SELF-REGULATION AND HIGH SCHOOL ATHLETES: AN ACTION RESEARCH CASE STUDY.

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ABSTRACT

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Self-regulatory skills are considered vital for proper child development, with some children not being able to self-regulate efficiently being put at high levels of risk for poor developmental outcomes (Zimmerman, 2007). A psychological skills training programme is one such avenue to teach self-regulatory skills to children. Research shows that children who take part in a psychological skills training from a young age are building a positive foundation for their future (Sharp et al., 2013). The purpose of this study is to identify whether high school athletes can develop self-regulation skills from partaking in a psychological skills training programme.

Sixteen participants took part in the study with the inclusion criteria being female field hockey players between the ages of 13-17. The study used a mixed methods design and used the following methods: The adolescent self-regulatory inventory measure for pre and post self-regulatory levels of the programme, a post-game questionnaire to assess knowledge uptake, and a qualitative evaluation form to assess learnt knowledge. Quantitative data was analysed using descriptive statistics and qualitative was with thematic analysis. Results showed that all participants increased their self-regulation scores on the adolescent self-regulatory inventory and learnt one component of self-regulation – performance control. The highest responses to how mental skills helped players in a game were that it assisted participants to make better choices and stay calm. Overall, participants enjoyed the psychological skills training programme, wanted more sessions and time to apply skills and were able to develop some self-regulatory skills.

Keywords: Self-Regulation, High-school, athletes, Psychological Skills Training, programme

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1   INTRODUCTION

Self-regulation is an age-old concept used in psychology to determine how a person can guide, or regulate, their own thoughts, feelings and behaviours on their own, without the direct influence of another (Zimmerman, 2000). All people are born with the ability to self-regulate but whether those skills are nurtured and practiced will determine how highly skilled one is in that area. As is the case with other psychological skills such as resilience, self-confidence, self-determination and self-control (to name a few), self-regulation needs to be rehearsed from a young age if it is to be carried into adulthood. This does not mean to say that self-regulation skills cannot be taught in adulthood, but the timing of teaching self-regulation skills could have a more significant impact during the adolescent period than that of an adult.

Self-regulation can be learnt through various means, with parents and family members being the primary method, observations and interactions with others as secondary, and lastly education from an outside source. Due to it's psychological nature, self-regulation is not usually taught in a formal education setting i.e. as part of the school curriculum but can be taught through informal settings such as with youth groups, youth mentors or through sports. A study in Australia with youth footballers indicated that psychological skills are known to be predominantly caught from experience, and the environment (Gucciardi et al., 2009a, 2009b). Though this is the case, their study found that youth can be taught psychological skills in a facilitative environment, which can make up for lost time for children who were not exposed to psychological skill learning growing up (more information about the study can be found in the literature review).

Sport has been a medium for teaching adolescents life skills for a number of years and has proved successful in doing so. Some coaches may take this role with open arms. This will be dependent on their values as a coach and how they see their role. Others will see coaching as merely tactical and performance related and will deal with issues as they arise. For the most part, coaches do not have time to teach an array of life skills to adolescents when they have team commitments to adhere to as well. This is where a sports psychologist or mental skills coach can come into play. The role of a sports psychologist or mental skills coach in team sports includes building rapport with the team, enabling team cohesion, providing mental and emotional support, pre-game preparation, game support, post-game reflections and teaching various psychological skills, including the application of these skills to games

and the transferability to real life settings. It is this last concept, the teaching of psychological skills, application to games and transferability to real life settings that is the focus of this study.

1.1   Why is this study important?

Proper child development is vital for the ability of a child to successfully thrive in their environment. Child development specialists highlight self-regulation as one of those key elements. As Zimmerman (2007, p. 7) states:

> The inability to self-regulate effectively puts young children and adolescents at risk for a number of poor development outcomes, including low levels of social and cognitive competence, reduced capabilities for coping with anger, increased rates of externalizing problems, risk taking behavior, and criminal behavior (Caspi, Henry, McGee, Moffitt, & Silva, 1995; Newmann, Caspi, Moffitt, & Silva, 1997; Eisenberg, Fabes, Nyman, Bernzweig, & Pinulas, 1994; Raffaelli & Crockett, 2003; Garmezy & Rutter, 1983; Perkins & Borden, 2003; Pulkkinen & Hamalainen, 1995)…To date, the majority of literature concerning self-regulation focuses on the earlier years, including infancy and early childhood (Eisenberg, et al., 2006) or on adulthood (Baltes, et al., 2006); but very little is known about self-regulation in adolescence, despite the importance of such functioning for potentially moderating behavioral choices and their outcomes that are linked to the development of identity processes central to this period of life (e.g., Lerner, Freund, De Stefanis, & Habermas, 2001).

The connection between low self-regulatory skills and athlete performance is as follows: For an athlete to function at their highest ability or at their peak they will have the ability to self-regulate their thoughts, feelings and behaviours. Imagine two teams of female adolescent field hockey players, one side has highly self-regulated players and the other has a few. When a goal is scored against the highly self-regulated team they will look inwardly and attribute this to their performance and will be able to consciously self-reflect to decide on the next best course of action in order to prevent the same mistake from happening. They will maintain their focus and "keep their heads high". On the contrary, when a goal is scored against the less self-regulatory team, they will look outwardly, in particular to the coach for help, and will attribute the goal towards something someone else did, or a factor in the environment. They may also respond highly emotionally, drop their heads and lose focus altogether. The difference in these two sets of behaviours on the field can be transferable off the field and as stated above, can cause the person significant damage to their wellbeing.

1.2 Overview of the thesis

The literature review will be discussed next, followed by the study's purpose. Methods and results will follow and the discussion and conclusion will end the thesis.

2   LITERATURE REVIEW

2.1   Introduction

High school athletes (between the ages of 13-17) are transitioning into the peak of their youth. It is a time filled with experiencing what the world has to offer and trying to learn best how to manage these experiences. Typical literature to be found when searching for high school students or adolescents and self-regulation often relates to "positive youth development" or 'life skills". There is little research specifically on psychological skills training and self-regulation. Psychological skills training is a method used by a sports psychologist or mental skills coach to assist an athlete to train their mind by using various mental techniques for a performance (Vealey, 2007). Common techniques taught are goal setting, self-talk, imagery, concentration and arousal regulation (Vealey, 2007). Psychological skills training focuses on teaching the athlete to guide their thoughts and emotions in order to perform at their best and to provide them with strategies necessary to achieving them (Vealey, 2007).

High school athletes are an ideal cohort for teaching psychological skills training as they have the demands of school to deal with but also their sporting and other life demands. After all, adolescents are young adults who will grow up and be required to live independently. Support systems they currently have may not be as readily available and they will be expected to manage without them. One method of assisting people to live independently or to be more mentally aware is through self-regulation training. Self-regulation is a function of the brain that allows us to become more intrinsically focussed (Zimmerman, 2000). According to Zimmerman, it is the ability to be consciously aware of your own thoughts and feelings, and being able to guide your thoughts and feelings to a desired outcome, or behaviour. By being able to make your own plan of action it is a way of controlling your mind, which can dictate your future actions. The model used to inform this study was Zimmerman's cyclical self-regulation processes model. According to the model, there are three phases in self-regulatory learning; forethought/preaction, performance control and self-reflection (as can be seen in figure 1). The forethought phase concerns goal setting, planning and identifying the person's intrinsic motivation to engage in the event, which in this case is playing hockey. Following this is performance control, which relates to the application of the learnt skills on the field and being able to monitor and control one's emotions, thoughts and behaviours, and/or actions. Performance control requires the individual to use psychological skills to adapt and correct their actions on the field for the

most successful outcome. Last is self-reflection, looking back on one's performance and identifying positive and negative aspects and making conclusions about why certain behaviours occurred in the way they did, also known as making sense of a situation/s (Zimmerman, 2000). A description of how the model was used in this study will be mentioned in the methods section.

FIGURE 1 Zimmerman's (2000) cyclical self-regulation processes model.

In addition, research shows that children who partake in psychological skills training from a young age are building a positive foundation for their future (Sharp et al., 2013). As Sharp et al. (2013, p.220) state:

> Well-planned Mental Skill Training programs are an opportunity to positively encourage the psychological development of youth athletes within the competitive sport environment, which in turn can aid personal growth in other areas of their life (e.g., school) by transferring use of the mental skills and techniques they have acquired. Self-regulation is one such mental process that can help us achieve this.

The aim of this literature review was to identify if a psychological skills training programmes were taught in high schools to student athletes, whether they included aspects of self-regulation, and what a psychological skills training programme included. The literature search methods will be discussed first, followed by a table summary of programmes included in the review. A critical review of the literature structured under themes will follow and the literature review will end with a summary of the gaps found from the review and areas that require further attention.

2.2   Search Method

Searches of EBSCO databases (incorporating CINAHL, Academic Search Elite and Sports Discuss) were undertaken. A manual search of reference lists of identified articles provided additional papers. Search terms for psychological skills training such as "mental skill*", "performance psychology" and "mental toughness" were combined with young adults e.g. "adolesen*" and "high school student*", sports team e.g. "sport*team*" and "sport*club" and intervention e.g. "training package", "course", "program*" and "session*". The full list of search terms can be found in Appendix A.

Furthermore, papers published only in English that were inclusive of the search terms were included in this study. A number of criterion were set to provide a concise search; a publication limit of 2006-2017, articles that were peer reviewed and full text only. Some additional articles that were outside of the publication bracket were included in the study as they were relevant to the study question such as a review of a programme. In addition, the general age benchmark for inclusion was adolescents (13-17 years) but due to the lack of studies within this age range, studies with participants older than 17 or younger than 13 were also included. Finally, reviews were included due to their thorough detail of psychological programmes.

Initially, 1094 papers were retrieved. Following a systematic literature review style, titles and abstracts for all papers from the search were screened for relevance and to determine if they met the inclusion criteria for the literature review. Following the review of titles and abstracts, the full text of 91 articles were retrieved with 20 included in the review based on relevance to the topic. A further seven papers were included from manual search of references which brought the total (included articles) to 27. Full text copies of articles were gathered when articles appeared to fit inclusion criteria or when relevance could not be determined by title or abstract. The relevant articles were then reviewed to confirm eligibility for inclusion. The results of the literature search are displayed in Appendix B. The main reasons for exclusion were articles that focussed on psychological interventions e.g. arousal regulation with a football team, rather than psychological skills training programmes. Other exclusions were if the articles were not in English and if they had no full text available. Papers were reviewed and core themes were extracted relating to aspects of psychological skills training programmes. Due to the aim of this research, the literature review targeted the structure and content of previous programmes that used some form of psychological skills.

2.3   Overview of literature included and themes generated

Out of the 27 studies, the majority of studies came from the United States (12) and the United Kingdom (five). Following this was South Africa (four), Scandinavia (three), Australia (2) and Greece (1). 13 were quantitative in design, eight were qualitative and three were mixed methods. The final three studies were reviews of programmes.

Five main themes were generated from the reviewed articles relating to psychological skills training programmes and high school athletes. Transferability was the first theme and relates to the ease of transference of sports psychology principles to music, dance and athletic trainers. It was also seen in terms of learning life skills through physical activity programmes and the transference to daily life. Having time to apply learnt skills was an additional theme and illustrates the main barriers to the uptake of learnt skills, mostly having limited time to apply them. An additional theme was the facilitators role and the importance of having sufficient knowledge and training to lead sports psychology based programmes. New learnings was the fourth theme and revealed aspects of excitement and motivation from those who had participated in psychology skills training programmes, as well as the perceived benefits. Lastly, psychological skills training refers to the programmes most similar to the current study and their findings. The themes will be discussed in the above mentioned order. See Table 1 below for a summary of programmes.

