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Anxiety is a widely experienced phenomenon defined as a state of apprehension of potential threats (Bandura, 1988). Performance anxiety is defined as the perception of a competitive situation as threatening and leads to symptoms associated with anxiety such as feelings of apprehension and tension. In the present study, the focus is on performance anxiety, therefore, all references to anxiety should be considered the performance side of anxiety rather than the clinical side of anxiety. In sports and performance, too much anxiety leads to debilitating performance whereas there is considered to be an optimal level of anxiety that can be facilitative to performance. Previous research looking into anxiety within sports views anxiety primarily as debilitating to performance. Whereas a smaller portion of literature has studied the facilitative effects anxiety has on performance. It has been suggested that an individual viewing their performance anxiety as facilitative or debilitating can change depending on various individual factors such as experience, skill level, hardiness, and type of sport. An individual difference not mentioned in the literature that may have an impact on how an individual may perceive their anxiety is self-efficacy. Self-efficacy is the perception that one has the ability to execute a skill successfully in any situation. Although self-efficacy has been found to be related to regulating anxiety and improved performance, research has not been conducted to determine if there is a relationship between one's feelings of efficacy and how they interpret performance anxiety.

The purpose of this study was to investigate if higher self-efficacy is correlated with interpreting performance anxiety as facilitative, and if lower self-efficacy is correlated with interpreting anxiety as debilitating. The present study recruited youth athletes from various sports

to complete questionnaires regarding a recent past competition asking them to reflect on their thoughts and feelings during their performance. The CSAI-2 with a direction subscale was used to capture if the participants experienced their anxiety as facilitative during the competition. The General Self-Efficacy questionnaire was employed to measure the self-efficacy the athletes perceived during their competition as well. Correlational analyses were conducted to find if self-efficacy and anxiety interpretation are related. The results found that self-efficacy did have a positive correlation with both somatic and cognitive anxiety direction. The findings presented in this study provide preliminary insight to the potential moderating effects self-efficacy can have on anxiety and symptom interpretation of anxiety.

INVESTIGATING THE RELATIONSHIP BETWEEN SELF-EFFICACY AND ANXIETY  
SYMPTOM INTERPRETATION IN YOUTH ATHLETES

by

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## CHAPTER I: INTRODUCTION

Anxiety is a widely experienced phenomenon that is defined as a state of apprehension of potential threats (Bandura, 1988). Performance anxiety is defined as the perception of a competitive situation as threatening and leads to symptoms associated with anxiety such as feelings of apprehension and tension. Performance anxiety will be referred to as anxiety throughout this document to distinguish that this study is focusing more on sport performance anxiety rather than clinical anxiety. Whether it be sporting events, public speaking, musical performance, or test-taking, many people experience some sort of nervousness or apprehension, otherwise known as anxiety. The feeling of apprehension results in physiological disturbances such as trembling, increased heart rate, sweating, and clammy hands, and these responses restrict individuals from demonstrating skills and knowledge to the fullest extent. An individual can step toward the edge of a cliff and immediately feel nauseated or apprehension about the potential for physical harm. The same individual could be asked to provide a lecture the following day to students and experience a similar feeling of nervousness and apprehension. Although there is no physical threat to delivering a lecture, the individual may be nervous about being viewed as incompetent, thus threatening their confidence.

Although anxiety can be detrimental to how humans react to adverse situations, anxiety can also be advantageous to managing stressful situations. Jones and Swain (1992) first developed the idea that anxiety can be both facilitative and debilitating. Symptoms of anxiety can include psychological and physiological activity such as feelings of self-doubt, sweating, or increased heart rate. Jones and Swain proposed that individuals could experience anxiety as facilitative or debilitating depending on how they interpret their symptoms. Furthermore, how the

symptoms are interpreted depends on the perceived level of control an individual possesses over a task (Jones and Swain, 1992).

Bandura (1989) suggests that the reason for debilitating performance anxiety is a lack of perceived control by the individual. According to Bandura, the reason perceived control is considered to be paramount to regulating anxiety is that “People who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and, hence, are not perturbed by them” (p.78). When individuals lack perceived control over a task or situation, they are reported to interpret anxiety symptoms, such as worry or self-doubt, as indicative of feeling high levels of pressure or thinking about past poor performances (Hanton et al., 2000). When an individual encounters a stressful event (e.g., musical performance, final exam, the final shot of a basketball game), the perceived level of control they experience depends on how confidently they can execute the task despite adversities.

The ability to execute a task successfully in any situation is known as self-efficacy. Bandura (1994) defines self-efficacy as “people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (p.3). According to Bandura (1989), one’s level of perceived control is dependent on self-efficacy. However, there are caveats to self-efficacy. Bandura asserts that acquiring a sense of self-efficacy is dependent on (a) the task being well learned and (b) the demands of the situation being well understood. Referring to Bandura’s definition of self-efficacy, a person cannot believe they can produce high-performance levels if they do not fully understand how to execute the task successfully. Similarly, if an individual does not understand what is expected of them, they may be unsure if they have the capabilities to accomplish an unknown goal. A study conducted by Endler et al. (2001) investigated how self-efficacy in a novel, unlearned task related to anxiety

and performance. Self-efficacy did not predict performance and the authors concluded that this was because the task was unlearned.

Many studies acknowledge self-efficacy as a viable way to regulate performance anxiety (Feltz, 1984; Bandura, 1988, Nicholls et al., 2010; Gallagher, 2014). However, there is little published work to establish the relationship between high levels of self-efficacy and interpreting anxiety symptoms as facilitative. Although the connection between self-efficacy and anxiety symptom interpretation seems apparent, few studies have investigated the relationship. Jones (1995) provided two categories of factors that moderate the relationship between stress and perceived control. Because Jones asserts that perceived control influences how individuals interpret anxiety symptoms, the factors are noteworthy. The factors are divided into “situational factors” and “personality factors”. Situational factors include skill level, competitive experience, sport type, cohesion, and locus of control. Personal factors include trait anxiety, neuroticism, self-confidence, extraversion, competitiveness, and extraversion. Although self-efficacy is not attributed as either a personal or situational factor, the literature suggests it could also influence the perceived control one possesses (Bandura, 1988; Hanton and Connaughton, 2002; Hanton et al., 2003).

A substantial benefit to utilizing self-efficacy to regulate anxiety is based upon the foundational work done by Bandura on how to develop self-efficacy. Bandura (1994) proposed several self-efficacy-enhancing techniques that may be more accessible than alternative methods of anxiety regulation, such as cognitive-behavioral therapy (CBT). These techniques include mastery experiences, modeling, social persuasion, and reducing or altering stress reactions to dispel negative misinterpretations of their physical state. The efficacy-enhancing techniques introduced by Bandura are more accessible than other psychotherapy modalities. Alternative

methods have been shown to be advantageous to performance and stress regulation. Hardiness (Sheard & Golby, 2010; Hanton et al., 2013), emotion regulation strategies (Robazza et al., 2004), and confidence-building (Martens et al., 1990; Fogarty & Else, 2005; Gilson, 2010) are all viable alternatives to improving performance and also regulating stress. However, self-efficacy may be more beneficial because of the impact it has on performance and feasible intervention strategies that can be simply implemented by practitioners (Feltz 1982; Bandura, 1985; Bouffard-Bouchard 1990; Ram & McCullagh; Loo & Choy, 2003).

The widely studied psychological phenomenon of anxiety has been well documented and perceived to influence performance in various ways. Whereas Martens et al. (1990) view anxiety as primarily debilitating to performance, Jones (1995) has provided support for anxiety to be facilitative or debilitating to performance. The facilitating or debilitating effect anxiety has on performance may be dependent on the control an individual believes they have over a stressor, and various differences between sports (Jones et al. 1994), personality (Jones & Swain, 1992), and experience (Mellalieu et al., 2004). Although the direction of anxiety is dependent on several factors, there has been plenty of qualitative and quantitative evidence showing that when performers interpret their symptoms as facilitative, they also experience a more facilitative effect on performance (Jones & Swain 1993; Mellalieu et al., 2004; Neil et al., 2012; Brooks, 2014; Strack & Esteves 2015). Bandura (1989) suggests that perceived levels of control over a task or situation determine an individual's sense of efficacy. Individuals high in self-efficacy are more motivated to take on challenges, bounce back from failures, and view those failures as a lack of knowledge or skill they can attain (Bandura, 1994). Jones's (1995) control model argues that the perceived control an individual possesses determines how they interpret anxiety. Out of the factors listed that moderate an individual's perceived level of control, Jones did not include self-

efficacy on that list. The relationship between an individual's sense of self-efficacy and how they interpret anxiety symptoms has yet to be investigated. Another aspect that has not been explored in the anxiety symptom interpretation literature is youth athletes. The purpose of this study is to determine if high levels of self-efficacy in youth athletes are associated with interpreting symptoms of anxiety as facilitative. Conversely, this study will examine low levels of self-efficacy associated with youth athletes interpreting anxiety symptoms as debilitating.

## CHAPTER II: REVIEW OF LITERATURE

### **Anxiety Overview**

Since the 1950s, the understanding of anxiety has evolved exponentially. Early contributions on anxiety made by Hoch and Zubin (1950) reported anxiety as the “most pervasive psychological phenomenon of our time”. Bandura (1988) later referred to anxiety as “a state of anticipatory apprehension over possible deleterious happenings” (p. 78). Bandura established the definition above of anxiety by utilizing findings from his social cognitive theory, which mentioned that people who believe that they can exercise control over potential threats are not apprehensive or perturbed by those threats (Bandura, 1986). Martens et al.’s (1990) development of the competitive state anxiety inventory (CSAI) assesses the intensity of anxiety felt while participating in sport or performance. The prevalence of Martens et al.’s contributions provides the initial evidence of how anxiety can be measured and predict performance.

Martens et al. compiled and attributed the foundation of the CSAI to Spielberger’s (1966) discoveries of trait and state anxiety. Splitting anxiety into trait and state components provides some clarity to understanding the properties of anxiety better. Spielberger referred to state anxiety as the apprehension and tension an individual feels at a specific point in time. Trait anxiety was referred to as the continuous level of apprehension and tension an individual regularly experiences. Separating anxiety into state and trait components was a vital aspect of understanding if (a) an individual is experiencing anxiety due to a certain situation they are currently in or (b) if they are apprehensive in a situation due to anxiety being an inherent trait in their personality.

