are believed by athletes to enhance their self-efficacy (Feltz et al., 2007). Despite these findings, research conducted specifically on the influence of pre-game speeches on the self-efficacy of 151 competitive soccer players and their ten coaches determined there was not an overall increase in self-efficacy after pre-game speeches (Vargas & Bartholomew, 2004). These findings support Bandura's (1997) assertion that pep talks, pregame speeches or similar types of feedback should not be considered as verbal persuasion.

Across all these types of feedback, the consensus is that feedback will be most effective when it is positive, encouraging, realistic, relates to past successes and highlights effort and hard work (O'Neil, 2023). Feedback is also more useful when it focuses on aspects of sport and training that athletes can control, such as effort. For example, Gernigon and Delloye (2003) state that coaches should praise effort instead of skill to facilitate more positive attributions in athletes where self-efficacy increases as athletes believe increased effort can lead to better performance outcomes.

Physiological States

Due to the physical nature of sports and athletic tasks, physiological information such as arousal, pain, fitness, and fatigue provide an important source of efficacy information for athletes (Feltz et al., 2007). When compared to tasks that are not physical in nature, research suggests that physiological information is of greater importance in physical or athletic tasks (Feltz & Riessinger, 1990). In addition to physical information such as pain, fatigue, and fitness, this study will classify emotional state under physiological states. Emotional state includes the effect that mood, such as happiness, sadness, and anger; and mental state, such as anxiety and depression have on self-efficacy (Feltz et al., 2007). Research suggests that a relationship exists between mood and self-efficacy (Feltz et al., 2007; Kavanagh & Hausfeld, 1986). Happy moods have been found to produce higher self-efficacy and performance (Kavanagh & Hausfeld, 1986). Specifically, happy moods were related to increases in self efficacy in physical tasks that were familiar to the participant, which researchers stated could be attributed to the nature of the task: effort based (push-ups) (Kavanagh & Hausfeld, 1986). Similar results were found in other research that related positive moods to higher self-efficacy, and negative moods to lower self-efficacy (Feltz et al., 2007).

Many studies have investigated the effect of anxiety or arousal on sport performance or self-efficacy (Feltz et al., 2007). Emotional arousal and anxiety are perceived differently by different athletes. For example, some athletes perceive pre-competition nerves as helpful, while others perceive this as detrimental to performance. The interpretation of the emotional arousal influences its effect on self-efficacy (Feltz et al., 2007). Imaginal experiences, where an athlete sees and feels an image that replicates a real experience, are used by athletes for a variety of purposes to improve performance (Feltz et al., 2007). Imagery has been found to have a positive influence on motivation (Callow et al., 2001; Feltz & Riessinger, 1990). In research on 50 collegiate athletes in the individual sports of wrestling, track and field, and rowing, athletes who used motivational imagery had higher competition self-efficacy (Mills et al., 200). Mills et al, (2000) suggested that this could be related to the impact of motivational imagery on emotional control of stress, and optimal arousal during competitions. Mills et al. (2000) also determined this relationship was not evident in practice self-efficacy, only competition self-efficacy, which they suggested could be due to the low frequency competition cycle in the specific sports studied.

Self-Efficacy and Female Athletes

Female athletes have been reported to have lower self-confidence than male athletes in many sport settings (Feltz et al., 2007). Studies conducted on 713 collegiate athletes conducted by Mahoney et al. (1987) found that female athletes reported significantly lower self-confidence than males. Within this sample of athletes, elite athletes reported higher self-confidence than their nonelite peers. Feltz et al. (2007) noted that researchers often refer to male self-confidence and self-efficacy being greater than females, but that these findings are not absolute. Efficacy beliefs of females and males vary depending on the type of athletic task being pursued. For example, males have higher self-efficacy than females in tasks which require strength, power, or competitiveness, which are qualities of many team sports (Feltz et al., 2007). Despite explanations for the discrepancies between male and female self-efficacy in physical tasks, lower self-efficacy and self-confidence in female athletes is a concern for athletes and coaches. This is a concern not only for performance purposes but also for the affects self-efficacy has on engagement in sport or physical activity. For example, self-efficacy and physical activity declined over a two-year period in a study of 181 adolescent girls (Neissaar & Raudsepp, 2011). To address this decline, Neissaar and Raudsepp (2011) propose that initiatives to increase physical activity should specifically focus on girls' participation.

Self-Regulated Learning

Athletes frequently use self-regulation in both training and competition. SRL strategies commonly used by athletes include goal setting, self-evaluation, problem identification, imagery, and focusing techniques. Expert athletes are often highly self-regulated learners, which is assumed to influence self-efficacy beliefs (Cleary & Zimmerman, 2002).

Athletes who set specific goals and select task-specific strategies to achieve these goals demonstrated higher self-efficacy (Cleary & Zimmerman 2002). In a study of self-regulated learning processes used by collegiate women executing a volleyball skill task, Kitsantas and Zimmerman (2002) found that women who described using higher quality self-regulation had more success at the task. This correlation was exhibited regardless of previous experience with the task. Experienced volleyball players generally demonstrated higher levels of forethought, more self-regulation during the task, and more frequently used self-reflection after the task, compared to non-expert players and novices. In their self-evaluation, experts also had more adaptive attributions, attributing successes to techniques instead of fixed abilities or skills.

Attributions to technique are more adaptive as technique can be corrected, and these positive attributions preserved athletes' self-efficacy. These results confirmed results from earlier research conducted by Kitsantas and Zimmerman (2008) investigating self-regulation by adolescent girls conducting the motoric skill of dart-throwing. Subjects in treatment conditions were instructed to use self-regulated learning processes including analytic strategies, dynamic goal setting, and self-evaluative recording. Subjects in treatment conditions both performed the skill better and had greater self-efficacy than subjects who were not instructed to use self-regulated learning processes.

McCardle, Young and Baker (2019) suggest that an athlete's ability to use SRL in their training may yield optimized practice and increased skill level and performance, and that some of these processes may be critical to athlete development. Self-regulation may be of particular use for the development of expert athletes, as they often practice in solitary settings without the presence of a coach (Cleary & Zimmerman, 2002). The past two years there has also been a strong emphasis on self-instruction and independent learning by athletes across the globe, as the current pandemic has resulted in athletes spending a significant amount of time training individually or in small groups with limited or no coaching staff present.

There is strong evidence to support that self-regulation can have a positive influence on both self-efficacy beliefs and performance of athletes. Despite this evidence there is still a need to investigate the use of SRL by athletes of different genders and levels of education and adapted to a new performance context (Kitsantas & Zimmerman, 2002). In addition, the literature is predominated by microanalytic studies which study self-regulated learning during discrete events, and in controlled settings (Kirschenbaum, 1984). Specifically, McCardle et al (2019) described a lack of understanding of how athletes use self-regulated learning in both microscopic levels (for example during a discrete event such as a practice session), and macroscopic levels (for example across longer training phases or a season). They suggest more research is needed to describe both the extent to which expert athletes use SRL on microscopic and macroscopic levels, and any relationship between the two levels that contributes to the development of expert athletes.

Chapter 3: Methodology and Methods

Research Design

A case study methodology was selected for this research as case studies provide in-depth understanding of a topic being studied (Creswell, 2013). The topic of this study was the SRL and self-efficacy experiences of expert female athletes. The goal of this study was to describe a detailed account of participants' self-regulation and their perception of how it influences their self-efficacy in the context of their sport experience. The case study approach was selected as it provides opportunity to explore this detail, resulting in "a rich and holistic account of a phenomenon" (Merriam, 1998, p. 41). The study was qualitative, with the perspective of the participants as the main focal point. Qualitative research is unique in that it allows for opportunities where "researchers [can] keep a focus on learning the meaning that the participants hold about the problem or issue, not the meaning that the researchers bring to the research from the literature" (Creswell, 2013, p. 47). The case study approach was selected to provide an opportunity to learn from several individuals who reside within the same boundaries of the case, and to enhance the opportunity for transfer of these findings to other similar cases (Creswell, 2013; Merriam, 1998).

The successful identification of appropriate cases requires two steps: defining the case and bounding the case (Yin, 2014). Each individual in this study was a current member of a post-secondary women's rugby team. The location of the rugby team was in Ontario, Canada. The case is bounded by time, where participants were asked to reflect on their experience during their post-secondary rugby career of approximately one to five years.

Participants

Participants were purposefully selected. This purposeful selection resulted in participants who provided "information-rich cases that manifest the phenomenon of interest intensely" (Patton, 1990, p. 171), which means that they had and could articulate their experiences with SRL. Six athletes were recruited for this research.

Initial recruitment was conducted by approaching a university women's rugby coach in Ontario whose team competes in the Tier I division in Quebec. The Tier I division was purposefully selected as this tier consistently produces athletes who are recognized as being some of the best in the country. The study aimed to describe how expert athletes experience SRL, thus recruiting from one of the best university programs in the country ensured recruitment of these experts. The coach was approached first as their support in recruiting athletes and conducting the research helped facilitate interest and participation by athletes on the team. The coach was not provided names of the athletes who participated, and athletes were informed that they did not need to disclose their participation to coaches, staff, or teammates. The coach was purposefully selected based on her self-identification that she promoted SRL amongst her team. Participants from the same team were selected as they had the same training regime, game schedule, and experience with the same coaching staff and team culture. The coach was contacted by the researcher initially by phone, and then followed up formally through email. Team members were emailed details of the study by their coach and informed that interested participants could contact the researcher through email. Of the thirty-seven members of the team, six were recruited for this study. Pseudonyms were attached to the names of participants, and those mentioned by the participants in interviews, to protect their identity and safety.

Data collection

Data collection occurred over a four-week period from July 25th through August 22nd 2021. Prior to data collection, each participant received an email from the researcher that provided detailed information about the study, including a combined letter of information and consent form (see Appendix 1). Interviews occurred virtually through a secure online video conferencing service (Zoom). Each interview was audio recorded through the Zoom application and a live transcript was created. A secondary audio file was made with an iPhone to ensure a backup was available in case the Zoom recording failed. A field journal was maintained noting some responses to initial interview questions. This journal was useful as it helped inform the researcher during the later parts of the interview. For example, if there were certain topics that the researcher wanted to ask more probative questions about, there were opportunities later in the interview to provoke the participant further in subsequent questions. This journal was not used as data or analyzed for the study.

The participant was debriefed at the end of the interview with information about the study remuneration and thanked for their participation. Within 24 hours of the interview, participants were contacted by email and thanked again for their time, as well as asked how they would like to receive their Starbucks gift card as renumeration for participation in the research.

Data collection included a sixty-minute semi-structured interview. Interviews provided descriptive, rich, detailed data that provided a more comprehensive understanding of the phenomena than quantitative methods (Gill et al, 2008). Semi-structured interviews were used because they provided participants with some parameters within which the researcher was looking to explore, but still allowed flexibility for the researcher to be responsive and ask probative questions dependent on participants statements so they could explain or elaborate on initial responses (Gill et al, 2008).

Interviews investigated the use of different SRL strategies before, during, and after training and competitions on both the microscopic and macroscopic levels: short time spans, such as within a training session, as well as longer training blocks of weeks or months. The interviews were designed to shed light on the processes that helped each participant, and the participant's perception of the effect that using these SRL processes had on their self-efficacy (see Appendix B).

To establish rapport with participants, initial interview questions focused on allowing the participant to introduce themselves and address basic demographic and background data. All questions were asked in an open and non-judgmental tone to build and maintain trust between the participants and the researcher. Questions then segued into asking the participant to describe their use of self-regulation generally, and then became more specific to reflect the main research questions (Gill et al, 2008). The question list was developed using the laddered questioning technique, which allows researchers to select an appropriate level of question in response to the reactions of the participant (Price, 2001). A list of laddered questions was used including probative questions to ensure the researcher was prepared with a variety of questions grounded in the study focus (see Appendix B). Having a variety of questions available facilitated a more authentic interview as the researcher could respond to cues given by the participant and select appropriate questions (Price, 2001).

It should be noted that as a rugby coach and player, there is a risk of bias in both my questioning and interpretation of results. To address bias during the interviews, I did not talk about my own experience while questioning athletes. I focused on following the interview script, thus ensuring the responses reflected the athlete's experience. I avoided any discussion relating their experience to mine and did and not voice my own anecdotes that may have arisen due to my experience as a player and knowledge as a coach.

Data analysis

Audio recorded interviews were transcribed verbatim by the researcher and analyzed using standard inductive qualitative methods (Thomas, 2006). Prior to the coding process, transcripts were listened to in their entirety, twice, to ensure familiarity with the interview and check for errors in transcription. There were three parts of the interview. The first part of the interview provided context for the research but was not analyzed directly. The second part of the interview consisted of all the responses from participants for part two of the interview, where participants outlined SRL strategies used. The transcripts for the second part of the interview are being referred to as data set one. The third part of the interview consisted of all the responses from participants for part three of the interview, where athletes described how the SRL strategies used influenced self-efficacy. The transcripts for the third part of the interview are being referred to as data set two. The data sets one and two were coded separately.

