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United States Elite Youth Tennis Athletes' Use of Psychological Strategies in Competition

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To the Graduate Council:

I am submitting herewith a dissertation written by Emily Earlyynn Lauer entitled "United States Elite Youth Tennis Athletes' Use of Psychological Strategies in Competition." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Kinesiology and Sport Studies.

Rebecca A. Zakrajsek, Major Professor

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United States Elite Youth Tennis Athletes' Use of Psychological Strategies in Competition

A Dissertation Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Emily Earlyynn Lauer

May 2017

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Acknowledgments

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Abstract

Young athletes are routinely faced with stressors and competitive structures that collegiate and adult athletes face. Psychological skills training (PST) can provide young athletes with strategies and skills to cope with these stressors and ultimately influence sport performance (Vealey, 2007). To date, the only study exploring in-competition experiences of young athletes was with participants between 16 and 18 years of age (Van Raalte, Brewer, Rivera, & Petitpas, 1994). The current study is the first investigation on the in-competition experiences of children and adolescents in sport. Twelve elite young tennis athletes ($M[\text{subscript}]_{\text{age}} = 11.83$) who trained within a Player Development program in the Northeastern United States and had been exposed to a PST program participated in this study. Match observations and post-match interviews were used to capture athletes' match experience and in-competition psychological strategy use. As a result of thematic content analysis (Braun & Clark, 2006), eight themes and 19 subthemes emerged. These eight themes included (a) pre-match feelings, (b) pre-match preparation, (c) competition was used to practice skills and strategies, (d) in-match feelings, (e), in-match use of and rationale for psychological strategies, (f) athletes' thoughts and behaviors during changeovers, (g) frequency of psychological strategy use, and (h) psychological strategy learning process. Findings support for the notion that early adolescent athletes are capable of understanding their thoughts, focus, and feelings during competitions and are able to use psychological strategies to regulate their emotions and positively influence psychological and physical performance outcomes. In addition, the results of this study provide compelling evidence for the effectiveness of the PST program.

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SECTION 1: Personal Narrative and Mission

I learned to play tennis at age 12. Though I had been very achievement oriented from a young age and participated in other sports and played several instruments, tennis represented a way for me to experience pride in my individual accomplishments while satisfying my desire for competition. With that, I have always been hard on myself, and I do not know where I “got it.” I frequently critique my efforts and achievements, typically concluding that they do not meet my self-imposed expectations. And, by proxy, I feel that I have shamed those who supported or believed in me. These were the stressors that I brought to the tennis court that combined with the inherent stress of sport development and competition, producing a rather neurotic but hard-working tennis player who achieved decent performance outcomes in her prime.

Tennis seems to breed (or perhaps support) tough critics. I recognize that I draw largely from personal experiences and encounters with several similar individuals. And, I have wondered (a musing that has fueled my research) if learning skills to manage emotions in sport can help young people cope with stressors in and out of sport. In his book, *Beyond Excellence*, Dr. Terry Orlick (1982) proclaimed that if we expose children to stress-inducing situations (i.e., sport competition) we have the responsibility to teach them how to cope with that stress. Thus, I have an obligation to learn how sport psychology professionals can best teach young athletes how to cope with stress and positively characterize achievement in sport.

SECTION 2: Manuscript

Introduction

The sport performance ethic creates a culture in which superior sport performance is valued, and it is perceived that athletes need to develop technical, tactical, and physical skills early to be eligible for professional, collegiate, and even high school sport (Farrey, 2008). It is important to note that psychological skills facilitate physical skill development while also helping young athletes prepare for and respond to stressful sport experiences (Vealey, 2007). Thus, psychological skills should be developed early alongside physical skill development. This study investigates early adolescent (i.e., ages 10 to 14; Horn & Butt, 2014) athletes' experiences in competition and use of psychological skills and strategies to positively influence performance.

Emotion and Coping Research

Lazarus's (1991, 1999, 2000) Cognitive-Motivational-Relational (CMR) theory of emotion is the most widely used model to characterize emotions and coping within sport and provides an interpretive tool for understanding appraisals (i.e., thoughts), emotions, and coping processes (i.e., behaviors, psychological strategy use) in competition. Within Lazarus's CMR theory of emotion, the coping process (i.e., the transactional model of coping) is isolated; this model has also been frequently used by sport psychology researchers. In his view, emotion is defined as a

phenomenon... that is an organized psychophysiological reaction to ongoing relationships with the environment, most often, but not always, interpersonal or social.

This reaction consists of responses from three levels of analysis—namely, introspective

reports of subjective experience (often referred to as an affect), overt actions or impulses to act, and physiological changes that make the emotions organismic. (p. 230)

Competitive situations set the stage for an emotional response because they are inherently meaningful and can influence well-being (e.g., a win can boost a regional ranking or increase feelings of self-satisfaction). With time and experience, athletes learn to discern or appraise the magnitude of specific competitive situations. Thus, athletes likely appraise competition as important and experience a range of emotions that can either be facilitative or debilitating. Action tendencies account for the physiological response accompanied by an emotion. Based on information gained from appraisal and action tendencies, the coping process either changes the meaning or reality of the person-environment relationship to alter the existing emotional state. Emotions carry short and long-term outcomes that influence cognition and behaviors specifically related to the emotion-provoking situation and more broadly to constructs such as mood and personal well-being.

Developmental changes are important to consider within Lazarus's CMR theory (1999) because they can play a role in how young athletes in childhood and early adolescence experience, appraise, and cope with their emotions (Weiss & Raedke, 2004). Emotional behavior develops early in childhood and tends to remain stable over time (Izard & Ackerman, 2000). During childhood, a range of coping responses begin to develop (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Notably, as athletes move from childhood to early adolescence—marked by the onset of puberty—emotions may be more intense as complex emotions develop and approval of peers becomes more important than that of parents or other adults (Vernon, 2004). Early adolescent children also continue to develop the ability to

match coping efforts to real or imagined characteristics of stressful situations (Compas et al., 2001).

Sadly, too often the performance-driven nature of youth sport culture and athletes' developmental changes collide to produce strong, and in some cases, extreme emotional experiences. Understanding the youth sport competitive experience and incorporating psychological skills training (PST) at an early age may be a way to help athletes cope with the unique demands of sport and ultimately positively characterize achievement. Coping from a developmental perspective is a "conscious, volitional effort to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (Holt, Hoar, & Fraser, 2005, p. 26). This coping process is influenced and restrained by cognitive, social, and physical development (Compas et al., 2001). In applied sport psychology, professionals teach psychological skills and strategies to help athletes cope with a variety of sport situations (Vealey, 1998). Thus, part of PST is a form of explicitly taught coping methods to manage emotions, thoughts, and behaviors, all of which have an influence on the others. The coping process is used to manage the appraisals (i.e., thoughts) that cause emotions, influencing subsequent appraisals (i.e., thoughts, focus) and behavioral outcomes.

Coping strategies either change the conditions or the perceptions of the situation that caused the emotion and fall into two categories (Lazarus & Folkman, 1987). *Problem-focused coping* involves actively attempting to eliminate or reduce the environmental factors that produced an emotion; strategies include efforts to problem-solve, plan subsequent actions, gather more information, suppress behavior not conducive to goal achievement, or increase efforts toward goal achievement (Holt et al., 2005). *Emotion-focused or cognitive coping* strategies change the meaning of the relationship between the person and environment rather

than the actual physical relationship. These mental efforts include withdrawing, denying, relaxing, blaming, avoiding, and accepting the existing person-environment situation.

Some researchers have examined the development and use of coping strategies by young athletes in line with Lazarus's transactional model of coping and CMR theory of emotions (e.g., Gilbert, 2000; Holt & Mandigo, 2004; Nicholls & Polman, 2008; Udry, Gould, Bridges, & Tuffey, 1997). For example, using a qualitative method, Holt and Mandigo (2004) investigated young athletes' performance worries and associated coping strategies and found that problem-focused coping was used marginally more than emotion-focused coping by young male cricket players who were around 12 years old. Furthermore, a percentage of athletes (16%) engaged in no coping strategies with regard to their performance worries. Interestingly, research outside of sport indicates that young children tend to use problem-focused coping more often than other coping styles (Band & Weisz, 1988; Bull & Drotar, 1991; Kliwer, 1991; Roecker, Dubow, & Donaldson, 1996; Weisenberg, Schwarzwald, Waysman, Solomon, & Klingman, 1993).

In sport, Crocker and Isaak (1997) assessed types of coping styles and consistency of their use by junior competitive swimmers between the ages of 10 and 16 years. Using the COPE inventory (Crocker, 1992), young swimmers indicated that they used consistent active coping strategies for races, but these strategies were not necessarily used for practice or other competitive situations. Moreover, the coping strategies (i.e., problem-focused and emotion-focused) used by adolescent golfers changed over six holes of golf (Nicholls & Polman, 2008). Coping may change with the context; however, it is unclear whether these coping styles were learned from coaches within training sessions or if the use of coping strategies was tied to the importance of the event (Crocker & Isaak, 1997; Nicholls & Polman, 2008). Furthermore,

athletes may benefit from the teaching of coping skills (i.e., psychological strategies) in practice and the use of these techniques in training and other competitive events.

Several additional studies have provided evidence that young athletes utilize psychological strategies in sport to cope with in-competition experiences (e.g., Harwood, Cumming, & Fletcher, 2004; Harwood, Cumming, & Hall, 2003). Moreover, PST programs for young athletes have demonstrated positive performance and psychosocial outcomes (Fournier et al., 2005; Gucciardi, Gordon, & Dimmock, 2009a; Gucciardi, Gordon, & Dimmock, 2009b; Sheard & Golby, 2009). For example, athletes as young as seven years old utilized imagery, were able to create detailed images about their sporting experiences, and reported that imagery was an effective psychological tool for improving performance (Munroe-Chandler, Hall, Fishburne, O, & Hall, 2007; Munroe-Chandler, Hall, Fishburne, & Strachan, 2007). Positive performance gains have also been associated with the use of self-talk (Johnson, Hrycaiko, Johnson, & Halas, 2004; Ming & Martin, 1996; Palmer, 1992) and goal setting (Wanlin, Hrycaiko, Martin, & Mahon, 1997). In addition, positive psychosocial outcomes such as increased self-confidence and commitment have been associated with the use of relaxation, self-talk, goal setting, focusing, and visualization (Founier et al, 2005); increased motivation and self-awareness levels have been associated with goal setting strategies (Larsen, Henricksen, Alfermann, & Christensen, 2014).