The second yet separate way anxiety was separated was into cognitive anxiety and somatic anxiety. Liebert and Morris (1967) initially viewed anxiety as having a “cognitive-worry” component and an “emotional-arousal component”. Morris et al. (1981) then gave meaning to the two types of anxiety by characterizing cognitive anxiety as negative thoughts or feelings about one’s performance expectations, and somatic anxiety as the physiological reactions one has from encountering a stressful stimulus. The physiological responses that are a result of anxiety include increases in heart rate, shortness of breath, clammy hands, and butterflies in the stomach.

### **Development of a Model**

Many scholars’ initial point of emphasis regarding developing a model that predicts the anxiety and performance relationship is establishing the differences between anxiety and arousal. The difference between anxiety and arousal is that they may influence performance similarly and are often used interchangeably when they are actually divergent in meaning (Anderson 1990; Williams & Wilkins, 1992; Arent & Landers, 2003). Arousal is described as increased energy intended to prepare the body for vigorous activity (Sage, 1984). General anxiety, as previously mentioned, is “a state of anticipatory apprehension over possible deleterious happenings” (Bandura, 1988, p. 78). However, when looking at anxiety as cognitive and somatic anxiety, more similarities can be drawn between somatic anxiety and arousal. As both somatic anxiety and arousal increase the bodily energy to prepare for some sort of vigorous activity, the main difference is that somatic anxiety is characterized by an intense and unpleasant emotional state (Speilberger, 1975).

Yerkes and Dodson (1908) first theorized that the arousal/performance relationship could be described as an inverted-U. Westman and Eden (1996) explain that low levels of stress result

in low importance or attention toward a goal. Too much stress causes an individual to expend resources to cope with the stress and less effort in accomplishing the goal. Too low or too much stress when engaging in a task results in lower performance. The optimal point of the inverted U theory is characterized by a heightened state of activation that physiologically prepares the body to overcome a threat or stressor. The most notable criticism for the inverted-U model was that other researchers asserted that not all individuals' optimal state of arousal occurs at the same place. Westman and Eden (1996) confirmed the criticism and proposed that the model should be viewed as fluid and can shift depending on the differences between individuals.

Martens et al. (1990) then proposed the multidimensional approach to anxiety, claiming that the anxiety and performance relationship should include different aspects of anxiety. State anxiety, cognitive anxiety, and self-confidence were the constructs selected for the development of the CSAI due to their perceived importance in predicting how anxiety will influence performance. At the time of development, the current notion was that cognitive anxiety was more detrimental to performance than somatic anxiety. Burton (1988) suggested that cognitive anxiety would negatively affect performance while somatic anxiety would follow an inverted-U shape relationship. A majority of the literature points to the CSAI being a better predictor of anxiety intensity levels rather than predicting performance (Raglin, 1992). Following Martens et al.'s (1990) development of the CSAI to measure anxiety intensity, Jones (1991) proposed that measuring the intensity of anxiety may be limited in its predictive performance capabilities. Previous understandings suggested that anxiety intensities remain consistent for cognitive anxiety and steadily increase. Whereas somatic anxiety gradually increases leading up to a competition (Gould et al., 1984; Parfitt & Hardy, 1987). Jones then suggested that exploring the



possibility that anxiety has equal opportunity to be either facilitative or debilitating may be a fruitful endeavor.

One of the initial investigations into anxiety symptom interpretation was conducted by Jones and Swain (1992). Jones and Swain sought to determine if there were any differences in anxiety intensity and symptom interpretation in athletes considered high or low in competitiveness. From the sports of field hockey, soccer, basketball, and rugby, sixty-nine male competitors were split into high and low competitiveness groups via a median split based on a sports orientation scale (Gill & Deeter, 1988). The Competitive state anxiety inventory-2 (Martens et al., 1990) was utilized to measure anxiety intensity levels. Jones and Swain developed a direction scale that measured each participant's intensity level as very facilitative or very debilitating from (+3) to (-3), respectively. From the nine items in the direction scale, the scores range from (-27) to (+27), as more positive scores indicate feelings of anxiety being more facilitative. The participants completed the questionnaires thirty minutes before the competition. Jones and Swain found that the difference in intensity of anxiety was not different between the high and low competitive groups. However, the highly competitive group found their anxiety symptoms to be more facilitative than the low competitive group. This initial investigation by Jones and Swain established that anxiety might not hold a primarily debilitating effect as previously thought. Furthermore, the athletes high in competitiveness labeled their anxiety symptoms as “excitement” or “motivation” and provided a positive connotation to their sensations.

Jones and Swain (1994) further provided additional support that anxiety may be more beneficial if considered having direction rather than only intensity. Anxiety direction is explained as when an individual experiences a symptom of anxiety, that individual may interpret

that symptom in a positive or negative direction (facilitative or debilitating). Athletes may experience anxiety symptoms such as cognitive worry, elevated heart rate, or sweating when competing at a competition. Some may interpret those anxiety symptoms as unpleasant feelings of pressure to excel in front of peers or apprehension about not performing to the expectations they have set for themselves (Powell, 2004). On the other hand, others may interpret those symptoms as feelings of excitement to overcome a challenge. They may consider the competition to be an enjoyable assessment of their competence. Rather than measuring anxiety as intensity and as a psychological aspect of human cognition that is primarily debilitating, more interest grew in the idea that anxiety can be facilitative. Early studies sought to examine two primary aspects of anxiety symptom interpretation. The first was to determine how individuals performed in competition based on whether they interpreted their anxiety symptoms as facilitative or debilitating. The second was to determine differences that may influence how an individual may interpret anxiety symptoms. The most prominent differences refer to the sport type (Jones et al. 1994), skill level (Jones & Swain, 1995), experience (Mellalieu et al., 2004), competitiveness (Jones & Swain, 1992), and fine motor vs. explosive sports (Hanton et al., 2000).

### **Overview of Model of Control**

Anxiety symptom interpretation gained traction through the early 1990s. However, only a few main ideas were well understood at the time: some athletes perceive symptoms of anxiety as facilitative and some perceive symptoms of anxiety as debilitating. Additionally, some differences influence how a performer may interpret anxiety symptoms such as the performer's skill level, competitive status, and experience (Jones et al., 1994; Jones & Swain 1995; Mellalieu et al., 2004). Jones (1995) developed a model to explain how anxiety may be viewed as facilitative or debilitating. Based on the previously established basis of anxiety direction (Swain

& Jones, 1992), Jones's model revolves around perceived control over a stressor. Jones asserts that the perceived control one experiences over a stressor determines if one will interpret anxiety as facilitative or debilitating. Perceived control is understood as "the cognitive appraisal of the degree of control the performer can exert over both the environment and the self" (Jones, 1995, p. 465). Individuals high in perceived control are expected to cope with stress and threats to a greater degree than those who perceive a low level of control (Litt, 1986; Jordet et al., 2006) and experience more success in attaining their goals (Schifter & Ajzen, 1985). Although the model of control seemed feasible at the time of its development, many questions were still unanswered regarding between-person differences and how they moderate the relationship between a stressor and perceived control.

The differences in sport type and an individual's competitive experience were investigated by Mellalieu et al. (2004). The participants of this study comprised 87 rugby players and 75 golfers. The participants were also separated into high and low competitive experience groups. The years of experience for each participant were gathered and then divided via a median split. Participants considered high in experience for rugby and golf on average had 13.6 and 11.87 years of experience respectively. The group with low experience in rugby and golf had an average of 6.88 years and 5.88 years, respectively. Rugby and golf were specifically chosen due to their nature of being classified as explosive and fine motor sports, respectively by Hanton et al. (2000). The CSAI-2 (Martens et al., 1990) and the anxiety direction scale (Jones & Swain, 1992) were administered during the participants' competitive seasons. The measures were not administered before a competition; instead, the participants were asked to report their sensations and scores based on what they usually feel in competition. Mellalieu et al. reported that the participants experienced no differences in anxiety intensity. Due to the nature of the sports,

rugby is considered explosive and requires more bodily energy while golf is considered a fine motor sport requiring less bodily energy. It was predicted that rugby players would consider the higher intensity of anxiety as facilitative, and golf players would consider more anxiety as debilitating. Mellalieu et al. reported support for the previously stated prediction and it is consistent with previous findings by Hanton et al. (2000). Furthermore, the participants considered “elite” tended to interpret anxiety symptoms as facilitative, whereas the non-elite athletes interpreted their symptoms as more debilitating.

Mellalieu et al.’s (2004) findings suggest that not all sports types may benefit from the restructuring of anxiety. Implementation of interventions to regulate anxiety partially depends on the type of sport. Some activities require restructuring, relaxation, or activation to perform optimally. However, Mellalieu et al. (2004) note that restructuring anxiety is recommended as reducing anxiety may result in less attention, motivation, and perceived importance toward attaining a goal. In contrast, restructuring symptoms can increase excitement, confidence, and motivation to achieve a goal.

### **Perceived Control and Symptom Interpretation**

Later studies supported Jones's (1995) emphasis on perceived control and its influence on symptom interpretation and performance. Hanton et al. (2003) gathered elite and nonelite athletes in soccer, rugby, and cricket to investigate the relationship between perceived control and anxiety symptom interpretation. Hanton et al. administered the trait goal attainment expectancy scale (GAS) developed by Hanton and Jones (1996) to measure perceived control. The scale asks questions regarding the goals the individual sets and to what extent they believe they can achieve those goals. The GAS is divided into three sections which include outcome goals (winning a match), performance goals (i.e., coming in first place), and process goals (i.e.

technique or skill goals). Finally, the GAS phrases questions in order to assess the perceived control over attaining their goals. For example, “To what extent do you think you will achieve this goal?” measured on a scale from -4 (definitely not) to +4 (definitely yes) and zero for being uncertain. The reasoning behind using the goal attainment expectancy scale is that Hanton and Jones (1996) assert that the level of certainty one has to achieve a goal signifies the level of perceived control one possesses. Hanton et al.’s results found that those who scored high in perceived control also experienced their anxiety as being more facilitative.