Coding was conducted separately for each overarching research question, which was reflected in the separation of part two and part three of the interview. The first part of the interview provided background information for the researcher and was not fully coded. After coding the second and third part of the interview, the first part was reviewed to see if any additional relevant information was overlooked that should be included as data. In each data set the first stage of coding consisted of developing open codes from words or phrases that occurred in the transcripts. These words and phrases were copied from the Word document transcript into a separate PowerPoint document and listed sequentially. Each participant's segments of the data were designated a unique colour through highlighting or changing the font colour so different participants responses could be visually identified. Each segment of data was in a separate text box on a Powerpoint slide so it could be reorganized into groups easily later in the coding process. Coded words and phrases were crossed out with the strikethrough font in the initial transcript. In the second stage of coding, open codes were grouped into broader categories by moving individual text boxes in the PowerPoint document (see Appendix C). These categories, consisting of open codes with similar characteristics were labelled with a descriptive phrase or sentence. The third and final level of coding grouped categories into themes.

Chapter 4: Results

Identifying and describing SRL processes used

The second section of data consisted of answers from the second part of the interview asking questions related to the type of self-regulated learning strategies athletes identified using and how they used them. Four themes emerged from the data: (a) Learning from Others, (b) Planning and Preparing, (c) Reviewing and Analysis of Performance, and (d) Controlling Emotions and Focus. A description of each theme can be found in Table 1.

Table 1

Themes From Part 2

Theme	Description
1. Learning from others	Learning that includes other actors such as teammates, coaches, and professional rugby players. Specifically, participants described learning from feedback from these actors, or from watching others perform in a game or practice.
2. Planning and preparing	Intentional planning before games or practices. This planning includes actions such as goal setting, mental preparation, and intentional physiological preparation before a session.
3. Reviewing and analysis of performance	Strategies used for reflection on performance and performance analysis. This included writing in journals, video, journal and

	performance analysis, and thinking about how to move forward, or change perspective.
4. Controlling emotions and focus	Mental skills used to focus and control emotional responses. Specifically, participants described self-talk, strategies to control negative emotional responses, intentional focus, and imagery.

Theme One: Learning from Others

All six participants described learning from others by watching teammates play or practice rugby. Participants reflected on watching others both on film review and in live practice sessions or games. Participant six described intentionally reviewing film of teammates if the coach had noted something important. She said, “If it was notable enough for her to like, mark it down, then it’s probably something that I should try and like implement... and model” (P6, Int). Participant five watched others with more experience, “because they have, you know, their skills are more developed than mine” (P5, Int). She also described using this strategy when she did not understand something in a practice session. She said, “if you don’t know what’s going on, like you, you gotta like observe and ask” (P5, Int). Several other participants also described intentionally observing teammates who are older, or those with more experience. For example, participant three stated, “I wouldn’t necessarily just watch the player unless I think that, like I have a lot of things to learn from them” (P2, Int). Participant two described observing others critically to determine tools or strategies to use in her own performance, especially when learning a new skill. Participant one additionally stated that she watches teammates who she has identified are proficient at a skill and asks questions of teammates while directly observing them to help herself learn from them.

In addition to learning from others by watching teammates perform, two participants described actively learning from teammates through discussion and film review. These two participants both described leading film review for other teammates. Participant one described leading film analysis sessions for younger players as improving her confidence. She stated, “Being able to like see what they see, and it helps my confidence to be able to like help them and tell them what I see” (P1, Int.). These participants led film sessions either by coach instruction, or through the request of another teammate asking for help. Five of the six participants also described watching professional, international, or collegiate rugby. Players identified watching rugby either recreationally, purposefully as a learning tool, or both. Participant six described watching rugby as a useful tool that made her feel like she played smarter and could better adapt to new situations. She said, “You like, play smarter... I feel like I can adapt to situations better because, like I’ve seen maybe a similar situation in one of those games so then like, I’ve seen maybe how I can find success in that situation and then react quicker” (P6, Int). Participant three watched rugby when she was playing a new position to try to “get into the mindset, see what they do” (P3, Int).

The participants all described instances of receiving verbal feedback from teammates or coaches, but this feedback is not described equally by all participants. Four participants describe verbal feedback as being very useful and important. Specifically, participants described ‘constructive feedback’ from coaches or teammates having a positive influence on confidence or emotional state. Participant one stated, “hearing someone give good feedback, helps boost my confidence and makes me feel better” (P1, Int). Participant three echoed this statement about confidence, saying, “positive reinforcement from them [coaches and teammates] definitely helps with my confidence” (P3, Int). This participant highlighted the value of feedback to her growth as an athlete and stated that she felt that as she aged as a player she received less feedback from coaches, and this limited her ability to keep improving. Participants four and six did not describe any utility in hearing feedback from coaches or teammates. Participant six stated, “I don’t use as much like player feedback or coach feedback” (P6, Int). Participant four stated that they did not gain anything from verbal reassurance from teammates.

The importance of being accountable to teammates was described by several participants. Participants described how their teammates influenced them to maintain their goals, or how they felt their actions could influence teammates. Participant six explained that each member of the team has an assigned accountability buddy they use to check in with and reinforce goals and behavior. Participant four highlighted that an important part of their team culture is that they maintain a high standard of accountability on the team amongst teammates and coaches. Participant four also described reflecting on how her actions influence others by asking herself “what made it unsuccessful, how did that impact my teammates” (P4, Int). Participant one described reflecting on performance, the effect on the team, and making a plan to move forward. She stated, “how can we fix this, how can we deal with this, like what can I say to the group” (P5, Int). In addition to accountability, one participant also described the influence of teammates on her emotional state. Participant two described how teammates have a positive influence on her state of mind when she is under distress, by stating, “they ground me” (P2, Int).

Across all the different types of learning from others that participants described, learning from others was most frequently facilitated by teammates. Participants described watching teammates, watching film with teammates, receiving verbal feedback from teammates and setting goals in collaboration with teammates. These different types of interactions with teammates were referenced more frequently than interactions with coaches or other support staff.

Theme Two: Planning and Preparing

The second theme, Planning and Preparing, highlights intentional planning before games or practices. Participants described actions such as goal-setting, mental preparation, and physiological preparation prior to a performance. The first two categories included general descriptions of setting goals and writing in journals. The next category included descriptions of different physiological or physical states that participants regulated intentionally including sleep, pain, and nutrition or diet. The final categories included descriptions of mental or emotional preparation that participants performed before competition or training sessions.

All six participants described journaling or writing as a part of their regular training routine. Participants described writing at different times during their training cycle. Five participants used their journal to write down goals prior to performances, including goals for the entire season or year, goals for upcoming games, or goals for upcoming practices. Participant six described intentionally setting goals each season and said, “we usually sit down like once a year, and set goals, so we set SMART goals for ourselves” (P6, Int). Participants two and three both described writing down goals prior to games. Participant two described writing goals specific to what she wanted to achieve in a game. Similarly, participant three set individual goals, and referenced broader goals that the collective team had. She said, “I will sort of write down stuff about the upcoming game, personal goals, and then goals that we have for a unit in the game, and then any team goals” (P3, Int). Participant six referenced using her journal to take extensive notes when she had meetings with the mental performance coach. Participant five stated that she used her journal regularly, including daily during training camp and before training sessions that she identified as being difficult. Participant six said she used her journal weekly.

Most participants described preparing their physical state by regulating different physiological processes in their training or weekly schedule. Participants described having an awareness of their sleep, nutrition, pain management, and general fitness. Participant three summarized the importance of these factors when she stated that being mindful of sleep and nutrition "just helps a lot with performance" (P3, Int).

Four participants identified sleep, or being tired, as a factor which influenced their performance. Participants described being tired as being detrimental to their performance. Participant three explained that she regulated sleep because having sufficient sleep meant she did not worry about being tired as a factor that would influence her performance. Participant five identified sleep deprivation as a contributing factor to poor performance, such that she checks to see how much sleep she has had when she does not perform well. She stated, "if I noticed my performance, or if I notice I'm not really, like doing too well I check it. Where it's like 'Oh, how much sleep did I get last week' or how much sleep am I getting this week?" (P5, Int).

Participants one and three both stated that they were mindful about their diet. Participant three referenced that she changed her diet, and now deems it important to "eat cleanly" (P3, Int). Both participants one and three acknowledged that they regulated their nutrition by eating enough food or calories in their diet. Participant one explained that consuming sufficient calories was necessary for having energy. Participant three described the importance of nutrition to her when she said, "I find that, like, with nutrition and recovery it just helps with your overall confidence towards how you're going to play, like, if you're eating well and you've slept well, then you feel better and, in turn, you can just worry about the rugby skills" (P3, Int).

The importance of mental and emotional preparation was highlighted by four participants. Participants described different strategies they use to control their arousal levels and emotional state prior to competition. Participant one described her preparation prior to each game as an individual process, where she spends time alone intentionally focusing on rugby and trying to forget about other distractions in her life. She described this process as “taking time alone, and like, listening to music, looking through my journal before a game and reviewing, like, plays” (P1, Int). Participant six described preparation for training sessions, specifically on days where she is experiencing difficulty due to injury related pain. She described her pre-practice ritual including both physical and mental preparation.

> I, like, prepare – try and prepare for, like, every training session the same, I can try and like, you know go into it feeling the same. But then, if I like, you know I had a bad day or something or I'm not feeling great like my body isn't feeling great I try and like use that 10 minutes to like focus on like what I need specifically for that session. (P6, Int)

The preparation described by participant six is what she used for training sessions, as she indicated that on game days she did not need as much mental preparation to overcome mental blocks due to pain prior to or during competition. Participant two described the importance of having the appropriate mental state prior to competition. Similar to participant one, she described an individual process where she listens to music and calms herself. She also described the importance of increasing her arousal state prior to competition stating, “[I] try to like, get hyped up, so whether that's listening to music, or you know, like calming myself, but then like getting pumped up and. Yeah, just like getting excited about the game and playing rugby” (P2, Int). The first three examples of athletes highlighted their general preparation before a practice or training session to prepare themselves mentally and emotionally. Participant three described the process of how she prepares for individual skill performances that have set routines, such as kicking in a game.

> So I try to keep it consistent with every kick. But yeah, I'll sort of set up my kick and then, depending. I mean I always say the same thing to myself. Yeah just helps me like dial in and get focused and then I find with consistency it just helps it seem like it's - it doesn't matter if it's a game or practice so even in a high-pressure situation in the game if it's all the same setup then it shouldn't be any more difficult for me. (P3, Int)

Participant six highlighted the importance of preparing for performing kicks by having a set routine that she follows each time she performs the skill, maintaining consistency across training and competition.

Overall participants described how planning and preparation was intentionally used to optimize performance. This preparation addressed physical, mental, and emotional aspects of performance. Participants described promoting positive behaviors such as eating well or getting in the right state of mind. Participants also described how they prepared by limiting factors that would have a detrimental influence on their performance such as inadequate sleep, poor diet, or eliminating mental distractions.

Theme Three: Review and Analysis of Performance

All participants described reviewing and analyzing their performance. Participants described reviewing themselves and recording analysis in written journals. Review and analysis were conducted through film analysis and reflection on their own performance either in training sessions, in games, or both.

Participants used journals for review and recording analysis in addition to goal setting. Several participants described journals as a tool they used after a performance to write down reflections or thoughts. For some athletes this process was formalized. Participants one and two stated their after-performance journaling was encouraged by the coach as they were provided with reflection sheets to guide their post-performance analysis. Participant one said, “our coach had us fill out like right after we finished playing, fill out these like sheets to reflect on how we played” (P1, Int). Other participants described using their journal to write self-reflections or summaries after games or practices. For example, participant four used her journal to write down things that she thought did or did not go well, stating. “I’ll just have like logs, if I - if I find something that worked really good, didn’t [work], I’ll like draw a few things, draw plays” (P4, Int). Three athletes described the journal as being useful for getting information out of their head, or down on paper. For example, participant six stated, “if I have a particularly bad session, or bad game, I like to just kind of like get everything out” (P6, Int). Participant three specified that she used her journal as a tool for emotional comfort stating, “I would write stuff down if I want to focus on something, or need to reassure myself about something” (P3, Int). Participant one also used her journal for emotional comfort stating, “to put stuff down on paper, like calms me down” (P1, Int).

Four of the participants reviewed or re-read their journal after writing in it. Participant one described reviewing her journal frequently and found reviewing the content helpful. They said, “in season, probably like almost every day I'm like looking at it, looking through and I’m adding to stuff, and maybe throughout the summer it’s been like, once a week, once every two weeks” (P1, Int). Participant 5 wrote manifestations in her journal, which she described as words or sayings to motivate herself. She said that sometimes she reviewed these manifestations and looked at her journal “frequently like before a game or before scrimmages” (P5, Int). Participant three also reviewed her journal after a game and used the journal as a tool to reflect on goals made prior to the competition. She described “looking back in my journal and seeing how that’s gone” (P3, Int), referencing reviewing goals after the game. Participant two described using her journal when she said:

> I have my journal with me pretty much everywhere I go. It’s in my rugby bag and that's something that I will look to like an hour before practice just trying to like, get in that mindset. Go over the plays and special things I've written down kind of thing, and I would say that's definitely more for like rugby practice because your mindset needs to be turned on for rugby (P2, Int).