Unfortunately, these studies are limited in our understanding of the transfer of PST strategies from training to competition. For example, Wrisberg and Anshel (1989) included a question about the actual use of the psychological strategy throughout the course of the PST intervention (i.e., “To what extent did you actually use the strategy you learned?”). Similarly, some researchers (e.g., Haddad & Tremayne, 2009) have asked whether young athletes thought

the psychological strategy helped to improve performance (i.e., “Did you think the centering breath helped you improve your free throw shooting?”). Therefore, researchers have thus far been limited in their ability to ascertain young athletes’ specific use of psychological strategies in competition, specifically how and why strategies were used (Sharp et al., 2013).

In-Competition Youth Sport Research

Existing research on the topic of the in-competition experiences of American youth athletes – including how they cope with the sport performance environment - is essentially non-existent. An exception is Van Raalte and colleagues’ (Van Raalte, Brewer, Rivera, & Petitpas, 1994) investigation of U16 and U18 male and female tennis athletes’ use of self-talk and gestures and their resulting effects on performance during competition. More specifically, the researchers observed tennis matches and recorded the score progression, audible self-talk, and other observable behaviors (e.g., fist pump, racket abuse) during competition. A post-match questionnaire was also used to investigate athletes’ perceptions of their self-talk (i.e., negative and positive) and its perceived influence on their performance. Overall, both positive and negative self-talk and gestures were used throughout matches, but the use of negative self-talk—which was associated with poor performance—was more frequent than the use of positive self-talk. Results of the post-match questionnaire indicated that athletes believed their self-talk affected them in both negative (e.g., loss of concentration) and positive (e.g., self-motivation, calming) ways, and negative self-talk was described as detrimental to performance.

There are several facets of Van Raalte and colleagues’ (1994) study that beg for additional investigation into the competitive experiences of young athletes. First, while the rationale for examining self-talk was because of its frequency and observability in tennis play, several other psychological strategies and behaviors (e.g., routines, deep breathing) may also be

utilized to regulate thoughts, focus, feelings, and behaviors throughout the course of a match. Expanding the behaviors of interest allows for a more in-depth study of coping in competition. Second, although Van Raalte and colleagues' (1994) study protocol included both quantitative and qualitative procedures, the post-match questionnaire items limited the amount of information that could be obtained about athletes' perceptions and use of self-talk. Third, athletes were only recruited from U16 and U18 age groups; however, the experiences of younger athletes are also highly valuable. To date, research investigating the experiences of psychological strategy use by youth athletes in mid-childhood and early adolescence during competition is virtually non-existent.

In addition, Van Raalte and colleagues (1994) did not seek information about athletes' prior exposure to PST. Specifically, PST is defined as the "techniques and strategies designed to teach or enhance mental skills that facilitate performance and a positive approach to sport competition" (Vealey, 1988, p. 319). Self-talk is a psychological strategy that has been taught in isolation (e.g., Ming & Martin, 1996) or within comprehensive PST packages (e.g., Fournier, Calmels, Durand-Bush, & Salmela, 2005) to improve sport performance. Previous experience with PST could influence athletes' understanding and use of self-talk and other psychological strategies in competition. For example, adolescent rugby athletes were better able to select and utilize psychological skills and strategies (e.g., self-talk, imagery, arousal control) to enhance performance after exposure to a PST program (Sharp, Woodcock, Holland, Cumming, & Duda, 2013).

Statement of the Problem

In Van Raalte and colleagues' study (1994), much of the self-talk recorded included an emotional component (e.g., "Come on, you can do it;" "You stupid dimwit, you're so dumb").

Young athletes undoubtedly experience stress and emotion within sport, especially during competition. According to Lazarus (1993) stress and emotion are a single, complex phenomenon. Based on the CMR theory, both positive and negative emotions are coped with in an attempt to lessen this emotional experience (e.g., feeling stressed). By the time young athletes reach mid-adolescence (i.e., 13 years of age; Erikson, 1950), they have likely already been engaged in their sport for approximately five years (or longer) and may have internalized dysfunctional responses to competition (Vealey, 1988). Therefore, exploring the perceptions of younger populations (e.g., 10-14 years of age) was an important endeavor for sport psychology researchers in order to better understand how young athletes: (a) describe their awareness of their appraisal process (e.g., thoughts, focus), emotions (i.e., feelings), and behaviors during competition, (b) use psychological skills and strategies during competition, (c) use psychological strategies at different developmental stages, and (d) perceive the influence of psychological strategies on their performance and overall approach to competition.

Purpose of the Study and Research Questions

The purpose of the study was to capture the in-competition experiences of elite youth tennis athletes in early adolescence who have been exposed to PST. The overarching research question was the following: How do elite early adolescent tennis players (i.e., ages 10-14 years; Horn & Butt, 2014) describe their use of psychological skills and strategies during competition experiences? Then, several research sub-questions were also explored:

1. How do elite young tennis athletes exposed to PST describe their *awareness* of their appraisal process (e.g., thoughts, focus), emotions (i.e., feelings), and behaviors during competition?

2. How do elite young tennis athletes exposed to PST describe their *use* of psychological skills and strategies during competition (e.g., to influence emotions and coping processes, etc.)?
3. How does the use of psychological strategies by young tennis athletes exposed to PST *influence* their perception of match performance (if at all)?
4. In what ways, if any, do elite young tennis athletes exposed to PST *differ* in their awareness of their appraisal process, emotions, and behaviors, as well as their experiences of psychological skills and strategies during competition by certain demographics (e.g., age, gender, match outcome)?

Methodology

The phenomenon studied was the process of elite young tennis athletes' competitive experiences and use of psychological skills and strategies. This represented an intrinsic case, namely "a phenomenon of some sort occurring in a bounded context" (Merriam, 1998, p. 27). Elite young athletes' competitive experiences qualified as a case because it was influenced by a specific contextual factor, specifically their sport and psychological training (described more fully in the Context section). Because the case was sufficiently bounded per Merriam's directives, this form of case study was used to qualitatively investigate the processes of this case. Grounded within the field of educational psychology, Merriam's epistemological stance is constructivist. More specifically, she recognizes that "the key philosophical assumption upon which all types of qualitative research are based is the view that reality is constructed by individuals interacting with their social worlds" (Merriam, 1998, p. 6).

In this study, an interpretive case study design was used. Interpretive case studies provide thick, rich description of the phenomenon under investigation; they also support

interpretation of this description using an inductive analysis process (Shaw, 1978). The researcher can also identify relationships within the phenomenon that support existing theoretical frameworks or even develop a new framework related to the data (i.e., deductive analysis; Merriam, 1998). Researchers who use the case study method must also recognize the roles of supporting theoretical frameworks that inform the research process.

Context of Study: Youth Sport Organization

The Tennis Player Development program in which the elite young athletes had been exposed was an important contextual variable that colors the nature of the specific case. The program curriculum included intensive tennis, strength and conditioning, and PST for athletes between the ages of 9 and 16 years. Athletes in this case were all considered to be specializing in tennis (Developmental Model of Sport Participation; Côté, 1999); thus, they were becoming more invested and deliberate about their sport engagement and were adhering to more a strenuous training schedule. Young tennis athletes received coaching from national level youth tennis coaches, and the player-to-coach ratio on court was typically two to one, exemplifying a high priority on athlete access to instruction and feedback.

The PST program was developed by an Association for Applied Sport Psychology-Certified Consultant (AASP-CC) who had been working with youth tennis players 9-to 18-years of age for a total of 18 years. The goal of PST within the Player Development program is to develop resilient (i.e., the ability to positively adapt to adversity; Luthar & Cicchetti, 2000), confident (i.e., a belief in internal resources to achieve success; Vealey, 2007) competitors with great character. This was an organizational effort of the tennis national governing body. To develop resilient, confident competitors, the PST program utilizes a specific, topic-based curriculum to address the needs of young athletes in a developmentally appropriate manner. In

other words, the lessons provided within PST sessions were catered to the cognitive, emotional, and social abilities and needs of the athletes. Furthermore, pedagogical strategies (e.g., didactic, discovery-based, shared pairs, large group discussions) were used in a developmentally appropriate manner to facilitate discussion and learning.

PST was delivered by a mental trainer who had a Master's degree in physical education, a background in health education, a certification in PST (<http://www.certifiedmentalcoach.com/>), experience as a teacher and coach, and served as the strength and conditioning coach within the Player Development program. The CC-AASP trained the mental trainer on implementing the PST program with young athletes, and they worked together to develop specific PST lessons for both groups. Coaches in the program also worked to reinforce concepts taught within the PST program during tennis training sessions.

The PST program included a 31-week curriculum with lessons on psychological skills that contribute to optimal performance (e.g., self-awareness, resilience, confidence, motivation, determination, stress and energy management, relaxation, attentional focus, optimal performance state) and psychological strategies used to develop and regulate psychological skills (e.g., breathing, journaling, self-talk, goal-setting, visualization, routines and rituals). Though the PST program curriculum was centered on developing performance, program staff also addressed skills that could be utilized on and off the court (e.g., respectful and professional). In this program, respectful refers to being courteous to others as well as honoring the rules of the game, and professionalism is having a high degree of character, engagement and commitment to their development and the sport (The United States Tennis Association, 2016). This unique training environment that included integrated and purposeful teaching of

psychological skills and strategies was likely to influence how these young athletes use psychological skills and strategies in competition.

Context of the Study: The Researcher

The first author recognized that her personal values could influence any part of the research process, from the generation of research questions to the ways in which gathered data is interpreted in and reported (Denzin & Lincoln, 2005). She had previously established relationships with this participant group through a qualitative formative program evaluation of the PST program to which they were exposed. Through this experience, she moderated focus group interviews and observed these young athletes in a practice setting. Moreover, she interviewed program personnel, including the tennis coaches, program manager, and the strength and conditioning coach/mental skills trainer. Because of this previous study, the first author understood the purposes and ideal outcomes of the PST program, specifically how and when program personnel want young athletes to utilize psychological strategies.