Hanton and Connaughton (2002) were the first to conduct qualitative studies on the control model (Jones, 1995) to explore narratives on how athletes interpret anxiety symptoms. Hanton and Connaughton organized in-depth interviews with six elite and six non-elite competitive swimmers. The criteria for the elite athletes were that participants had to have qualified to compete in multiple international competitions. In contrast, the non-elite athletes competed locally and were not considered nationally competitive. Interviews conducted based on procedures developed by Gould et al. (1993) and Hanton and Jones (1999) were utilized to better understand the relationship between perceived control and anxiety. More specifically, Hanton and Connaughton sought to understand further the causal explanations of how anxiety symptoms translate to perceived control. The first finding of interest within the study was how athletes interpret cognitive anxiety differently. When elite athletes experienced increases in anxiety prior to competition, the anxiety was typically caused by worry and increased heart rate. One athlete in the study described their increased heart rate as “already at race pace” and considered it an optimal performance feeling. Other elite athletes considered their symptoms to be associated with previous successful performances. Hanton and Connaughton reported that elite athletes

cope and interpret anxiety in various ways. All of the reported coping methods led to an increase in perceived control and improved performance.

On the other hand, some of the elite athletes described moments when they interpreted symptoms as debilitating. The elite athletes disclosed that they sometimes felt self-doubt, worried, or tense prior to competitions. More specifically, the elite swimmers reported that the feelings of self-doubt and increased tension resulted in their swimming stroke feeling restricted and forced rather than smooth and automatic. In turn, the sensations experienced resulted in a lack of control over accomplishing their goal. Thus, anxiety was debilitating to their performance. Many of the less experienced athletes also experienced the same feelings of body tension, and their swimming technique felt forced and not natural. Hanton and Connaughton's (2002) analysis of athletes' beliefs and explanations behind their performance was enlightening for how anxiety symptoms are translated as facilitative or debilitating.

Hanton et al. (2005) followed the study done by Hanton and Connaughton (2002) using a similar interview method. Hanton et al. gathered a pool of elite athletes following Hanton and Jones's (1999) criteria, requiring athletes to compete internationally. They ranked in the top ten at an international competition for their respective sport. The main difference that Hanton et al. sought to examine was to investigate how elite athletes interpret symptoms of anxiety as debilitating. Many athletes discussed the prevalence of negative thoughts and the inability to control those thoughts. Focusing solely on outcome goals was a topic of discussion with many of the participants. The outcome goals were considered difficult to conjure positive thoughts and establish a sense of control over. Outcome goals were noted as being difficult to control because there are far too many variables that influence the outcome. Because these outcome goals were considered difficult to control, the athletes in the study reported more apprehensive thoughts. On

the other hand, process goals were considered far more controllable as process goals are specific to a single task. Hence, directing attention toward process goals (i.e. focusing on executing a specific skill successfully) was found to elicit less anxiety in comparison to directing attention to the overall outcome goal.

Many studies providing support for the model of control have been consistent in their findings. First, many investigations into anxiety symptom interpretation have found that individuals who perceive their symptoms to be facilitative (i.e., interpreting increased heart rate as exciting, feeling ready to compete, being determined to take on challenges) experience improvements in performance (Jones & Swain 1993; Mellalieu et al., 2004; Neil et al., 2012; Brooks, 2014; Strack & Esteves 2015). Secondly, there are between person and sport differences that influence how one may interpret symptoms of anxiety differently, such as effort (Hardy & Hutchinson, 2007), sport type (Mellalieu et al., 2004), and perceived control (Hanton & Connoughton, 2002; Hanton et al., 2005; Cheng et al., 2007, Williams et al., 2010). Jones's model of control considers perceived control to be the primary determinant of whether or not performers interpret anxiety symptoms as debilitating. Previous literature considers perceived control and self-efficacy to be parallel constructs that influence how individuals cope with stress (Bandura, 1988; Litt, 1988; Haney & Long, 1995). Although perceived control and self-efficacy work in conjunction to predict how one will overcome stress, there is no mention of how it may influence how performers interpret anxiety symptoms.

## Self-efficacy Overview

Bandura (1977) theorized that perceived control influences performance and motivation levels through the means of self-efficacy theory. Self-efficacy is widely accepted as a psychological construct that is positively related to performance across several domains such as sports (Starek & McCullagh, 1999; Nicholls et al., 2010), academic performance (Ahmad & Safaria, 2013; Loo & Choy, 2013; Honicke & Broadbent, 2016), and music performance (McPherson & McCormick, 2006). Referred to as the ability to exercise control over stressors in one's life, Bandura (1994) considers self-efficacy a driving force behind goal attainment and increasing effort in the face of adversity. Bandura further explains the previously mentioned notion of control as the ability to influence a situation or stressor in one's favor. For example, an athlete who faces off against a challenging opponent may be successful depending on how efficacious they feel. Bandura explains that high feelings of efficacy result in visualizing more options for success and increased control over the stress and environment. Conversely, low feelings of efficacy result in visualizing scenarios in which they will fail and cannot control the situation as well. Where self-efficacy specifically refers to successfully executing a task in any given situation, perceived control is directed toward influencing a certain situation.

Although separate constructs, self-efficacy and perceived control work in conjunction with one another to determine coping behavior over stress (Litt, 1988; Haney & Long 1995). Coping behavior was initially classified by Genest and Turk (1979) as rationalizations to either engage with stress or avoid stress. However, coping with stress by avoidance is far less effective than engaging the stressor. Avoiding stress is a coping strategy characterized by an individual believing they do not possess the ability to overcome adverse situations. Conversely, engaging a stressor results from individuals believing they can conquer that stress. Specifically, coping



through engagement involves the individual appraising adversity to be challenging, controllable, and possessing the ability to succeed.

Litt (1988) manipulated perceived control to elicit an avoidance coping response or an engagement response in a cold-pressor task. The cold pressor task places a cold apparatus at zero degrees Celsius on a participant's hand for as long as they can tolerate the discomfort. The participants would simply remove their hand from the cold press once the pain became intolerable. Fifty women were recruited and first completed the cold-pressor task to receive a baseline score. The participants were then given falsified feedback on how they did on the baseline test. Participants were either told they had very good, moderate, or poor ability to cope with the pain of the cold-press. The participants who were told they tolerated the pain very well did significantly better than those who were told they did not handle the pain well. The falsified feedback was then assumed to have successfully manipulated the perceived control of the pain they experienced. The understanding presented by Litt was that the participants who lacked control in their ability to tolerate the pain engaged in an avoidant style of coping whereas the participants who had perceived control over their pain sought to meet the demands of the task further.

Litt provided support for the hypothesis that improvements in perceived control influence coping with stress. Later studies have also supported Litt's notion of self-efficacy's relationship to coping ability with athletes such as basketball, hockey, and soccer players (Haney & Long; Nicholls et al., 2010). Although the feedback provided by Litt was falsified, the feedback still improved the participants' self-efficacy in their perceived ability to tolerate pain. Providing feedback and verbal persuasion are two methods proposed by Bandura (1994) to improve feelings of self-efficacy.

## **Self-Efficacy Enhancing Techniques**

Bandura (1994) provided self-efficacy-enhancing techniques such as mastery experiences, vicarious experiences, social persuasion, and restructuring stress reactions. Wright et al. (2015) further investigated Bandura's techniques and included additional techniques. Referred to as psychological enhancement techniques (PETs), Wright et al. examined how PETs would improve simple motor movements such as kicking, throwing, and golf putting. The PETs used in Wright et al.'s study included mental imagery, modeling, auditory feedback, goal setting, instructional self-statements, and vicarious experiences. The PETs were implemented to determine if any of the subjects improved the accuracy of the motor skills. The results indicated that auditory feedback was the most beneficial to improving self-efficacy, and instructional self-statements were the most advantageous to performance. Auditory feedback consisted of a coach providing motivation and instruction to accomplish the task, and the instructional self-statements involved the participant focusing on how to execute the task correctly.

Understanding the development of self-efficacy provides merit to the pursuit of implementing self-efficacy-enhancing techniques. The study done by Wright et al. (2015) was a cross-sectional attempt at intervention and consisted of only a single session to improve self-efficacy. Other interventions aimed at improving self-efficacy occurred over a longer period of time. Alternative psychological constructs have been shown to be advantageous to performance and stress regulation. Hardiness (Sheard & Golby, 2010; Hanton et al., 2013), emotion regulation strategies (Robazza et al., 2004), and confidence (Martens et al., 1990; Fogarty & Else, 2005; Gilson, 2010) are all viable alternatives to improving performance and also regulating stress. However, the reason the present paper emphasizes self-efficacy is due to the vast amount of work that has been done to understand how it impacts performance and feasible intervention

strategies that can be simply implemented by practitioners (Feltz 1982; Bandura, 1985; Bouffard-Bouchard 1990; Moritz et al., 2000; Ram & Mccullagh; Loo & Choy, 2003). The development of self-efficacy in performers is an advantageous endeavor (Gould et al., 1989). Individuals generally see improvements in performance with higher levels of self-efficacy (Haney & Long, 1995; Moritz et al., 2000). Hence, straightforward interventions to improve self-efficacy are a significant benefit to focusing on its development in performers over alternative psychological approaches.

### **Current Interventions**

Interventions aimed at cognitive restructuring of anxiety symptoms and improving perceived control have primarily been on the surface level. The interventions attempted are surface-level because they have been done using cross-sectional simulations that induce anxiety responses rather than longitudinal studies that have measured change over time. However, support has been provided suggesting that even simplistic interventions have influenced the interpretation of anxiety symptoms (Hale & Whitehouse, 1998), perceived control (Williams et al., 2012), and performance (Coelho et al., 2007; Cumming & Williams, 2012).