Participant two used her journal to review previous entries as a tool to help prepare her mentally for rugby, particularly for rugby practice sessions.

Video review was used by participants as a tool for reflecting on and analyzing performance. Four participants described how they review video either in practice, post-competition or both. Two participants described how they watch themselves on video to try and recall what they were thinking during certain moments in a game. Video analysis was also used by participants to watch successful events and analyze what led to that success. Participant four described this process as determining, “what did I do to like; one, set my teammates up and like find success through it” (P4, Int). Participant six described a similar process, where she reviews situations in a game and uses these to determine pathways for future success. She stated, “I've seen this before I know what I need to do to like be successful here” (P6, Int). Participant four had multiple references regarding the importance of video review and analysis as a tool she uses to improve her performance as a rugby player. She described reviewing herself, as well as critically analyzing her opposition’s and teammates’ patterns, style of play, and skills they need to work on. Participant three described reviewing video prior to a competition and said, “if we played them previously and I had a good game I would watch that" (P3, Int). She stated that she would review successful performances prior to a competition to prepare for playing them again.

All six participants described analyzing their performance after a competition, or generally analyzing what they need to work on to improve. Journals and video were important tools used for analysis. Participant one stated that she believed her journal helped her. She also described how it helps her get her thoughts out, and down on paper. Participant two described that she reviews film of competition and writes down what she feels she did or did not do well. She then uses this analysis to inform what she should "take away from last week's practices" (P2, Int). Participant three highlighted that she uses film to determine both what is working well for her and what she wants to improve on individually. She described that to continue previous successes she finds she thinks backs to instances she identifies as successes or accomplishments and tries to repeat them. She stated, "when I know that I'm doing something well, I just will keep doing that" (P3, Int).

Participants four and five both described using their journals to analyze their performance. Participant four analyzed performance by comparing old journal entries to new journal entries. She indicated that she wrote down logs of when she determined something worked well or did not in her journal entries. Participant five wrote into her journal an analysis of what she wanted to work on, or things she wanted to have an awareness of for future sessions. She then reviewed these entries prior to practices or competitions. Participant six stated that she "analyzed her game a lot" (P6, Int). She stated that she reviews film of herself regularly as practices are filmed in addition to games, so it is a part of her regular practice routine to review film. In practice sessions she described reviewing her film immediately to analyze specific skill execution. She described reviewing game film when she said:

> I'm very like visual so if I see something happen over film - like say the defense is lined up a certain way - and I see maybe like where I should have run a line, then I find like when I do encounter it like in a drill or in a game, I like can recognize it easier (P6, Int).

Her statement described how she feels more prepared to recognize situations in games if she has seen them in video. In addition to video, she also described how post-game self-reflection sheets provide a venue for her to analyze which aspects of the game were under her control, and which were not, as well as analyzing her emotions and mental state during a competition.

In addition to describing their experiences with reflection and performance analysis, all participants used language describing how after reflecting on previous performances, they move forward or think toward the future. Several participants described a focus on growth and improvement. For participants three and six they described the need for more work in areas that require improvement. Participant three described how working on things she struggled with increased her confidence, and stated, “when I’m struggling with something, like a skill thing in rugby, I like to put a lot more time into it” (P3, Int). This highlights the need for increased practice of skills that they have not yet mastered. Participants four and five described a similar mindset where they were focused on the next day, or the next practice as an opportunity to improve. Participant five summarized this sentiment when she stated, “tomorrow’s another opportunity to fix it” (P5, Int). This was reiterated by participant four who stated she was focused on “showing up and trying to be better every day” (P4, Int).

For some participants, moving forward related to a recognition of their thought patterns, and intentional change in their perspective. Participant five emphasized the importance of her perspective on her performance when she stated, “your reality is in a way shaped by like what you see, or what you tell your brain” (P5, Int). Participant six described her reaction to a situation in a game being something she can control. She described how she adapts to situations quicker by finding a new, or different way of reacting to it. Participant one described changing her perspective through the language of the words she says to herself to be more positive. She highlighted that when she feels she is getting frustrated she tries to identify these feelings, stop them and find a way to shift herself out of the frustration. She stated that she is "reminding myself of like the important cues that I need to remember, instead of dwelling on being frustrated" (P1, Int). Participant three also referenced positive and negative thought processes, and the importance of positive mindset to her. She stated, "if, like, negative visuals start coming up I'll try to like rework that back to being positive and seeing myself as having success on the field" (P3, Int). Participant two described in general terms how views switching her mindset as flipping a switch, so she can change her focus. All these participants described how their mindset or perspective was something they could control and described actively identifying negative thought patterns and changing them to be more positive, or productive.

In general athletes described their review and analysis of performance as an identification of strengths, or aspects of their performance that they felt were successful, and weaknesses, or aspects of their performance they felt they could improve on. Overall there was a general emphasis on growth or moving forward from the athletes, who frequently highlighted strategies they can use to perform better in the future.

Theme Four: Controlling Emotions and Focus

The fourth theme is defined by participants descriptions of controlling their emotions and focus. Several categories involved participants descriptions of self-talk including difficulty with self-talk, types of self-talk, and their purpose for using self-talk. Other categories included participants descriptions of how they focus, the purpose of intentional focus, and imagery or visualization strategies. Focusing and self-talk categories also overlapped with the final group of categories describing emotional control, stress, negative thoughts, and emotional regulation.

Negative thoughts were described by five of the six participants. Negative thoughts described by participants often included references to messing up, making mistakes, or not performing well. Some participants used general terms to describe negative feelings, for example participant two referenced she sometimes uses “a lot of negative self-talk” (P2, Int), and participant one referenced “thinking negatively in my head” (P1, Int). Participant five identified an association between thought patterns and a lack of confidence, saying she was “more likely to have negative feelings” because she was “not confident about it” (P5, Int). Participants one and three also described negative thoughts related to comparisons between themselves and others. These participants described sadness, struggle, or frustration as a result of comparisons to others where they felt they were not as strong or as skilled as another athlete. Four participants described feeling out of control, freaking out, or frustrated as mental states they experienced. Participant five described feeling nervous, anxious, and distracted sometimes in training or games. She also described feeling that the team had high tensions or nerves during practices where the coach said they would be working on a challenging skill.

Journals were used by three participants when experiencing feelings of being overwhelmed or stressed. Participant one stated that she used her journal extensively in rugby, and used it for anything related to rugby, such as training, playing, and sessions with the mental skills coach. She described using her journal to deal with stress by creating lists or reminders that she wrote in her journal. Participant two described being overwhelmed in her first year playing on the team and using her journal as a tool to deal with that stress. She stated, “first year, you’re kind of thrown into everything and you’re like ‘oh my God, I have no idea what’s going on’, so I needed an outlet or a resource and so that's when I brought in my rugby journal" (P2, Int). Participant four described how she used her journal to record specific goals so that she could focus her objectives for practice sessions, and avoid being overwhelmed by too many goals, or unfocused by having too few. She stated, "I try and go into practice with like one or two work-ons because any more I get overwhelmed and any less and I feel chaotic" (P4, Int). All three of these participants described how their journal can help them deal with feelings of stress, so they don't get overwhelmed by these potentially negative emotions.

All the participants referenced performing some sort of verbal reassurance or self-talk except for participant four who explicitly stated she did not, saying "I don't like verbally like reassure myself ever" (P4, Int). Participants describe self-talk as being a variety of different things to them, often linked to increasing confidence. Participant five described having a set of mantras, or short phrases she repeats to herself in her head, and verbally says out loud to increase her confidence. She stated that she uses these mantras frequently, especially when she is lacking in confidence. She said, "I'm constantly telling myself that I perceive myself as someone who's like worthy of like doing a skill or worthy or valuable" (P5, Int). Participant six also described using short phrases she repeats to herself as a strategy. She described working with her mental performance coach to develop phrases she could repeat to herself to keep her focus "when things aren't going great in a game" (P6, Int). Participant one also stated that she used self-talk frequently, saying "I use it like almost every day in practice" (P1, Int). She described self-talk being a reminder of her successes or things she can do. She also described experiencing trouble using self-talk in off-field settings compared to rugby sessions. Specifically, when describing her use of self-talk in the weight room she stated "it's not so much about like strategy and, like it, 'Okay, I can do this' to fix it like in rugby. It's like in the strength it's literally just like 'I can't do this' so then it's easier for me to get down on myself and like not find a solution" (P1, Int). Participant three described multiple uses of self-talk in her pregame preparation, and during competitions. The first way she described using self-talk was to acknowledge her successes. She said congratulating herself after success built up her confidence. The second way she described using self-talk was during a competition, to help her focus on shorter time periods when she is overwhelmed, giving the example of saying, "just focus on the next play" (P3, Int) during games. The third use of self-talk she described using were words she said to herself before performing specific closed skills. She described saying the same thing to herself before and during the execution of a skill to help her set up and perform the skill the same way each time. Participant two described using self-talk in general terms as a tool to help her change her focus when she was having negative thoughts. Participant two described how she, like other participants, worked with the mental skills coach and counsellor to help her develop these strategies.

Emotional regulation was often linked to language related to focusing or focus by participants. Five participants referenced focus in their interviews, including descriptions of how and why they focus as well as focusing strategies. Four of the participants described focusing as a way they clear their mind. Participant one described the importance of clearing her mind so she can focus fully on the rugby she is playing, saying,

> Anything else that's distracting me in my life I need to, like, just forget about it and normally that happens once I step on the field, like, it's kind of, like, an actual thing now so, but, yeah, it's important to, like, forget about everything else and, like, when I step on the field all I'm thinking about is rugby (P1, Int).

Participant five described a similar process where she tries to clear her mind before she enters the rugby field. She described using this process to "clear the space" (P5, Int), so she could fully engage in rugby by mindfully stopping her thoughts unrelated to rugby. Similarly, participant four described the importance of a clear mind, stating, “my brain honestly just goes blank, like I just work” (P4, Int). Participant six described using meditation to regulate her breathing and stated how she tries to play “in the moment” (P6, Int).

Several participants described the importance of intentionally focusing during training and competitions. Participant five described the level of focus that she tries to attain as hyper focus stating, “hyper focus is a ritual” (P5, Int). She highlighted the usefulness of ‘hyper focus’ by describing how you need this mental state in training in order to absorb things mentally instead of just going through the physical motions of skill acquisition. Participant three described intentionally focusing during moments of frustration in a game or practice: She also described how she focuses on only one skill, or one thing, so that she intentionally works towards doing that single thing very well. Participant six described how she used focus for dealing with acute pain when she is in a game or practice. She has developed this strategy of intentional focus so that she can distract herself and focus on something other than the pain she is experiencing. Each of these participants outlined focus as a strategy they use to apply themselves mentally or concentrate on specific areas of their training or the game in order to enhance performance.

An additional mental skills strategy used by athletes to focus their mind was visualization or imagery. Three participants described how they use these techniques in rugby. Participant one described using information she viewed in film sessions to help her visualize future games and practices. She described this process when she said, “it helps me visualize the games so that when I go to practice I can, like, see that picture of what I watched in video and then trying to implement it there” (P1, Int). Participant three described how she uses imagery before games to prepare herself for different scenarios. She stated that she would sit alone and “look at the field and imagine things happening and how that could play out" (P3, Int). Participant four described using imagery to help her in training: she would remove herself from training to watch teammates during practice. Seeing others perform a drill allowed her to create an image in her head of what the skill should look like so she could perform it herself. She explained how this process worked stating "I paint, like, a little picture in my head of, like, what the drill is before I go in" (P4, Int).

Descriptions of emotions generally highlighted negative thoughts such as anxiety, stress, nerves, or sadness. Participants described that they frequently perceived these negative thoughts as detrimental to performance and sought to reduce or diminish them. Participants also described how they actively tried to enhance their focus. Focus was often associated with descriptions of fewer negative thoughts, and a clear mind.

Influence of self-regulated learning on self-efficacy

The third section of the interviews asked questions related to how participants perceived the influence of the self-regulated learning strategies they described in the second section, on their self-beliefs. In the following section I will describe the main findings of the themes for the second data set. Three main themes emerged from the data: (a) Emotional State and Control, (b) Planning and Focusing on Improvement, and (c) Reflection and Analysis of Performance, Ability, and Beliefs. A description of each theme can be found in Table 2.

Table 2

Themes From Part 3

Theme	Description
1. Emotional state and control	Participants' descriptions of the belief they have in their performance ability and how their emotional state influences this belief. Additionally, descriptions of control over emotions, actions, and teammates are included in this theme.

2.	Planning and focusing on improvement	Descriptions of how participants plan next steps in their learning, including goal setting, next steps in journals, learning from teammates, and developing areas of focus to improve upon based on external feedback, film, and watching professional rugby.
3.	Reflection and analysis of performance, ability, and beliefs	Descriptions of how athletes reflect on different components of their training and how these influence their performance ability, and beliefs on their performance ability. Descriptions of participants' definitions of success, and why an action leads to success or poor performance, are outlined by participants in this theme. These include categories such as the impact of practice on self-beliefs, effect of injury and physiological state on beliefs about performance, and the influence of journals, watching film, and watching others on performance beliefs.