TABLE 1 Summary of programmes

Author and year	Aim	Participants	Core variables, intervention and results
Brewer, B. W. & Shillinglaw, R. (1992)	To examine experimentally the effect of a brief PST workshop on self-reported knowledge of use of four PST techniques—goal setting, relaxation, imagery, cognitive and restructuring.	Male intercollegiate lacrosse players.	Four 30-40 mins sessions over two weeks. Workshops were in classroom straight after practice - goal setting, relaxation, imagery and cognitive restructuring. Biggest changes were found for relaxation and imagery. Athletes reported they had greater knowledge but behavioural change was unclear.
Brown, T. C. & Fry, M. D. (2011)	To provide a physical-activity and life-skills/team-building intervention.	Elementary grade girls, 12 years who participated in a daily summer community camp.	Strong Girls programme – two hour sessions twice a week for eight weeks to help develop positive life skills. The first session, the girls and leaders were each given a journal that they decorated and personalized. Each session, the girls and leaders had the last 10–15 minutes to write about their perceptions of the activities of the day.
Brown, T. C. & Fry, M. D. (2014)	To evaluate a pilot after-school program intentionally designed to create a caring, task-involving climate in order to foster adaptive goal orientations and positive self-perceptions across life domains.	Young girls (third and fourth grade 8-10 years) in an after-school activity programme.	Two hours once a week for 15 weeks. Programme: (a) physical activities designed to encourage interaction, teamwork and giving best effort; (b) discussions/group activities designed to cultivate positive life skills (e.g., focussing on inner beauty, negotiating conflicts among friends, coping skills, how to find highlights throughout the day); and c) reflection and inner-growth - guided imagery exercises and journaling. Strong emphasis on reflections to allow transferability of skills to daily life.
Clark, T. & Williamson, A. (2011)	To investigate the effects of a multi-faceted	Undergrad and post grad music students.	Nine week programme – one 60 minute

	mental skills training program delivered to music students.	Men and women, 20-51 years.	group session and one 30 minute individual session each week.
Clement, D. & Shannon, V. (2009)	To determine the impact of a sport psychology workshop on athletic training students' sport psychology behaviours	University students (Athletic Training Students)	Taught an educational class of 75 minutes on goal setting and motivation and were given time to discuss how they will apply and implement these skills. No assessment of the effectiveness of the workshop.
Davidson, D. L. & Edwards, S. D. (2014)	To develop, implement and evaluate a mental skills training programme for male, high school rugby players.	16-17 year old males who were high school rugby players.	Cognitive Behavioural Mindfulness approach. Six weeks, five sessions, one hour each. Self-talk, arousal control, imagery, attention and concentration Goal setting and motivation.
Draper, C. E., Errington, S., Omar, S., & Makhita, S. (2013)	A qualitative evaluation of the Fight with Insight programme**.**	11-19 years old child and youth sexual offenders.	The therapeutic benefits of sport in the rehabilitation of young sexual offenders 12 weeks. Focus groups 20-45 mins and with parents. Boxing with CBT (Taking responsibility, consequences, empathy, problem-solving, anger management, impulse control.) with intrapersonal factors (helpful, non-judgemental environment).
Evans, A. & Slater, M. (2014)	To reflect on the development and provision of a brief contact sport psychology education session with Gifted and Talented youth athletes.	Review of Contact Education sessions given to gifted and talented athletes (8-10ys)	The YSCM (youth sport consulting model) conceptualises the planning, implementing, and evaluating steps required to deliver an effective sport psychology service to youth athletes. Four themes: Promoting a growth mind-set, being engaged and having fun, personal development and life skills, and preparation.
Gilbert, J. N., Gilbert, W. D., Loney, B., Michel, E. & Wahl, M. (2006)	Evaluation of a two year sports psychology programme taught as part of the school curriculum to high school athletes.	High school athletes in PE class.	Review of Game Plan approach. Four week unit with two sessions per week 50mins. One. Confidence, Belief, and Positive Attitude; Two. Desire,

			Visualization, and Commitment; and Three. Competitive Greatness / Character Development.
Gilbert, J. N. (2011)	To share a sport psychology programme designed specifically for (HS) student-athletes.	Girls – 12 years in high school, PE class.	**U**se goal setting **N**o mistakes, only learning opportunities **I**magery **F**ully focused **O**vertly positive **R**elaxation and stress control **M**ake routines. UNIFROM- 12 weeks, two intro weeks, two review weeks (mid and end) and one mental skills devoted week. Two weekly 45-60min lessons. Programme is taught using Game Plan format – split into Two lessons: concept day and activity day.
Goudas, M. & Giannoudis, G. (2008)	Examining the effectiveness of a team-sports-based life-skills programme.	12 and 14 year olds, PE class	Experimental group has 17 10 minute sessions on life skills. Intervention lead by PE teacher. Measures: Knowledge test, self-belief test and sports skills test. "Team sports offer unique opportunities to teach specific life skills such as problem solving".
Gould, D., Petlichkoff, L., Hodge, K., & Simons, J. (1990)	Examined athletes' responses to a psychological skills training program spanning over a three-month period	Study 1 – Wrestlers 17-32 years Study 2 – Wrestlers 14-18years	Workshop skills -Relaxation Visualisation/imagery, Goal setting Mental prep. Study two – four one hour sessions for a week. Tested pre-comp, post-comp and three month follow up. Results – Their knowledge increased over the week. "The wrestlers' perceived use dissipated to some degree over time. This result is of considerable importance because it suggests that support systems are needed in the months following the program".
Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2009a)	To evaluate the effectiveness of two different psychological skills training (PST) packages in enhancing mental toughness.	Three under 15 youth-aged Australian football teams consisting of male footballers, a parent of each player and coaching staff	Quantitative data collection. Three teams were randomly assigned to one of three groups: Control group, PST

		participated in this study	programme or mental toughness training (MTT) programme. Results showed PST and MTT participants reported more positive changes on subjective ratings of mental toughness, resilience and flow than the control group.
Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2009b)	To follow-up on quantitative data regarding the effectiveness of two different types of multimodal programs in enhancing mental toughness.	13-15 years - youth-aged Australian footballers.	Qualitative. One-on-one interviews with players, parents and coaches. Results showed that mental skills can be taught and levels of mental toughness were increased.
Hankonen, N. et al. (2016)	Physical Activity (PA) intervention aimed at increasing activity.	15-17 year olds at high school. Sample aimed at high school children in Finland that report lower levels of PA in their leisure time.	The trial is conducted in six vocational schools in the Helsinki Metropolitan area, Finland. Three of the six schools, randomly allocated, receive the 'Let's Move It' intervention which consists of 1) group sessions and poster campaign targeting students' autonomous PA motivation and self-regulation skills 2) sitting reduction in classrooms via alterations in choice architecture and teacher behaviour, and 3) enhancement of PA opportunities in school ,home and community environments.
Hardcastle, S. J., Tye, M., Glassey, R., & Hagger, M. S. (2015)	To explore attitudes towards, experiences of, and perceived effectiveness of a life-skills programme from multiple perspectives, including the athletes, coaches, parents, programme facilitators and sport administrators	13-18 year old high performance athletes.	Programme - Developing Champions. Six focus groups with high performance athletes from six sports. Three focus groups with athlete parents, Eight semi-structured interviews with coaches and lead facilitators of life skills programme. Four semi-structured interviews with reps from state sporting associations. Themes: achieving balance and managing stress, time management, goal-setting, confidence and control, information overload and repetition, credible role-models, coach reinforcement and follow-up.
Harwood, C. (2008)	To test the effectiveness of a coaching programme in England	9-14 year old youth soccer players in a coaching academy.	Questionnaires and social validation interview responses (open-ended). Youth development literature supports the

			idea of transferring a young player to being a young person.
Järvinen, A. (2016)	To address the planning, implementation and evaluation of sport psychological skills training program in the high school context	Four first and second year female student athletes between 16-18 years old.	Six two hour sessions over six weeks to understand the lived experiences of a PST programme amongst high school students. Results showed skills need to be taught, modelled and practiced for mastery to occur. PST was welcomed and enjoyed, concepts were new and teachers required further training on sports psychology principles.
Klockare, E., Gustafsson, H., & Nordin-Bates, S. M. (2011)	To examine how dance teachers work with psychological skills with their students in class	Semi-structured interviews with six female dance teachers.	IPA – Interpretative phenomenology Analysis "IPA focuses fully on a person's experience of an event or phenomenon as opposed to examining the cause of or the phenomenon itself". Measured opinions not behaviours.
Malnati, A. H. et al. (2016)	To understand the influence that a social-responsibility educational intervention through the three empowerment domains.	19-23 year old U.S. NCAA Division I female student-athletes	Five sessions of an hour attended by 200 students over two years. Five domains were revealed: (a) perception of psychological empowerment, (b) perception of social empowerment, (c) perception of physical empowerment, (d) perception of biggest "takeaways," and (e) experience of the programme
Sharp, L., Woodcock, C., Holland, M. G., Cumming, J., & Duda, J. L. (2013)	Assessing the effectiveness of a sport psychology's MST package.	16 year olds youth athletes.	Nine one hour sessions over a six month period (carried out on separate days to physical training). First and last sessions were intro and review. Involvement of parents and coaches was advised to ensure they all knew the content of the programme. Researchers attended all competitive games to be there for support if players needed. Three focus groups were held to collect data (full details of questions, timing and participants in article).
Sifers, S. K. & Shea, D. N. (2013)	Improvements in self-esteem, body image, and emotional and behavioural functioning.	8-13 year old girls	Eight sessions including self-understanding, awareness of goals and values, team

			building, how to be a good friend, being assertive, to improve the world around them. "Program seeks to prevent at-risk activities, including physically inactive lifestyle, suicidal behaviour, and depressive symptomatology, experiences with the juvenile justice system, eating disorders, alcohol and/or substance use, and sexual activity at an early age through increased physical activity."
Steyn, B. M., Steyn, M. H., Maree, D. F., & Panebianco-Warrens, C. (2015)	To evaluate whether the cross over from Sport Psychology to Psychology of Music was meaningful and to see if a PST programme and mindfulness training were effective.	36 undergraduate music students from the university of Pretoria.	The PST programme was effective in teaching the psychological skills. Using a MAC approach (Mindfulness Acceptance Commitment) with the control group showed improvements in mindfulness efficiency.
Stiller-Ostrowski, J. L., Gould, D. R., & Covassin, T. (2009)	To evaluate the effectiveness of an educational intervention in increasing psychology of injury knowledge and skill usage.	Athletic trainer students of mixed gender in early 20s.	Intervention: Six weeks, three two hour learning sessions and three 30min feedback sessions. Educational intervention was successful. "The course was implemented by one instructor who was an expert in sport psychology's application to athletic training; therefore, the effectiveness of this module as taught by an ATEP instructor not trained extensively in these techniques cannot be substantiated."
Weinberg, R., Neff, R., & Garza, M. (2008)	To evaluate the effectiveness of the Winners for Life book (and accompanying Parent Instructor Guide) on improving a variety of psychological factors.	At-risk adolescents.	12 week programme. Measured: self-esteem, optimism, hope and goal setting. The Winners for Life book attempts to build hope and optimism for children by developing the belief that one's behaviours have an impact on outcomes
Worthen, D. & Luiselli, J. K. (2016)	Assessed opinions and attitudes about a sports-focused mindfulness training programme	16-18 years. Soccer and volleyball female student athletes.	30 min mindfulness session each week for 9 weeks.

2.3.1 Transferability

Transference of sport psychology to other domains such as music, the arts, business and the military has already begun (Clark & Williamon, 2011). By expanding from sport psychology into these fields it allows for assessment and understanding relating to performance excellence and is a way to generalise sports psychology theories across various domains. Likewise, psychological skills training programmes that are not sport specific but human performance oriented can offer new insight for sports performance (Gould, 2002, as cited in Clark & Williamon, 2011). In South Africa, a music school looked to incorporate sports psychology into their training (Steyn, Steyn, Maree & Panebianco-Warrens, 2015). Results found that self-confidence, anxiety and worry management, concentration and relaxation ability and motivation revealed the highest changes with regard to acquired knowledge and overall the psychological skills training programme was seen as meaningful. A further study in Sweden looked at how dance teachers work with psychological skills in their classes (Klockare, Gustafsson & Nordin-Bates, 2011). Teachers employed goal setting, imagery and performance strategies with their students. Overall, teachers used a task-involving climate, which promotes learning and achieving and allowing the students to be involved in the process. According to Ryan and Deci (2000), engaging students in the process helps intrinsic motivation evolve, which enhances prolonged engagement and well-being. Though the dance teachers had no previous formal training in psychological skills training, they said they would welcome more educational psychology as they understood the benefit of mental training and would like to use it in their professional dance school. These findings are conclusive to other areas, including the athletic training profession. An intervention study on the impact of a sport psychology workshop on athletic training students revealed increases in knowledge and applied behaviour of two psychological skills taught, goal setting and motivation (Clement & Shannon, 2009). Athletic trainers commonly work with injured athletes during the rehabilitation process. There is also sufficient evidence to suggest that athletic trainers want to learn more sport psychology skills. Goal setting and motivation were therefore taught as they were seen as the most beneficial for that setting.