Hale and Whitehouse (1998) initially investigated how perceiving a stressor as controllable or uncontrollable can be used to improve perceived control and interpret anxiety differently. The overall aim of this study was to examine how explicitly telling an athlete that a stressor is either a “challenge” or “pressure” how that would influence their interpretations of anxiety. Eysenck (1992) defined control as the cognitive appraisal of a situation and the degree to which one can exert influence over themselves and the environment. Twenty-four male soccer players were shown two different videotapes and asked to imagine they were kicking the game-winning penalty shot at the World Cup Finals. The videotapes shown were two identical first-

person perspectives of soccer players attempting penalty kicks. The only difference between the two videos was that the word “challenge” or “pressure” appeared on the screen several times to elicit a stress response. The words challenge and pressure were considered methods to persuade the participant that a stressor is a positive stimulus to overcome or a negative stimulus that should be avoided. Hale and Whitehouse found that conveying game-winning penalty kicks for soccer players as either high-pressure or challenging situations elicit different appraisals of the stressor from the athletes. The results of Hale and Whitehouse’s study concluded that when participants are told a situation is a “challenge” athletes experience less cognitive anxiety, somatic anxiety, and more self-confidence than when the participants are told a situation is a “pressure”. Additionally, when watching the “challenge” videotape, participants perceived their anxiety as more facilitative in comparison to the “pressure” group. The rationale behind the results was that framing the penalty kick situation as a challenge gave the participants the perception they were in more control of the situation and desired outcome. Because they perceived control over the situation, they perceived the stress and anxiety as facilitative.

Hale and Whitehouse’s (1998) investigation into restructuring perceived control provided further support in applying Jones’s (1995) model of control. By manipulating the stress to be controllable (a challenge) versus uncontrollable (a pressure), anxiety symptoms were found to be facilitative. However, Hale and Whitehouse’s study did not come without limitations. First, it was argued by Williams and Cummings (2007) that explicitly telling participants to perceive a stressor as a “challenge” or “pressure” may lead to bias as athletes do not have to appraise situations on their own. The findings of interpreting anxiety symptoms as facilitative depending on whether the stressor is viewed as a challenge or stressor may be more generalizable if the method is more implicit. Meaning rather than informing the participant that stress is challenging,

providing context to why it could be considered challenging may be more advantageous to simulating real-world scenarios and allowing the participant to cognitively appraise the situation on their own.

Williams and Cummings (2010) performed a similar study to Hale and Whitehouse's (1998) study on cognitive restructuring and anxiety response. However, Williams and Cummings addressed criticism and made improvements to Hale and Whitehouse's design. Williams and Cummings' sample included twenty intermediate to advanced level athletes from various sports. The study's design included text-based imagery scripts personalized to each individual and their respective sport. Williams and Cumming provided scripts that would lead participants to perceive a situation as challenging or threatening rather than explicitly telling them. The challenge script emphasized the athletes imagining how the "athlete's resources met the demands", "feelings of high efficacy and control" and "potential to achieve everything in this moment" (p. 347). The threat script emphasized the opposite with lines such as "you cast doubts on your own ability", "you are concerned with your weakness" and "the potential of losing" (p. 347). Not only do the scripts elicit perceptions of a challenge or pressure, but they also elicit sensations of control and efficacy. The prevalence of control and efficacy is directly related to coping strategies and regulating stress (Haney & Long, 1995; Nicholls et al., 2010). Evaluations of each imagery script were distributed following the experiment. The evaluations asked questions regarding the ease of imagining, strength of emotion, and the extent to which the script was relatable, on a scale from one (very hard/not helpful) to seven (very easy/very helpful). Williams and Cumming's results showed that increases in anxiety intensity were perceived as facilitative in the challenge script. In contrast, increases in anxiety were considered debilitating

in the threat script. The difference indicates that both scripts induced the same level of physiological stimulation yet presented differences in how the athletes perceived the stress.

### **Self-efficacy and Anxiety Symptom Interpretation**

The aforementioned studies by Hale and Whitehouse (1998), and Williams and Cummings (2010) attempted to increase efficacy and perceived control through a means of verbal persuasion and restructuring of stress reactions in athletes. Both studies were also influenced by Jones's (1995) model of control by assessing how efficacy and control can be manipulated to influence an individual's appraisal of stress. Although the previously mentioned studies were not conducted in the context of an actual performance, the methods used to reappraise stress may still hold merit if utilized in longitudinal studies considering their effectiveness. Further research supported the effectiveness of reappraising stress as a "challenge" or a "threat" as Jones et al. (2009) developed the challenge and threat states theory (TCTSA). The TCTSA theory was heavily influenced by Jones's (1995) model of control. The significance of the TCTSA and how it differs from the model of control is that self-efficacy is considered to play a role in how stress is appraised.

The theory of challenge and threat states in athletes (Jones et al., 2009; Meijen, 2020) attributes some of the main points to the model of control (Jones, 1995). The TCTSA is primarily concerned with whether an individual perceives a stressor as a challenge or as a threat. If the athlete perceives the stressor as a challenge, they are more likely to perform to the best of their ability and vice versa for interpreting a stressor as a threat. Appraising stress as a challenge or threat is dependent on sufficient resources meeting the demand of the situation, perceived control, and self-efficacy (Jones et al., 2009; Meijen, 2020). The resources one possesses are essentially considered an individual's ability, and the demand is referred to as the ability required

to accomplish the goal. For example, a soccer player needs to have a sufficient skill level (resources) in order to overcome the demands (goalie or defenders) if that player wants to score a goal. Along with high self-efficacy and control, if the athlete possesses the resources to meet demands, they will be considered to be in a “challenge” state, which increases the likelihood the athlete will perform at full potential. However, although the TCTSA theory provides support to self-efficacy influencing appraisal of threats and is heavily influenced by the model of control, there is still no mention in the current literature on the extent to which self-efficacy influences how athletes interpret symptoms of anxiety.

The TCTSA theory provides a novel perspective on how athletes may appraise situations as challenging or threatening. However, the main aspect of anxiety as a moderator of performance was essentially omitted despite the theory being influenced by Jones’s model (1995). Although it provides support to how self-efficacy can alter an athlete’s perception of a stressor, anxiety may be too significant of a component to performing at “full potential” to be left out as it influences coping with stress (Nicholls et al., 2010), increased effort (Hardy & Hutchinson, 2007), increased focus (Neil et al., 2011), and performance (Arent & Landers, 2003; Mellalieu et al., 2004; Brooks, 2014). Additionally as the TCTSA currently stands, it is suggested anxiety is not a significant enough factor to influence performance at an athlete's full potential.

While both the TCTSA and the model of control may have their unique perspectives to how performance is predicted, the present study aims to investigate how the main postulates of the theory and model relate. TCTSA argues that performance depends on how stress is appraised based on self-efficacy and resources available to meet demands, and the model of control argues that performance depends on perceived control and how anxiety symptoms are interpreted. The

benefit to investigating if self-efficacy is related to anxiety symptom interpretation is that because self-efficacy already has a list of efficacy enhancing techniques (Bandura 1994; Zagórska & Guskowska, 2014; Wright et al., 2015), self-efficacy could be utilized to regulate and restructure symptoms of anxiety in performers.

### **Literature Review Summary**

Jones (1995) developed the model of control to explain that if a performer perceives control over themselves and the task at hand, they will view symptoms of anxiety as facilitative. If the performer views aspects of their performance as being outside of their control, they will find anxiety symptoms to be debilitating. Jones also suggests that the level of control athletes perceive depends on several personal and situational factors. Moderators that have been found to influence control and symptom interpretation can be broadly described as coping skills, (Nicholls et al., 2010) experience within sport, (Hanton et al., 2007; Jones 1994; Mellalieu et al., 2004), and type of sport (Hanton et al., 200; Hanton et al., 2007), with some more limited evidence suggesting self-efficacy can influence the ability to cope and exert control over tasks (Haney & Long, 1995).

Studies aimed at increasing levels of self-efficacy have targeted Bandura's (1997) sources of efficacy (vicarious experiences, mastery experiences, verbal persuasion, and modeling) (Brown et al., 2005; Zagórska and Guskowska, 2015). Because this study will be examining performers high and low in self-efficacy, participants will require some background in a given sport in order to examine if self-efficacy had an effect on anxiety and performance. Current literature has found associations between self-efficacy and performance (Bandura, 1988; Haney & Long, 1995; Moritz et al., 2000, Nicholls et al., 2010). However, there is a gap in the



literature that has yet to investigate if self-efficacy can influence how performers interpret anxiety symptoms as either facilitative or debilitating.

The aim of this study is to determine if high levels of self-efficacy are associated with performers experiencing symptoms of anxiety as facilitative or debilitating. Some findings suggest that self-efficacy has a positive relationship with perceived control which can translate to facilitative interpretations of anxiety (Jones, 1994; Hanton & Connaughton, 2002). The hypothesis for the present study is that individuals who have high levels of self-efficacy will also interpret symptoms of anxiety as facilitative. Conversely, those who are low in self-efficacy, are expected to interpret symptoms of anxiety as debilitating. Meaning that high self-efficacy will result in a symptom such as elevated heart rate or self-doubt, as a motivator rather than a deterrent toward goal attainment. Research in identifying how athletes have acquired the mental skills to cope with anxiety and stress has made significant progress. However, the methods in which those directions can change are less understood. Because self-efficacy is so well grounded and there is significant evidence on how to improve self-efficacy, it could be used as a tool to manipulate a performer's debilitating anxiety to be facilitative.

## CHAPTER III: METHODS SECTION OVERVIEW

The purpose of this study is to investigate the relationship between self-efficacy and the interpretation of anxiety symptoms in athletes. Questionnaires were sent electronically via a youth sports coaching application. Participants completed questionnaires pertaining to anxiety interpretation and self-efficacy. Scores from the self-efficacy questionnaire were compared with anxiety interpretation scores in order to evaluate if any relationship exists between the two constructs. Approval of procedures and instruments from the University's institutional review board was obtained prior to commencing the present study.

### **Participants**

The participants from this study were recruited via the MOJO youth sports coaching mobile application. The MOJO application is designed to connect youth athletes with their coaches to provide support and accessible instruction. The participants were recreational youth athletes aged 8-14. The type of sport varied between athletes, however, athletes who use MOJO participate in basketball, soccer, flag football, and baseball. The present study recruited athletes who participated in various sports. Only those that actively were competing and in season were included in the study by asking if the athlete competed in a competition in the past thirty days.

### **Instruments**

#### **Demographic Questionnaire**

The demographic survey was split into two parts. One part asked questions about the nature of sport participation for the athlete. The other part was standard demographic information (race, sex, ethnicity, etc.). The sport participation portion was asked at the beginning of the questionnaire, and the standard demographic information was asked for at the end of the survey.