In regard to positionality, the first author valued a developmental emphasis in practice when engaging with young people. Unfortunately, in American youth sport, developmentally appropriate practice has not been a central construct within the field (Vealey & Chase, 2016). She was also a current tennis athlete and competed at youth regional USTA events during her early years. The current study was an extension of a qualitative PST program evaluation. The purpose of the qualitative evaluation was to assess young athletes, coaches, program staff members, and the mental trainer's perceptions of the PST program. The purpose of the current study was to investigate these same athletes' in-competition experiences and use of psychological strategies during matches. It was important to keep the research questions and purpose of the study in mind throughout the data collection and analysis process. Thus, the

researcher stayed in line with a general interpretivist, rather than critical research paradigm, which was more appropriate for this study.

Participants

The identification and selection of the specific case (i.e., elite young tennis athletes exposed to PST) represented a level one case study sampling procedure, and the identification and selection of members within the case was second level sampling (Merriam, 1998). Athletes' inclusion in a Tennis Player Development program in the Northeastern United States who had been exposed to PST represented an element of the bounded case for this proposed dissertation. Additionally, athletes were only included in the study if they participated in one of two specific tournament weekends that qualified as top level junior tournaments. Specifically, athletes competed in junior tournaments that required a regional USTA ranking and were considered at the "top of the pathway" for USTA sponsored training. These two highly restrictive inclusion criteria represent the elements for criterion-based purposeful sampling (LeCompte & Preissle, 1993).

Sixteen athletes were eligible to participate in this study. Thirteen athletes (six boys, seven girls) provided their consent to participate and their matches were observed. One athlete signed up to participate in the study but declined an interview after she lost her match. Thus, a total of 12 athletes (response rate 75%; six boys, six girls) participated in this study. Athletes in this case had an average age of 11.83 years. Six of the athletes self-identified as White, four were Asian, and two reported that they were mixed race. Because athletes' ages spanned between 10 and 14, it was not practical to average athletes' years of tennis experience or years of experience in the PST program. In short, younger athletes had less experience in tennis and the PST program.

Athletes' USTA regional and national rankings were in line with the inclusion criteria for this case, all athletes had a regional ranking of 50 or higher. Rankings are determined by performance in USTA sanctioned events and are calculated as points (The United States Tennis Association, 2016). Each tournament round is given a specific amount of points based on the competitive level of the events. Athletes are awarded points for the last round won in a tournament, and points increase with higher rounds (i.e., final rounds are worth more than semi-final rounds, quarterfinals, etc.). Athletes are ordered based on points in their specific age categories, and rankings are determined based on their placement on the list. So, a ranking of 50 or higher indicates that these athletes are within the top 50 point-holders regionally or nationally.

Below is a description of each athlete included to provide contextual information about their match experiences. These vignettes were developed based on athlete in-competition observations as well as field notes documented before and after the observation and interview processes. Vignettes include the athletes' pseudonym, age, general tournament type, playing surface, observable behaviors, observed individuals who interacted with the athlete before or during the match, and their final match score. In addition, an indicator of when each athlete completed their individual interview is provided. Specific rankings for each athlete in the case are not reported as they would be too identifying.

Amy was 14 years old and competed in the main draw of a girls 14s international junior tournament played on outdoor hard courts. She was at the tournament with her mother, father, and coach, and her first-round opponent was from another country whom she had never played previously. During her match, she easily outmatched her opponent and won the match 6-0, 6-0 in 49 minutes. Some of the observable behaviors noted during her match were bouncing on the

balls of her feet between points, and bounced the ball several times during her pre-serve routine. In addition, Amy could be seen taking a deep breath following a forehand error in the first set. In the second game of the second set, Amy raised both hands to the sky, seemingly in frustration, on several points after mistakes. Finally, during changeovers and set breaks, Amy sat on the bench, drank water, and used her towel to wipe away sweat. In addition, Amy's mom positioned herself directly behind Amy's court during the match and was attempting to communicate with her during play. Immediately following her match, Amy completed her individual interview.

Ana was also 14 years old and competed in the main draw of a girls 14s international junior tournament played on outdoor hard courts. She was seeded in this event, and her father and coach. Prior to her match, Ana was repeatedly checking in with the officials at the tournament desk. This was because her opponent did not show and changed to a "lucky loser" just before the start of her match. A "lucky loser" rule in the tournament mandated that all main draw no-shows would be replaced with a "lucky loser" from the qualifying rounds. Despite the opponent change, Ana won her match 6-1, 6-1 in one hour and 13 minutes. She had not previously played her opponent. In terms of Ana's observable behaviors, she bounced on the balls of her feet, used her towel while at the back fence to wipe away sweat (at times, she would purposefully walk near the back fence without using her towel), took a deep breath, and bounce the ball several times during her pre-serve routine. In addition, Ana could be heard uttering positive self-talk (e.g., "Come on!", "Let's go!"), and on one occasion after a mistake, she slapped her leg with her hand. She seemed to be highly methodical in her actions, displaying at least one or more of these behaviors between points (e.g., going to her towel, bouncing on the balls of her feet, then stepping into position to start the next point). On

changeovers and set breaks, Ana sat on the bench, used her towel, and drank water. In addition, she perceived that her opponent cheated several times during the match. At this age and competitive level, athletes call their own lines in and out, and a line judge roams the tournament site to settle disputes and watch lines as needed. Ana called a line judge to her court a few times, apparently in an attempt to curtail her opponent's cheating. Ana completed her individual interview immediately following her match.

Aron was 10 years old and competed in the main draw round of a boys 12s regional U.S. tournament played on indoor hard courts. Prior to the match, Aron was seen speaking with his father and doing physical warm-up routines. Aron was seeded but lost his match 4-6, 3-6 in one hour and 29 minutes. Aron had previously played his opponent. During his match, Aron was becoming visibly upset (e.g., slapping his leg with his hand, hitting his racket on the ground, putting his hands to his face, throwing his head back, bending over, clutching his stomach, and yelling or crying out in frustration), and on a few occasions, the line judge administered a warning for his loud outbursts. Aron also could be seen bouncing on the balls of his feet and bouncing the ball several times during his pre-serve routine. In fact, he was observed looking at his father during his match, and his father would bounce on the balls of his feet, so Aron would copy that behavior. During changeovers, Aron sat on the bench and drank water; on the set break, he went to the bathroom. Following the loss, his father spoke with him. The specifics of the conversation were unclear to the researcher; however, it was apparent to the researcher that his father was not pleased with his performance. At times, his father raised his voice slightly, and this seemed to communicate that he was frustrated by Aron's response during their conversation. Aron appeared to be upset during this experience. He was putting his

head down and muttering responses to his father. This occurred prior to the individual interview.

Bob was 12 years old and competed in the qualifying draw of a boys 12s international tournament played on outdoor clay courts. Bob won his match 6-2, 6-4 in one hour and 39 minutes. Bob was accompanied by his coach and was in a group with other athletes who had traveled to the same tournament. Prior to his match, Bob's coach instructed him to sit quietly and plan for his match about 10 minutes before he was called to a court. Bob played an international opponent who he had not played in previous tournaments and displayed several observable behaviors during his match (i.e., using his towel at the back fence to wipe away sweat, taking a deep breath, looking at his coach, putting his hand on his head, and bouncing the ball several times during his pre-serve routine). Bob also said both positive (e.g., "Come On!", "Yeah!") and negative ("What are you doing!?", "Oh my god!") comments during his match. During changeovers and set breaks, Bob stood near or sat on his bench, used his towel to wipe away sweat, and drank water. Although he won the match, he felt he would need to play better in subsequent tournament rounds. After his match, Bob left the tournament site briefly to get food and then completed the individual interview.

David was 14 years old and competed in the qualifying draw of a boys 14s international tournament played on outdoor hard courts. David won his match 7-6(3), 6-1 in one hour and 35 minutes. David traveled with his father, coach, and grandparents to the tournament. David walked around the tournament facility alone listening to music prior to his match. David had played his opponent previously even though the opponent was international. During his match, David could be seen taking deep breaths, using his towel while at the back fence to wipe away sweat, and bouncing the ball several times during his pre-serve routine. David also could be

heard saying positive (e.g., “Come on!,” “Every shot,” “Let’s go!”) and negative (e.g., “Ugh!”) utterances throughout the match. During changeovers, David sat on the bench, used his towel, and drank water. On the set break, he changed his shirt at his bench. In addition, David’s father could be seen pacing across the grounds of the tennis facility, and during the first set tie-breaker, the researcher observed David’s father walking to the fence on David’s side of the court and was heard offering words of encouragement (e.g., “Great shot!”). At the conclusion of his match, David completed his individual interview.

Elizabeth was 10 years old and competed in the main draw of a girls 12s regional U.S. tournament played on indoor clay courts. She was accompanied by her mother and father, and she won her match 6-3, 1-6, 10-8 in one hour and 13 minutes. Prior to her match, Elizabeth spent most of her time near her father, sitting quietly. Elizabeth had not played her opponent previously, and this opponent looked to have a significant size advantage (i.e., she was much taller than Elizabeth). Elizabeth was observed fixing her strings at the back curtain, bouncing on the balls of her feet, doing practice swings, taking a deep breath, and doing fist pumps (specifically after won points) between points. After mistakes, Elizabeth was also observed raising her hands to the sky, throwing her head back, and slapping her leg, apparently in frustration, particularly in the second set. It was also clear that Elizabeth was speaking to herself during points (i.e., the researcher could see her lips moving as she stood in near the curtain); however, the limited viewing on her court did not allow the research to hear the specific phrases used. During changeovers, Elizabeth stood and drank water; at the set break, she went to the bathroom. Elizabeth agreed to complete her individual interview immediately following the match

Harry was 10 years old and competed in the qualifying draw of a boys 12s regional U.S. tournament played on indoor hard courts. He was accompanied by his father, and he could be seen standing near his father and talking with him prior to his match. Harry won his match 6-0, 6-0 in 38 minutes. He could be seen taking deep breaths, doing fist pumps after won points, and bouncing the ball several times during his pre-serve routine. After a long rally in which he lost the point, Harry was also observed raising his hand to the sky in apparent frustration. During changeovers and set breaks, Harry sat on the bench and drank water. Harry completed his individual interview immediately after his match.