Moving away from profession-oriented studies, life skills and psychological skills training have considerable overlap. As recognised by the World Health Organisation (1999), life skills are taught to kids and adolescents to assist them in threatening situations with the aim of improving their psychosocial skills. Programmes exist where sports is the medium for

teaching such life skills. For example, a study carried out in a Greek high school examined the effectiveness of a team-sports-based life-skills programme taught as part of a physical education lesson (Goudas & Giannoudis, 2008). They employed three life skills; goal setting, problem solving and positive thinking. Results showed that the experimental group (who received the life-skills lessons) demonstrated enhanced knowledge about life skills through increased self-belief and being able to change negative thoughts to positive ones. In addition, the same group illustrated improvements in sport performance, suggesting that adolescents can improve their performance through the application of learnt life-skills.

One of the main objectives of life skills programmes is the transferability to other settings. Though this study recognised improvements in life skills knowledge and application, there was no indication of how these learnt life skills were used in other situations. The Fight with Insight programme was an additional life skills programme for troubled youths that aimed at decreasing recidivism (Draper, Errington, Omar & Makhita, 2013). Researchers used a psychosocial approach with cognitive behavioural techniques for behaviour change. Participants attended one cognitive-behavioural therapy session a week as well as one boxing session. Compared to the control group (who did not receive the boxing sessions), Draper et al., found that the participants that did boxing reported more specifics about the changes in learning and behaviour, improved understanding and greater insight. An increase in self-confidence may have resulted from the boxing sessions, contributing to elevated self-awareness. Also possible is that the cognitive-behavioural therapy sessions were reinforced in the boxing sessions. Sports for development is a known field as a medium for changes in maladaptive behaviour, where learning can be transferable from a "classroom" to the field. This is one indication that transferability of theory to applied settings can work.

The upcoming literature steers away from sport and life skills directly and focusses on using life skills learning to encourage positive well-being through physical activity. In America, Brown and Fry (2011; 2014) carried out two life skills programmes titled: Strong Girls. The earlier study was a physical activity/life-skills intervention for elementary girls who participated in a daily summer community camp (Brown & Fry, 2011). The purpose of this programme was for positive youth development by moving away from prevention and avoidance interventions to those aimed at positive development. The design was based on team-building exercises. Results showed that the girls felt better about themselves by recognising their own strengths and those of their team mates (academically, socially and behaviourally). Essentially, they developed positive life skills. Due to the success of the

programme, Strong Girls was implemented into an elementary school. The aims of this programme were slightly different to the earlier study and were based on Achievement Goal Perspective Theory (AGPT) and how children define success (Brown & Fry, 2014). Goal setting was added to positive self-perceptions. Though this study did not yield the results they were looking for (academic and athletic improvements but not self-perceptions), there were other benefits to the study i.e. that when recruiting for participants there was a large interest of parents, and girls, wanting to participate in the study (the community camp programme yielded the same results). This indicates that adolescent girls, and families, feel they can benefit from life skill interventions and that families may want additional life skills education for their children as they may be restricted to doing this themselves.

A further study for positive youth development for teenagers is the Girls on the run/girls on the track programme (Sifers & Shea, 2013). The aims are similar to those mentioned above with the addition of achieving higher self-esteem. Avoiding risky conduct, making positive choices and transforming the way the girls' perceptions of themselves are the main aims, as well as emotional and behavioural changes (Sifers & Shea, 2013). Contrary to their hypothesis, results showed improvements in perceptions of global self-worth, physical acceptance and social acceptance, but not improvements in mental health (Sifers & Shea, 2013). This is not surprising considering young females aspire to fitting into teen culture. The findings also suggest that the programme lacked attention to the internal self and the value placed on intrinsic motivation for enhanced self-esteem, rather than external rewards. Because life skills research is often directed at development for troubled youth, the underlying theory may lack direction at initially improving the self, as the main priorities are to reintegrate the troubled person into society, ensuring they fit in.

In addition, a further study on enhancing self-esteem was the Winners for Life book on At-Risk Participants in the Big Brothers/Big Sisters Programme (Weinberg, Neff & Garza, 2008). Contrary to other studies on at risk youths, the researchers chose to develop a programme that did not aim at eliminating health-comprising behaviours but rather looked at health-enhancing behaviours. By doing so they are helping give the participants another choice, a positive choice. Results revealed that participants had an increase in self-esteem, self-perceived goal setting ability, optimism and hope. A limitation of the study was that there was no measure of the application of the learnt knowledge. Although the participants perceived increases in those four areas there is no indication to suggest that the study will help the participants make health-enhancing behaviours when faced with a threatening

situation in the future. Similarly a study to come out of the United States with NCAA female student athletes used a social-responsibly educational intervention to foster empowerment in these women (Malnati et al., 2016). Though not sport psychology specific, results from the study indicated that psychological skills that were not implicitly taught were learnt, these included; goal setting, positive self-talk, mental strength, imagery, focus and resiliency. It appears these assisted with self-regulation, self-awareness, self-control and decision-making under pressure. Authors suggest that empowerment programmes should use psychological skills in future due to the advantageous benefits in the mentioned study.

In summary, it can be concluded that transferability from sport psychology to other professions is a viable option. Also, studies that focussed on the well-being of youth that used psychological skills indirectly provide evidence that programmes based on sport psychology theory can have a positive impact on adolescents. We will now look at the application of learnt skills and whether researchers have attributed time to athletes to apply their learnt knowledge.

2.3.2   Having time to apply learnt skills

Having time to apply learnt classroom skills encourages enhanced knowledge but it also allows for time to apply learnt skills to affect behaviour, in this case, sport performance. A study with rugby players in Scotland used a qualitative evaluation design to assess the effectiveness of a mental skills training programme for 21 under 16 male rugby athletes (Sharp, Woodcock, Holland, Cumming & Duda, 2013). Results showed that although they enjoyed the session, athletes wanted more sessions specific to rugby, that were more practical and with more practice of the skills "on the pitch". Due to the time constraints of the season, coaches suggested less sessions, and to spread them out over two seasons so they have time to learn and apply the skills. Similarly, the Developing Champions programme, which aimed to explore the perceptions of a life skills development programme with high performance athletes seemed to lack application of the learnt skills. Athletes reported they would have liked more time to apply their learnt techniques in practice/game settings, with less emphasis on information giving and theory (Hardcastle, Tye, Glassey & Hagger, 2015). Clark and Williamson (2011) found similar results, but with music students partaking in a psychological skills training programme. Participants of the programme suggested they would have liked more time to practice and for the sessions to be more practical. They also stated they would have preferred there to be better linking between the psychological skills and performance and more opportunities for discussion, debriefs and in-class interactions. It is evident from

these qualitative studies that athletes require sufficient time to apply their learnt skills and integrate learnings into behaviours.

On the contrary, a study by Stiller-Ostrowksi, Gould and Covassin (2009) illustrated the benefits of giving time to a participant to learn a new skill. The study aimed to evaluate the effectiveness of an educational intervention in increasing knowledge and skill usage in athletic training students. Contrary to other programmes, their programme structure allowed for generous use of applied skills where they had exactly half of the sessions relating to learning and the other half for application. Results show that athletic training students skill usage continued to increase throughout the programme and by week 14 they were still applying their learnt skills to their athletes with a 98.9% retention rate. Likewise, a study on sports-focussed mindfulness training and high school athletes found that compared to the control group, the intervention group (that used the learnt skills in their sport) applied the learnt skill to their sport (Worthen & Luiselli, 2016). At baseline, both participants knew little about mindfulness. It can be said that the intervention group showed improvements in knowledge and behaviour change as a result of the combined structure (learning and applying) of the programme. A final study with amateur wrestlers illustrated a similar outcome where the psychological skills (visualisation and relaxation) were used and practiced with the sport. Results showed that the participants' knowledge and perceived importance of the skill was increased compared to the skills learnt without application i.e. goal setting and mental preparation (Gould, Petlichkoff, Hodge & Simons, 1990).

Although teaching psychological skills training to athletes is a reliable method, on its own it may just be theory going in one ear and out the other. Application of knowledge is key to learning and should be encouraged more when working to enhance psychological skills training learning with athletes. The facilitators' role and background can have a large influence on the programme content and delivery, and will be discussed next.

2.3.3   The facilitators' role

Sports psychologists receive adequate training which is informed by psychological and sports theories to support their application of psychological skills. Though sports psychologists and mental coaches usually conduct psychological skills training programmes it is evident, from above, that sports psychology principles have received increased attention and popularity and are thus being implemented to other settings.

Järvinen (2016) conducted a psychological skills training programme with Finnish high school teachers to see if it could be integrated into the high school curriculum. Participants were taught psychological skills over six sessions. Though sports psychology was received well overall, participants felt they had limited understanding of sports psychology concepts and methods. The author concluded that if sports psychology was introduced to schools in the future teachers would need plenty of learning and support, as the evidence showed that the student teachers were unfamiliar with basic sports psychology concepts such as how to use a learning log. A further study out of the United States aimed to evaluate a two year sports psychology programme taught as part of the high school curriculum. Similar to above, though the students enjoyed the programme and learnt about sport psychology, the PE teachers had difficulties running the class. For example, they "felt that they did not have the expertise in sport psychology to effectively deliver the information. Further, one of the teachers elected to opt out" (Gilbert et al., 2006, p. 75). Other limitations were the absence of teachers. Many of the PE teachers were also coaches and were away during game season. This also meant there were absences from students as they followed suit (Gilbert et al., 2006). Coaches' busy schedules means they often don't have time to learn psychological skills and apply them competently to their sessions.

For example, in the Sharp et al. (2013) study, the researchers lead the psychological skills training programmes and coaches were encouraged to participate in the sessions. Due to time constraints, coaches attended one at the most during the season. Furthermore, it was mandatory for coaches to attend a one hour coach education psychological skills training session at the start of the season in order to learn about the content and structure of the programmes and to have a discussion of how to best support their athletes while using these skills on the field. Evaluations of the programme revealed that athletes felt the coaches needed to improve with regards to facilitating psychological skills training e.g. "increase coach knowledge and understanding of psychological skills training techniques, and increase coach support and application of psychological skills training techniques in their coaching." (Sharp et al., 2013, p. 227).

The final theme regarding the facilitators role is the teaching climate. A limitation of the Developing Champions study, which aimed to explore the perceptions of a life skills development programme with high performance athletes, was that the programme did not appear to foster an autonomous climate for implementing self-regulation skills independently (Hardcastle et al., 2015). The authors state that through autonomy support, facilitators may

have been able to create a more self-determined presentation style, fostering autonomy, a key step to developing self-regulation skills.

It is evident from these studies that sports psychology as a subject was received well. Though participants generally enjoyed the learning about the concepts, the delivery of the programmes with an untrained sports psychologist continued to be an issue. Until now we have mentioned the transferability of sports psychology, the need to have time to apply learnt skills and the importance of adequate psychology training to teach psychological skills. The benefits of psychological skills training will be analysed next.

2.3.4 New learnings

Schooling is the main medium of learning. As children progress through their schooling years they have the chance to learn new knowledge, adapt ways of thinking and behaviours and to begin their journey down their chosen paths. Finland is a country in particular that highly values its education system. For instance, the 'Let's move it' study looked at increasing physical activity and reducing sedentary behaviour in vocational secondary schools (Hankonen et al., 2016). Though the study is ongoing some psychological skills were introduced in the intervention (motivation, self-regulation and self-determination). Researchers predict that these psychological skills will provide participants (students) with autonomy and more intrinsic drive then they had before to participate in physical activity. The secondary study out of Finland from Järvinen (2016), showed that participants highly enjoyed learning about sports psychology skills as they were "functional and practical…and student-centred" which helped them transfer the knowledge to everyday life (Järvinen, 2016, p. 5).