Questions to gather information on basic demographics include questions about age, type of team (boys team, girls team, coed team), race, and ethnicity. Additionally, questions regarding sports experience and the highest level of competition the athlete had participated in were asked. Aside from specific demographic information, sport-related questions pertinent to the study were asked to ensure participants met certain inclusion criteria and other spurious variables could be controlled for. Sport background questions were asked regarding sports experience, type of sport involvement (club, school sport, or higher-level organized club such as US youth soccer), other sports the individual participates in, and level of interest they have in their current and main sports.

Because this study is dependent on participants accurately recalling the thoughts and feelings they experienced in a recent competition, a question asking about the last time they participated in a competitive event was employed. A cut-off of one month since the participant participated in a competition excluded a participant from the study. The cut-off was used to ensure athletes were in a regular competitive season, and they would experience less unusual sensations such as extra jitters one may feel during the first game of the season.

#### **CSAI-2(d)**

The CSAI-2 developed by Martens et al. (1990) is a widely used questionnaire for evaluating intensity levels of anxiety. The CSAI-2 measures three components that are predicted to influence an individual's performance. The components of the CSAI-2 include cognitive state anxiety, somatic state anxiety, and self-confidence. Each of the three components of the questionnaire has nine questions on a scale from one (Not at all) to 4 (very much so) for a minimum score of nine (low anxiety or confidence) and a maximum score of thirty-six (Highly anxious/confidence). Although the CSAI-2 has been criticized for its lack of validity when

assessing intensity levels of anxiety (Lane et al., 1999), Jones and Swain (1992) considered the CSAI-2 to be an adequate method to determine the symptoms of anxiety an individual may be experiencing.

The direction subscale developed by Jones and Swain (1992) was added to the CSAI-2 to assess how participants interpreted their symptoms of anxiety prior to competition. Although the CSAI-2 is not considered a strong instrument to evaluate the intensity of anxiety, it has been suggested that the inventory can adequately identify symptoms of anxiety an individual is experiencing. Hence, the main reason Jones and Swain decided to use the CSAI-2 is that a scale was needed to distinguish what symptoms participants were experiencing. The directionality scale comprises the participant revisiting each question on the CSAI-2, except they are asked how debilitating or facilitative that feeling is on a scale from (-3) to (+3) respectively. For example, item five on the CSAI-2 states “I feel jittery” and is originally evaluated on a scale from 1 (not at all) to 4 (very much so). When applying the direction subscale, the participant would be asked if feeling jittery is very facilitative (+3) or very debilitating (-3). Each section of the CSAI-2 has nine questions for a total of twenty-seven. The direction subscale has a minimum score of -27 indicating every symptom is highly debilitating and a maximum score of +27 indicating every symptom is highly facilitative. Previous studies have validated the CSAI-2(d) as a reliable measure of anxiety interpretation (Wagstaff et al., 2012) and also determined that the direction of anxiety is a better predictor of performance than intensity (Chamberlain & Hale 2007; Meijen et al., 2014).

### **General Self-efficacy scale**

In the present study, the researcher captured a cross-sectional representation of how athletes’ self-efficacy and anxiety interpretations are related. Following the CSAI-2 and

reiterating the directions asking the participant to recall thoughts and feelings from a previous competition, a general measure of self-efficacy was administered. A general measure of SE was used rather than using several sport-specific self-efficacy scales such as collective efficacy in basketball (Bray & Widmeyer, 2000) or efficacy in football (Myers et al., 2004) to capture a broad understanding of participants' feelings of efficacy in sport. The general self-efficacy scale (GSE), developed by Shere et al. (1982) consists of eight Likert scale items ranging from one (strongly disagree) to five (Strongly agree). Example questions of the GSE include “I am confident that I can perform effectively on many different tasks” and “Even when things are tough, I can perform quite well”. Although not specific to sport, the GSE has been found to be a reliable and valid measure of self-efficacy when broadly assessing an individual's belief in their ability to execute a certain skill or perform a tasks successfully (Bosscher & Smit, 1998; Chen et al., 2001; Luszczynska & Scholz, 2005).

### **Procedures**

The parents of potential participants first completed parental consent forms allowing their child to participate in the study. Depending on the age of the child, potential participants were automatically sent participant assent forms. One assent form was for children aged 7-11 and one for 12-17 year olds. Both assent forms contained different language appropriately for the different age ranges. Afterwords, the participant completed part one of the demographic questionnaire asking about their competitive sport history and the sports they currently play in.

Participants then were asked to complete both the CSAI-2(d) and the General Self-efficacy Scale (GSE) questionnaires through the Research Electronic Data Capture web application (REDCap). The directions for completing the CSAI-2(d) reflected the directions provided by Jones et al. (2004). The directions state for the participant to imagine they are taking

the CSAI-2(d) 30-minutes prior to a recent sporting event they competed in that was important to them. The participants were asked to spend one minute recalling the thoughts and feelings they experienced prior to their last competition. Additionally, the participants were asked to not consider the outcome on whether they succeeded in executing the skill as performance measures are not being evaluated for this study. Rather, this study is seeking to see how self-efficacy correlates with how individuals' interpret anxiety. The CSAI-2 intensity scale and the directionality scale were combined. Because the scales share the same questions, the participants answered the questions to both scales for each question. Finally, the CSAI-2(d) was completed prior to the GSE.

One day after the participants' competition, they were automatically sent the final two surveys consisting of the athlete subjective performance satisfaction survey and the second part of the demographic survey. The second part of the demographic survey consisted of asking about age, sex, ethnicity, and other factors.

### **Statistical Analysis**

The statistical analysis for this study will use SPSS 26.0. The present study will aim to find the Pearson Correlation Coefficient between the scores from the directionality subscale on the CSAI-2(d) and the scores on the General Self-efficacy scale. The Pearson Correlation Coefficient will determine if high scores in self-efficacy are correlated with facilitative interpretations of anxiety and if lower scores of self-efficacy are correlated with more debilitating interpretations of anxiety.

## CHAPTER IV: RESULTS

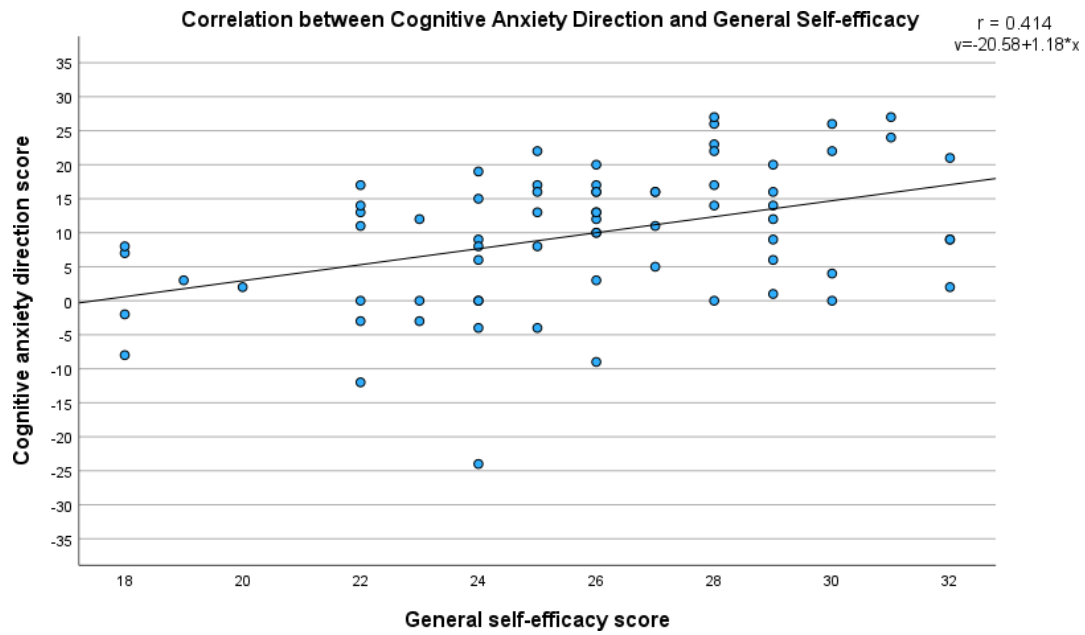
### **Participants**

There were 70 participants in total between the ages of 8 - 14 years ( $M= 10.93$ ,  $SD= 1.35$ ). The participants were surveyed by the type of team they played on (boys team, girls team, or coed team). Of the sample, 38 of the participants played on a boys' team, 18 on a girls' team and 14 on a coed team. There were zero participants that completed the follow up demographic survey at the very end of the study containing questions regarding gender, race, and ethnicity.

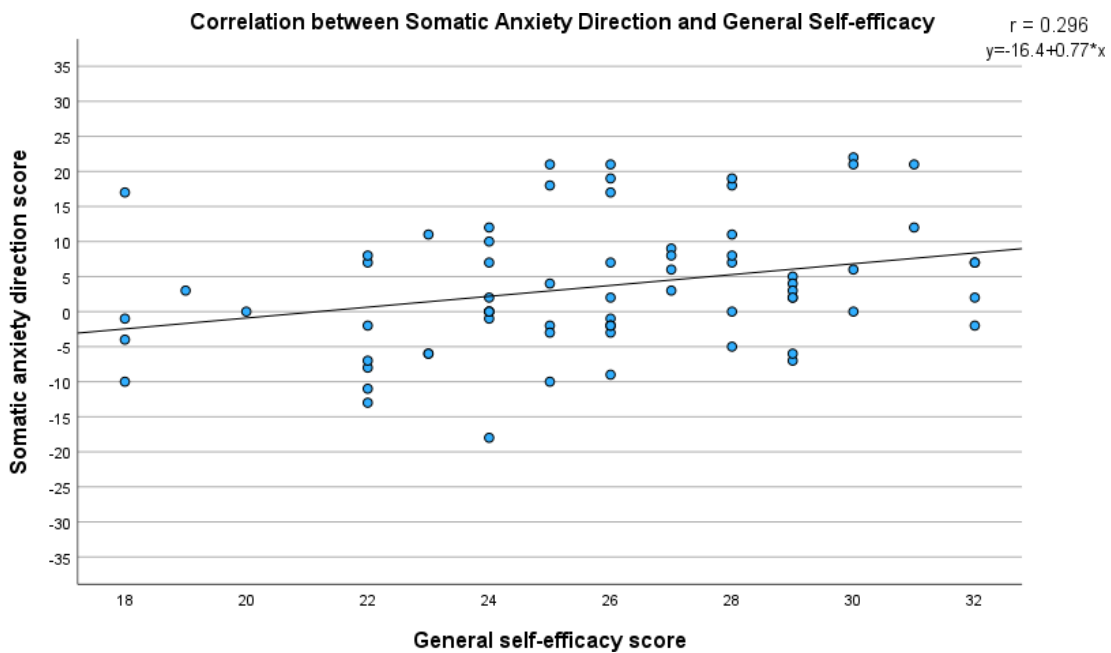
### **General Self-Efficacy Score and Anxiety Direction**

A Pearson bivariate correlation coefficient was conducted to determine the relationship between general self-efficacy scores and both cognitive anxiety direction and somatic anxiety direction ( $n=70$ ). There was a significant positive correlation between general-self-efficacy scores and cognitive anxiety direction scores  $r(70)=0.41$ ,  $p=0.013$ . There was a significant positive correlation between general-self-efficacy scores, and somatic anxiety direction scores,  $r(70)=0.30$ ,  $p<0.001$ . Additionally, cognitive anxiety direction scores and somatic anxiety direction scores had a significant positive correlation,  $r(70)=0.58$ ,  $p<0.001$ .