John was 12 years old and competed in the qualifying draw of a boys 12s international junior tournament played on outdoor clay courts. He was accompanied by his coach and was in the same group as Bob. John's match was the first of the day, so he was able to go to his court as soon as he arrived to the tournament site. John also easily overmatched his opponent and won 6-0, 6-0 in 52 minutes. John could be seen bouncing on the balls of his feet, spinning the racket in his hand, taking a deep breath, and bouncing the ball several times during his pre-serve routine. On a few occasions following a mistake, John was also seen putting his head down. During changeovers and set breaks, John stood and drank water. After taking a bathroom break following his match, John completed his individual interview.

Samantha was 10 years old and competed in the consolation main draw of a girls 12s regional U.S. tournament played on indoor clay courts. Samantha was accompanied by her father (though her mother had joined her the previous day); prior to the match, she could be seen chatting with other girls in the tournament and sitting with her father. Samantha had played her opponent previously, and she won her match 6-2, 6-3 in one hour and 14 minutes. Samantha was observed bouncing on the balls of her feet, fixing her strings, and bouncing the

ball several times during her pre-serve routine. In addition, she put her hands to her face, slapped her leg with her hand, and once tossed her racket in the air after a missed point. During changeovers, she sat and drank water; on the set break, Samantha went to the bathroom. Samantha generally outplayed her opponent; however, she committed several double faults during the match. Samantha took part in her interview directly after her match.

Selma was 11 years old and competed in the main draw of a girls 12s regional U.S. tournament played on indoor clay courts. She was accompanied by her mother (though her father had joined her the previous day). She lost her match 1-6, 1-6 in one hour and 11 minutes. Both Selma and her opponent were seeded in the tournament, though the opponent had a higher seed. In terms of the behaviors observed during her match, Selma was seen standing near the back curtain with her back to the court and either fixing her strings or using her towel at the back curtain to wipe away sweat, bouncing on the balls of her feet, taking a deep breath, and bouncing the ball several times during her pre-serve routine. During changeovers and set breaks, Selma sat on the bench, drank water, and used her towel to wipe away sweat. Selma completed the interview immediately after her match.

Timmy was 12 years old and competed in the qualifying draw of a boys 14s regional U.S. tournament played on indoor hard courts. He was accompanied by his father, and he knew his opponent and had played him before. Both the athletes and their fathers appeared to know each other because they were chatting prior to the match. In addition, Timmy was observed doing physical warm-up routines. Timmy won his match 7-6(6), 4-6, 10-7 in one hour and 44 minutes. During his match, Timmy was observed adjusting his strings, bouncing on the balls of his feet, using his towel at the back curtain to wipe away sweat, doing practice swings, and bouncing the ball several times during his pre-serve routine. It was also clear that Timmy was

visibly upset during his match, as he could be seen raising his hands to the sky, punching his racket strings, and slapping his leg with his hand after mistakes in apparent frustration. During changeovers, Timmy sat on the bench, drank water, and used his towel. Though Timmy won his match, it was clear that he was not pleased with his performance as he walked off the court (i.e., he hung his head and told his father “I played terrible”). Then, he and his father left to get food before his next round match. Thus, his interview was completed after they returned and before his next match.

Zendaya was 13 years old and competed in the main draw of a girls 16s regional U.S. tournament played on indoor hard courts. Zendaya was accompanied by her mother, and she had played her opponent (who was also 13) several times in girls 16s events. Before her match, Zendaya sat away from her mother listening to music on headphones. She won her match 6-1, 7-6(4) in one hour and 42 minutes. During her match, Zendaya displayed several observable behaviors (i.e., going to the back curtain with her back to the court to bounce the ball on the ground with her racket or to fix her strings, and bouncing the ball several times during her pre-serve routine). At times, she would go to the back curtain twice between a single point and either bounce the ball or fix her strings. In addition, Zendaya could be seen doing practice strokes. A few times, she put her hand to her face in apparent frustration following a mistake. During changeovers and set breaks, she sat on the bench, used her towel, and drank water. After the match, Zendaya completed her individual interview immediately.

Procedures

Upon gaining approval from the Institutional Review Board (see Appendix A) and site permission from tournament site directors, parents of young athletes who fit the inclusion criteria were provided with a recruitment letter (see Appendix B) in Fall 2016 that described

the study and the requirements for their child's potential involvement (i.e., match observations and charting by a researcher during a USTA Sanctioned tennis tournament and post-match individual interviews). If parents allowed their child to participate in data collection procedures, they were instructed to return the recruitment letter to the researcher with an affirmative response via mail or email. Then, they provided their child's Fall 2016 tournament schedule restricted to USTA sanctioned tournaments.

Upon providing affirmative responses to their child's participation in the study and the tournament schedules, parents of youth athletes completed an informed consent document (see Appendix C) prior to the data collection date. In addition, parents completed a demographic questionnaire (see Appendix D) regarding their young athlete child prior to data collection. Finally, athletes completed an assent document (see Appendix E) that explained the research procedures (i.e., match observation and tracking and post-match individual interviews) in developmentally appropriate language.

Interview guide. Interview guide questions were open-ended in nature and informed by the research questions. Specifically, questions on the interview guide (Appendix F) were developed based on the CMR theory of emotions (Lazarus, 1991, 1999, 2000) as well as existing literature in youth PST programs (e.g., Sharp et al., 2013). Interviews were semi-structured, which constituted a mixture of more- and less-structured chronological open-ended questions within the written interview guide (Merriam, 1998). Interviews used developmentally appropriate language, and the semi-structured interview guide (Appendix I) included simple "warm up" questions to help build rapport (i.e., "Tell me in as much detail as you can about the first set;" Taylor & Bogdan, 1984). However, rapport was aided by my previous interactions with these athletes within the formative program evaluation study of the PST program.

Interviews were kept close to the topic and research questions to help the young athletes maintain engagement with the interview process (Greene & Hogan, 2005). Questions were asked for each set played and focused on thoughts and feelings experienced (i.e., “Tell me in as much detail as you can about some thoughts you had during the first set,” “Tell me in as much detail as you can about some feelings you had during the first set.”) and psychological strategies used throughout the match (i.e., “Tell me in as much detail as you can about some mental strategies that you used during the first set”). Finally, the influence that psychological strategies had on performance will also be examined (i.e., “How do you feel that the mental strategies used impacted your performance?”).

Bracketing. Prior to conducting the interviews, bracketing procedures were used to identify assumptions and biases related to specific interview guide questions (Tufford, 2012). Specifically, I outlined my assumptions about each interview question prior to data collection. Assumptions were influenced by my knowledge about the participants and the PST program as well as my inherent tennis knowledge and experience with qualitative research. Major assumptions included looking for psychological strategies that were not intentional, assuming that all psychological strategies used were learned through the PST program, and thinking that all psychological strategies would positively influence performance. Completing these bracketing procedures helped me to isolate possible instances in the interview in which I might want to forgo neutrality. Because neutrality is a central tenant of quality interviewing, keeping this practice in check through the use of a research journal helped to uphold the quality of the interview data gathered.

Pilot interview. A pilot interview was conducted prior to the start of data collection. This pilot interview provided the first author with the opportunity to utilize the main study

procedures (i.e., match observation and individual interviews) on an athlete not within the selected case of athletes. A 14-year-old tennis athlete with experience in PST was selected for the pilot procedures. This athlete was competing in the main draw of a regional USTA Southern junior tennis tournament, and while her competitive level was lower than the athletes in the selected case, she competed at a high level in regard to her region. In this way, the study procedures could be examined for errors. For example, the match chart was updated after the pilot interview to provide the researcher with more space to record between-point behaviors. In addition, the interview guide was assessed during the pilot procedures to ensure that the flow and sequence of the questions were appropriate and that each research question was addressed.

Observations. Observations took place prior to individual interviews and were centered on young athletes' match experiences. For this study, the first author was a non-participant/observer as participant (Creswell, 2013). She was in the outgroup (i.e., not a part of the case) and watched the members of the case and recorded field notes. The first author observed participants' matches outside their courts, and while she did not have any direct involvement in their match play, she recognized her potential role as an outsider-spectator on athletes' performances. Importantly, match observations were restricted to the child participant.

During young athlete participants' matches, an adapted version of the tennis match chart used by Van Raalte and colleagues (1994; see Appendix G) was utilized. In this study, the researcher investigated young tennis athletes' use of self-talk in competitive tennis matches using the Self-Talk and Gestures Rating Scale (Barr, Gerdes, Haitbrink, Schwan, & Snyder, 1993). This scale reported observable self-talk and gestures concurrent with detailed score-keeping and match-logging procedures. The existing list of observable behaviors was supplemented with additional observable psychological strategies (e.g., breathing, routines)

taught within the PST program to which the athlete participants were exposed. Using this chart, observable use of psychological strategies (e.g., self-talk, adjusting racket strings) during matches were tracked and a detailed record of the score progression was kept. The match chart was utilized during the interview to help orient the athlete to the match and remember their competition experiences, if necessary.

Interviews. One-on-one interviews with young athletes took place at tournament sites following observed matches at the athletes' and parents' convenience. Seven athletes elected to have their interviews immediately following their matches, two athletes (i.e., David, John) asked for five to 10 minutes to clean up prior to their interviews, and three athletes (i.e., Bob, Aron, Timmy) had a 20- to 30-minute delay prior to their interviews for various reasons (e.g., to get food before an upcoming match, talk with a parent about match). The first author utilized a location that was free of noise and distractions so participants could fully focus their attention on responding to the interview questions (in all but one case). One athlete (Aron) insisted on completing his interview in a space with other athletes and parents from the tournament. The interviews were audio recorded by the first author and transcribed by the third author to ensure that participants' responses were gathered verbatim. Both signed a confidentiality agreement. The first author worked to reduce the power dynamic between the participant and herself by sitting at eye level with the participant (Greene & Hogan, 2005). Interviews ranged between 14 and 45 minutes with an average time of 29:30, which is in line with previous research in sport psychology with child and early adolescent athletes (Ryba, 2008). Though 14 minutes may seem short, the average match length for participants was one hour and 14 minutes (ranging between 38 minutes to 1 hour and 44 minutes). In this case study, most interview questions were restricted to the match event, so it follows that interview durations would not exceed

match durations. In addition, to facilitate engagement and be mindful of developmental and logistical considerations (e.g., young athletes' waning attention span, fatigue following their matches), semi-structured interviews were designed to be completed in approximately 30 to 45 minutes (Greene & Hogan, 2005).