The previously mentioned Sharp et al. (2013) study also revealed personal accounts of benefits of learning psychological skills training. "Athletes commented that the mental components of their performance were not something they had ever considered before…they viewed the program as an opportunity to learn more about mental skills training" (Sharp et al., 2013, p. 223). Overall, athletes and coaches stated that athletes showed increased openness, honesty and self-regulation when playing rugby due to the programme. They stated athletes were more open to discussing themselves and the team's performance. Other responses were that players felt they could regulate their behaviours and emotions more efficiently, "I like the arousal level stuff. When you get wound up, then you can kind of use self-talk and use that to calm yourself down and get you into the right frame of mind to play

at your best" (Sharp et al., 2013, p.227). An additional rugby-focussed study carried out in South Africa reported similar findings where participants felt an increased ability to regulate thoughts, feelings and behaviours more effectively (Davidson & Edwards, 2014). Though participants of the study found learning mental skills to be beneficial and relevant to their game, the researchers had difficulty recruiting a team as athletes perceived a mental skills programme as intended for people with psychological problems and issues.

Other studies illustrating the benefits of psychological skills training include a study looking at the effects of a psychological skills training workshop with collegiate lacrosse players on the use of goal setting, relaxation, imagery and cognitive restructuring (Brewer & Shillinglaw, 1992). Self-reports revealed that athletes had increased knowledge in all four areas but the largest difference was for imagery and relaxation (Brewer & Shillinglaw, 1992), perhaps as they require physical attributes to perform the task as well as mental. In addition, in the United States, high-school athletes who participated in the UNIFORM programme (a unique teaching system for sports psychology skills using the Game Plan format) enjoyed it and found it a useful technique (Gilbert, 2011). It uses both theory and applied work and uses a unique format of teaching the programme to students in "teams" where they make up a team name, motto etc. By doing so, they found the skills taught were more relatable and easy to understand. Lastly, Developing Champions was a life-skills development programme conducted with high-performance athletes (13-18) in Perth, Australia (Hardcastle et al., 2015). Similar to the present study, the aims of the programme are to help athletes develop self-regulation and coping skills to assist them with best performance while also teaching them adaptive behaviours to be learnt in sport and outside of sport i.e. making positive decisions. Results showed that athletes reported improvements in time management and planning skills from participating in the programme, as well as goal setting.

From the above studies it is evident that participants of psychological skills training benefit from the knowledge learnt. What remains to be studied is the direct effect of psychological skills training on a particular mental function.

2.3.5 Psychological skills training

Psychological skills training has multiple uses. It can be used directly and indirectly. Aside from this, psychological skills training has the potential to help an athlete train for a specific mental function, e.g. self-awareness, self-control or self-regulation. A sports psychologist working with a professional football in England decided to conduct a study with professional

coaches of a youth development football academy, as well as the players, to see if they would benefit from the 5 C's Coaching Efficacy Program (Harwood, 2008). The 5 C's are: Commitment, Communication, Concentration, Control and Confidence. Underlying each of the C's were psychological skills and techniques. For example, Commitment was guided by intrinsic motivation, Communication through specific instructions and drills targeting feedback, Concentration was through attention control and removal of irrelevant cues, Control used emotional awareness, relaxation and positive self-talk and Confidence was guided by motivation and acceptance. By using this type of structure, it makes it easier and more appealing to coaches and players, rather than seeing a list of psychological skills. Following the coaches' training and intervention, results showed that coaches used most of the strategies with their youth players and they were found to be beneficial. The strategies they were more reluctant to employ were Control and Concentration (Harwood, 2008). These two strategies in particular are ladened with sport psychology theory. Thus a major limitation of the study was that a 90 minute interactive session with coaches before the intervention was insufficient with providing them with enough training. They would require more specific sports psychology specific training in future if they were to repeat the programme.

A further mixed methods study to come out Australia aimed to evaluate the effectiveness of two different psychological skills training packages in enhancing mental toughness with youth football teams (Gucciardi, Gordon & Dimmock, 2009a). Some believe mental toughness is socialised during a person's upbringing (caught) and others say it is taught. Evidence shows that mental toughness is predominantly caught from experiences and exposure to facilitating environments. Therefore this study aimed to make up the gap to see if mental toughness can be still be taught during the sporting years. Results for the quantitative data revealed that in general, the multiple psychological skills training programme was effective. Overall participants experienced more positive ratings of mental toughness, resilience and flow following the intervention than the control group. Supportive of the programme's effectiveness, the qualitative data showed that through the activities of the psychological skills training programme, participants learnt self-awareness, self-monitoring, and self-regulation which contributed to enhanced levels of mental toughness (Gucciardi et al., 2009b). One final mention is the use of mixed methods in this study and the rounded results it pertained. By using two methods, the researchers were able to gather opinions relating to closed and open questions, enhancing the reliability of the research.

Contrary to the above mentioned studies that focussed on sports psychology application, a study to come out of England focussed on identifying the needs of children at a developmental level. "Getting down with the kids" used the Youth Sport Consulting Model (YSCM) (Evans & Slater, 2014). Researchers carried out a three hour education session with children aged 8-10 years using psychological skills. They assigned each skill to one psychological factor e.g. concentration for distractions, relaxation for stress. By doing so, it allowed for an easy method for teaching psychological skills as they were masked in the activities. This is one of the few studies that provides detailed information of how the facilitator carried out the programme along with reflections of the process. This allowed for a thorough understanding of the programme, a vital approach for future facilitators intending on carrying out sports psychology programmes with children, especially those with limited experience in this area.

2.4 Summary

It is evident from the above literature that psychological skills training was received well and athletes, coaches and programme facilitators found it beneficial. One of the main concerns was the lack of time to apply the learnt knowledge as the majority of the studies measured opinions, but behaviour change was lacking. In addition, psychological skills were seen as transferable to other disciplines and sport was seen as a medium for teaching and transferring learnt skills to other settings. A limitation of the transferability to other settings was the lack of training the facilitators felt they had when running the programmes. For some, the research study they participated in was the only training they had. In terms of the content of the sessions, contrary to other areas, one of the main theories behind sports psychology is the self-determination theory which promotes intrinsic motivation. Considering the aims of these studies were mostly to facilitate a positive learning environment, it can be argued as to whether the environment was tailored for the researchers' needs or that of the participants. For example, the Sifers and Shea (2013) study that focussed on positive youth development wanted to create an empowering climate. However, results showed that the learning they actually received was externally focussed rather than internally. A further study implicitly stated that the teaching environment did not foster an autonomous climate and that participants would have benefited more from the programme if it had (Hardcastle et al., 2015). Sports psychology based programmes can fill this gap as can be seen in the NCAA women empowerment programme where they tailored their programme specially to give autonomy to the participants. The result, participants appeared to learn self-regulation, self-

awareness, self-control and decision-making under pressure (Malnati et al., 2016). Self-regulation is one mental function that can have a huge influence on adolescents as it on centres the idea of making decisions for yourself that will result in the most favourable outcome.

To date, there have been no studies that research the direct association between psychological skills training programmes and self-regulation.

3   PURPOSE OF THE STUDY

The purpose of this study was to design and implement a psychological skills training programme for high school athletes that would be appropriate for their age and level of knowledge on the topic. A secondary purpose was to assist the participants with the application of learnt skills to a competition and to educate them about the transferability to other settings outside sport and school. Therefore the aim and research question of this research study was to identify whether high school athletes could develop self-regulation skills from partaking in a psychological skills training programme.

4   METHODS

4.1   Research Design

A mixed methods design using an action research with a case study approach was used to inform this study. Action research takes the form of a four way process: planning, acting, observing and reflecting. The process is repeated until change is evident. By doing so, it allows for ongoing interplay between the issue and solutions and thus is a fluid process to problem solving. Lewin, a prominent researcher in this field stated, "motivation to change was strongly related to action: If people are active in decisions affecting them, they are more likely to adopt new ways" (Kavanagh, Thite & Johnson, 2015, p. 245). With relevance to the present study, the participants were responsible for making changes to better their lives through sports psychology principles. Through learning, application and reflection of the psychological skills training programme, the participants were involved in the action research process from start to finish.

Furthermore, action research allows for multiple sources of data collection to best answer the research questions (O´Brien, 1998). It is therefore a valid approach for mixed method research. In addition, the inclusion of a case study approach allows the researcher to gain insight and understanding into subjective information and in this instance will be used to identify whether self-regulation skills can be taught through a psychological skills training programme to high school athletes (Simons, 2009).

Case study is useful for exploring and understanding the process and dynamics of change. Through closely describing, documenting and interpreting events as they unfold in the `real life` setting, it can determine the factors that were critical in the implementation of a programme … and analyse patterns and links between them (Simons, 2009, p. 23).

4.2   Participants

A convenience sample was used to collect data due to the specific inclusion criteria of being in a female field hockey team at high school. Sixteen participants agreed to partake and were aged between 13 and 17 years old (M = 15 years). Participants' prerequisites were that they were of sound mind, enrolled in high school, female and playing in the 1st XI field hockey team. This was to ensure that data was consistent across participants.

4.3   Background and Researchers role

Being a female field hockey athlete at high school and tackling the ideas of self-regulation and sports psychology principles is a topic of particular relevance to me.

I started playing field hockey at the age of 11. I loved it from the very start and thought it was a perfect game for me. As I entered into my high school years I continued to play field hockey but my environment changed, which affected how I perceived myself on the field and in life in general. It was during this time that I also began to feel the full effects of parental, teacher and coach control, i.e. feeling like an observer in my own life, due to the constant instructions, perceptions, opinions and feedback of others on my life rather than acting as a participant. The effect this had on me included feeling helpless at times, not in control of my thoughts and therefore actions, confused about how to make my own decisions and afraid to be proactive in my decision making in fear that if I did not ask for help first the result would end less favourably. In addition, I had a mixture of emotions and thoughts constantly going on that I did not know how to process and was confused about how to be "me" for most of those high school years. The effect this had on the hockey field was one of indecisiveness, waiting for the coach to give me instructions, looking to the side-line for help and relying on others to help me.

I made the conscious decision to begin to make decisions for myself that would help me grow as a person and to become "me". I moved to Finland to study sports and exercise psychology in 2016, which has helped me become "me" as it combines my two greatest passions, helping people and sport.

Today, my role as a mental skills coach for the participants' understudy, female field hockey players, brings forth some of my own life experiences. More specifically, they can be seen from an outsiders and insiders perspective. From the outside, my former training as an Occupational Therapist helped me to develop a programme appropriate for this age group and gave me empathetic skills. It also gave me a wide understanding of people and a realisation that people have physical, emotional, social and spiritual components. I have conducted group sessions with my previous classmates but never in a formal setting. In terms of my role as a mental skills coach my experience came down to the training and learning we had received in our classes. From an insider's perspective I was a member of the same field hockey team at the same school as the participants presented in this study. I have played field hockey for 15 years and have vast experience with the game, as well as participating in other

team sports. I have always been highly involved in sport. This commonality with the participants means we share the same language and have a unique understanding of what it is like to be a player in this team. My playing experience and younger age may have allowed for shared experiences and relatedness amongst the participants allowing them a sense of ease to open up to me.

4.3.1 Researchers position

All aspects of the study were documented in full with clear steps into specific details. The appendices were an additional source of clarification as they provide the audience with an exact indication of how the study was carried out and with what measures.

4.4   Instruments

Data collection was carried out through quantitative measures - adolescent self-regulatory inventory and post-game questionnaire, and qualitative measures through the student evaluation form and researcher diaries. Observations were made with both methods.

Self-Regulation. The adolescent self-regulatory inventory (ASRI; Moilanen, 2007) measures multiple aspects of self-regulation such as the behavioural, attentional, emotional and cognitive components. It is most often used in the field of child and adolescent development with particular attention to parenting and child adjustment. Due to the short period that the participants were under study (less than 6 months) the short term measure was used to test self-regulation levels before and after the intervention (Moilanen, 2007). There are 13 questions and 65 subscales which are rated on a 5-point likert scale from, "not at all true for me" to "really true for me". An example question is: "it´s hard to start making plans to deal with a big project or problem, especially when I'm feeling stressed". Participants that score high are considered to have a greater ability to self-regulate. Reliability for the adolescent self-regulatory inventory, according to Cronbach's alpha for the short-term measure, was .84, making it a reliable measure for test-retest conditions (Dias, Castillo & Moilanen, 2014).