**Figure 1. Correlation Between Cognitive Anxiety Direction and General Self-efficacy**



**Figure 2. Correlation between GSE and somatic anxiety direction score**





## **Intensity Scores**

General self-efficacy did not significantly correlate with somatic anxiety intensity,  $r(70) = -0.11$ ,  $p = 0.37$ , or with cognitive anxiety intensity,  $r(70) = -0.18$ ,  $p = 0.14$ . Cognitive anxiety and somatic anxiety intensity scores had a strong correlation,  $r(70) = 0.62$ ,  $p < 0.001$ .

## **Athlete Performance Satisfaction**

Only some participants ( $n = 19$ ) completed the athlete subjective sport scale survey following their competition. Given that the participation in this aspect of the study was dramatically lower than expected, alpha was set at 0.10 to allow for the identification of potential relationships from an exploratory viewpoint. The only score that had a significant correlation with the participants' athlete subjective performance satisfaction survey (ASPS) was general self-efficacy score,  $r(19) = 0.455$ ,  $p = 0.05$ . Cognitive anxiety direction score,  $r(19) = 0.362$ ,  $p = 0.128$ , and somatic anxiety direction score,  $r(19) = 0.258$ ,  $p = 0.286$ , were not significantly correlated with the ASPS score.

## CHAPTER V: DISCUSSION

Anxiety is a topic that has been extensively studied over the years. Performance anxiety has mostly been studied in terms of intensity, but very rarely in terms of direction (Jones & Swain, 1995; Martens et al., 1990). In addition, performance anxiety has predominantly been paired with self-confidence as the primary moderator of anxiety intensity (Martens et al., 1990). Self-confidence, while being considered a strong predictor of how an athlete may respond to performance anxiety, is perceived as a personal factor (Fogarty & Else, 2005; Gilson, 2010). Meaning, self-confidence is ingrained into an individual's personality and is less prone to change (Jones, 1995). Conversely, self-efficacy is less tied to someone's personality and more toward a situation and or skill. Hence, self-efficacy is more malleable and can change (Hanton and Connaughton, 2002; Hanton et al., 2003). Bandura (1994) also provided self-efficacy enhancing techniques to further enhance self-efficacy with the end goal of regulating performance anxiety. This study, consequently, looks to determine the underlying reason self-efficacy regulates performance anxiety, primarily through the lens of anxiety direction and symptom interpretation of anxiety. Performance anxiety direction and symptom interpretation have not been heavily studied but show promise as an alternate method to regulating anxiety.

The most common method of regulating anxiety is through reduction approaches. The problem with this approach is anxiety, although detrimental to performance in some situations, is also highly beneficial as it narrows focus, creates a sense of urgency, and elicits a sense of excitement (Mellalieu et al., 2004). Rather than reducing performance anxiety, this study looks to determine if higher levels of self-efficacy correlate with positive interpretations of performance anxiety symptoms.

This study was conducted with surveys. Automated questionnaires were sent to youth athletes aged 8-14 in association with a youth sports coaching app called MOJO. The surveys included the CSAI-2(d) and General Self-Efficacy Questionnaire. Following the child's competition, a final survey containing the Athlete Subjective Performance Satisfaction (ASPS) survey was sent out. The ASPS survey was added to the questionnaire to further examine if there was a relationship between positive symptom interpretation of performance anxiety and their perceived performance from the competition as a secondary aim of the study.

### **Main Findings and Implications**

The main purpose of this study was to determine if high self-efficacy correlated with positive interpretations of performance anxiety. If general self-efficacy is high will the athlete perceive performance anxiety as more facilitative? As well as if the athlete has low self-efficacy will the athlete perceive the performance anxiety as more debilitating?

The results showed that general self-efficacy score did positively correlate with both somatic and cognitive anxiety direction scores. The results showing moderate correlations provide insight to self-efficacy's relationship with anxiety direction. The main conclusion regarding these findings is that within this sample, individuals who reported higher levels of self-efficacy, in general, reported to having more positive interpretations of cognitive and somatic anxiety.

The implication with this finding is that self-efficacy may be an effective means of regulating anxiety. By increasing self-efficacy, athletes could perceive their symptoms of performance anxiety (intrusive thoughts, jitters, sweating, heart racing) as positive signs that they are ready to perform or are excited about competing. Furthermore, employing self-efficacy enhancing strategies could be viewed as an additional viable method of regulating anxiety,

Oftentimes when it comes to anxiety regulation, many strategies provide the tools and resources to manage anxiety after it has already been perceived as debilitating. Looking at self-efficacy as a means of regulation could prevent anxiety as being perceived as debilitating in the first place. Utilizing the tools proposed by Bandura (1994) of mastery experiences, modeling, social persuasion, and reducing or altering stress reactions to the toolbox of regulation strategies could be beneficial for athletes.

### **Summary of Sample**

This sample of youth athletes was composed of participants that were experienced in their given sport. Thirty-three of the 70 participants reported to have competed in sports for over 3 years. The sample also consisted of primarily soccer and basketball players. Finally, in a question asking the participants how interested they are in their primary sport on a scale from “not at all” to “very interested”, 45 of the 70 participants reported that they were very interested whereas only 1 participant reported they were “not at all” interested.

The information regarding the sample should be taken into consideration when reviewing the overall findings of the study. Most of the participants compete in open skill sports, with a moderately high level of experience for their age and a majority of the participants are very interested in their primary sport. Anxiety is often more detrimental and apparent to athletes who are very interested in a sport or have high expectations from themselves, teammates, and coaches. Whereas athletes with very little experience or interest in a sport are more likely to not experience as much anxiety due to little to no expectations. However, it could be argued that athletes with less experience in a sport have more anxiety due to the lack of ability to execute skills properly or information about the sport.

Additionally, very few, if any, have investigated anxiety direction in youth athletes. Most all studies are done with college level athletes or elite athletes. This study opted to pursue youth athletes to fill a gap in the literature and to investigate if self-efficacy could benefit youth athletes when it comes to anxiety regulation.

### **Limitations**

There are a few limitations of the present study. First, other studies using similar scales such as the CSAI-2(d) would typically be done in person with athletes as close to competition as possible. The reasoning to deliver the questionnaires as close as possible is because that is when anxiety is typically at its highest according to many. This study opted for 3 days out from competition due to sending a large amount of automated surveys and trying to capture general thoughts and feelings. For more accurate representations of feelings of anxiety, instruments should be delivered as close as possible to competition without interrupting anything the athlete does to prepare for competition.

Finally, a smaller sample size and lack of completed surveys could have hindered the ability of the sample to be representative of the population. The completion rate of the final survey including the athlete subjective performance satisfaction survey and the final demographic questionnaire was 27%. The lack of complete surveys limited the demographic information and data on how the athletes perceived their performance.

### **Future Directions**

Despite the limitations, the results provided interesting information for further research. Qualitative research should certainly be conducted to pair meaningful statements from athletes to how they score in terms of how they perceive their anxiety similar to the study by Hanton and Connaughton (2002). In addition, qualitative studies could provide more when it comes to the

relationship between anxiety intensity and direction and if, or how, self-efficacy plays a mediating role.

Longitudinal studies aiming at anxiety prevention in sports rather than treatment could provide great information to practitioners. Using self-efficacy enhancing techniques as a method of prevention for a group in comparison to not using the techniques and surveying the anxiety perceptions of athletes would be a beneficial study.

Self-efficacy is considered to be the extent to which one perceives that one can execute a skill. This study used the general self-efficacy scale as this study aimed to be general in terms of collecting data from a variety of athletes. Specific scales for certain sports could be implemented or designed to better determine the self-efficacy of a specific athlete. For example, if the sample included only basketball players, questions could be asked in relation to their ability to execute very specific skills in basketball such as a free throw.

### **Conclusion**

The present study aimed to find if self-efficacy played a role in how youth athletes interpreted their anxiety as either facilitative or debilitating. Self-efficacy did have a moderate correlation with both cognitive and somatic anxiety direction meaning as self-efficacy was higher, the athlete interpreted their anxiety as more facilitative to their performance. And vice versa, athletes who had lower self-efficacy experienced their anxiety as more debilitating to their performance. The findings from this study provide for further exploration of the idea that self-efficacy can influence how athletes interpret their anxiety to be facilitative to their performance. Although there were limitations, the study provided compelling results to further explore this direction of performance anxiety.