Field notes and researcher journal. A researcher journal was used for several purposes within this qualitative case study and included three sections: field notes generated from individual athlete observations of match play, athlete post-interview field notes (i.e., perceptions and reactions immediately after the interviews are conducted), and data collection and or data analysis memos. These three elements of the researcher journal were important components of the qualitative research process.

Within the researcher journal, the first author utilized the phenomenological practice of reflexivity (Potter, 1996). Specifically, this was achieved by recognizing the fact that spoken utterances are not only about something, they have additional communicative purposes. The first author's positionality played a role in how she interpreted the multiple meanings of information gained from both interviews and observations; thus, journaling procedures helped navigate shifting and evolving positions in regard to the research process (e.g., being an observer and spectator during the course of a tournament). Additionally, the first author practiced reflexivity using the researcher journal and having regular conversations with the second author.

Data Analysis

Merriam (1998) offered several options for qualitative data analysis (i.e., ethnographic, narrative, phenomenological, constant comparative method, and content analysis) within her case study methodology. In this study, largely due to the theoretical framing in Lazarus's

(1999, 2000, 2001) CMR theory of emotions and developmental theories (i.e., Bandura, 1986; Erikson, 1950; Piaget, 1969; Weiss & Bredemeier, 1983), content analysis was used to interpret the findings from the interviews and observations. Qualitative content analysis methods inductively and deductively interpreted the *content* of the qualitative data sources gained.

Throughout this process, a critical friend and peer debriefer were utilized to address inherent biases the first author may have had related to this work and bolster the bracketing procedures within this study (Denzin, 1978; Eley, 2012). The critical friend was a member of the first author's academic network, completed readings in qualitative research, but had little theoretical or research knowledge within the field of youth sport and PST. She did have experience in elite youth competition, and within the collaborative process of data analysis, she drew the first author's attention to the highly emotive and open nature of youth tennis (e.g., that it is common for youth athletes to yell out during matches) and how this was distinctly different than other performance contexts. In addition, she helped to curtail the first author's inherent biases toward these participants because the first author held a previous relationship with them. Thus, the critical friend was able to provide critical "outsider" feedback and suggestions surrounding the qualitative research process. In contrast, the the peer debriefer served to stretch and question the first author's thinking during data reporting to ensure she was adequately representing my participants' words (Denzin, 1978).

In line with Merriam's (1998) recommendations for data analysis, Braun and Clark's (2006) thematic content analysis methods were followed. First, all authors became familiar with the data through listening to interviews, memo writing about the interview experience, reading transcripts, and writing match narratives for each participant. Then, initial codes were systematically created and potential themes were derived from the codes. Coding procedures

followed the guidelines provided by Saldana (2009). For example, descriptive and in-vivo (i.e., in line with the participants' words) codes were used to initially catalogue the information gained from interviews and observations. Fourth, themes were organized into a thematic map through a two-level process. In step one, the codes were culled by name and/or topic and compared to each other to determine the existence and strength of a potential theme. The critical friend also engaged in this process, and the researcher and critical friend met to further develop themes. In step two, both the researcher and critical friend returned to the transcripts and original codes were compared within their respective themes to confirm that they were a strong representation of the data. Then, themes were defined and named to further reduce and distill the data. Due to the important contextual differences within each participant's match experience (e.g., the score, opponent, tournament round, site) it was determined that the best representation of this information was in the form of three performance-based groups that allowed for comparisons within and across subgroups of athletes. Finally, the report of the themes was generated.

Results

As a result of the thematic analysis, eight themes and 19 subthemes were constructed. These eight themes included (a) pre-match feelings, (b) pre-match preparation, (c) competition was used to practice skills and strategies, (d) in-match feelings, (e), in-match use of and rationale for psychological strategies, (f) athletes' thoughts and behaviors during changeovers, (g) frequency of psychological strategy use, and (h) psychological strategy learning process.

In addition, though all athletes' experiences contributed to the development of themes, it should be noted that participants had more and less successful match outcomes. Some athletes in this study reported being satisfied with their performance and described their

matches to be “pretty straightforward” (John), “semi-easy” (Amy), “fun” (Harry), “tight” (David, Elizabeth), and “challenging” (David). For example, John thought that he “overplayed” his opponent, and said, “I served well, and I think I only had one double fault, and I attacked the second serve well. I think I put pressure on his serve, and I was pretty consistent.” These athletes were also pleased with their ability to manage their thoughts and feelings during the match. Amy stated, “I didn’t drift off too much in my thought. I wouldn’t focus on what my mom was doing. I wasn’t focusing on people walking by, cars driving by. I was just focusing on the match.” Likewise, Bob believed that he played “pretty well” in the first set of his match because he was in his “comfort zone and started hitting really great balls.” Even those who experienced challenges evaluated their play positively; as David remarked, “I felt that I was missing a little bit, but that’s what happens when you’re being aggressive so I was also hitting a lot of good shots, which is good.”

Other athletes were critical of or not satisfied with their performance and believed that they “could have played better” or that they performed poorly during their matches. It is important to note that two of the three athletes who were “not satisfied” with their performance lost their matches (Aron: 4-6, 3-6; Selma: 1-6, 1-6); the other athlete won a close match (Timmy: 7-6, 4-6, 10-7). A common theme from athletes who were dissatisfied was their performance critiques. Timmy said, “I could have had a better score, and I could have played better overall. My shot selection was sometimes not good. There were these shots that I don’t even know why I hit [them].” He went on to say, “I won, but there wasn’t really anything that good about my match.” These critiques focused on how the athletes could have or should have played better, and as athletes reflected on their performance, they became frustrated and unhappy. Though these differences provide context about athletes’ in-competition experiences

and use of psychological strategies, there were not substantial enough differences between groups to separate them. In other words, athletes who were satisfied and dissatisfied with their performances contributed to the construction of the following themes. Themes are described and supported by participants' words in the following sections.

Theme 1: Pre-Match Feelings

Athletes reported their feelings that they had going into their matches. These feelings were influenced by the amount of information athletes had about their opponents and the pressure they felt going into the match. Overall, athletes reported two feelings: (a) confident; and/or (b) nervous prior to the match.

Confident. Athletes who were confident going into their matches felt this way because they knew their opponents and believed they had the capability to beat them. Thus, these beliefs were generated from watching or playing their opponents in previous matches. John noted that he watched his opponent play an earlier match and was "pretty confident because I saw how he played yesterday, and I feel like my level is higher than his." Likewise, Samantha said, "Going into it I was feeling confident because I kind of know the girl so I knew how she played." Timmy had played his opponent previously and commented, "I thought I was gonna win pretty easily. I've played this kid before. I played really well and I won straight sets like 3 and 2, and I thought I would do the same this time."

For Harry, his confidence was related to feeling like "I had nothing to lose cause it's 12 and under, and it's a qualifying. I'll just do my best. I have a lot of these coming up, so this one just is another one to play." Harry thoughts were likely influenced by his dad, since he reported that prior to the match his dad told him, "You got this. Don't think about anything. You're still 10. There's still a lot more of these and this one won't make a difference." Because of that

message, Harry said that he could “let loose. Two hours before my match, I was kind of tense, like, ‘I have to win this. I have to win this. Then my dad talked it through, and he helped me a lot.” It appeared that athletes’ feeling of confidence was related to lessening the pressure of competition.

Nervous. Athletes indicated that they were nervous going into their matches either because the information they had about their opponent made them feel that their abilities would be tested or they had no information about their opponent. Elizabeth reported that she felt nervous because other athletes had warned her about the upcoming opponent, stating, “I was a little nervous because all the girls that I usually play with, they all said that she was really good and that she was really big.” Ana stated, “It was nerve-wracking, a girl from another country, so I don’t really know how she practices. I don’t know what they do in [Country] and stuff.” Interestingly, Ana’s opponent changed minutes before her match due to a “lucky loser” rule in the tournament (i.e., athlete in the main draw failed to attend a scheduled match was replaced with an athlete from the qualifying pool), and she indicated that she was nervous but “knew this girl was a local, so I kind of know how she’s training, and I know what to expect.”

Athletes also reported that they were nervous because of the novelty of the tournament. Amy said that she was “nervous ‘cause it was first time I’ve ever played [tournament]. So, first round [tournament] kind of got me jittery.” Ana also attributed her feelings of nervousness to “I haven’t been here before. First time, so playing at a University, it’s like a lot of people from other countries...it’s kind of nerve-wracking.” It was clear that the novelty of playing at an international level tournament also seemed to contribute to athletes’ feelings of nervousness.

Theme 2: Pre-Match Preparation

Athletes used several strategies (e.g., researching and gathering information, altering the person-environment relationship, positive self-talk, relaxation techniques) to cope with their pre-match thoughts and emotions (Lazarus & Folkman, 1987; Vealey, 1988). These strategies were used to: (a) plan for the opponent; and (b) manage energy prior to the match.

Interestingly, two athletes (Timmy, Aron) reported that they did not prepare psychologically.

Plan for opponent. Athletes reported using several strategies to help them plan for their opponent. These included researching the opponent, thinking about a match plan, journaling, and using visualization. Athletes researched opponents to gain more information about the athletes' style of play and create a plan for how to compete. About her original opponent, Ana said, "I found her videos online. I researched her so I had a good respect of what I was going into." John noted that his opponent "moon balled a lot" and he knew "how to handle these players because I have a good net game and this kid is not that fast." Familiarity with opponents appeared to decrease feelings of nervousness and increase feelings of confidence.

When she arrived to the tournament site, Elizabeth positioned herself near her father and away from other athletes while she planned for her match; "I just stayed with my dad and thought about what I had to do for the match—how I need to give 100% on the court, what rituals I should use." By positioning herself near her father, she made efforts to control her environment to feel more comfortable before her match. Finally, Selma utilized a journal to help her prepare for the match. She indicated that looking at the materials in the journal helped her remember mental skills and strategies for her match. In addition, Selma used visualization to prepare for her opponent. She said, "I visualized what it would be like to play against her. I saw myself trying to work the point, and I was seeing myself thinking, trying to hit the ball,

working on what I'm supposed to work on." When athletes had some information about their opponents, they used it to plan future actions.