Mental skill uptake. The post-game questionnaire was a self-designed measure and specifically developed for this study, it was used to assess if learnt skills were applied to games. Self-design was chosen over a formal instrument for ease of use and understanding from the participants. Considering this was their first time learning about psychological skills, it was necessary that all content was made as simple and straightforward as possible. This instrument has five tick box questions relating to the use of psychological skills either before,

during or after the game. There are two yes or no questions and three questions relating to the skills in particular (there is also an option to tick other and a space to write comments). An example of a question is: "Did you use any of the mental skills taught?" This measure was tested across two games over three weeks to see if there was any change in the uptake and application of learnt skills. See Appendix C for a copy.

Learnt knowledge. The student evaluation form was an additional measure designed for this study and was a self-designed questionnaire. It was a post-measure of the programme and intended to measure knowledge uptake, as well as being used as a feedback form. An example question is: "Which Psychological Skills were the easiest to learn?" This was an open-ended questionnaire where students were asked to answer as honestly as possible. See Appendix D for a copy of the questions.

Thoughts and feelings. A researcher diary was used to document the researcher's ongoing thoughts and feelings. The first entry took place following the initial contact with the school on November 2016 until all data was collected (August 2017). The diary was used following each session (a session could include a teaching session, boxing session, attending trainings and games). Included in this was ongoing reflections, questions and comments regarding the process. Information included: thoughts and feelings about a session, analysis about the session, comments about the research process, questions for dedicated persons, action plans and general descriptions about ongoing events. On rare occasions, the diary was used as to alleviate stress and worries pre-session i.e. the main teaching session. The use of the diary was a reliable method for disseminating ongoing thoughts and feelings and was a way to disclose innermost concerns comfortably and at the researcher's discretion.

All instruments were piloted first with fellow students to see if they were appropriate for the intended participants. The design was also taken into a peer review format where fellow class mates were invited to comment on each others' thesis designs.

4.5   Procedure

The participants were recruited via contact with the field hockey coach and principal of the high school. The programme was offered as an additional component to their training where it was stated that classroom learnt skills would be transferred to game settings.

The psychological skills training programme lasted for three months from May 2017 to July 2017. Participants were given an overview of the study and completed consent forms (entries

into the researcher's diary began). Participants took part in the teaching session at the end of May which lasted two hours. A summary of the session is as follows:

1. Introduction and pre-adolescent self-regulatory inventory test.
2. Teaching of mental skills.
3. Summary.

The structure of the teaching session was a combination of lecturing, discussions, written work and activities. Written work by the participants was completed in a sports portfolio which is a self-designed measure and was the primary learning medium. In relation to Zimmerman's (2000) cyclical self-regulatory process model (see introduction in literature review) the forethought component of the programme was goal-setting (short and long term) and intrinsic motivators. Performance control was taught through aspects of arousal regulation such as self-talk and self-monitoring steps (identification and awareness, acceptance, breathing, action – motivational and instructional self-talk). Lastly, self-reflection was taught using the Gibbs Reflective cycle. A copy of the sports portfolio is available upon request.

When conducting the pre-adolescent self-regulatory inventory measure, participants were instructed to remain silent and to complete the measure individually. It was strictly stated that they were to receive no help from their peers. They were invited to ask questions about wording of questions at the start if they did not understand something. These were then collected immediately and filed away and the rest of the session proceeded. Two weeks following the self-design measure was carried out. Data was collected across two games which were two weeks apart. Data was collected at the end of the game to see if the participants had applied the mental skills learnt to their performance. As well as this, the researcher attended games and trainings on occasions to provide ongoing mental support as required. Towards the end of the study period, the final data was collected via the post-adolescent self-regulatory inventory measure and a self-evaluation form. These two instruments were completed in the participants own time.

4.6   Data analysis

Quantitative data was analysed using descriptive information and frequencies. The adolescent self-regulatory inventory measure was analysed with an intra-individual format to see if there were any differences for each participant. As well as this, descriptive information was used

for the whole group. With regards to the post-game questionnaire, frequencies and percentages were used to determine any difference between the first and second games.

In addition, qualitative data was analysed by thematic analysis to find common themes. Thematic analysis was informed by Gadamerian Hermeneutics. Hermeneutics is an age old paradigm and was originally used to interpret biblical texts. The word hermeneutics translates to, "the branch of knowledge that deals with interpretation" (Oxford Dictionaries, 2010). Gadamer stated that in order to understand the text as a whole it is imperative to look at individual sections and the understanding of individual sections is influenced by the whole (Gadamer, 1993). In essence, the process includes ongoing movement between the statements and the total meaning (Lawn, 2006). In line with these philosophies, transcripts were initially read to become familiar with the data. Common units of meaning between transcripts were identified. Transcripts were then re-read and further common units were revealed. Common units were then displayed on a mind map and various themes arose. Transcripts were then re-read to find any missing units and themes. Meanings or units of meaning were then grouped into themes and common themes were compared (Holloway, 2008). This use of analysis also allows the researcher to move beyond obvious themes and to explore relationships between themes that were originally unknown (Green & Thorogood, 2009).

Results were peer reviewed by a fellow researcher who took part in the analysis and interpretation of results through peer-review. The intent of doing this was to assess whether the independent researcher would come to the same conclusions as the primary researcher, thus increasing the reliability of the data collection measures, analysis, interpretations and conclusions (Burns, 1999). Finally, numbers were used to identify participants and to ensure anonymity.

4.7   Ethics

Due to the age of the participants, parental consent was required for the participants to partake in the study. Each consent form contained detailed information regarding the content of the programme, procedure, the facilitator's role and a declaration that no physical or emotional harm would be inflicted on the subjects. As well as a parental signature, all subjects were required to sign the document themselves to ensure they understood what they were partaking in. The study was explained to the participants in full at the first meeting and they were invited to ask questions if they had any concerns.

Ground rules were established at the start of the session to ensure participants felt comfortable in the new environment. The coach was present at the session to act as a familiar face for the participants and to supervise the researcher to ensure correct protocols were adhered to at all times.

4.8 Validity and trustworthiness

4.8.1 Construct validity

The adolescent self-regulatory inventory measure was tested for measures of validity in a research paper in 2015. The aim of the research was to measure key aspects of self-regulation regarding adolescents' ability to activate, monitor, maintain, inhibit and adapt their emotions, thoughts, attention, and behaviour (Moilanen, 2007). The research was conducted with 169 high school children between the ages of 11-17. Results showed that construct validity as well as concurrent and incremental validity were confirmed and that adolescent self-regulatory inventory was deemed a reliable measure for testing self-regulation with adolescents over short and long-term periods.

4.8.2 Internal Validity

Triangulation was achieved in this study through the multiple sources of data collection: quantitative questionnaires and qualitative observations and evaluations. By doing so, findings are strengthened and confirmable as data is reflective of the data collection measures than researchers bias (Zoharabi 2013).

4.8.3 Researchers Bias

To ensure objectivity, throughout the research process many entries were made into the researcher's journal. As stated above, these included ongoing thoughts, feelings, and opinions about different matters. By stating these in the journal, it allows the research to be conducted under a non-judgmental approach as all judgements are clearly stated in the entries and thus are omitted from the research. Observations were made sporadically to ensure the representative sample behaved independent of the researcher's presence and to encourage the participants to feel in a more natural setting than being constantly observed (Zoharabi, 2013).

4.8.4 External Reliability

The study was described in as much detail as possible. Due to the nature of the participants, some results may vary. For example the characteristics of the participants are varied and some have very different backgrounds than others. These demographics were not included in

the participants' description as they were deemed to be irrelevant to the study question and would have deterred the results. Evidently, the research was focused on whether self-regulation skills could be developed from the programme, irrespective of the participants' background.

5   RESULTS

5.1 Self-regulation and mental skill uptake

All participants improved on self-regulatory levels between pre and post testing on individual scores on the adolescent self-regulatory measure. In terms of mental skill use, self-talk and relaxation were the most used skills during a competition and the main reasons for how the psychological skills helped their performance during the competition were to make better choices and stay calm.

The total score from the pre-adolescent self-regulatory inventory was 627 (*M = 39.2, SD = 5.69)* and the post-adolescent self-regulatory inventory was 617 (*M = 38.6, SD = 5.51).* With regards to individual participant responses, seven (43.75%) participants' total self-regulation scores increased between the pre-adolescent self-regulatory inventory and post-adolescent self-regulatory inventory and nine (56.25%) decreased. Individual differences were found between each participants' responses. Out of the 16 participants, each participant improved their self-regulation score on at least one question between pre and post testing. 59 increases on questions were found in total where 3.7 was the average change. The majority of participants improved by one increment (n=38). This was followed by 15 participants with two changes, and two participants with three. This suggests that participants became more self-regulated individually by the end of the programme.

The total number of participants who completed the post-game questionnaire one was six, where three stated they used the mental skills taught and three stated they did not. In post-game questionnaire two, 13 participants completed the form – 11 responded with yes to the question, "did you use the mental skills taught in the game" and two responded with no. More than double completed the form in the second testing. When asked which mental skills they used (to the participants that answered yes to the previous question), self-talk was rated high out of both questionnaires, followed by relaxation, then reflections and goal setting. Main reasons for not using the skills in the games were: they forgot, had no time to use them and did not want to. When asked if the skills taught helped their performance on the field, from post-game questionnaire one, two replied yes and one stated no. In post-game questionnaire two, 11 replied with yes. The final question was how the skills improved their performance. In post-game questionnaire one, there was an even response between the answers and included: helped feel motivated, confident, to make decisions, to make better choices and stay focussed. In post-game questionnaire two, the highest responses were that it

helped the participants to make better choices and to stay calm. This was followed by helping with feeling motivated, confident and in control.

5.2 Final evaluation

Results from the evaluation will be separated into two parts, Part A: What participants valued from the programme and Part B: Participants learnt experiences.

5.3 Part A – What participants valued from the programme

Boxing, team bonding, the side-line support at games (from the researcher) and the hockey game applied session (during the 2 hours teaching session) were the favourite aspects of the programme. The least favourite was the high amount of paperwork (for the participants to complete), the long teaching session, theory, early morning start, participants that were injured or away so missed out and that the teaching was too short. Majority of participants stated they wanted more sessions and time to apply skills, more "fun stuff" (like boxing) and more team bonding.

In addition, the psychological skills which were easiest to learn were self-talk, reflection, goal-setting and reflections (in that order). In terms of the most difficult to learn, participants said self-talk where one clearly stated, *"I found self-talk quite difficult because at the times I really needed to use it e.g. when the game was getting super intense and I start to stress out, everything we learnt slipped my mind"(4).* Self-talk was split in two halves. Half the participants found it the easiest to learn and the other half found it the hardest. Others were goal-setting, reflection, relaxation and remembering to attempt goals.

Recommendations for a future programme with high school athletes revealed a mostly positive response with 15 out of the 16 girls agreeing that others could benefit from the programme as well. As two participants stated, *"I learnt a decent amount and am sure others would too"(9); "because everyone should learn this stuff as it can help them."(15)* The one participant who disagreed that others could benefit from the programme made the following comment, *"No. Teenagers don't plan/set goals and even if they're forced to they don't think about it during a game"(6).*

5.4 Part B – Participants' learnt experiences

Themes generated from the evaluation include rounded learning experience, which concerns that the learning revealed positive and negative aspects. Being in the moment was a common theme and relates to participants feeling that they could not remember to apply psychological

skills due to focus on the game. An additional theme was psychological skills as a whole which concerns the attributes that psychological skills can provide such as the benefits, having side-line support for mental aspects of the game and enabling team cohesion. Resilience was the fourth theme and is concerned with the feelings of self-determination and willingness to overcome obstacles through the use of mental skills. Last, a greater understanding of self is the effect of participating in a psychological skills training programme and evidently learning more about yourself than you were aware. The themes will be discussed in that order.