Theme One: Emotional State and Control

General descriptions of confidence, or self-belief, were given by three participants. For participant two, she felt her best performances were when her team had the right energy or momentum. She stated, "If it's going the right way and, like, we're getting, like, the positive juices are flowing, then I feel like that's when best performance happens, and I feel like I can perform my best" (P2, Int). Participant four described her confidence coming from experiencing success in practice. She also described that she believes she can do anything she decides she wants to do. She stated, "If I put my mind to it, I one-hundred percent believe I can do anything I put myself into" (P4, Int). Participant five described how her confidence in her ability to do something leads to her being able to do that skill well. She stated, "once I have confidence in myself that I can like, actually do it well, I will" (P5, Int).

All participants described how their emotional state influenced either their performance ability or their mental state. Three participants stated that feeling calm prior to a game influenced their performance in a positive way. Participant four used music intentionally to calm her emotions during pre-game warm-ups and preparation. Participant three described how being calm influenced her performance when she stated, “it definitely helps put me in, like, a more calm of a state which is beneficial to me – it helps me perform that one task a lot better” (P3, Int). Participant two described the importance of using ten minutes prior to warmup to make sure her mental state is not frantic. She stated that without having this ten minutes before practice she can still perform, but “feels safer with it” (P2, Int). Participant two also stated that sometimes being mad can make a person perform well. Participants described instances where they questioned their preparation or abilities and how that could cause stress or frustration. Participant one indicated that she usually felt stress go away once a game started. Participant six described how her preparation can influence whether she feels flustered and stated that her pre-game routine and taping for injuries was a necessary precursor to her maintaining calm and confidence.

Descriptions of team connection or having confidence in the team were given by five participants. Participant one described that she feels that the team's ability to work collectively and connect is more important to their team success than individuals with exceptional skills. She stated, “not everyone’s like a superstar, but the way that we, like, are able to connect and work together, makes us the best” (P1, Int). Participant two described how she feels like she isn’t alone when she hears teammates saying things she is also thinking. She further explained that she feels responsible for supporting her teammates and they will in turn support her. She referenced the emphasis in the team culture on connection, and how this is facilitated by the coaching staff on ‘connection Mondays’ where athletes are encouraged to share with others on the team. Participant four described how the team has a certain standard, that each player puts in all the effort they can into training and competing, and that she trusts each individual player on the team to meet that standard. Finally, participant three described that having confidence is a prerequisite of the position she plays on the field, thus she must be confident in order to play her role on the team. She stated, “I don’t really have an option to have a lack of confidence in the game, just because of, like, how my position on the field and, I need to show up for my teammates” (P3, Int).

Emotions or feelings of stress, anxiety or frustration were referenced by each participant. Participant one described feeling worried that things would go wrong, feeling stress through her entire body and having nerves. She described the influence of these feelings on her performance when she stated “it [nerves] usually influences how I feel I can perform, it usually makes me, like, think that I’m not going to perform well” (P1, Int). Participant five described how when she is anxious, she does not feel like she is fully engaged or able to absorb an experience. She described how she tries to maintain a calm mindset, stating, “I’m trying to get my mind to be in like. In a less anxious state possible” (P5, Int). Participant four described trying to calm her emotions so she could think at the level necessary to compete in rugby games. Participant six, described feelings of anxiety or worry, but indicated that these feelings often fade from her mind after she gets to the field on game day. Participant three actively used imagery to help her calm her nerves prior to competitions. Participant two described how her teammates help calm her when she is feeling frantic. She described the influence her teammates have on her as “grounding” (P2, Int). Each of these participants described how they try to reduce, regulate, or control these feelings to improve their mindset, and improve their ability to think, absorb information, or perform in rugby.

In addition to descriptions of participants' efforts to control their emotions, participants also described control over their actions and teammates, and recognition of things they cannot control. Participant one described having control over her sleep, her warmup, and her game preparation. Participant two described having control over three specific skills in her rugby game, that she would recount when she was feeling flustered to increase her confidence. She has strong self-efficacy regarding her ability to perform these skills, so she selected them to use as verbal cues when she is feeling frazzled or frustrated. Participant five described that she has control over her preparation and was seeking to find the “secret recipe for a perfect, a perfect good game or perfect performance” (P5, Int) so she could improve her playing ability. Emotional control was referenced by participant one when she stated that she had “control over, like, anger and frustration” (P1, Int). However, participant one also described that it was something she felt she only had some control over as she reflected that sometimes it’s difficult to control her emotions. For participant four, she intentionally removed herself from teammates and warm-up so she could calm herself down prior to games. She described this process when she stated, “It almost helps me to, like, disassociate myself from, like, the team and everyone pumped up, and kind of, like, go into, like, my own head and calm myself down” (P4, Int). Two participants referenced that there were some things that you cannot control in rugby. Participant one stated that she only has some control over the other team and did not have any control over her teammate's decisions. She did, however, describe that she felt she could somewhat control her teammates; she recognized her influence on them and their emotions and energy. Participant six recognized that there are many factors that are out of her control that could influence her performance beliefs. She stated that she prepares for rugby by performing tasks repeatedly until they become automatic. She stated, “the more you perform a task, the more it becomes, like, almost, like, instinctive so that way you know when there is, kind of factors that are out of your control that might influence your belief on how you could perform then it’s kind of, like, more automatic” (P6, Int).

Descriptions of positive self-talk to regulate emotions were given by five athletes. Participants described how they consciously recognize negative or detrimental thought patterns and actively change the wording of how they are communicating with themselves, either out loud, or in their head. Participant five described that "the wording of whatever you say to yourself, like, has different effects" (P5, Int), which highlighted how what an athlete says to themself can have negative or positive effects on performance. Participant one described how her self-talk is a reminder of things she can do well. She stated, "if I hear something positive, it really, like, makes me feel a lot better than, like, me just telling myself that I'm good" (P1, Int). She described that switching to this positive language increases her confidence in herself, but, acknowledged that it is not automatic and can take some time or "convincing to, like, actually believe what I'm trying to tell myself" (P1, Int). Participant three described that her positive self-talk helped her to think of the positive outcomes of performing a skill, and that she would not allow herself to think about mistakes such as missing a tackle. Participant six described self-talk as a useful tool for helping her change her perspective to more positive. Most of these participants described how they change their language to describe skills, or components they feel self-efficacious about, in order to improve their mindset or performance ability.

In addition to self-talk, all participants described using strategies such as mindfulness, breathing, visualization, or imagery during rugby. Participant one described that she actively works on calming herself down using pre-game focus or meditation rituals prior to a game. She stated that this process makes her feel that she can perform well. She described that after this ritual, she feels like her mind is a blank slate, and she is not thinking about negative outcomes, and "at that moment I'm thinking, like, that I can do everything well" (P1, Int). Participant two described how she ensures she checks in with herself during pre-game warmups and checks in to see how her body is feeling. Participant three also described a pre-game process where she uses visualization to reassure herself. She described that when she performs this visualization prior to her game it reassures her that she possesses the skills to perform, and that it influences her self-beliefs that she could perform the skill again. Describing her use of visualization, she stated, "it's just reassuring. Like at that point before a game, I know that I have the skills to do that, but then I like to see myself actually on the field performing those skills" (P3, Int). Participant four described the importance of trying to remove emotion from her playing by narrowing in her focus on what she needs to accomplish. She described the purpose of this process as "the whole point of me going into that third party state is to not think, but more or less focus" (P4, Int). Participant five described using mindfulness to ensure she is getting as much as she can out of each practice session. Participant six described how she uses intentional breathing and focusing to help her with pain management. She described how she uses her mind to overcome pain by reconstructing her own reality. She stated

> So sometimes like, if I'm like 'Oh my God   I'm in so much pain' like, I try and like, think like, 'Am I actually feeling those things, or is it me telling myself I'm in pain that is making me feel like I'm in pain?' So, like, focusing on like, creating my own reality. (P6, Int)

Participant six also explained, when she is feeling these feelings of pain, or frustration, she feels that she can't complete tasks. She actively uses her breathing and focus strategies to ensure she gets back into what she described as the 'green zone' so she can perform better.

Overall participants associated positive state of mind and feelings with higher self-efficacy and negative states of mind or feelings with lower self-efficacy. Participants consistently described how they used SRL strategies to reduce or control negative feeling such as frustration, anxiety, stress and nerves. These strategies provided reassurance, and improved self-beliefs. Positive states such as calm, focused, and confident were related to descriptions of higher self-efficacy.

Theme Two: Planning and Focus on Improvement

The second theme, Planning and Focus on Improvement, included descriptions of athletes improving their self-belief through focusing on the future, including determining work-ons, setting goals, changing self-talk, and working hard to improve weaknesses. Five participants described how practice or hard work influences their self-beliefs. Participants four and six described how putting in more work leads them to have increased confidence. Participant six stated "I can always rely back on like my – the amount of work I've put into it and then that kind of helps me feel more confident" (P6, Int). Participant five described how her confidence increases when she recognizes improved performances after working on a skill she had identified needed more work. Participant two described a process where she identifies skills she needs to improve and believes that spending time working on those areas improves her performance. She stated, "I think it helps me because I can, like, spend a couple extra minutes tackling because that's my biggest work on or what not, so, yeah, it helps with performance" (P2, Int). Participant four also described how she feels that the effort she puts into preparation on and off field, leads her to feel she can perform well. She described how her feelings of self-efficacy increase with thorough preparation stating:

> I've done all the preparation off field and on field so regardless of who we're playing or what, like, what event it is, who we're playing, the conditions, like, basically the uncontrollables. It's like, if I prepared for this, which I have, I should be able to compete at my best level. (P4, Int).

Each of these participants described how hard work, preparation, and working on weaknesses improves their feelings of self-efficacy or confidence related to performing specific skills or general performance.

Six participants' interview responses included descriptions of how they think forward or focus on the future. Generally focusing on the future included descriptions of how they will improve weaknesses or get better through practice. Participant one described a technical approach to improvement, where she identifies what she is doing wrong, or forgetting, and attempts to fix that. After she makes those changes, her self-beliefs improve, and she feels her skills will be better. Using the example of a passing error she stated that she can "quickly identify, like, what I was doing wrong and, like, knowing that, if I can fix that, then my passing is going to be great" (P1, Int). Participant two described how as a team they train to focus on the subsequent phases during a match stating "next play, like, we look forward" (P2, Int). Participant three described how she improved by using her strengths to compensate for her weaknesses: by hiding them or turning them into strengths. Participant four described that she uses a logical, non-emotional approach to focusing on improvement. She described how she is always building from successes in previous performances and finds that this helps her move forward and motivates her to "continuously try, if I'm not, like, successful at something" (P4, Int). She also described how she strives to acquire the skills that players on the national team have, and how she competes with herself to become more skilled in order to one day make the national team. Like participant one and four, participant five takes a technical approach to improvement, by watching herself and making an action plan for improvement. She described her focus on future performances stating, "even if there was a time when you made a mistake, you always know that you'll be able to bounce back up back from it" (P5, Int). Participant six focuses on the moment, not the past, describing how she has a task-oriented approach to playing where she focuses on the task at hand, or “what’s in front of me” (P6, Int).

Participants also described focusing on improvement in their descriptions of goals or using their journals to write next steps. Participant one uses goals as a reminder of things she can do to perform better, and participant two described having specificity in her goals for each game. Participant three described how using a journal as a visual reminder of what she should focus on in the game helps her to “think forward to the game” (P3, Int). Participant five described her journal as a useful tool for helping her identify and deal with self-doubt. She stated that she uses her journal to write down feedback or criticisms, so she can determine a plan to improve her skills. She described how this process helps her focus on growth instead of criticism, stating that, through writing in her journal, “if I got self-doubt from that comment, I can realize I'm, like, it's okay. You've identified something that you need to work on. And you've put an action – something in place to actually, like, move forward with it” (P5, Int).

One of the strategies participants described using to determine skills or areas for improvement was watching film. Participants watched themselves on film or watched others on film to develop next steps for skills they wanted to learn or improve upon. Three participants described how watching themselves on film provides them with information they can use to improve. Participants one and five described using film to determine how they can fix skills that are needing improvement. Both participants described that that their efficacy beliefs are not negatively impacted by watching film because they seek out areas for improvement. Participant six used film to determine when to perform certain skills in a rugby game and described that this review process allows her to perform skills with less hesitation in a game. She stated, “I can like, identify, like, you know, in film, that I should be running this certain line because I can see how

– like exactly why that line works. In a game when I encounter that situation, there's less hesitation, because, like I, I know what to do" (P6, Int).