Energy management. Athletes also used strategies (e.g., self-talk, relaxation techniques) to manage energy (i.e., either calm down or pump up) prior to the match. Ana explained how she calmed herself down, saying,

I calmed myself down because I thought that me playing a lucky loser would be good for me, not the other way around. So, my nerves went down a little bit. I was still a little nervous but not as much as before. Actually, I went to the bathroom. And I just stood in front of the mirror, and I just put water on me and just told me, just started talking to myself. I said that "it's okay", and that "you're gonna do good", and "you shouldn't be worried."

Bob spoke about having a clear mind before his match and used a relaxation technique to reduce "pestering thoughts" and lessen the pressure to perform well. He said, "I just went into almost a blank space in my mind, where I had no thoughts, no feelings, nothing." To do this, he said, "I think about something else first, something just random, but not something that's bothering me, just some random topic. Then, I just have an open mind." These techniques helped athletes calm their nerves before their matches.

In contrast, athletes also used self-talk to get "pumped up" prior to the match. For example, David said, "I was just saying positive things to myself, trying to keep myself pumped up before and during the match." Harry indicated that he engaged in self-talk to help him feel like he could "play [his] best tennis. He said he used phrases like "You got this," "play your best," and "you have nothing to lose" before his match. Lastly, John noted, "My dad told me not to underestimate my opponent," and this prompted him to think, "I'm gonna play as

best as I can, and I'm gonna give him a good match." These strategies helped athletes regulate their energy and feel prepared and confident for their matches.

Theme 3: Competition was Used to Practice Skills and Strategies

While athletes certainly competed to win their matches, they also reported using their match experiences to work on specific technical and tactical skills (e.g., changing strategies). Because her match was an "easy win", Ana explained, "This was a good match to practice because [her opponent] wasn't that good. So, I thought that I could use some practice out of this and a good match." Elizabeth explained that she was trying to work on a specific footwork sequence on her service return as well as other skills that her coaches wanted her to practice. Similarly, Zendaya said, that she'd been trying to change the trajectory of her shots, saying, "Most of the time I hit through the court, like it's just going straight. But, then I was actually making more angles and bringing her off court." It seemed as though many athletes were intentional about practicing their tennis skills and improving their development as a player during the match rather than simply winning.

In addition to technical skills, athletes also reported practicing and using various tactics in their matches. Selma indicated, "I was so focused on just playing, and I was really thinking of my strategy I was gonna do against her." Samantha spoke about changing her tactics as the set progressed to adjust to her opponent, saying, "I was thinking about more strategies, cause if some weren't working I would think of new ones, and then I would try those and it helped me win in the first set." In this way, athletes were aware of the need to adjust their match plan to handle the demands of their opponent.

Theme 4: In-Match Feelings

Within their matches, athletes recounted specific thoughts and feelings they had during or between points. Feelings often changed throughout the match and were often influenced by their perceived successes (e.g., making good shots, winning points) and failures (e.g., mistakes, losing points) as well experiences of adversity (e.g., opponent cheating). So, athletes often reported having positive (e.g., confident) and negative (e.g., frustration) feelings during their matches. In-match feelings included (a) confident, (b) focused, (c) frustrated, and (d) nervous.

Confident. Regardless of pre-match feelings (i.e., nervous or confident), athletes discussed feeling confident during their matches. Because John had watched his opponent previously and was outperforming him (i.e., not losing many points) he indicated, “I was supremely confident in myself. There’s no way this guy’s gonna beat me, even if I give him one free point every game there’s no way I’m gonna lose to this guy.” In addition, David said, “I felt very confident in my shots, the way I was moving. I just felt very confident the whole set. Felt like I could do anything, which was good.” Similarly, Amy indicated, “I just felt in control of the match.” These feelings of confidence seemed to be linked to the notion that athletes were outplaying or believed they could outplay their opponents.

Athletes also reported feeling confident after a streak of good performance within a challenging match. Aron indicated that he was confident after winning four games in a row, bringing the score from 0-3 to 4-3. He said, “I was going into the court feeling confident.” Samantha indicated that feeling more confident helped her to perform better as the match progressed. She said, “In the first three games, I wasn’t feeling that good, because I was losing. But then, I started feeling more confident with my shots, so I could go for more and not be

scared to hit the ball.” Thus, confidence seemed to be related to experiencing success or believing in their ability and future success.

Focused. Other athletes described how they were focused during their matches. To some of them, being focused implied that they were in a “neutral zone” and did not experience positive or negative emotions. Selma said, “I felt focused. I didn’t really feel any feelings. I wasn’t really sad or happy or nervous. I was just focused.” However, she noted that she was less focused in the second set; specifically, “I was getting away from the mental perspective and my feelings, I wasn’t really in the optimal performance state.” Harry indicated that he was trying to stay focused during his match when he was leading 5-0 and said, “I just tried to keep my focus and finish the set out, not thinking about the end of the match because then I would lose my focus, and then I would do something [wrong].” Harry’s words exemplified that being focused during the match meant staying in the present because “if you think about the end, then you’re just gonna lose your focus, and then [the opponent will] start to feel more confident if he wins a game or two, and it’ll be harder to win.”

Frustrated/Angry. At times, athletes experienced periods of frustration, and these occurred after they made a mistake, were distracted by internal or external stimuli or when they perceived that their opponent was cheating. At times, athletes’ frustration manifested as negative self-talk. John recounted thoughts that typically occurred after he missed an “easy” shot. He would say, “How did I miss that? Oh my gosh, such an easy put away ball.” He also noted that these thoughts were typically accompanied by putting his head down or swinging his racket in the back court, which could be considered visible signs of frustration. Zendaya noted that she was missing more neutral balls and thought, “I shouldn’t be missing those shots.” She went on to say, “I’m really sarcastic when I start losing. When I double fault I’m like, ‘What a

surprise!' and stuff like that." These sarcastic statements were indicative of momentary frustration with her performance. Similarly, Bob recounted his thoughts after making mistakes during a particularly long game in his match, stating, "I was like, 'How am I losing to this kid? This kid is pretty bad. I have no idea how I'm losing. What are you doing? What is happening?'"

Amy indicated that she became frustrated when her mother was a distraction during her match, and explained, "My mom started talking really loud in the second game [of the second set], so I lost my focus." She went on to say, "I got annoyed and then I shanked two balls." Ana perceived that her opponent was cheating, and this was "extremely frustrating." In fact, she recounted the specific point where cheating occurred and explained her reaction, stating,

I hit a first serve. I missed it. Then, I hit a nice second serve. It was on the ad side, game point. Second serve, right on the line, and it skidded. It was an ace. Then, she's like, "Out." I already said, "Let's go," and she was like, "Out." And then I was like, "Are you...serious?"

For the athletes who were satisfied with their performance overall, experiencing occasional frustration did not disrupt their confidence throughout the match. Ana explained, "I was getting really frustrated because I don't like when people cheat me. And the referee was being annoying... Other than that, I felt pretty confident, and I was pretty calm. I didn't show any anger."

For some athletes, their frustration was more severe and negatively impacted their confidence. Aron and Timmy noted that they became angry at themselves during their matches, typically because they were displeased with their performance and believed that they could or should play better. Aron described, "I was upset in the match. I was trying to play well, but I

was shanking all the time, and I was getting a little bit angry out there.” He noted that he said things like, “What the heck are you doing? Why are you shanking so much?” to himself.

Similarly, Timmy said,

I was getting mad at myself and saying like, “What was that?!” I wasn’t saying how I could have fixed that. I was just asking myself, “What was that?” “That was a terrible shot.” Sometimes, I was saying what I should’ve done, but most of the time I was just saying how bad I played the point.

He also noted that he was getting angry at himself for having negative emotions and said, “At one point I was getting mad at myself for getting mad.” This anger prevented them from focusing on the task during the match. Timmy noted that he was “trying to focus. It’s just that, it was mainly my attitude. I was getting really mad.”

Nervous. Athletes also noted that they felt nervous during their matches. This occurred for several reasons; some athletes were nervous during the match based on their pre-match thoughts and expectations (e.g., they anticipated a difficult match), while others indicated that they became nervous before important points or during “tight” situations (e.g., close score).

Elizabeth explained how she felt nervous during the course of her super tiebreaker. She said,

I was a little bit nervous because the score was so close, and I was a little bit down. But then, when I started winning, and I kept pushing I started feeling a little bit happy because I got her to 9-8, and I was leading. So, I got a little bit nervous but happy also because I took over the point she was leading all the time.

In addition, Bob explained how he felt nervous late in his match because, “I knew I had to close it out, and I struggle with closing points out – games, sets, matches out.” This pressure to win the match influenced his play; he said, “I got more nervous and less comforted because there

were a lot of big points in the end of those games.” However, he also noted that “most of the time I was pretty calm in the first set, overall. My inside was calm but my outside was kind of panicky.”

Feelings of nervousness varied in magnitude and seemed to be influenced by individual differences in the way athletes perceived pressure. For example, some athletes experienced more severe feelings of nervousness. For Timmy, his nervousness manifested as fear. He described this fear as “a feeling in [his] stomach” and explained that he felt nervous because he knew his opponent had beaten him a previous match-up, and did not want to lose a first round qualification match. Timmy also noted that thinking about his father’s evaluation of his performance caused him to feel scared. He explained, “I knew after the match [my dad] would say, ‘You played terrible.’ I knew that would happen. I guess that also gave me the fear of like, ‘I can’t lose.’”

Finally, Aron indicated that he was feeling stressed, sick, and nervous during his match. He explained that in the first set, “I was feeling a little bit stressed out, like as if I was killing myself or something. In the first three game, pushing myself down like I couldn’t do anything.” These feelings continued in the second set because he felt negative about losing the first set; he said, “I felt like I was going to throw up or something. Whenever I’m losing I always have a bad feeling, like my head’s hurting, my stomach’s hurting.” He noted that these negative emotions “made me negative on the outside and I just didn’t feel my best, so I felt down, and as if I couldn’t play or something.”