5.4.1 Rounded learning experience

Being engaged and a part of any programme will bring about positive and negative thoughts and feelings from the experience. The theme "rounded learning experience" therefore refers to the experience of the programme from the positive and negative aspects which have an effect on the uptake of learnt knowledge.

In general, 14 out of 16 of respondents indicated they enjoyed the programme and used words such as "*great", "good", "enjoyable", "liked" and "loved".* The programme was also seen as a new experience, and something that was novel for them: *"I enjoyed something different that I hadn't done before"(16), "I didn't really know any of these skills before the programme and I think that they're very valuable"(4).* Aspects of positivity as a result of being a part of the programme and learning the mental skills was evident. In addition to the positive components there were a number of negative aspects to arise from the programme such as wanting more sessions, *"I wish we had more sessions….including going through our booklets"(2),* as well as more time to practice the skills, *"I didn't think it ran long enough. I would've liked more time to practice using the skills you taught us before you left"(4).* Both these quotes show signs that these participants required more time to apply learnt skills, which was a common occurrence from many of the participants. There were also an array of individual concerns with regards to barriers to learning: "*I personally didn't like the written work"(13)* and, *"more specific sessions dedicated to individual positions"(1).* These quotes highlight that the players individual needs can have an effect on the learning of mental skills. *"I personally didn't like the written work",* is a common barrier to learning amongst athletes, and also high school students, as written work can be seen as a sign of extra school work or homework. In addition, *"More specific sessions dedicated to individual positions",* suggests the need for an increase in personal attention or one on one assistance. The learning environment was a notable barrier to one participant, *"I think the session we did*

early on the Tuesday morning wasn't very affective…quiet environment….new team…people were afraid to speak up"(9). The reference to *"new team…people were afraid to speak up"*, is a common barrier for new teams and suggests a requirement to have more team bonding before inviting team members to open up to each other.

5.4.2 Being in the moment

Being present, and physically focussed on the game, was a descriptor of many of the respondents. Whilst stating they were in the moment, they also mentioned that it had an impact on the uptake of learnt skills, self-talk in particular. *"The hardest was self-talk. I often find myself in a totally different mindset when I'm on the hockey field. Disconnected from my everyday self, with nothing but hockey on my mind, it's a state of utter concentration" (9).* This participant brings reference to the concept of having a "hockey mind or sports brain", which is one of a technical and physical focus. There is an apparent loss of connection between the self and performance, where performance is the main focus. Another concept to arise from this is in relation to *"a state of utter concentration".* To be in this state would be similar to being in flow or controlled focus for 100% of the game. The participant felt self-talk was hard to implement during a game as they may not be used to applying this skill or don't usually use this skill. To say, *"nothing but hockey on my mind",* suggests that this participant gets into the habit of playing, following a similar routine to that she may have always done. In addition, being in the moment brought about forgetfulness of learnt skills: *"I personally get into the game, to actually remember to self-talk, I usually/always forgot" (13); "Self-talk….the times I really needed to use it…everything we learnt slipped my mind"(4).* Similar to the participant above, these participants get into a routine which they are used to. This is habitual and dependent on how long the athlete has been competing. Many athletes have not learnt about mental skills and how to incorporate them into their game. Therefore after just a short period of learning, it is somewhat understandable that they had forgotten how do that.

5.4.3 Psychological skills as a whole

When learning a new set of skills, they are individually learnt but also learnt in a wider perspective. Psychological skills as a whole refers to how the whole is at times greater than the sum of its parts. This theme includes: realisation of psychological skills, side-line support and team cohesion.

Realisation of psychological skills was a frequently mentioned theme to arise. Having additional support was seen as a benefit to the psychological skills experience. *"It was great having someone to help us with our mental game"(14)*. "*To help us with our mental game*" suggests that the participants do not currently have psychological skills help and that there is a need for it. Other participants mention the direct effects of learning psychological skills: *"I learnt how to set goals so that I could actually achieve them"(4)* , *"I liked the idea of setting It back to 0-0 after a goal was scored, for or against us."(13)* There is an awareness of the impact of the learnt skills to their own needs. Although the learning may take place as a whole, each participant may interpret and process the information according to what they can get from the experience to best influence their performance.

Realisation of psychological skills were seen as important to the wider community as well as themselves.

> I think that most people, especially in sports come across mental blocks. Sports can be very competitive and if they knew how to deal with the stress and being calm and collected when playing, I think it would really improve their performance.(2*)*

The realisation of the impact of psychological skills is particularly evident from this participant. The understanding of the process is also evident i.e. how the learning, affects the performance, and therefore the game. The use of the words, *"deal with",* suggests a deeper level of internalisation and an understanding of the core of sports psychology – to bring worries and concerns to the surface and to manage them rather than suppress or ignore them. Further examples to mental skills benefiting others include: *"it would help them when they mentally think they can't do anything."(12) "because everyone should learn this stuff as it can help them."(15)* The word, *"help",* was the key here and is mentioned on numerous occasions. To be exact, seven out of 16 participants used the word help or helpful in their responses and out of the seven, it was mentioned 12 times. It is clear that psychological skills gave these participants an additional resource to cope with different situations. With reference to the first quote, *"it would help them when they mentally think they can't do anything",* indicates that psychological skills provided the participant with perhaps feelings of motivation, focus or redirection to the current situation. It can also be viewed as a last resort for when all other coping mechanisms fail.

Sideline psychological skill support was a frequently mentioned theme brought about by the participants. Overall, 62.5% of respondents directly indicated that they enjoyed and

valued the side-line support. This theme builds on the theme above, realisation of psychological skills, specifically with reference to "help". Help, advice given, and support were the common notions to appear: *"You being at games", "The advice we got given"* and *"You turning up…It was good to talk about what I'm trying to do with you when I was subbed off"(3)*. These quotes represent the participants' positive reactions and feelings to having a person at the games for mental support. Another participant stated the importance of having someone other than regular coaching staff: *"It was good to have a different person at games/trainings"(1)*. When referring to a *"different person"*, the participant may be referring to having a new face, and hence new perspective, or one with a different frame of mind and specialty. All quotes are indicative of the positive experience these participants had with having side-line support for their mental performance at games. Another aspect to arise was one of a caring nature: *"I think it made a big difference when you showed up to our games…it showed you actually cared to see how our team played as a team which I think helped a lot"(13)*. This idea of being present at the games in a physical sense is of high importance to this participant. These thoughts can be closely related to the importance of building rapport with clients, something that can make or break a professional relationship. This also brings to light the notion that the participant valued to be seen as a person, and as part of a team of people, rather than a team with issues affecting their performance. This will be discussed in more detail later.

Team cohesion was an additional theme brought about by engagement with the programme. It was seen with regards to participating in the boxing session, the first team building activity. Responses from the boxing session were very positive with some indicating they wanted more boxing session: *"It was obvious the team bonded well over it…they were forced to interact more with the team and it really made a positive change on the hockey field"(9)*. The second quote provides elements of the application of learnt skills to the game setting. The boxing session required the team to follow instructions and to learn a new set of skills together. Some were partnered with someone they did not know well and others with a friend to help build their relationship. Overall, they did a physical activity as a team which allowed them to cope with challenges together and learn about how they respond to different challenges. One participant referred to the overall effects of the programme on team cohesion: *"this programme helped build our relationship as a team and the game we play now is much different (good different) to when you had just started."(13)* Learning mental skills and being a part of a sports psychology learning environment brought the team closer.

5.4.4 Resilience

Resilience means the ability to bounce back after a difficulty. Similar to self-regulation we are all born with the ability to be resilient but the ability to be more resilient can be taught. One participant states: *"The input you gave regarding how to pick yourself back up after a missed opportunity or failed attempt…was really beneficial to me…it resulted in me being able to play better all-round as my mistakes weren't dragging me down"(9)*. This quote represents resilience but also aspects of persistence with being able to continue playing despite adversities. To *"pick yourself back up"* after a failed attempt requires mental strength, self-determination and intrinsic motivation. In accordance with this being a sign of resilience, the participant also shows the before-mentioned psychological skills. There is a connection here with the theme above regarding realisation of mental skills. It is an additional example of the positive effect from the intake of learning psychological skills: *"the input you gave…was really beneficial to me…it resulted in me being able to pay better all-round"*. The use of the words all-round is most likely referring to when in an attacking and defensive position. This can often serve as a barrier to many players especially when one is naturally inclined to play a more attacking or defensive role. Lastly, the final part of the sentence *"my mistakes weren't dragging me down"* sheds light on the pain and struggle that the participant was feeling previously. *"Weren't dragging me down"* indicates that this was a usual occurrence, and perhaps happened quite frequently. *"Dragging me down",* is also noteworthy of mentioning as it contains feelings of being subjective to ones own actions in an uncontrollable way.

In addition, building from the previous quote, resilience was seen as a friend to the participants, something they could rely on when they needed help. *"I wouldn't let my mistakes effect the game and I would push through and keep saying I can do something I thought I couldn't"(12).* As the participant states *"I would push through",* this relates to persistence and self-determination but also one of assurance. *"I would"* is the past tense of I will, words used to describe an affirmative action rather than I may or I can try. It is an indication of a definitive truth and carries no doubt or concern. When the participant refers to *"I wouldn't let my mistakes effect the game",* again the word *"wouldn't"*, a form of will, is said and the participant is clear in herself that her own faults would not impact her future performance. *"Keep saying I thought I could something I thought I couldn't"*, is a clear description of mind over matter. In reference to *"keep saying"* and *"I wouldn't let my mistakes",* the participant needed to repeat self-talk on numerous occasions as there were

multiple mistakes. It is evident that resilience skills were used multiple times throughout the game to the participants benefit. The final part of the quote *"I thought I could do something I thought I couldn't"*, is self-belief and confidence to overcome obstacles that were previously obstructing. It also represents conscious thinking and mind management, terms that will be discussed later.

5.4.5 Greater understanding of self

When looking inwards to ourselves and when we begin to see who we are and how our thoughts can effect what we do, we are gaining insight and a greater understanding of ourselves. Though the self can be categorised into numerous elements, three areas arose in particular. These are self-awareness, self-control and self-confidence. There is considerable overlap between the three and they are not entirely distinct form one another.

Self-awareness was mentioned as *"checking in on myself", "more aware of myself", "helps us to be more self-aware"* and *"I am now becoming more aware of myself while on the field"(9).* With reference to these statements, it is evident that participants felt an increased awareness on themselves. There are some differences between the four quotes. The first, *"checking in on myself",* is a conscious means of getting in touch with oneself. This is done through the action of *"checking in".* The latter three relate to learning to become self-aware or being self-aware but in a general term, whereas there is no indication of how. These participants are thus gathering an understanding of the need to be aware of themselves and have started to apply this new learning to their performance.

Self-awareness was also seen in a personal and more detailed sense and as illustrated by the following two, very influential quotes. *"Most of my problems and restraints are in my head. Once I learn how to break them down I can do anything."(2)* Overall this quote sheds light on a participant's personal battle with their inner thoughts. This particular person shows a heightened awareness into their own issues but also in a realistic sense i.e. *"Most of my problems and restraints are in my head",* using the word "most" rather than "all" indicates this. When the participant uses the words *"problems and restraints",* this shows a specific emphasis on difficulties. The use of multiple words suggests an elevated experience to mental difficulties and to follow "*restraints"* by "*problems"* is an elaboration of her inner struggle. The second half of the quote, "*Once I learn how to break them down I can do anything",* shows a new understanding of a learnt skill. There is an awareness of the effect of psychological skills and the positive influence on the self but an apprehension in how to do it.

Another personal quote representing awareness of self eludes to the idea of self-belief and the impact on others. *"To have confidence and pride in what you do and to never doubt yourself because it makes it harder for both you and your team"(13), "To have confidence and pride in what you do",* carries with it notions of morale and a sense of urge for achievement. There is a connection with the second half of the quote to the direct cause and effect of mental doubts and the effects on others, *"to never doubt yourself because it makes it harder for both you and your team"*. With reference to a competition, this participant is also referring to the effects of mental negativity and the domino effect it can have on the rest of the team. In addition, this quote also suggests team cohesion, and the need for the whole team to be in a positive, rather than doubtful frame of mind for ease in performing. An additional part of a greater understanding of self is self-control.