## REFERENCES

- Anderson, K. J. (1990). Arousal and the inverted-u hypothesis: A critique of Neiss's "Reconceptualizing arousal."
- Apter, M. J. (1982). *The experience of motivation: The theory of psychological reversals*. Academic Press.
- Arent, S. M., & Landers, D. M. (2003). Arousal, Anxiety, and Performance: A Reexamination of the Inverted-U Hypothesis. *Research Quarterly for Exercise and Sport*, 74(4), 436–444.  
<https://doi.org/10.1080/02701367.2003.10609113>
- Barrows, J., Dunn, S., & Lloyd, C. A. (2013). Anxiety, Self-Efficacy, and College Exam Grades. *Universal Journal of Educational Research*, 1(3), 204-208.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (1988). Self-efficacy conception of anxiety. *Anxiety Research*, 1(2), 77-98.
- Barnes, M. W., Sime, W., Dienstbier, R. A., & Plake, B. (1986). A test of construct validity of the CSAI-2 questionnaire on male elite college swimmers. *International Journal of Sport Psychology*.
- Bosscher, R. J., & Smit, J. H. (1998). Confirmatory factor analysis of the general self-efficacy scale. *Behaviour research and therapy*, 36(3), 339-343.

- Bray, S. R., & Widmeyer, W. N. (2000). Athletes' perceptions of the home advantage: An investigation of perceived causal factors. *Journal of Sport Behavior*, 23(1), 1-1.
- Brooks, A. W. (2014). Get excited: Reappraising pre-performance anxiety as excitement. *Journal of Experimental Psychology: General*, 143(3), 1144–1158.  
<https://doi.org/10.1037/a0035325>
- Brown, L. J., Malouff, J. M., & Schutte, N. S. (2005). The effectiveness of a self-efficacy intervention for helping adolescents cope with sport-competition loss. *Journal of Sport Behavior*, 28(2), 136.
- Burton, D. (1988). Do anxious swimmers swim slower? Reexamining the elusive anxiety-performance relationship. *Journal of Sport & Exercise Psychology*, 10, 26–37.
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods*, 4(1), 62-83.
- Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition & emotion*, 6(6), 409-434.
- Feltz, D. L. (1982). Path analysis of the causal elements in Bandura's theory of self-efficacy and an anxiety-based model of avoidance behavior. *Journal of Personality and Social Psychology*, 42(4), 764.
- Feltz, D. L., & Weiss, M. R. (1982). Developing self-efficacy through sport. *Journal of physical education, recreation & dance*, 53(3), 24-36.
- Feltz, D. L., Short, S. E., & Sullivan, P. J. (2008). Self-efficacy in sport. *Human Kinetics*.



- Gould, D., & Weiss, M. (1981). The effects of model similarity and model talk on self-efficacy and muscular endurance. *Journal of Sport and Exercise Psychology*, 3(1), 17-29.
- Gould, D., Hedge, K., Peterson, K., & Giannini, J. (1989). An exploratory examination of strategies used by elite coaches to enhance self-efficacy in athletes. *Journal of Sport and Exercise Psychology*, 11(2), 128-140.
- Hale, B. D., & Whitehouse, A. (1998). The effects of imagery-manipulated appraisal on intensity and direction of competitive anxiety. *The Sport Psychologist*, 12(1), 40-51.
- Haney, C. J., & Long, B. C. (1995). Coping effectiveness: A path analysis of self-efficacy, control, coping, and performance in sport competitions. *Journal of Applied Social Psychology*, 25, 1726–1746.
- Hanton, S., & Connaughton, D. (2002). Perceived control of anxiety and its relationship to self-confidence and performance. *Research quarterly for exercise and sport*, 73(1), 87-97.
- Hanton, S., Cropley, B., Neil, R., Mellalieu, S. D., & Miles, A. (2007). Experience in sport and its relationship with competitive anxiety. *International Journal of Sport and Exercise Psychology*, 5(1), 28-53.
- Hanton, S., & Jones, G. (1999). The acquisition and development of cognitive skills and strategies. I: Making the butterflies fly in formation. *The Sport Psychologist*, 13, 1-21.
- Hanton, S., Jones, G., & Mullen, R. (2000). Intensity and direction of competitive state anxiety as interpreted by rugby players and rifle shooters. *Perceptual and motor skills*, 90(2), 513-521.

- Hanton, S., Neil, R., & Mellalieu, S. D. (2008). Recent developments in competitive anxiety direction and competition stress research. *International Review of Sport and Exercise Psychology*, 1(1), 45-57.
- Hanton, S., Neil, R., & Evans, L. (2013). Hardiness and anxiety interpretation: An investigation into coping usage and effectiveness. *European Journal of Sport Science*, 13(1), 96–104. <https://doi.org/10.1080/17461391.2011.635810>
- Hanton, S., O'Brien, M., & Mellalieu, S. D. (2003). Individual differences, perceived control and competitive trait anxiety. *Journal of Sport Behaviour*, 26(1), 39-55.
- Hanton, S., Wadey, R., & Mellalieu, S. D. (2008). Advanced psychological strategies and anxiety responses in sport. *The Sport Psychologist*, 22(4), 472-490.
- Jones, G. (1995). More than just a game: Research developments and issues in competitive state anxiety in sport
- Jones, G., Hanton, S., & Swain, A.B.J. (1994). Intensity and interpretations of anxiety symptoms in elite and non-elite sports performers. *Personality and Individual Differences*, 17, 657-663.
- Jones, G., & Swain, A. (1992). Intensity and direction as dimensions of competitive state anxiety and relationships with competitiveness. *Perceptual and motor skills*, 74(2), 467-472.
- Jones, G., Swain, A., & Hardy, L. (1993). Intensity and direction dimensions of competitive state anxiety and relationships with performance. *Journal of sports sciences*, 11(6), 525-532.
- Jones, M. V., & Uphill, M. (2004). Responses to the Competitive State Anxiety Inventory-2(d) by athletes in anxious and excited scenarios. *Psychology of Sport and Exercise*, 5(2), 201–212. [https://doi.org/10.1016/S1469-0292\(02\)00054-7](https://doi.org/10.1016/S1469-0292(02)00054-7)

- Krane, V., & Williams, J. (1987). Performance and somatic anxiety, cognitive anxiety, and confidence changes prior to competition. *Journal of Sport Behavior*, 10(1), 47.
- Lane, A. M., Sewell, D. F., Terry, P. C., Bartram, D., & Nesti, M. S. (1999). Confirmatory factor analysis of the competitive state anxiety inventory-2. *Journal of Sports Sciences*, 17(6), 505-512.
- Litt, M. D. (1988). Cognitive mediators of stressful experience: Self-efficacy and perceived control. *Cognitive Therapy and Research*, 12(3), 241-260.  
<https://doi.org/10.1007/BF01176188>
- Loo, C. W., & Choy, J. L. F. (2013). Sources of Self-Efficacy Influencing Academic Performance of Engineering Students. *American Journal of Educational Research*, 1(3), 86-92. <https://doi.org/10.12691/education-1-3-4>
- Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: multicultural validation studies. *The Journal of psychology*, 139(5), 439-457.
- Martens, R., Vealey, R.S., & Burton, D. (1990). Competitive anxiety in sport. Champaign, IL: Human Kinetics
- Martens, R., Burton, D., Vealey, R. S., Bump, L. A., & Smith, D. E. (1990). Development and validation of the competitive state anxiety inventory-2. *Competitive anxiety in sport*, 117-190.
- Meijen, C., Jones, M. V., Sheffield, D., & McCarthy, P. J. (2014). Challenge and threat states: Cardiovascular, affective, and cognitive responses to a sports-related speech task. *Motivation and Emotion*, 38(2), 252-262.

- Mellalieu, S. D., Hanton, S., and O'Brien, M. (2004). Intensity and direction dimensions of competitive anxiety as a function of sport type and experience. *Scandinavian Journal of Science and Medicine in Sport*, 14, 326-334
- Mellalieu, S. D., Hanton, S., & Fletcher, D. (2006). A competitive anxiety review: Recent directions in sport psychology research. *Literature reviews in sport psychology*, 9, 1-145.
- Mellalieu, S. D., Hanton, S., & Thomas, O. (2009). The effects of a motivational general-arousal imagery intervention upon preperformance symptoms in male rugby union players. *Psychology of Sport and Exercise*, 10(1), 175–185.  
<https://doi.org/10.1016/j.psychsport.2008.07.003>
- Moritz, S. E., Feltz, D. L., Fahrback, K. R., & Mack, D. E. (2000). The relation of self-efficacy measures to sport performance: A meta-analytic review. *Research quarterly for exercise and sport*, 71(3), 280-294.
- Myers, N. D., Feltz, D. L., & Short, S. E. (2004). Collective efficacy and team performance: A longitudinal study of collegiate football teams. *Group Dynamics: Theory, Research, and Practice*, 8(2), 126.
- Neil, R., Wilson, K., Mellalieu, S. D., Hanton, S., & Taylor, J. (2012). Competitive anxiety intensity and interpretation: A two-study investigation into their relationship with performance. *International Journal of Sport and Exercise Psychology*, 10(2), 96-111.
- Nicholls, A. R., Polman, R., & Levy, A. R. (2010). Coping with self-efficacy, pre-competitive anxiety, and subjective performance among athletes. *European journal of sport science*, 10(2), 97-102.

Raglin, J. S. (1992). 9: Anxiety and Sport Performance. *Exercise and Sport Sciences Reviews*, 20(1), 243-274. <https://doi.org/10.1249/00003677-199200200-00009>

Ram, N., & McCullagh, P. (2003). Self-Modeling: Influence on Psychological Responses and Physical Performance. *The Sport Psychologist*, 17(2), 220–241.  
<https://doi.org/10.1123/tsp.17.2.220>

Robazza, C., Pellizzari, M., & Hanin, Y. (2004). Emotion self-regulation and athletic performance: An application of the IZOF model. *Psychology of Sport and Exercise*, 5(4), 379–404. [https://doi.org/10.1016/S1469-0292\(03\)00034-7](https://doi.org/10.1016/S1469-0292(03)00034-7)

Sage, G. H. (1984). *Motor learning and control: A neuropsychological approach*. Brown.

Sitzmann, T., & Yeo, G. (2013). A meta-analytic investigation of the within-person self-efficacy domain: Is self-efficacy a product of past performance or a driver of future performance?. *Personnel Psychology*, 66(3), 531-568.

Sheard, M., & Golby, J. (2010). Personality hardiness differentiates elite-level sport performers. *International Journal of Sport and Exercise Psychology*, 8(2), 160–169.  
<https://doi.org/10.1080/1612197X.2010.9671940>

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological reports*, 51(2), 663-671.