Five participants described watching others play rugby to determine next steps or work ons for their own rugby practice. Participant one described imagining herself performing the same skills professional players do, and trying to imitate, or mirror these players herself. She stated that sometimes, watching film, she compares herself to others and this can cause her to believe she is not as good as others. Participant two described that when she watches film, she tries to think of what she would do during certain moments of the game, to build and enhance her rugby knowledge. Participant three described being inspired by watching others play, and that she is motivated to try the skills or strategies herself that she saw professionals perform, stating, "it definitely, like, inspires me, I would say, to try those things myself" (P3, Int). Participant six identified that several players who play professionally, additionally play the same level of rugby she does in Canada, either with her or against her. She stated that watching these players perform and execute specific skills well enhances her belief that she can perform these skills. She stated, "when I see, like, maybe them executing that really well, I can like, relay back and be like, 'Oh, those are people I play against. That's something I can do as well'" (P6, Int). Participant four described how when she watches professional rugby, her response is dependent on the perceived quality of the player or team she's watching. She identified that when watching a Canadian player perform, she thought, "Okay, what do I have to do to perform like them to play?" (P4, Int) believing she could acquire the skills they had. This motivated her to acquire the skills so she could play at the national level. She compared this to watching professional women playing from New Zealand, which she perceived as being a higher level. She watched them with more admiration, instead of watching with the belief that she could acquire or perform those skills herself.

In addition to learning from others by reviewing film, participants also described learning from others by watching teammates in practice or receiving verbal feedback from teammates or coaches. Participant one described how she values feedback from coaches and teammates when they stay calm, and constructive. She said she cannot use feedback where the person giving feedback is mad, angry, yelling, or not giving specific work ons that she can focus on for improvement. She did state that negative feedback does not have much of an emotional toll on her when it is delivered by a teammate. She highlighted what type of feedback she feels is effective when she stated, “constructive feedback I usually will take positively, and then it helps me be better” (P1, Int). Participant one also described how she values input from her teammates and tries to learn from them, but, at times when she cannot immediately gain a skill, her efficacy beliefs can be negatively influenced on her ability to perform the skill she is struggling with. She stated, “'I’m, like, trying to do it, and they're trying to, like, show me or teach me and I'm, I'm not getting it, then I, like, I'm thinking, like, but I don't really have the ability to do that thing well” (P1, Int). Participant two echoed the statement that feedback should be positive, and valued hearing positive feedback combined with work ons. She described what ideal feedback sounds like to her when she stated, “She’ll be like ‘okay, like, that pass was great, but, like, let’s make the next one better’ and she knows, like those little positive cues are just what I need if I feel like crap” (P2, Int). Participant three described valuing feedback from teammates more when she was in a new position. She stated, “[I] wanted to know how my teammates felt I was doing and, like, what I could be doing better for them” (P3, Int). She stated that as she became more experienced in the position, she sought out feedback of what she could be doing better less frequently but did still value teammates' feedback on what she could improve on. Participant five seeks out feedback from a teammate she perceives as competent in a given skill. She stated that receiving feedback from such a teammate influences her confidence as she has identified how to fix that skill. She described an example of this collaboration with her colleague stating,

> I go talk to [teammate name] before practice and, like runs through it, because she normally is the one that we go to for the footwork and kind of stuff so, like, right there and then, if I was feeling insecure right there and then, like, I've already told myself how to fix it. (P5, Int).

Participant five also stated that when she receives criticism from a teammate she records it in her journal, and uses the feedback to determine her next step for improvement.

Team goal setting and accountability were described by two athletes as another way they develop work ons in collaboration with teammates. Two participants described how the team sets goals together and how they each have a teammate who they rely on for goal accountability and check-ins. Participant two described how they set goals as a smaller subset of the team and then hold each other accountable for these goals. She stated:

> Within our Superglue we came up with our individual, like, SMART goals and then shared them amongst each other, just to try to like, keep each other accountable, so then we have revisited those, like, two or three times just making sure that we're actually making progress on our goals. (P2, Int).

These goals were reviewed by groups after each practice where the group collaboratively identified strengths and work ons for the next training session. She stated that overall, their goal as a team is to be national champions and that they are working together to accomplish that goal. Participant six described collaboration with a specific teammate named her "accountability buddy" (P6, Int). She explained that the accountability buddy was a teammate she checked in with to see how goals were progressing, who shared responsibility for improvement. She stated that she found having the accountability buddy provided a stronger connection with teammates stating, "you definitely feel like a stronger connection with them when you are playing, like, with them" (P5, Int).

The final category participants described that focused on improvement was working on creating positive self-talk cues to improve their rugby playing. Two participants described working with the team's mental performance coach to develop positive language that will help them play and practice rugby. Participant two described how she works on changing her headspace and language so that it is more positive. She gave the example of changing wording to say she can do something, instead of stating she cannot. Participant three echoed this statement when she described working to develop self-talk that describes positive outcomes instead of negative outcomes. She described how this process works to her saying:

> You want to be, like, saying something yourself that's picturing the positive outcome, rather than picturing something like scoring goals on yourself, you know. So, if I'm kicking for touch I'm not going to say, like, 'don't miss touch' I'll say, like, 'I'm gonna make touch.' (P3, Int).

Both participants described the importance of maintaining positive, optimistic language in their self-talk, focused on imagery of them accomplishing a skill or task. They also described how they worked with the mental performance coach to actively practice this skill, and develop strategies for improving their self-talk.

Theme Three: Reflection and Analysis of Performance Ability and Beliefs

The third theme: Reflection and Analysis of Performance Ability and Beliefs, includes descriptions of the ways athletes analyze and reflect on their performance, and determine whether their performance was successful. Descriptions of how athletes define success, analyzing success to determine causation, and reflecting on their performance to determine how these influenced their self-beliefs were included in this theme. Participants described the process of reflection of analysis through journal reflection, watching themselves on film, watching others on film, and receiving feedback from others. Participants also described how they perceived these different factors influenced their self-beliefs regarding their performance ability.

Defining a successful or unsuccessful performance and determining the cause of these performances was described by five participants. Participant four described defining success within a skill by breaking down the individual components of the skill and evaluating her capacity to perform them. She provided an example of her analyzing her tackling technique using this strategy describing how she was able to identify her success in one aspect of the skill while still determining what she could improve on. Participant four also described that success for her related to her ability to perform at her full capacity each training session or game, however she determined that each day her full capacity may be defined differently due to external or internal factors influencing her ability to perform. She defined success as her ability to perform at that day's one-hundred percent. She also highlighted how she and several teammates recognized the importance of finding success, stating "everyone was like 'whoa, whoa like no this isn't healthy for this isn't healthy' like we want to create an environment where girls can find success" (P4, Int), describing how they needed to recognize the influence of external factors on their performance ability. Participant six highlighted how she redefined success as a result of needing to limit her activities for pain management purposes. She described how she defined success as being able to manage her pain, and improve her physical health so she could participate in training or games. She stated “you don't have to be taking like every rep and, like, doing - pushing through the whole time for it to be a successful practice” highlighting how she defines success for herself during a training session.

For several participants defining success related to determining the cause of success or failure. Two athletes described how when they reviewed their skills, they looked for specific cues to determine their success, and tried to replicate that behavior or action. Participant four described how she analyzed what was the cause of success in a skill, such as a kick, and tried to replicate this action repetitively in training so she will do it again. Participant five described how she believed she could attain perfection at a skill through reviewing her technique in real-time through film review during a training session and determining if small technique changes had caused the performance of that skill to be a success. She highlighted an example of her working on a throwing skill stating:

> Next time I'm gonna put my thumb this spot and then I'll go and watch it again if it improves I'll actually know that like, like. I can actually reach the level like I can attain perfection because I'm doing the work, so you can instantly do the work to improve. (P5, Int)

Participant six described that the use of her journal for reflection helped her to understand the impact that her emotional response has on her performance during a game. She used reflection sheets and cues provided by the coaching staff to determine what aspects she had control over in the game, and how these influenced her emotional state. She also analyzed how her thoughts influenced what she believed she could achieve during the game stating “these different like out-external factors how that influences like what I'm thinking and then how what I'm thinking influences what I'm able to achieve like on the pitch" (P6, Int). Participant three also described using a journal to record her analysis of what caused her to execute a skill successfully. She highlighted how she used this analysis of causation to improve things she did not feel she did successfully, stating "how did I do this really well like what caused me to do that, and then I think about what that was and then I can try to do the same thing with one of these things that I wasn't doing well" (P3, Int). Participant one described a process of analysis where she examined how her fatigue or preparation for the game influenced her performance. She described how she felt fatigue caused her to perform poorly, stating "I can just feel that my body is like, like tired and I often make mistakes, like just from being lazy and stuff like that, like I you know not putting my hands up and not falling through" (P1, Int). She also stated that she analyzes her pre-game preparation to determine the cause of poor performances.

All six participants referenced analyzing their previous performances and identifying successes during their interviews. Participant six summarized the importance of reflecting on previous performances stating most of her confidence comes from this reflection. Participants described how they used film and journals as tools for analysis and reflection. Participant one described writing things that she identified she did and did not perform well in her journal. She described that after completing a game she felt went poorly, she used her journal as a tool to recognize what she did perform well and record them. She described that she felt reassured by writing down and reviewing her previous successes, and it reminded her of what she could do well. Participant two described she used her journal after she reviewed film of her performances to analyze whether she completed her goals for the game. and to record previous success which enhanced her confidence. also described how reviewing her previous successes influences her beliefs in her performance. She highlighted an example of this process stating, “before games and I'm like okay, we did like, this and I had a sick tackle in practice yesterday, like, I can tackle, no matter what anybody has said” (P2, Int). Participant three described using her journal to remind her of past successes and stated that she reviewed these recorded successes prior to games.

Several participants facilitated analysis of their performance using film review. Participant three described how she analyzed film to recognize previous success, which she identified helped her confidence. Participant six stated that film helped her visualize herself being successful at a skill. Participant four described film review was challenging as watching herself play could elicit an emotional response. Similar to participant four, participant one described how watching something good could elicit an emotional response, but she described a more positive response, stating, “I do something really good and I watch it back and I’m like, wow like that was nice” (P1, Int).

Four participants described how using their journal to review previous success influenced their self-beliefs or confidence that they could perform. Participants two, three and five described that their reviewing these successes aided their confidence, and their self-beliefs that they could perform a task. Participant two described that her journal was something concrete, that helped her as she doubted her abilities frequently. She stated her journal was, “something concrete to kind of help my confidence and like show, confidence that I can perform the task” (P2, Int). Participant three highlighted how she reflected on games where she performed well when matched up against a competitor who was very skilled. She stated that this reminder of success helped her confidence, stating, “when I am faced with that situation in a game I'm not worrying about my abilities, because I've already, I like I already know that I've accomplished something like this before and I've had success" (P3, Int). Participant five described that when she used her journal before games it helped her put trust in her abilities to perform. She also stated that she felt less confident in her abilities when she did not use her journal or perform other pre-game rituals before a competition. Participant six stated that she did not know if using her journal influenced her self-beliefs. She described her journal as being a useful tool to help her understand her emotional responses during a game, and the impact of those responses on her performance, but did not link this to her self-beliefs in a game.

In addition to watching themselves play rugby, participants described how they analyzed film of others playing rugby. Participants described watching their teammates play, watching professional rugby, and reviewing film of their opposition. Participants two and six described how watching their teammates success on film provided motivation for them to attempt to do the same. Participant two stated, "it makes me want to be able to do it, just like that you know and it's a good kick or it's a good body shape you're like okay now you have that drive to get to look like that, or to be able to succeed and kick like that" (P2, Int). Participant one described watching her teammates on film to review a specific task and analyze if they are performing it correctly. She also stated that she feels confident when she's sure of herself but sometimes when she compares herself to other players on her team her confidence can be negatively influenced. She described that when she compared herself to her opposition her confidence can also be negatively impacted. She stated:

> I don't know. I feel more confident when I'm like sure of myself and, like, I know that I'm doing well and stuff like that, but if I compare myself to teammates or to, like the other team that we're playing against then that brings my confidence down and then I worry about stuff and then I don't feel prepared. (P1, Int).

Conversely to this perspective, participant three described when she watched opposition film it helped her prepare for games. She described that she analyzed film critically, looking for techniques her opposition use so she can recognize these more effectively when she played against them. She stated, “I find that super helpful come game time because I've seen them play and I know sort of some other little techniques that they use, and that helps me recognize like what play they're going to use” (P3, Int). Participant six also stated that it was productive when she compared herself to her competitors. She described her analysis when she compared herself to the opposition increased her self-beliefs because she is playing at the same level they are. She said “it's not something that's like beyond my skill level it's something that I definitely can execute because you know I do play at the same level as these people, and, you know, can compete against them” (P6, Int).

Three participants described how their self-beliefs are influenced when they watch and analyze professional rugby. Participant two described that the influence on her beliefs is not straightforward, sometimes she may feel like she can replicate what professionals do, and sometimes she does not. She stated “I really want to be able to do that, but I'm not sure if I can, you know, like that's where my feelings might get mixed up” (P2, Int). Participants three and six both explained how watching professional rugby had a positive influence on their self-beliefs. They described that watching professionals perform skills successfully enhanced their beliefs that they could perform the same skills, and that they believed they could replicate the same success.