Aspects of self-control were related to participants' performance whilst on the field as well as reflecting upon after. Being able to control immediate thoughts and behaviours when they arose was one aspect of the psychological skills training. *"Calm myself"(4),* and *"how to calm down"(14)* were from two different participants that found it useful to engage in immediate personal strategies that would result in being calm. These participants may be referring to the self-regulation exercise that was taught to them which required the participants to engage in a number of steps to being *"calm"*. Though it is not evident how these statements affected their performance, it is clear that they used some kind of self-control strategy to enable calmness.

Self-control was further mentioned with regards to reflecting back on the field: *"Helps you realise that sometimes you need to breathe and register your surroundings"(8).* This participant again uses the word help with regards to the psychological skills training and indicates the idea of taking the time to step back from the game for a short moment and process what is going on. Similar to above, learning to stop and breathe during the game was one of the skills taught. With regards to *"register your surroundings",* this is a facet of the participant's own experience and that self-control enabled a moment to readjust and briefly observe what was happening.

As well as self-control, the participants were revealing feelings of self-confidence. *"Believe in yourself more and just keep going and if you do that it really helps" (15).* There is a connection within this quote between self-belief, resilience and self-confidence. Firstly there is an emphasis on the need for additional self-belief, *"believe in yourself more",* which

is suggestive of the internal mental struggles she has come across. *"Just keep going",* is in reference to resilience and the need to fight to come out on top. Finally, "*if you do that it really helps",* is indicative of a personal struggle of overcoming her experience with a positive reference to the use of mental strategies. In essence, this person has learnt to build their resilience skills with the use of self-belief, which has provided her with a means for improving her self-confidence levels. It is becoming increasingly evident of the close connection between self-awareness, self-control, self-confidence and resilience.

A further example of this lies within a participant that brings about these concepts in lay terms of speaking: *"I learnt that I shouldn't let little fixable things get to me and I can just fix them"(12).* This participant has a heightened sense of self-awareness and has learnt about the dealings of self-management. It is difficult to know if she is referring to playing on the field or just in the process of learning. The concept however can be transferable to both scenarios and self-control can be seen as assisting this person to self-regulate their thoughts. The use of the words *"and I can just fix them",* brings forth feelings of self-confidence and assurance that they now feel they have the tools to manage a setback through mental means. Furthermore, psychological skills were seen as an additional tool to training. *"Mental preparation is just as important as physical preparation – made me feel more confident in myself"(7).* The participant is referring to using mental skills as a lead up to the games. Before a game a player can experience varying degrees of doubt, worry and concern. To train physically without psychological training is to assume that the body and mind are disconnected. By integrating the two, it can create a whole experience. The words, *"made me feel more confident in myself"* is indicative of this concept and illustrates that with the participants' awareness into using mental skills prior to a game it provided her with increased confidence and self-awareness.

5.5 Reflections and observations

5.5.1 Initial thoughts and feelings

Between the design and implementation phase, I realised that I had created a programme for me as a teenager. This study took place in the same school I attended as a teenager, I played in the same hockey team and I am also female. In hindsight, by implementing this programme I wanted to see the effects it could have on all those characteristics and was hopeful that these learnt tools could be applied to other aspects of their life, i.e. their home life. It was important for me to come to this realisation early on as it enabled me to step back

from the research and serves as a reminder that this is an athlete-centred study and to keep the athlete at the centre (not me). I engaged in regular reflection activities and had ongoing discussions with the coach to maintain a level-headed approach.

5.5.2 Building Rapport

This was initially difficult as it was a new team with new faces. As I used to play hockey at the same school and competed at the same grounds, these acted as familiar settings for me which helped me feel more comfortable. In addition, I have prior experience with the coach as she was my coach for a trans-tasman tournament, where the duration of our involvement was roughly a month. This prior connection was what enabled me to gain the initial connection with the school and her interactions with me had always been friendly and professional. I wanted to use this rapport to teach my psychological skills training programme and collect my data.

5.5.3 Ongoing thoughts and feelings

Rapport continued to increase with more time spent with the participants. Following initial contact with the team in the changing rooms before a practice, it was decided by the coach and myself of my role with the team. This constituted of giving advice on the side-line, observing players from a sports psychology perspective and previous player perspective. This previous player perspective is what merged my role from just focussing on mental skills to trying to improve their performance on the field and what specific skills they needed to improve. These roles are in addition to my data collection and teaching of the psychological skills training. My role as a mental coach/assistant skills coach is what lead to the organisation and completion of a team boxing session. This also lead to my involvement with team drills at trainings, which included some mental skills components. In hindsight this is where I needed the support of an experienced sports psychologist to discuss with me my exact role within the team and what my duties should include. The team did already have an assistant coach so it was not necessary for me to be making drills for the team.

In addition, as the weeks continued and I became more and more a part of the team, from organising a boxing session to running drills and providing side-line support, as well as half time talks. It was evident the team were starting to warm to me. From the initial period in the changing rooms where there was silence and apprehension to talk to me, by the second to last week, the majority of the team approached me at the start of their games and wanted to discuss various aspects of their game with me (from a mental and physical perspective).

Though my role became integrated, perhaps that was also beneficial to the team being able to trust me as they saw how much time I invested with them. I was there for them during wins and losses. For most of the players it was their first time with a mental skills coach and I therefore wanted to make it a positive experience, specifically for side-line support and half time talks. I know from personal experience what it is like to have an autocratic coach yell at you. Therefore, in combination with bad experiences, my occupational therapy training and new learnings I chose to use an autonomy-supportive approach with mindfulness-acceptance-commitment (MAC) and self-regulation components (Gardener & Moore, 2007). An autonomy-supportive coaching approach allows for a number of key variables for an athletes wellbeing and performance. These include caring for their psychological wellbeing, to maintain intrinsic motivation (motivation based on internal needs and values), to enhance continued participation in sport and to enhance athletic performance (Occhino, Mallett, Rynne & Carlisle, 2014). When a player comes off the field and they have done something wrong and they came to me for help, I would first ask what they did wrong, thoughts on how they could fix it, to let the mistake go and direct all their focus and attention on steps needed to improve. Letting go of mistakes was an overly common concept to arise in games and it took ongoing repetition from both myself and the coach to teach the players to let the mistake go and refocus. It was evident that if they did not do this they would drop their heads after a mistake, or goal scored against them, and this would lead to a steady decline for the rest of the match. After a few months of this repetition the coaching staff (including me, the coaches and team manager) could see a huge difference in their mental strength on the field. Though they did not win many of their games, their resilience improved and they lost by a small margin to teams that should have annihilated them. When I saw this happen on four different occasions, I knew they were learning what I had taught them and could see on their faces a new sense of pride and self-belief.

6   DISCUSSION

The aim of the research study was to identify whether high school athletes could develop self-regulation skills from partaking in a psychological skills training programme. Results show that participants became more self-regulated individually by the end of the programme. By the second post-game testing, 85% used mental skills in a competition, mainly self-talk and relaxation, and primary benefits of using the skills were to help the participants make better choices during a competition and stay calm. It is evident that participants also learnt resilience, self-awareness, self-control, and self-confidence concepts and were able to apply them in a competition setting. Elaborations on these points as well as strengths and limitations of the study will follow.

Quantitative findings showed changes in self-regulation scores on the adolescent self-regulatory inventory per person and individual improvements were made for each participant. No similar findings were found. Results from other quantitative findings, i.e. the post-game questionnaire, showed an increase in skill usage in competition. Skills usage in combination with a competition or performance (application) was found in others studies whereby the opportunity to apply learnt skills meant an increase in skill usage (Gilbert, 2011; Gould, Petlichkoff, Hodge & Simons, 1990; Stiller-Ostrowksi, Gould & Covassin, 2009; Worthen & Luiselli, 2016). As well as skills usage, the majority of the reasons for psychological skills was that it helped participants make better choices in the game and stay calm. This is a new finding and is indifferent to previous findings. The use of this measure has ensured that the researchers can have a small understanding on whether psychological skills created a change in behaviour. This can relate directly to Zimmerman's (2000) performance control stage, which concerns being able to monitor and control one's emotions, thoughts and behaviours when performing in an event. In essence, using psychological skills helped participants change their behaviour during a competition, the second step to self-regulation.

Qualitative findings showed that resilience was learnt. Fighting back after a set-back was one skill learnt in the programme and some participants shed light on it. From those that discussed resilience, there was an underlying pattern of using resilience to help them, a coping mechanism. Psychological skills can be seen and used for some as a lifeline. A portion of the participants found them as a resource to cope when they were faced with difficulties in the game and many used forms of the word 'help' to describe that. Psychological skills that could have been used to assist with being resilient may have been

self-talk, with relaxation techniques. One of the outcomes of the programme was to teach the participants how to be more resilient. There were direct instructions of how to do that with application in a game situation, this was referred to as re-setting. Gucciardi et al., (2009a) and Malnati et al., (2016) also found resilience to be a prominent finding in their study and attributed this to the need to bounce back from adversity. When one is faced with a challenge there is a fight or flight option and when a person comes to realise they can fight, it can instil in them a great feeling of confidence and assurance. These terms are closely associated with the Behaviour Activation System (BAS) and Behaviour Inhibition System (BIS) theorised by Jeffrey Alan Gray (Gray, 1981). In essence when an athlete is faced with a challenge in a competition they may fight, which leads to BAS or flight which results in BIS (Saha & Soumendra, 2015). When a person is experiencing the BAS, they are pursuing goal-directed behaviours and are driven to achieving their goals (Gable, Reis & Elliot, 2000). The system is aroused when the person receives cues relating to rewards rather than punishment and feels a sense of hope to reach them. In relation to the participants in the study, players who exhibited fight tendencies may have been more likely to use psychological skills as they were taught that these could contribute to goal-achievement during the programme. Again, this can be viewed as the performance control aspect of the self-regulatory cycle where psychological skills were used to cope in a competition.

In addition, similar to other findings, through participation in a psychological skills programme athletes developed self-awareness, self-control, self-confidence and self-regulation skills (Davidson & Edwards, 2014; Goudas & Giannoudis, 2008; Gucciardi et al., 2009b; Sharp et al., 2013). Overall, it can be said a greater understanding of the self can be found when learning psychological skills, with some participants discovering aspects of themselves that had not known before. Learning thorough reflection on doing, also known as experiential learning, is one way people can get a more in depth view of themselves (Fifer, Henschen, Gould & Ravizza, 2008). Participants were required to briefly reflect on each game they played through physical and psychological means. In terms of self-regulation, this component is the self-reflection section and may have impacted some of the players more than it appeared. A further significant finding was side-line support. Overall, 62.5% of respondents directly indicated that they enjoyed and valued the side-line support. This was a new finding and not discussed in previous studies. The researcher's role on the side-line was a combination of providing psychological skills advice, to be a supportive friend and to also analyse performance based on decisions made on the field. Many of the participants appeared

comfortable and wanting to relate. They may have identified with the researcher and found her as having the ability to sympathise with their situation on the field and understand what they were going through. According to the Social Cognitive Model, people will learn behaviours through the direct observations of others where researchers have stated that exposure to social modelling can have a large influence on self-regulatory processes (McCullagh & Weiss, 2001; Schunk, 2001; Zimmerman, 1989, 2000, as cited in Clark & Ste-Marie, 2007). Bandura, a social cognitive theorists, proclaims that observation learning, through social modelling, can enhance skill acquisition (Bandura, 1977, 1986, 1997). He states that the observer watches the model with the intent to ascertain information needed to perform a skill. The learners then rehearse and retain the skill and apply it when appropriate. In this case, the participants may have observed the researcher and modelled their behaviour. It has also been noted that learners who perceive the model to be similar to themselves may pay more attention to the model, which can positively increase their self-efficacy and thus be more successful in processing and applying learnt skills. Due to the researcher's familiarity with the participants' high school environment and hockey experience, some may have felt this way.

A final facilitator to the participants' learning was the boxing session. It was deemed a good team bonding experience and the participants wanted more boxing sessions or something similar. The group developed cohesion, which helped build the relationship within the team. Group physical activities that occur away from the typical sporting environment can provide an invaluable means for teaching and applying mental skills and to learn more about each other. One participant indicated that the learning session was not effective as the team was new and people were afraid to speak up. By having more team bonding activities this could have enabled all members to feel comfortable with each other, rather than just a few players knowing each other and hoping they will get on when they get on the field. Participants that were open to new learning and willing to adopt a new frame of mind and approach would have been more accepting to the new learning than others. This is one of the main difficulties with teaching mental skills to a group and is difficult to avoid.