Smith, C. A., & Lazarus, R. S. (1990). Emotion and adaptation. *Handbook of personality: Theory and research*, 609-637.

Spielberger, C. D. (1975). Anxiety: State-trait process. *Stress and anxiety*, 115-143.

- Swain, A., & Jones, G. (1996). Explaining performance variance: The relative contribution of intensity and direction dimensions of competitive state anxiety. *Anxiety, Stress, and Coping*, 9(1), 1-18.
- Thomas, O., Maynard, I., & Hanton, S. (2007). Intervening with Athletes During the Time Leading up to Competition: Theory to Practice II. *Journal of Applied Sport Psychology*, 19(4), 398–418. <https://doi.org/10.1080/10413200701599140>
- Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport and Exercise Psychology*, 8(3), 221-246.
- Wagstaff, C. R., Neil, R., Mellalieu, S. D., & Hanton, S. (2012). Chapter 7-Key Movements in Directional Research in Competitive Anxiety: Chapter taken from *Coping and Emotion in Sport*: ISBN: 978-0-203-85229-3. *Routledge Online Studies on the Olympic and Paralympic Games*, 1(53), 143-166.
- Weinberg, R., Butt, J., Knight, B., Burke, K. L., & Jackson, A. (2003). The relationship between the use and effectiveness of imagery: An exploratory investigation. *Journal of Applied Sport Psychology*, 15(1), 26-40.
- Williams, S. E., Cumming, J., & Balanos, G. M. (2010). The Use of Imagery to Manipulate Challenge and Threat Appraisal States in Athletes. *Journal of Sport and Exercise Psychology*, 32(3), 339–358. <https://doi.org/10.1123/jsep.32.3.339>
- Williams, S. E., Veldhuijzen van Zanten, J. J. C. S., Trotman, G. P., Quinton, M. L., & Ginty, A. T. (2017). Challenge and threat imagery manipulates heart rate and anxiety responses to

stress. *International Journal of Psychophysiology*, 117, 111–118.

<https://doi.org/10.1016/j.ijpsycho.2017.04.011>

Woodman, T. I. M., & Hardy, L. E. W. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of sports sciences*, 21(6), 443-457.

Yerkes, R.M., & Dodson, J.D. (1908). The relation of strength of stimulus to rapidity of habit formation. *Journal of Comparative and Neurological Psychology*, 18, 459–482.

Zagórska, A., & Guskowska, M. (2014). A program to support self-efficacy among athletes. *Scandinavian journal of medicine & science in sports*, 24(3), e121-e128.

## APPENDIX A: MEASURES

### *General Demographic Questionnaire (Part 1)*

Please answer the following questions as accurately as possible

1.) What type of team do play on?

- Boys Team
- Girls Team
- Coed team

2.) What is your date of birth?

\_\_\_\_\_

3.) What is the main sport you currently play

\_\_\_\_\_

4.) How long have you been participating in competitions for that sport?

- Less than 6 months
- Between 6 months and 1 year
- Between 1 and 2 years
- Between 2 and 3 years
- Over 3 years

5.) What sport organization do you primarily play for

- School Sport
- Club
- Travel Team

6.) What would you say your current level of interest toward your main sport is?

- Not at all
- Somewhat Interested
- Moderately Interested
- Very Interested



7.) When was the last time you participated in a sport competition for your main sport

- Within one week from today
- Between 1 and 2 weeks from today
- Between 2 and 3 weeks from today
- Over 1 month ago

10.) What most accurately describes the outcome of the last competition you were involved in?

- My team lost, and I did not perform as well as I hoped
- My team lost, and I performed well
- My team won, and I did not perform as well as I hoped
- My team won, and I performed well

***General Demographic Questionnaire (Part 2) – Administered after ASPS survey***

1.) What is your race? Please check all that apply.

- Asian
- Black/African American
- White/Caucasian
- American Indian or Alaska Native
- Native Hawaiian or Pacific Islander
- Other

1a.) If selected other, please explain the race you identify as?

2.) What is your ethnicity

- Hispanic or Latino
- Not Hispanic or Latino

3.) What is your gender

- Male
- Female
- A gender not listed
- I prefer not to say

## **Competitive State Anxiety Inventory - 2 with the Direction Subscale**

Directions

### **Instructional set in the neutral condition**

**We would like you to imagine a recent competition you participated in.** (It does not matter if this is an individual or team sport, or at what level you compete). Please spend about 1 min recalling and focusing on the thoughts and feelings you remember experiencing just before your competition

Now *imagine you are completing this questionnaire 30 min prior to the start of that same competition.* We ask that you complete this questionnaire as honestly as possible and to record the thoughts and feelings that *you believe you would be experiencing prior to competing in your most recent competition.* Having read and understood the preceding instructions please complete the rest of the questionnaire

### **Directions prior to completing the CSAI-2(d)**

A number of statements that athletes have used to describe their feelings before competition are given subsequently. The questionnaire is divided into two sections. In Section 1 please read each statement and then circle the appropriate number to the right of the statement to indicate ***how you felt prior to that competition.*** There are no right or wrong answers and please do not think about the outcome of the competition when answering the questions. Do not spend too much time on any one statement, but choose the answer which describes your feelings that you remember experiencing before the *competition.*

In addition please indicate in Section 2 whether you regard this thought/feeling as negative (debilitative) or positive (facilitative) in relation to performance in your sport. if you have scored '1' (Not at all) on the fourth item then you respond on this scale as if you had *no* self-doubts. If you respond '4' (very much so) to item 4 then you respond on this scale as if you had a *great deal* of self-doubt.

*Competitive state Anxiety Inventory - 2*

Question Number	Question	Not at all	Somewhat	Moderately so	Very much so
1	I am concerned about this competition.	1	2	3	4
2	I feel nervous.	1	2	3	4
3	I feel at ease.	1	2	3	4
4	I have self-doubts.	1	2	3	4
5	I feel jittery	1	2	3	4
6	I feel comfortable.	1	2	3	4
7	I am concerned I may not do as well in this competition as I could	1	2	3	4
8	My body feels tense.	1	2	3	4
9	I feel self-confident	1	2	3	4
10	I am concerned about losing.	1	2	3	4
11	I feel tense in my stomach.	1	2	3	4
12	I feel secure	1	2	3	4
13	I am concerned about losing.	1	2	3	4
14	My body feels relaxed	1	2	3	4
15	I'm confident I can meet the challenge	1	2	3	4
16	I'm concerned about performing poorly.	1	2	3	4
17	My heart is racing	1	2	3	4
18	I'm confident about	1	2	3	4

19	I'm worried about reaching my goal.	1	2	3	4
20	I feel my stomach sinking	1	2	3	4
21	I feel mentally relaxed	1	2	3	4
22	I'm concerned that others will be disappointed with my performance.	1	2	3	4
23	My hands are clammy.	1	2	3	4
24	I'm confident because I mentally picture myself reaching my goal.	1	2	3	4
25	I'm concerned I won't be able to concentrate.	1	2	3	4
26	My body feels tight	1	2	3	4
27	I'm confident of coming through under pressure.	1	2	3	4

***CSAI-2 Direction subscale***

Question Number	Question	Very Debilitative	Moderately Debilitative	Somewhat Debilitative	Neutral	Somewhat Facilitative	Moderately Facilitative	Very Facilitative
1	I am concerned about this competition.	-3	-2	-1	0	1	2	3
2	I feel nervous.	-3	-2	-1	0	1	2	3
3	I feel at ease.	-3	-2	-1	0	1	2	3
4	I have self-doubts.	-3	-2	-1	0	1	2	3
5	I feel jittery	-3	-2	-1	0	1	2	3
6	I feel comfortable.	-3	-2	-1	0	1	2	3
7	I am concerned I may not do as well in this competition as I could	-3	-2	-1	0	1	2	3
8	My body feels tense.	-3	-2	-1	0	1	2	3

9	I feel self-confident	-3	-2	-1	0	1	2	3
10	I am concerned about losing.	-3	-2	-1	0	1	2	3
11	I feel tense in my stomach.	-3	-2	-1	0	1	2	3
12	I feel secure	-3	-2	-1	0	1	2	3
13	I am concerned about losing.	-3	-2	-1	0	1	2	3
14	My body feels relaxed	-3	-2	-1	0	1	2	3
15	I'm confident I can meet the challenge	-3	-2	-1	0	1	2	3
16	I'm concerned about performing poorly.	-3	-2	-1	0	1	2	3
17	My heart is racing	-3	-2	-1	0	1	2	3
18	I'm confident about	-3	-2	-1	0	1	2	3
19	I'm worried about reaching my goal.	-3	-2	-1	0	1	2	3
20	I feel my stomach sinking	-3	-2	-1	0	1	2	3
21	I feel mentally relaxed	-3	-2	-1	0	1	2	3
22	I'm concerned that others will be disappointed with my performance.	-3	-2	-1	0	1	2	3
23	My hands are clammy.	-3	-2	-1	0	1	2	3
24	I'm confident because I mentally picture myself reaching my goal.	-3	-2	-1	0	1	2	3
25	I'm concerned I won't be able to concentrate.	-3	-2	-1	0	1	2	3
26	My body feels tight	-3	-2	-1	0	1	2	3
27	I'm confident of coming through under pressure.	-3	-2	-1	0	1	2	3

## *General Self-efficacy scale*

### **Directions for General Self-efficacy scale**

For this section, please continue to think back to your previous competition you participated in to answer the following questions. For the questions below, please mark the answer that most accurately describes the feelings you had before you competed in your event.

<b>Question</b>	<b>Not True at all</b>	<b>Hardly True</b>	<b>Moderately True</b>	<b>Exactly True</b>
I will be able to achieve most of the goals that I have set for myself.	1	2	3	4
When facing difficult tasks, I am certain that I will accomplish them.	1	2	3	4
In general, I think that I can obtain outcomes that are important to me.	1	2	3	4
I believe I can succeed at most any endeavor to which I set my mind.	1	2	3	4
I will be able to successfully overcome many challenges.	1	2	3	4
I am confident that I can perform effectively on many different tasks.	1	2	3	4
Compared to other people, I can do most tasks very well.	1	2	3	4
Even when things are tough, I can perform quite well.	1	2	3	4