Participants referenced receiving feedback or analysis from coaches and teammates, either during a training session, during a competition or in debriefs after a performance. Three participants described how this feedback influenced their confidence or self-beliefs. Participants one and five described how negative feedback can have a detrimental impact on their performance or self-beliefs. Participant one described that hearing something negative from a coach when she is not performing well will impact her performance, stating “I like hear something negative from a coach that I'm not doing well, then I think that really like will take a toll on my performance” (P1, Int). Participant five described a process where feedback can be negative in situations where she already lacks confidence or experiences self-doubt. She did acknowledge that often the negative impact of critical feedback likely related more to her own mental state or insecurities and was not actually a result of the feedback itself. She highlighted that she believed that her self-beliefs were more important than what others thought of her performance, so it’s important that she knew how to build confidence in herself as an athlete without relying on others. Participant three stated that she preferred feedback was positive when she is playing a game. She explained that she found that positive feedback helped improve her confidence, stating she wanted “anything that just helps like build, build me up” (P3, Int). Participant one also highlighted that hearing positive feedback, specifically from a coach, increased her confidence.

The analysis of physical processes or physiological states including pain, fatigue, nutrition and sleep on self-beliefs was referenced by all participants. In descriptions of how this impacted their performance, or beliefs, most participants stated that feeling nourished, and having sufficient sleep had a positive influence on their performance. Participant three summarized how she tried to regulate her sleep or nutrition, so she was not distracted thinking about those factors. She stated she thought “what I can do to make me feel the best when you don't have to worry about like my actual body's ability to do the skill, I can just focus on like how I'm going to perform it and put it into action” (P3, Int). The influence of sleep, or nutrition was often referenced by participants in relation to fatigue, feeling tired, or having low energy levels. Participants one and five both described how not eating enough could have a negative effect on their energy levels. Participant five stated the influence of low energy on her beliefs about her performance was that she would not be able to compete her best. Participant five also described how sleep influenced her emotional and mental state, saying "It [sleep] affects my ability, like in that way I just feel more competent, I feel, healthier, I feel safer I guess" (P5, Int). Participant two highlighted that sleep was a significant contributor to performance and that it helped her mentally and emotionally. She described how insufficient sleep would cause her to feel on edge, or not all there. Three other participants described how insufficient sleep could have a negative influence on their self-beliefs regarding their performance. Participant five described that she expected errors when she did not get sufficient sleep and this had a negative impact on her self-beliefs, stating that "I'm anticipating that like I will perform badly" (P5, Int). Participant one stated that sleep deprivation had a negative impact on her performance beliefs. She stated, "being sleep deprived, usually, makes me feel like I am not going to perform well" (P1, Int). Participant four analyzed the impact of mental fatigue on her physical fatigue, highlighting that she had focused on improving her mental state so she is not fatigued. Participant six described instances where she is concerned about being tired before a game, but said that any feelings of self-doubt that being tired elicits go away when pre-game activities begin. Participant six analyzed the effect of pain on her performance self-beliefs, and described that these differed between games and practices. She stated that she believed that pain influenced her self-beliefs about how she can perform at a practice, but in a game she felt she could find success in spite of pain. Referring to her self-beliefs when she experienced pain in a game she stated "when I'm on the rugby field I'm you know able to push through it, even though it is painful and I’m able to like find success on the field” (P6, Int). In general sufficient nutrition, and having adequate sleep were described as having a positive influence on performance beliefs, and fatigue and lack of proper nutrition were associated with negative performance beliefs.

Chapter 5: Discussion and Conclusion

The purpose of this study was to explore how athletes use self-regulated learning (SRL) strategies to foster self-efficacy in sport. The discussion responds directly to the research questions explored in this study: What SRL processes do athletes identify using in training and competition? How do athletes perceive the influence of self-regulation on their self-efficacy?

Throughout the discussion I will link the study findings to Zimmerman's theory of self-regulated learning and Bandura's theory of self-efficacy, as they provided the conceptual framework that guided the study.

What SRL Processes do athletes identify using in training and competition?

This sub-question was explored through five themes which addressed what SRL strategies athletes used, and how they used them. The five themes that emerged were: 1) *Planning and Preparing, 2) Review and Analysis of Performance,* 3) *Controlling Emotions and Focus, 4) Planning and Focus on Improvement,* and 5) *Emotional State and Control.* These themes related closely to Zimmerman's (2002) theory of self-regulated learning which classifies three different phases of self-regulated learning. Zimmerman (2002) described three cyclical phases to view the structure of self-regulatory processes which are utilized by self-regulated learners: forethought phase, performance phase and self-reflection phase. These cycles were used to help classify the different themes which emerged from participant data. Each phase was mapped onto different themes that emerged from the data (see Figure 1). The relation of themes to Zimmerman's (2002) cycle of SRL will be discussed in the following sections.

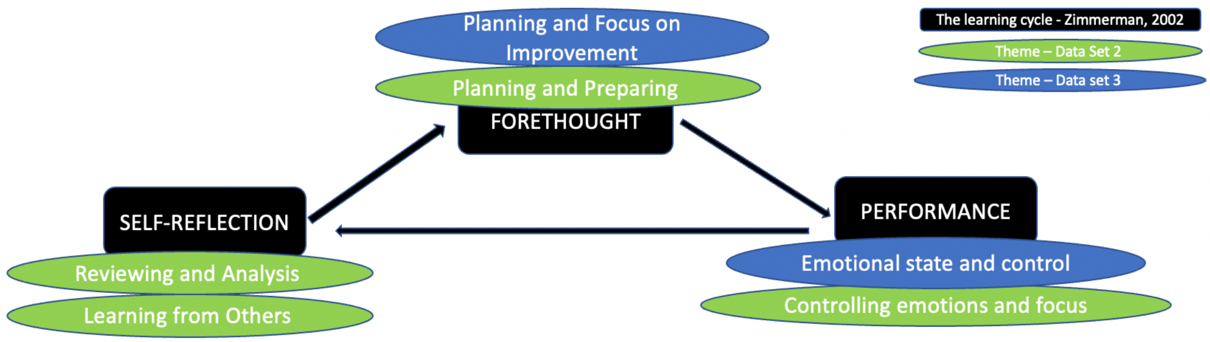

Figure 1: A visualization of mapping answer to sub-question one, mapping themes onto Zimmerman's SRL cycle

Forethought Phase: Expert female rugby players used different strategies before playing or practicing to plan and prepare for performance, and optimize their learning and development. Zimmerman (2002) defined the forethought phase to include processes of task analysis, and self-motivation beliefs.

Expert female rugby players identified using SRL processes in which they made plans on how they could improve their performance, including using goal setting and planning strategies during practices and games. This was aligned with Zimmerman's (2002) theory of SRL where he described processes of task-analysis that proficient self-regulated learners engaged in prior to engaging in an activity.

Expert female rugby players identified using both proximal and long-term goals to guide their development. This was similar to research on expert athletes (Cleary & Zimmerman, 2002; Kitsantas & Zimmerman, 2002) which found that expert athletes set more specific technique or process goals. Participants also set goals over longer periods of time, including setting goals in pre-season, and during off-season training to help focus their development. Several studies highlighted how expert athletes used both proximal and long-term goal setting. These included research on an expert table tennis player (McCardle, 2015), and elite kick-boxers (Davenport, 2006) which both identified the use of long and short term as being important for the success of expert athletes. To support the pursuit of different goals after they were identified, expert female rugby players used teammates to maintain accountability for achievement of their goals. This aligns with research by McCardle et al (2019) where they described teammates as co-regulators in team sports, who shared regulation of goals. In addition to sharing individual goals, study participants also set and monitored team goals in small groups amongst the team. This was akin to McCardle et al. (2019) who stated “the collaborative nature of team sports suggests that there is likely to be a high degree of socially shared regulation” (p. 130). Using teammates as co-regulators is more likely in team sports due to the inherent collaboration needed to compete successfully. In this study, the utility of collaboration was reflected in athletes’ descriptions of co-regulation of individual goals, and through descriptions of goal-setting in groups.

Closely related to goal setting strategies, Zimmerman (2002) described strategic planning processes where athletes make plans for future performances. The results of this study demonstrated athletes consistently used planning strategies to prepare for future performances, including making plans to adjust techniques, and determining how and when to use specific skills. This aligned with research from Kitsantas and Zimmerman (2002) who found that expert female volleyball players set specific technique goals and strategies. In addition to technique-specific planning, athletes in this study also described developing strategies to determine when to use specific skills during a game. The emphasis on goal setting and planning by athletes in this study could indicate that athletes have more adaptive attributions, as they have a belief that practice will lead to improved performance. Expert female rugby players in this study generally believed that practice and hard work were a precedent to success and led to improvement and development as an athlete. This aligned with Zimmerman’s (2002) theory of SRL where he outlined the belief a student holds related to their capability to learn as critical for their self-motivation. Research on elite kickboxers (Davenport, 2006) also supported the findings that hard work led to self-efficacy in athletes as kickboxers reported that training was a significant contributor to their confidence and increase in self-beliefs. Self-efficacy beliefs will be explored later in this discussion in the answer to the second sub-question.

Performance Phase. Expert female rugby players used several different strategies to control their emotions and focus their attention during a rugby performance, either a practice or a game. This aligned with the performance phase of Zimmerman's (2002) theory of SRL who classified SRL processes used by expert learners into two categories, self-control and self-observation. These processes were evident in the themes *Controlling Emotions and Focus* from data set 1 and *Emotional State and Control* from data set 2.

Self-control. Prior research conducted by DiCorrado and colleagues (2014) on male professional rugby players demonstrated that players had a greater ability to focus their concentration and avoid distractions when compared with amateur athletes in the same sport. These findings were in keeping with the findings of this thesis where expert women's rugby players frequently described different strategies utilized during performance to control focus. Notably, expert female rugby players in the present study used strategies to regulate their emotions, most frequently they described when they were focused, they felt calm and positive. Zimmerman (2002) classified self-instruction as a process used for self-control during performance. Participants in the present study described using SRL processes of self-instruction, imagery and visualization while playing or practicing to get in an ideal state of mind. Positive self-talk was related to enhanced performance and negative self-talk was related to decreased performance. Research conducted by Thomas et al. (2005) found that the use of self-talk reduced competition related anxiety in elite female hockey players. The findings by Thomas et al. (2005)

help explain why self-talk related to increased performance in elite rugby players, as reducing anxiety may enhance performance. The use of imagery and visualization by elite women's rugby players may have a similar effect. Imagery being used for self-control, or controlling emotions aligns with research conducted in other sporting contexts which found that the use of imagery by athletes correlated to increased sport confidence and reduced anxiety (Callow et al., 2001; Thomas et al., 2005).

Zimmerman (2002) described task strategies as influential on self-control. Expert female rugby players used task strategies most frequently for closed skills such as kicking, set-piece or controlled plays, kickoffs and lineout throws. Using detailed scripts or task strategies when performing a skill is useful for removing outside distractions and other influences while performing. Using task strategies may also influence attributions as expert learners have demonstrated they make strategy attributions instead of ability attributions, which lead to enhanced self-motivational beliefs (Zimmerman, 2002).

Self-observation. Expert female rugby players utilized processes of self-observation during both training sessions and competitions. These processes of self-observation included self-recording and self-experimentation in line with Zimmerman's (2002) phases of SRL. Although these processes were evident in several athletes' descriptions of their SRL processes used, it should be noted that they were referenced less frequently than SRL processes previously described that related to self-control. Most descriptions of self-observation included reviewing film, and then developing strategies which experimented with different techniques for skill execution. Zimmerman (2002) describes self-experimentation as a useful process for learners to engage in as it aids the learner in determining the cause of a certain event. This may lead to productive attributions for the athlete who will continue trying a skill even after not achieving success as they will attribute failures to a failure in technique, and not in ability. These ideas are supported in this study's findings, as participants highlighted watching film of games and practices and to determine areas for improvement.

Self-Reflection Phase. The final set of SRL processes utilized by athletes are those done after a performance, in the self-reflection phase. Zimmerman (2002) classified self-reflection into two categories, self-judgements, including SRL processes of self-evaluation and causal attribution, and self-reaction processes. In this study these processes were evident in two themes, *Learning from Others,* and *Reviewing and Analysis* in data set 1.

Self-judgement. Zimmerman (2002) described self-judgement as having two components, i) processes of self-evaluation, where learners compare themselves to a standard, and ii) processes of causal attribution, where learners determine the cause of their performance. Expert female rugby players consistently created definitions of successful performances, and then compared themselves to these standards to evaluate their performance. Using self-evaluation processes to assess specific technique cues and compare to standards is used by other expert athletes. Zimmerman and Kitsantas (1997) found that expert volleyball players were more likely to self-reflect on their serving performance, and that experts attributed failures in performance to specific skill or technique cues. Zimmerman and Kitsantas (1997) suggested that these attributions to technique related deficiencies was more adaptive as athletes can strive to correct the problem in their technique they have identified and are less likely to develop a fixed mindset about their inability to perform a skill. Zimmerman (2002) defined this type of self-evaluation as causal attribution, or the belief that the athlete has about the source of error, or success, in a performance. Female expert rugby players in the present study mostly attributed success or failure to elements within their control such as physiological processes such as sleep or nutrition, errors in technique, or emotional control. This aligned with Zimmerman and Kitsantas (1997) who stated that attributions to skill or technique allow experts to correct their own mistakes and improve future performances.