Other findings that obstructed the participants learning and uptake of the self-regulatory skills were that the programme did not run long enough and there was not enough time to apply skills. Similar findings were found in the literature review from Sharp et al., (2013) with their study on rugby players and participants wanted more time to apply skills "on the pitch". One method for avoiding this issue is to design more applied time into the

initial structure of the programme. As can be seen in the athletic training students programme, where the aim was to evaluate the effectiveness of an educational intervention in increasing knowledge and skill usage in athletic training students. Their programme structure allowed for generous use of applied skills, which included having exactly half of the sessions relating to learning and the other half for application (Stiller-Ostrowksi et al., 2009). Results showed that athletic training students' skill usage continued to increase throughout the programme and by week 14 they were still applying their learnt skills to their athletes with a 98.9% retention rate (Stiller-Ostrowksi et al., 2009). In addition, a portion of participants felt it difficult to apply mental skills when on the field, with most saying they forgot what they had learnt due to being caught up in the moment. Other studies regarding psychological skills training have found the same (as stated above) and is a further reason for the need to practice learnt skills in an applied setting i.e. the hockey field.

Another negative feature of the design was the initially intended focus group. After spending time with the participants, it was evident that a focus group would not be suitable. First, their lower maturity levels would not have allowed for a serious set of discussions to take place. Second, the participants were highly subject to peer pressure as was evident in their generic responses to small team discussions and their apparent fear to speak their minds amongst their peers. I did find however, that when spoken to one-on-one they were more receptive to answering more honestly, and thus the decision to make a self-evaluation instead of a focus group was decided.

6.1 Strengths and limitations

The main strength to arise from the study was that all participants indicated that they enjoyed partaking in the programme and each person learnt something about mental skills and sports psychology. On the other hand, limitations include that the post-game questionnaires and evaluation form was not completed in a controlled environment and were completed in the participants' own time. Due to the nature of the study being about self-regulation it is concerned with an individual's ability to direct their thoughts, feelings and behaviours without the influence of another. If participants completed the form i.e. at home, there is a possibility that participants received external help from parents or other family members. Furthermore, it was clear that the teaching method was not conducive to their learning needs. One of the most significant setbacks was the need to change the original plan of teaching six separate sessions (including a focus group) over seven weeks and combining them to one session in one two hour slot. This happened as a result of poor communication and lack of

experience. This was a huge deterrent and influential factor from the original plan. By combining the sessions, it meant that all teaching was done at once and then there was a gap between learnt skills and application of skills. The original plan was a combination of learning and applying skills, which is more conducive to learning. Many participants indicated that the early morning start was not effective and that there was too much written work for one session. The decision to combine all teaching sessions into one was therefore not effective.

6.2 Future studies

A follow up study is needed to determine if mental skills can be learnt and sustained over the course of a season and how much is retained and carried through to the next season. Post-game questionnaires should be used more often to test uptake and behaviour change of learnt skills over a season. In addition, controlled testing is needed to counter the potential for external help. Furthermore, it may also be of interest to conduct a longitudinal study following a high school team during their time at school looking at the uptake and knowledge attainment of learnt mental skills. Transferability of learnt skills from the field to daily life is also of interest and an ongoing concern for the promotion of positive youth development. Last, teaching should be in combination with application i.e. half teaching, half application. Sessions should strive for this balance to ensure better retention of knowledge.

6.3 Contribution to the field of sports psychology

This study has significantly added to the sports psychology literature as it has shown that it is possible for high school athletes to develop self-regulatory skills through a psychological skills training programme. There is also some evidence that high school athletes were able to apply learnt skills to games which gave them a new resource to use when faced with a challenging situation.

6.4 Conclusion

Findings show that high school athletes can learn and apply self-regulatory skills. Similar to other findings, psychological skills training is deemed an appropriate teaching method for adolescents to learn more about themselves and was seen as an opportunity to practice mental strategies, supporting them when faced with a challenge.

Learning about psychological skills, whether it is from just listening, increasing one's awareness, doing activities or applying skills, appears to provide people with an opportunity to reveal aspects about themselves, or their thinking, they were otherwise unaware of. Many

of the participants spoke openly and honestly in the evaluations of concepts and ideas that were unexpected. From an observer's point of view it seemed the participants had not fully grasped the concepts, theories or philosophies but what appeared on paper contradicted this. It is apparent that psychological skills were learnt, some of which were applied, but most importantly was that the majority of participants had a new understanding and awareness of what psychological skills are and how they can benefit from them. Due to time-related issues it was not conducive to conduct a longer programme, though it was evident that it was wanted. In terms of whether psychological skills were needed, comes down to individual preferences. People are always at different learning stages in their life, where some will be more accepting to uptake helpful advice than others. Therefore, work with individual athletes in a team may be more appropriate in future. With regards to self-regulation, it is evident that participants were able to learn self-regulation skills from partaking in the programme, mostly in the performance control stage. Skills were transferable from the classroom to the hockey field and is where participants used the learnt skills. Retention of learnt skills is unknown and is a needed area of research for the future.

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APPENDICES

Appendix A Literature search terms

Psychological skills training

"sport psychology" OR "psychological skill*" OR "mental skill*" OR "psychological technique*" OR "mental technique*" OR "performance psychology" OR "enhancement psychology" OR "imagery" OR "self-talk" OR "concentration" OR "relax*" OR "breathing" OR "arousal control" OR "arousal regulation" OR "emotion*control" OR "emotion*regulation" OR "self-regulation" OR "life skill*" OR "mental toughness" OR "flow"

  AND

Young adults

"young adult*" OR "teenager*" OR "teen" OR "adolesen*" OR "high school student*" OR "student*" OR "high school" OR "secondary school"
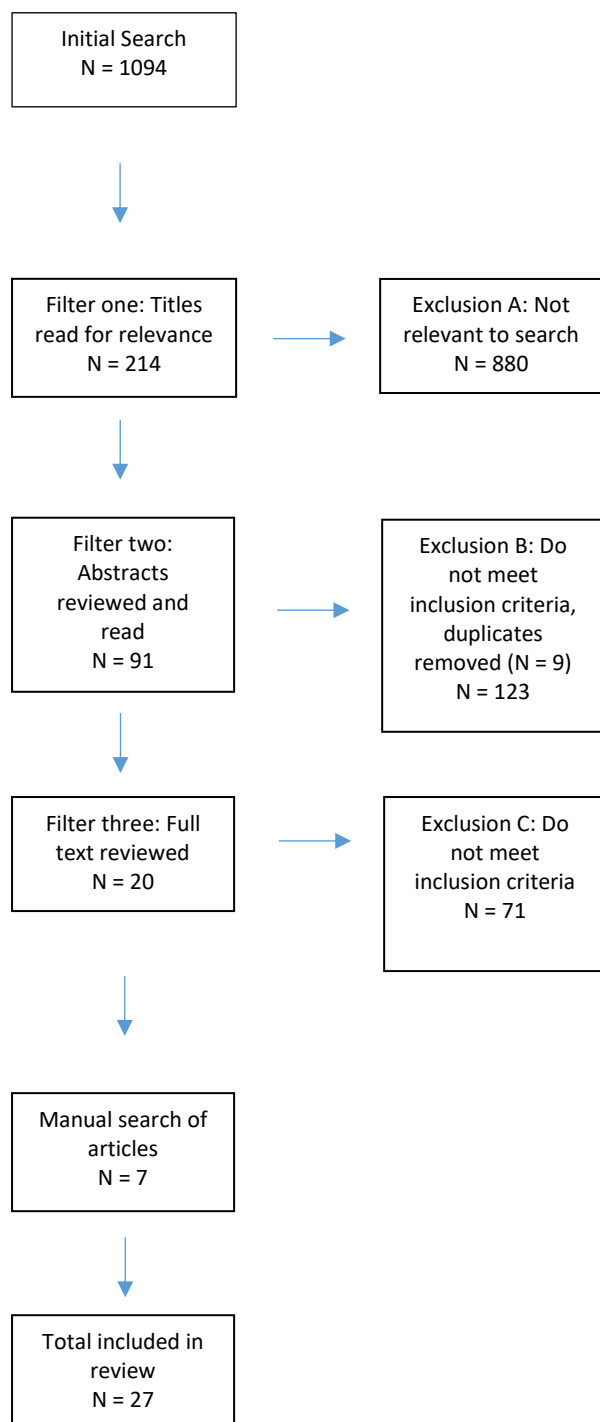
  AND

Sports team

  "sport*team*" OR "sport*" OR "sport*club" OR "team*"

  AND

Intervention

  "intervention" OR "training package" OR "course" OR "program*" OR "session*" OR "training" OR "practice" OR "rehearsal" OR "routine" OR "procedure" OR "method" OR "process"

Appendix B Literature search results

```
┌─────────────────┐
│  Initial Search │
│    N = 1094     │
└─────────────────┘
         │
         ▼
┌─────────────────┐        ┌──────────────────┐
│ Filter one:     │───────▶│ Exclusion A: Not │
│ Titles read for │        │ relevant to      │
│ relevance       │        │ search           │
│ N = 214         │        │ N = 880          │
└─────────────────┘        └──────────────────┘
         │
         ▼
┌─────────────────┐        ┌──────────────────┐
│ Filter two:     │───────▶│ Exclusion B: Do  │
│ Abstracts       │        │ not meet         │
│ reviewed and    │        │ inclusion        │
│ read            │        │ criteria,        │
│ N = 91          │        │ duplicates       │
└─────────────────┘        │ removed (N = 9)  │
         │                 │ N = 123          │
         ▼                 └──────────────────┘
┌─────────────────┐        ┌──────────────────┐
│ Filter three:   │───────▶│ Exclusion C: Do  │
│ Full text       │        │ not meet         │
│ reviewed        │        │ inclusion        │
│ N = 20          │        │ criteria         │
└─────────────────┘        │ N = 71           │
         │                 └──────────────────┘
         ▼
┌─────────────────┐
│ Manual search   │
│ of articles     │
│ N = 7           │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Total included  │
│ in review       │
│ N = 27          │
└─────────────────┘
```

Appendix C Post-game questionnaire

Before, during or after the game. You can tick more than one.

Did you use any of the mental skills taught?

☐   Yes

☐   No

If yes which ones?

☐   Goal-Setting

☐   Self- Talk Cues (Concentration, focus, motivation)

☐   Relaxation (Deep breaths)

☐   Reflections

If no why not?

☐   I forgot

☐   I didn´t have time

☐   I don´t feel confident to use them

☐   I forgot how to use them

☐   I didn´t want to use them

☐   Other

……

If yes, did they help your game?

☐   Yes

☐   No

How?

☐   I felt more motivated

☐   I felt more confident

☐   I felt like I had control of my actions

☐   I felt I could make my own decisions

☐   I felt I could make better choices

☐   I felt I could keep calm under pressure

☐   I felt I could stay focussed and redirect my thoughts

☐   Other

………

Appendix D Student evaluation form

NAME: …………………………………………………………….

Evaluation

Hey guys ☺

This is the end of my work with you all. It's been really fun and a great learning curve for me, I hope you've all learnt something too! I have a few questions here below, if you could fill them out I'd really appreciate it. I will use this information for my thesis so please be as honest as possible, if you didn't like something just say. I will ask you to put your names but again I won't give this info to anyone. Thank you for letting me work with you guys and good luck for the rest of the season.

1. What did you like about the programme? (This includes the boxing, the 2 hour teaching session we did on that Tuesday morning and all the work you did in your sports portfolios as well as the hockey game in the gym, and me turning up to games).
2. What didn't you like about the programme?
3. What would you have wanted more of or less of? (This can include more sessions with me like one on one)
4. Which Psychological skills were the easiest to learn? {self-talk (including concentration, focus or motivation) , relaxation, goal setting and reflection}
5. Which were the hardest
6. What did you learn from the programme?
7. Do you think this programme could benefit other high school sports teams? Yes, no and why.