Theme 5: In-Match Use of and Rationale for Psychological Strategies

Athletes used the following strategies during their matches: self-talk (e.g., “I” statements, motivational phrases), routines, (e.g., going to their towel, looking at tennis racket

strings, going to the back fence/curtain), breathing (e.g., diaphragmatic breathing), refocusing techniques (e.g., using a fictional character), and energy management techniques (e.g., bouncing on balls of feet). They were aware of their emotional and behavioral tendencies (e.g., thinking about the future) based on experiences from previous matches, and were purposeful in their use of strategies to maintain positive or curtail negative match experiences. Often, psychological strategies were used in combination and between points to: (a) maintain confidence; (b) be calm and focused; (c) think and plan; and (d) manage fatigue.

Maintain confidence. Athletes reported using self-talk throughout the match, which seemed to help them stay confident and positive. Harry told himself, “Okay, you got this. Try to win as many points as you can, but take it one point at a time.” Similarly, John used phrases like, “Yes, let’s go,” “Yeah, come on!” “I got this,” and “There’s no way he can beat me” when he was winning. Elizabeth stated that during her match she was trying to “boost myself up. I was thinking, ‘Come on, you need this, every point,’ and I said to myself, ‘It’s okay; breathe; you can do this; all you need is to keep fighting.’” David indicated that he was talking to himself during his close first set; he said, “I was telling myself, ‘Just keep competing; just keep trying; fight for every point.’ Even if things weren’t going well, [I] just had to keep fighting.” Finally, Selma indicated that she used self-talk to motivate and pump herself up for points. She used phrases like “move on” and “come on” and said that she used, “a lot of ‘I’ statements. It’s not like ‘you,’ but you have to be positive and optimistic. So I said, ‘I will do this. I will win this next point,’ or ‘I will move on. I will not quit.’” These strategies helped athletes to be positive and increase their resolve during their matches.

Using psychological strategies helped athletes to stay consistent in their thoughts, and this positively influenced their performance. John said, “I think [psychological strategies] lifted

[my performance] because I played pretty good. He didn't get a game so I guess it worked.” Similarly, David explained that he used psychological strategies because, “I knew if I didn't do that stuff, things could definitely start to go wrong. I could start losing a lot of points in bunches, and that wouldn't be good.” Selma provided her rationale for managing her emotions, stating, “If you're down it's gonna affect the way you're hitting— you're gonna miss it more. But if you're happier, if your body language is up and it's more positive, it will help you be more calm and it'll relax you.”

Be calm and focused. Athletes also used psychological strategies (i.e., self-talk, breathing, routines) to cope with adversity and the occasional frustration they experienced in their matches. Sources of adversity and frustration included mistakes, distractions, and perceived cheating.

John spoke about a critical game where he was down 15-40, saying, “I think I let up a few points, maybe a few crazy errors. Then I refocused, [did deep] breathing, everything, and I calmed myself down. ‘Yeah, okay I can do this. This guy's not gonna get a game off me.’” David used self-talk to help him stay engaged within the match when he was frustrated, specifically the first set; he said,

I was down 5-3. I told myself, ‘Alright, just one point at a time here.’ Then, once I got it back to 5-5, I started calming down. In the tie breaker, I was like, ‘Just got to play smart, try to get this,’ and that's what happened. It was all positive thoughts.

Timmy used strategies after a bad point, saying, “I used my towel, breathing, and playing with my strings. I tried to do that to calm myself down, focus on the next point, refocus.” Later, during the tiebreaker, Timmy said that he took longer breaks between points to refocus and said to himself, “I can't get mad because this is the last point in the match. It's either you win or

lose.” He went on to say, “I knew that if I get mad at myself again, I’m gonna lose, so I tried not to get mad at myself.” Finally, after recognizing a lapse in focus, Harry explained how he used “‘I’ statements, saying, ‘I could hit; I could do this; I could keep winning.’ I did my Breathe and Believe [technique], and did my deep breathing” to cope with his frustration. This helped him to “focus, relax, and not get too tense.”

Athletes also used techniques to refocus from or prevent distractions. In response to her mother’s distracting comments, Amy used self-talk to help her refocus on her match. She used phrases such as, “You know what Amy, it’s your mom, like stop.” and “Okay Amy, come on, just stay calm.”” After getting cheated, Ana described how she used self-talk and returned to her routine to cope with her frustration. She admitted, “I would start yelling at her, and then I was like [takes a deep breath], take a deep breath and like, ‘It’s okay. Come on. Forget about it.’ That would help me.” Ana also indicated that she used her towel along with this self-talk to relieve her negative emotions. Samantha “zoomed herself into the match” to help her block distractions (e.g., a clay court broom sweeping a nearby court) during her match. Interestingly, Bob recounted that he “thought about something random” to refocus between points. In fact, Bob even described a point in which he used this strategy to refocus. He said,

It was 30-all, and it was a really long point. During the point, my head was all over the place. In the beginning [of the point], I was giving him too many short balls. I thought of something random, and then refocused really quick, just like “apples” or something like that. Then, I thought about my next shot I’m gonna hit and what to do.

Athletes used strategies to refocus their attention on the present moment rather than reflecting on previous points or mistakes and ruminating on negative feelings of frustration.

Athletes recognized that using psychological strategies also helped their “mental performance” (Selma), specifically their ability to calm down and stay focused, even in the face of frustration or challenging environmental conditions. Zendaya spoke about the clues she gets when she knows she needs to use a psychological strategy during a match. She said,

When I get that feeling—it’s in here {points to pit of stomach} or here {points to head}—like I wanna punch something or smash something, that’s when I know. I can’t get bad thoughts out of my head. Like, “Wow, your gonna lose this.” I go back and try to erase it.

Amy noted that using psychological strategies helped her to “stay even the whole time.” In addition, she was aware, “If I stop focusing, that’s when my game starts to falter down.” She was aware of this because she had frequently been ahead in matches and think, “‘It’s the last part. She’ll start missing. I can go easy.’ And it’s not the case. They want to fight back, too. I need to realize that.”

Athletes reported that psychological strategies helped them to “feel calmer and more focused” (Harry); specifically, routines helped them “slow down so you’re not rushed” (Samantha), breathing “calms me down and moves me forward” (John), going to the strings “really calmed me down, and it helped me just kind of slow the point down so I could think” (Selma), going to the towel “helped when I was getting cheated, so I could just focus, just get it out of my brain” (Ana), and bouncing on feet “relax[ed] me for the next point” (Timmy). Bob explained that his psychological strategies helped him “get in the zone and think less” and “find the balance between focus and comfort.” He summed up the benefits of his psychological strategies, stating,

Anything that's between points is just something to relieve, to refocus, to let out that energy because if you keep that energy inside, it's gonna come back at you. It's gonna put more pressure on yourself to win the next point which is not a good thing.

Think and plan. Another reason athletes used psychological strategies was to create a space for them to slow down and problem-solve between points. This went beyond simply reducing their arousal level (e.g., calming down) and refocusing; athletes were purposeful in efforts to reflect on previous actions and plan future points. Athletes reported using routines, self-talk, and deep breathing between points. Selma described how she used psychological strategies to think and plan between points. She went to her towel both after errors and if she played well; importantly, she said, "I go to my towel longer on the points I thought I could have done something different on, and I think before I serve, where I should serve, and I always breathe on the court." She used this time to "blueprint a whole point in my mind" and try to figure out tactical patterns that her opponent was using. Zendaya explained that her routine (i.e., going to the strings, facing the curtain, bouncing the ball) "gives me time to think. Gives me time to calm down if I missed or think about what I should do the next shot." In addition, Samantha indicated that she had two different routines—one for when she won the preceding point and another for when she lost. She said that these routines "give me a second to think and breathe so I'm not rushed into the next point."

Manage fatigue. Finally, athletes noted that they used psychological strategies to manage energy. When fatigued, Bob used a "fictional character" to help him manage his energy. He stated that if he was tired after a point, "I would think about someone who is always tired, just some random person in this world who's really tired who worked all day. I think, 'What would they feel? How would they counteract this?'" Other athletes used strategies to

lower their heart rate. Amy said, “I noticed it was really hot as the set went on, so I was trying to breathe and get my heart rate lower and chill a little so I can feel cooler.” Similarly, John stated that he used deep breathing after long points because “heart rate’s up. I have to slow it down so I’m ready for the next [point].”

Ana believed that her match would be a “much longer match than it had to be” if she did not use psychological strategies. She was aware that she needed to “get off the court as quickly as I can to save up my energy for other matches.” Here, Ana was aware of her tendency to draw out easy matches, and using psychological strategies helped her to stay focused and play efficiently. She explained, “I think [psychological strategies] helped me calm down so I wouldn’t have to spend that much time out there, and I could just finish it off quickly.”

Theme 6: Athletes’ Thoughts and Behaviors During Changeovers.

Athletes explained their routines on changeovers (i.e., breaks between odd numbered games) and set breaks (i.e., breaks between sets). The time during changeovers was used purposefully to help athletes perform in the upcoming games. Athletes used this time to: (a) think and plan; and (b) rest and refocus.

Think and plan. Some athletes used the time during changeovers to reflect on their performance from past games and prepare future tactics. John explained that he used changeovers to “think, ‘What did I do on the last game that made me win, or what did I do? How do you play, like how do you win that game?’” Similarly, Harry said that during changeovers, “I was really thinking about what I could do in the next [game], or if I could keep using what I did in the past games because that was working.” Samantha went to the bathroom during her changeover and used psychological strategies during this break. She stated that in the bathroom,

I think about what I did in the last game that was working and what was not working. If it was working, I would do it in the next game, and if it wasn't working, I would try to make it so it would work.

Between sets, Selma said that she used that time to “go into a deep thinking puddle, or pool, or to the deep spot in your brain, and you'd just keep on thinking on what you would do.” So, these athletes used the time during changeovers to reflect on their performance and plan for future points.

In contrast, Timmy used changeovers to ruminate over his poor performance. He said, “There's nothing good about the changeovers. That's the time I got mad the most. On changeovers, I would just rethink all the bad games I would play, not the good points.”

However, he noted that “I don't think the changeovers affected me that much 'cause once I get up, I try to focus on the next game. Because they've already happened. I can't really fix that.” It appears that Timmy allowed himself the time during changeovers to release negative thoughts from previous games and refocus for upcoming games.