Self-reaction. Female expert rugby players identified using SRL processes of adaptive self-reactions which aligned with Zimmerman's (2002) self-reflection phase. In this study expert female rugby players had a strong belief that their practice would influence their ability to develop proficiency at a skill. Adaptive reactions to a performance are productive because they increase motivation by encouraging athletes to make adjustments which improve their performance (Zimmerman, 2002).

How do athletes perceive the influence of self-regulation on their self-efficacy?

This question was explored mainly through the third set of interview questions, which asked athletes to describe how the SRL processes they identified earlier in the interview influence their self-beliefs. Three themes emerged: 1) *Emotional State and Control, 2) Planning and Focusing on Improvement,* and 3) *Reflection and Analysis of Performance Ability and Beliefs.* Within these themes it was evident that many of the SRL processes identified by expert women's rugby players provided efficacy information related to Bandura's (1977, 1997) theory of self-efficacy. Bandura (1977, 1997) described four sources of efficacy that inform efficacy beliefs. These four sources of efficacy; mastery, vicarious experiences, verbal persuasion, and physiological states were used to classify the different sources of efficacy described by the participants in this study. Each of these sources were mapped onto the different themes that emerged from the data (Figure 2). The influence of these four sources of efficacy from Bandura's (1977, 1977) theory of self-efficacy will be discussed in the following sections.

Mastery: Mastery experiences or past performance accomplishments, are described by Bandura (1997) as the most influential sources of efficacy information. These findings were reflected in the results of this study as expert women's rugby players most frequently described their own accomplishments or performances as informing their self-beliefs. Expert female rugby players believed that working on a skill in practice led to improved ability, and players believed that this ability developed in practice would translate to competition. This aligned with Bandura's (1977) description of mastery experiences as previous successes an individual has had

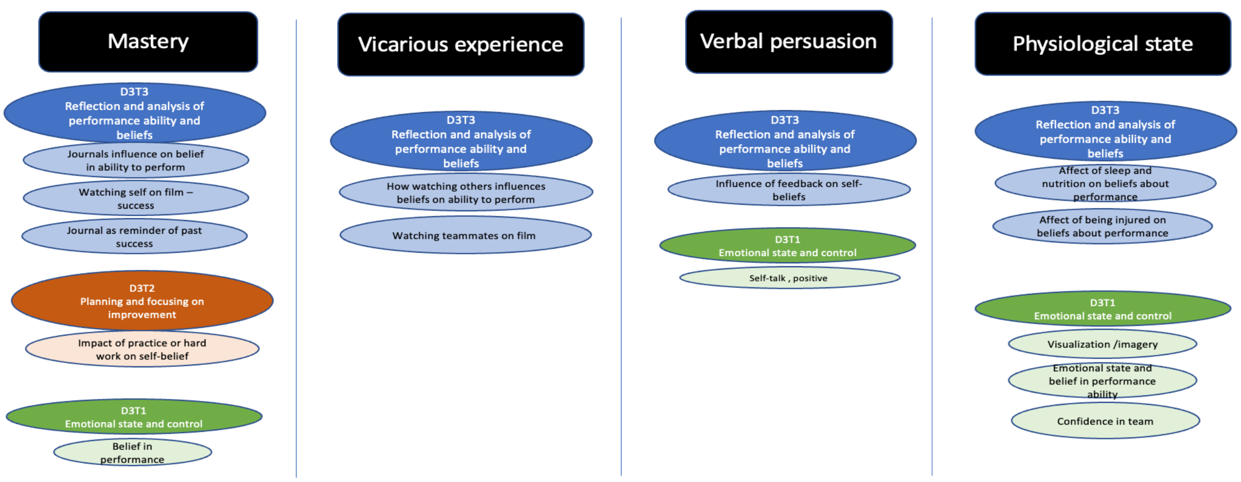

Figure 2: A visualization of mapping answer to sub-question two, mapping themes onto Bandura's four sources of efficacy

with a task.

Reflection and analysis of performance was used by all athletes in this study as a part of their learning cycle. This reflection provided athletes with information about their past successes which they perceived to have a positive influence on self-efficacy. Chase et al (2003) described both past performances from practices and games as both being important sources of efficacy information for athletes, with practices being more frequently referenced by their study participants. This was akin to the results of this study, where journaling and film review of both practices and games facilitated reflection of past performance accomplishments of participants. Using video recordings to view successful performances is a useful tool for reminding athletes of their past successes as they provide proof to an athlete they can perform an action (Feltz et al, 2007). This was consistent with the results of this study, as participants emphasized the usefulness of film on their self-beliefs. Using video to improve self-efficacy is suggested to be a useful tool for helping athletes who are experiencing performance slumps by Feltz et al (2007) who suggest that these lapses in performance are likely due to mental performance, and not physical changes. Specifically review of successful past performances has been found to be linked to high self-efficacy than athletes who reflect on failure (Gernigon & Delloye, 2003), suggesting athletes should focus on reviewing successes over failures.

Vicarious Experience: Vicarious experiences are a source of efficacy information gained by observing others perform a task (Bandura, 1977, 1997). During the reflection phase of learning, female rugby players often reviewed and analyzed the performance of others. Specifically, they reviewed the performance of their teammates, the opposition and professional women's rugby players. The use of peers as a model is a useful source of efficacy information as peers provide a model with similar qualities such as age, experience, and underlying abilities (Schunk, 1995). Research suggests that efficacy information derived by observing peers is useful for providing an instructional model on how to perform a task, as well as demonstrating to an athlete that a task is possible to execute and can be learned (Feltz et al., 2007). This aligned with how expert female rugby players described the relevance of watching teammates when they were trying a new skill. It is important to note that not all players shared this sentiment, as several participants stated their confidence may decrease when they compare themselves to the other team or to their own teammates. This suggests that comparisons to peers may not always lead to higher self-efficacy if there are other mitigating factors influencing the perception of that information by an athlete. Coaches should thus be cognizant of providing appropriate models for different athletes on their team as each player will not compare themselves equally to others. With increased availability to view females competing professionally and internationally in sports through television and online streaming, girls and women have access to more female models which is suggested to increase their beliefs in what they can accomplish through vicarious experience (Feltz et al., 2007). This was akin to the experience of female women's rugby players in this study, who described how watching professionals perform made them think and feel that they could perform the same skills. This was consistent with Feltz et al. (2007) who stated that using professional athletes as models is a useful tool of comparison for athletes who are seeking to challenge themselves beyond their previous performances and raise their beliefs about what is possible to accomplish.

Verbal Persuasion: The third source of efficacy information identified by Bandura (1977, 1997) is information that is gained from feedback from outside sources including coaches and teammates, and self-instruction such as self-talk. The influence of these sources of self-efficacy was evident in expert female rugby players, throughout each of the phases of the learning cycle.

During the forethought and performance phase of Zimmerman's SRL theory, expert female rugby players use both external and internal sources of verbal feedback, which informed their self-efficacy. To optimize the effect on self-efficacy feedback should be positive, and specific to an athlete's performance (Schunk, 1994, Feltz et al. 2007). Expert female rugby players descriptions of effective feedback aligned with research on self-efficacy, describing that positive feedback, which was specific and technique based had the strongest influence on efficacy beliefs. This is akin to Feltz et al. (2007) who stated that feedback should not merely be positive, but should also be informative and provide instruction on technique. If athletes are not aware of what elements of their performance are good, praise will not be as effective at informing their self-efficacy. The credibility of who is providing feedback to athletes influences the ability for feedback to enhance self-efficacy beliefs of athletes (Schunk, 1995). Likewise, the source of feedback influenced its impact on self-beliefs of expert female rugby players, with coach feedback being referenced as impactful by most participants.

Internal verbal feedback, also referred to as self-talk, is used by athletes as a tool for emotional regulation and motivation (Feltz et al., 2007). Self-talk is a powerful tool for athletes to use as it can be used to regulate their thought processes and can lead to strengthened self-efficacy beliefs through convincing themselves, they can perform a skill or task (Feltz et al., 2007). This aligns with descriptions of self-talk by expert female rugby players who used self-talk to increase confidence and regulate emotions. Specifically, players frequently referenced the importance of moderating self-talk to ensure they were using positive language. Akin to Feltz et al. (2007) participants described that positive feedback in the form of self-talk increased confidence, and increased beliefs related to both their general performance, and their beliefs about executing specific skills. Expert women's rugby players also acknowledged that negative self-talk would have an influence on their self-beliefs related to their performance and stressed the importance of changing negative self-talk to positive to avoid any negative influence on self-beliefs and confidence. Despite the links between positive self-talk and increases in confidence in athletes, studies related to self-talk and self-efficacy have not yet determined a direct correlation between the use of self-talk and increased self-efficacy in athletes, however they do provide evidence of a connection between the two (Hardy, 2006).

Physiological State: The final source of efficacy information described by Bandura (1997) is derived from physiological experiences including physical attributes and emotional states. Female expert rugby players described the importance of regulating elements of their physical preparation throughout the forethought phase and during the reflection phase they reflected on the influence of different physical states on their performance. In the performance phase, the importance of emotional regulation was evident as players described the different strategies they used to ensure they were in the proper mental and emotional state to perform.

Three physical attributes influenced the self-beliefs of expert female rugby players: sleep, nutrition, and pain. Most athletes described how these factors could have a negative influence on their performance. These factors may relate to the perception of physiological information identified by Bandura (1997) regarding strength, fitness, and pain. Bandura suggests that the meaning athletes place on different physiological states will mediate the effect on efficacy beliefs. For example, athletes who relate their fatigue to insufficient nutrition or sleep are likely to exert lower effort to conserve energy, which would subsequently influence efficacy beliefs. Feltz (2007) posits that this physiological information is an important source of efficacy information for athletes due to the physical demands on their body when playing their sport.

All athletes highlighted the importance of emotional state on their confidence and efficacy-beliefs during the performance phase. Bandura (1997) classified emotional states along with physiological states, however other researchers such as Maddux (1995) distinguish them as a separate category as a source of efficacy information. Regardless of the classification, it was evident that controlling emotions and being in an ideal mental state was essential to the efficacy beliefs of expert female rugby players. To control emotions athletes engaged in different SRL processes including meditation or music to focus attention, reading journal entries, visualization, or imagery. This was akin to research by Mills et al. (2000) who stated that imagining mastery experiences, controlling stress, and maintaining optimal arousal were important to maintaining and developing self-efficacy in athletes.

Limitations

This study is limited in its transferability as it does not consider all women athletes. The research only addresses athletes who have the qualities of the specific subset identified, including gender, use of SRL strategies, and participation in collegiate rugby. However, findings may have some theoretical transfer to related contexts such as other collegiate sports, novice athletes and athletes of other genders.

The predominant use of interviews to collect data is a limitation because the quality of responses depended on participants having the ability to articulate their experiences. Interviews in this study asked participants to report what self-regulated learning processes they used. Self-regulated learning behaviors are mostly internal to the participant; thus, they lack the ability to be externally confirmed by another person.

The study recruited volunteer participants. Volunteers who elected to participate in the research may have different experiences from those who elected not to share their experience. Those who elected not to participate may have had unique insights and may have not volunteered as they have had negative experiences of self-regulated learning or did not think their experience was worthy of reporting (Webb & Welsh, 2019).

Implications and recommendations

There is much evidence to support that increasing self-efficacy in athletes correlates to increased performance, and increased motivation (Feltz et al., 2007; Zimmerman, 2002). The results of this study demonstrated that self-regulated learning processes were effective at facilitating sources of efficacy in expert female rugby players. These results have implications for how coaches, sport psychology consultants (SPC), and athletes can use SRL to promote the different sources of efficacy of athletes. Firstly, encouraging athletes to reflect on successes using SRL processes in the reflection phase provides opportunities for athletes to enhance efficacy information gained through mastery experiences. All athletes described reflecting on their performance and success, however each athlete highlighted different strategies to do this, including self-led journaling, formal and informal film review, team, and individual reflection of goals. As there is not likely a 'one size fits all' strategy to reflection, teaching and encouraging athletes to try a variety of reflection techniques makes it more likely athletes will develop skills and habits that will provide authentic reflection, and encourage strategies athletes can utilize long-term in their development of sport confidence and self-efficacy (Beaumont et al., 2015). Secondly, coaches can provide diverse models for athletes in the forethought and reflection phases, to gain efficacy information through vicarious experience. As the optimal model will differ for each athlete due to how closely the athlete relates to the model, variety should be provided where different athletes model during practice sessions, and a variety of film is reviewed demonstrating proficiency across a variety of contexts. Thirdly, in the performance and reflection phase of learning, athletes and coaches should be intentional with how they are using verbal persuasion. Athletes highlighted the importance that verbal feedback, either internal or external, was most effective when positive and constructive. To provide strong sources of efficacy information derived from verbal persuasion coaches should thus be providing feedback to athletes that is positive, and Sport Psychology Consultants (SPC) should work with athletes to develop strategies which promote the use of positive self-talk. Positive feedback is focused on the present, provides praise, and recognizes success (Hardy, 2006). Finally, it was evident that expert women's rugby players engaged in strategies to maintain focus and emotional regulation. Coaches and SPC's should focus on teaching strategies such as imagery, focusing techniques. These strategies can help athletes avoid distractions and regulate emotions which can in turn help athletes maintain their optimal physiological state. The use of these different SRL processes could optimize performance of athletes by enhancing their sources of efficacy.

As it was evident that SRL processes helped provide the means for athletes to gain different sources of efficacy information, future research should seek to explore the impact of specific interventions on the performance of athletes. This research was limited in that it only explored athletes who were proficient at their sport, and exploring whether SRL strategies can influence athletes who are novices, or not yet experts at their sport could help determine if these results are transferable to wider contexts.

Finally in my own coaching practice, I will modify my coaching to reflect that self-efficacy can be influenced using SRL strategies. I plan to modify my own coaching by entrenching different SRL processes such as journaling, self-reflection and analysis, and mental focus strategies into our training sessions. Explicitly teaching these techniques, providing feedback on how athletes can use them, and including them in season planning could help formalize some of the processes that athletes are using informally. Formalizing these processes will also allow for me to provide feedback for athletes and help them modify or enhance their use of SRL strategies, so that athletes can optimize the use of SRL strategies to enhance their sources of efficacy information, thus enhancing their self-efficacy.

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Appendices

Appendix A – Letter of Information and Consent

Study Title: Examining the use of self-regulated learning strategies by female collegiate rugby players

Name of Principal Investigator: Kate Pasic, Faculty of Education, Queen's University

Name of Supervisor*:* Dr. Jamie Pyper

I am inviting players on the University of Ottawa Women's Rugby team to take part in a research study. The purpose of this study is to see how self-regulation influences self-efficacy in elite athletes. If you agree to take part, I will interview you for one hour through a secure online video conferencing service (Zoom). The interview will be audio-recorded and a transcription will be created through Zoom's transcription feature. There are no known risks associated with participation in this study. If you feel upset after the interview, please call the Ottawa Distress Line which is available 24/7 at (613) 238-3311. Alternatively, you can contact the uOttawa counselling services at coun@uOttawa.ca to arrange a teletherapy session. There are no direct benefits to you as a participant. Study results will help inform coaches and athletes how self-regulated learning can influence self-efficacy. You will receive a $20 gift card to Starbucks for participating.

Participation is voluntary. You do not have to answer any questions you do not want to. You may withdraw your participation from the study at any time prior to the interview date by contacting the researcher by email at k.pasic@queensu.ca. During the interview, you can stop your participation at any time by telling the researcher or by closing your browser without impact on your participation in rugby, or academic standing. After the interview has taken place, you may request to have your data withdrawn from the study up until September 1st 2021 by contacting me at k.pasic@queensu.ca.

Your confidentiality will be protected to the extent permitted by applicable laws. I will do this by replacing your name with a pseudonym in all publications and a study ID number in all study records. The interview transcription and audio file will be downloaded from the Zoom cloud, and stored securely on an encrypted hard drive. The study data will be stored on an encrypted hard drive on Queen's University servers. The code file that links real names with pseudonyms and study ID numbers will be stored securely and separately from the data on an encrypted external hard drive. Access to study data is limited to those researchers on the study team, myself and my supervisor Dr. Pyper, as well as 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. GREB is bound by confidentiality and will not disclose any personal information. My supervisor will keep your data securely for at least five years per Queen's University Policy, after which the de-identified data will be deposited into the Queen's University's Institutional Repository. The code file identifying your pseudonym and study ID number will be destroyed five years after study closure.

I plan to prepare the results of this study as my thesis and will present at my thesis defense. I will not include any personally identifying information from the interviews when presenting my findings. I will never include any real names with quotes. I will make every effort to ensure quotes do not identify participants. During the interview, please let me know if you say anything you do not want me to quote.

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 email chair.GREB@queensu.ca. Please note that GREB communicates in English only.

If you have any questions about the research, please contact me at k.pasic@queensu.ca. If you have any questions or concerns you can also contact the research Supervisor Dr. Jamie Pyper at pyperj@queensu.ca.

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. Keep one copy of the Letter of Information for your records. Do not sign and return this form through email, consent will be performed verbally prior to your interview by the researcher Kate Pasic.

You have not waived any legal rights by consenting to participate in this study.

Consent will be conducted verbally at the start of your interview and will be audio-recorded. By verbal consent, documented below, I am verifying that: I have read the Letter of Information and all of my questions have been answered. **Please do not submit this form via email.**

☐ Yes, you have my permission to use quotes. ☐ No, you do not have my permission to use quotes.

☐ Yes, you have my permission to audio record. ☐ No, you do not have my permission to audio record.

______________________________ ________________

Verbal Consent of Participant - NAME Date

Kate Pasic – Researcher ________________

Person Conducting the Consent Discussion Date

Appendix B - Interview Questions

Part 1: Background

- Describe your rugby team, and what day to day life looks like during this training block
  a. What types of training sessions do you do?
  b. What do a typical training session and competition look like?
  c. How do you prepare for your training sessions and competition?
  d. How prepared do you feel before training and competition, and what influences your confidence as you head into a training session or competition?

Part 2: Identifying and describing SRL strategies and processes used.

- What SRL processes and strategies do athletes identify using in training and competition?
  1. In what ways are you using self-regulation in training sessions, throughout a training block and in competition?
     - *If athletes have difficulty identifying self-regulated learning strategies a list of common strategies used by athletes will be provided.*
  2. For strategy 1 ____________________ describe how you use _____________ in detail.
     - Probing sub questions

       i) How frequently do you use this strategy?

       ii) When do you use this strategy, for example during an individual training session or across a training block, or both?

       iii) Why do you use this strategy?

Part 3: Influence of self-regulation on self-efficacy.

- How do athletes perceive the influence on self-regulation on their self-efficacy?

   a. In the second interview question you mentioned mastery experiences including __________ *(self-appraisal, reflection, journaling, reviewing goals, video review).*

      i. What does that mastery mean for you, how does it influence your beliefs on whether you can perform that task?

      ii. What were you thinking of when you were performing the skill or task?

      iii. Have your feelings changed regarding your ability to perform the task? If so describe how.

   b. In the second interview question you referenced examples of observing others perform including ___________ *(video review, watching teammates or coaches model a skill).*

      i. What are you thinking of when you watch others complete a skill or task?

      ii. What feelings do you have when you watch others complete a skill or task successfully?

      iii. Have your feelings changed regarding your ability to perform the task? If so describe how.

   c. In the second interview question you referenced examples of verbal persuasion including ___________ *(self-talk, verbal coach feedback, verbal feedback from teammates).*

      i. How does that verbal feedback influence how you can perform?

      ii. What are you feeling when you hear this verbal feedback?

      iii. Why does that _______*(word, phrase, feedback)* have impact for you?

iv. Do your feelings change regarding your ability to perform when you hear _____________?

d. In the second interview question you referenced examples of your physiological state such as ___________ *(sleep, strength, fitness, fatigue, or pain)*.

   i. How does that physiological state influence how you can perform?

   ii. Do your feelings change regarding your ability to perform when you feel this way?

Appendix C – Sample coding of categories and themes

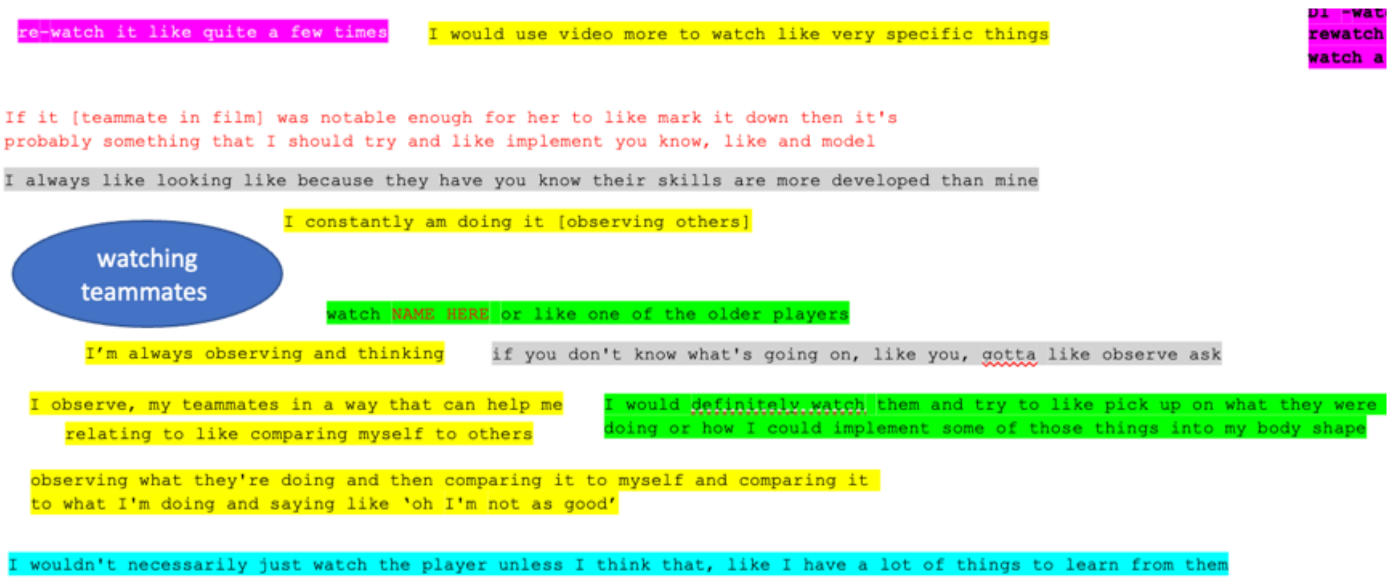

Figure 3 - Collecting similar codes into categories

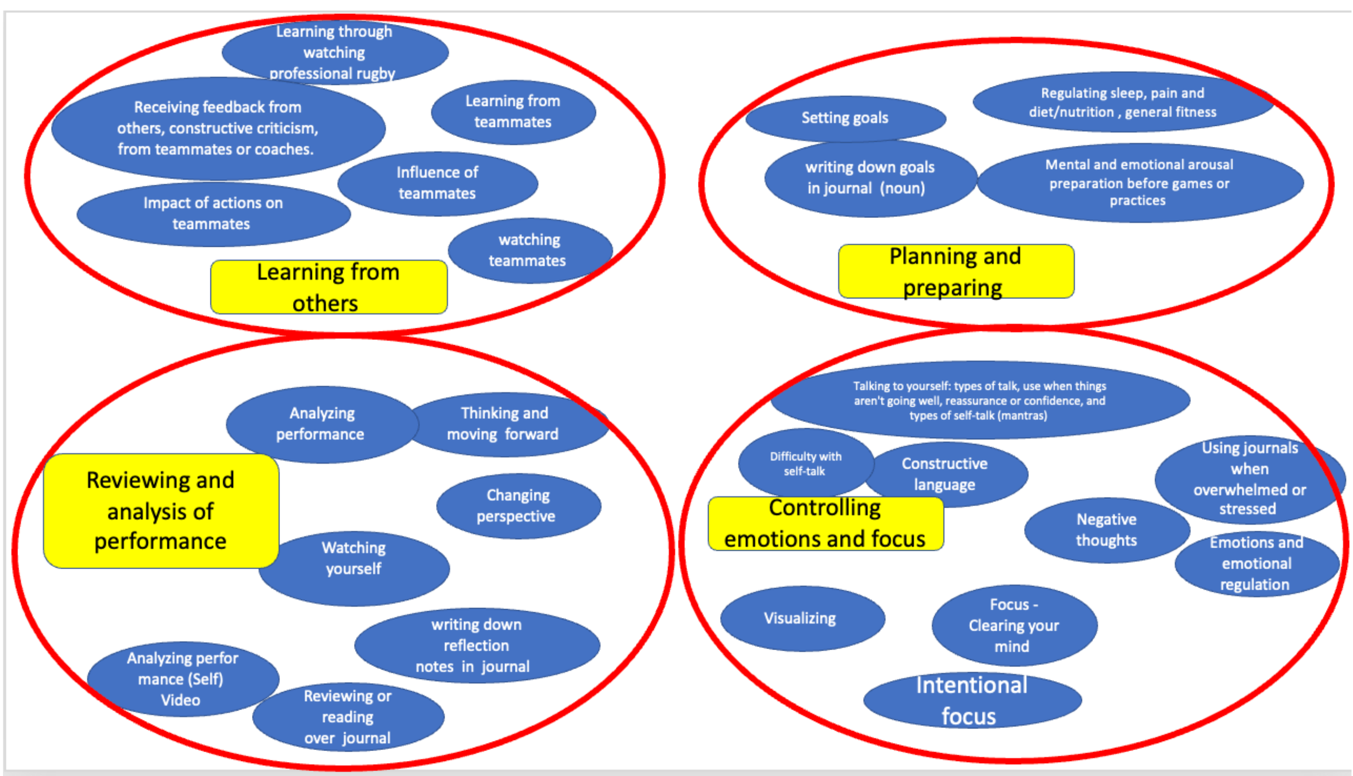

Figure 4 - Collecting similar categories into themes