Rest and refocus. In contrast, other athletes used the time on the changeovers to rest and refocus. Sometimes this meant not thinking. Namely, Amy said, “There's nothing really going through my head. That's the time where I can refocus, or if it's too hot, I'll get a semi-break.” Ana explained, “In this match particularly, I just went to the changeover to say, ‘Do what you have to do,’ and I follow a specific routine when I get there.” She noted that she was “very superstitious.” David described how the changeovers in his match, specifically the first set, were “about staying focused. I just kept breathing. Long, deep breaths calmed me down, because I was also pretty nervous. But, I just had to stay calm, stay confident in myself.” Interestingly, Ana thought that not engaging in this routine would lead to negative outcomes

and indicated that this was true for both her changeover routine and between-point routines. She said that if she did not do her routine,

I'm [going to] be like, "What if that interrupted my brain strategy, and what if that's why..." and then it gets really bad. Even when I'm at the court back, I always have to get the ball that I'm winning with. And, I always, if I lose more than two points in a row, I have to go to my towel. I can't not. Everything has to be in a certain place.

Theme 7: Frequency of Psychological Strategy Use

Athletes reported using their psychological strategies throughout their matches more or less often depending on their performance. Essentially, they either tended to use psychological strategies more often or for longer periods of time when the score was close or noted that they abandoned psychological strategy use because they were losing. Thus, frequency of psychological strategy use either: (a) increased; or (b) was abandoned based on match difficulty.

Increased psychological strategy use. Athletes tended to use psychological strategies more when they were in "tight" matches. For example, Zendaya said, "I spent more time at my strings [in the second set] than the first set. I spent a longer time instead of just looking at them and then going [to play the point]." Similarly, Samantha indicated that she used routines and motivational talk throughout her match, especially if she was losing. She said that routines were to help her slow down, and "I also use it to take time to think about everything I've done during the match." She went on to say, "I feel like they all help me more when I'm losing." Ana explained, "If [the match is] close then I would do more of it, try to get myself up." So, it appears that athletes' use of psychological strategies increased because they needed to be more calm, focused, or confident.

Abandonment of psychological strategies. Some also recognized that they stopped using psychological strategies (either momentarily or for longer periods) during their matches. Typically, an abandonment of strategies occurred when athletes were losing or making many mistakes. However, athletes also noted that psychological strategies were difficult to use during an “easy” match.

Elizabeth explained that she used some psychological strategies more in the first set (e.g., breathing, looking at strings) than her second set. She said, “I did use breathing but not as often because [in the] second set I was making more errors.” Timmy talked about how he typically used a towel to help him focus and think about his performance; however, he did not use this strategy in his match. He explained that going to the towel was his main strategy to “think to myself what I could’ve done” and “focus on the next point.” Importantly, he added “But here, I didn’t do that.” It appeared that Timmy was using this strategy less because he was making mistakes. Selma also recognized that she was rushing during her match and used her psychological strategies less, especially in the second set. She explained that her performance went down because “I didn’t correct myself.” She added, “I didn’t go to my towel, and I didn’t really think of that – of the strategy; I just went on.” She noted that this did not help her performance, stating that not using psychological strategies “wasn’t really helping me at all, and I didn’t really realize that.”

Finally, athletes noted that they used some strategies (e.g., going to the towel) less often, particularly when matches were easier. For example, Amy explained that she did not use her towel during her match because it was “easy,” saying, “It’s kind of hard [to do] when you’re winning and going through the match really easily. If the match is tough, then yeah I’ll

go to the towel a lot.” Athletes explained that while they still used their psychological strategies, they became less deliberate when they were losing.

Theme 8: Psychological Strategy Learning Process

Athletes reflected on how they learned psychological strategies from their PST program and the ways that their match experiences had changed as a result of this knowledge. Athletes noted that they had learned new strategies to cope with anger and frustration. In addition, athletes explained that their tennis performance had improved as a result of learning and using the psychological skills and strategies taught in the PST program. Athletes’ explanations of the learning of psychological strategies highlighted three occurrences: (a) then vs. now: shifts in perspective regarding the “mental game;” (b) “it’s a habit:” regular use of psychological strategies; and (c) “it’s hard”: challenges in using psychological strategies.

Then vs. now: Shifts in awareness regarding the “mental game.” Athletes explained that before learning about psychological skills and strategies within their PST program, they were not aware of their thoughts and emotions, or the importance of their thoughts and emotions, on the court. For example, Amy said, “I don’t think I thought what I was doing on the court... I just played without actually understanding what I was doing.” Similarly, Timmy said, “I didn’t even know what mental skills were.” Because of this lack of awareness about the psychological side of the sport, athletes noted that they would become frustrated and angry easily. Amy explained, “I would just play, and I’d get frustrated really easily. I wouldn’t realize that that was helping the opponent and that was destroying me.”

Other athletes noted that they were “crazy” before they started the PST program because they could not manage their thoughts and emotions. They explained how they frequently “banged” their rackets on the ground after lost points and would get angry or mad

during matches. Athletes noted that being “crazy” also meant that they did not take their time between points and ruminated over mistakes. Ana explained how her psychological state was before the PST program and how her match experience would have been different if she did not have these skills and strategies. She said,

I was going crazy. Mentally, just horrible. Just I couldn't focus. If you saw me in this match, if the same thing happened, I bet you it would've been 6-4, 6-4 if I played how my mental game was before. Even if I played like I did now, it would've been 6-4, 6-4. I would've took that cheating into my brain, and I wouldn't go to the towel. I never used to play with a towel. I wouldn't breathe. I wouldn't do anything.

She went on to say that she had “evolved as a player,” in large part due to using psychological strategies. Harry said, “I'd never really thought about that inside of like you can come back and when you're down and you could stay focused and use your routines.” He went on to explain, “I learned about mental skills and how important they can be. When I play matches now, I'm more focused and relaxed because I realized how it's more important than your physical [play].”

Interestingly, David explained that he was skeptical of the PST program at first and thought, “What's the point of this? This isn't really gonna help. You're just doing a bunch of stuff.” However, he explained, “I realized it calms me down a lot. From getting really mad to just telling myself, ‘Alright, next point’—it makes a really big difference.” Thus, athletes bought into the importance of mental skills and strategies because they recognized the changes in their knowledge and performance as a result of their PST program.

“It's a habit:” Regular use of psychological strategies. Because they had learned about psychological strategies through the PST program, athletes explained how they now used

them more regularly during their matches compared to their experiences before PST. Elizabeth explained that her psychological strategies had become “a habit now because I did it for such a long time.” Similarly, Selma stated,

I would say I do [psychological strategies in] 99.999% of my matches that I play. I do them a lot. I use my towel all the time. I use my strings all the time. I use the “I” statements. I use my optimism, and I’m just optimistic. I just keep on staying positive, using all the mental skills training that I’ve learned throughout the years that I’ve been there, and it really helps me.

David remarked that he “got used to them” after time and “realized it started to help a lot. And now, I’m used to doing it. I do all of them because I know they’re gonna help me.” Overall, athletes realized that psychological skills and strategies were “really important” (Bob) and reported using them regularly.

“It’s hard:” Challenges in using psychological strategies. Some athletes reported that certain psychological strategies were difficult to use during their matches. Timmy indicated that his psychological strategies (i.e., breathing, going to the towel) “didn’t work” because, “I was still getting mad at myself. [After] one point that I played, I couldn’t stop thinking about [the mistake] for the whole game.”

Other athletes noted that specific strategies were challenging for various reasons. Ana explained that she did not like to visualize because “I just can’t. I don’t like to think about that. I like to know what’s coming.” In addition, Bob said that he did not like to use visualization before his match because he would be “too focused on it, and I get pressure like, ‘What if I don’t actually do what I’m visualizing?’” He also expressed that visualization “takes way too long. I just want something to get me there quick” during the match. Zendaya described that

she was working on using a “trigger” during her matches, and it was difficult to figure out. She explained that she wanted to use a trigger to refocus on important points, stating, “The trigger at deuce is supposed to help me refocus, like lock in right away as the point starts and my intensity goes up, but I can’t really figure one out.”

Finally, Timmy explained that psychological strategies were challenging because they became another type of “performance” to evaluate during the match. He explained, “Sometimes, I know that I need to control myself mentally, and when I don’t do it, I feel like I’m doing everything wrong.” Thus, psychological strategies represented something that he could do “wrong” rather than a tool to help him cope with mistakes that occurred during the match.

Discussion

The purpose of the study was to capture the in-competition experiences of elite youth tennis athletes in early adolescence who have been exposed to PST. In general, all athletes, regardless of the match outcome or their perceived satisfaction with performance, described similar in-competition experiences and psychological strategy use. Overall, athletes indicated that they had various thoughts and feelings during their matches, purposefully used psychological strategies, and felt that these strategies positively influenced their performance. In this section, results gained in the current study are linked with literature in the field of sport psychology.

It was clear that elite youth athletes in this study were able to describe their thoughts, focus, feelings, and behaviors prior to and during competition. This ability makes sense given their developmental stage. In early adolescence (i.e., between the ages of 10 and 14), the inner (psychological and emotional) life becomes more important than the outer, concrete life

because early adolescents are able to introspect about their own thoughts, feelings, and behaviors (Harter, 1999). Though athletes spanned a range of early adolescence (i.e., between 10 and 14 years of age), there were no substantial differences in the ways that athletes explained their match experiences, understood psychological skills and strategies, used psychological strategies, or reflected on their learning of psychological skills and strategies. It may be the case that athletes had enough developmental similarities to appraise situations, use strategies, and understand their performance in similar ways. Furthermore, all athletes took part in the same PST program, and the content and structure of this program was standardized and systematic.

One reason for these homogenous findings may have been the design of the PST program to which athletes were exposed. “The ability to engage in introspection and retrospection to understand one’s thoughts, feelings, and behaviors” has been defined as self-awareness and identified as a foundational psychological skill in PST literature (Vealey, 2007, p. 289). In addition to athletes’ developmental readiness for self-awareness, it was a foundational skill nurtured during the PST sessions participants were exposed to within the Player Development program. Therefore, the results of this study support the notion that self-awareness is a skill that can be learned and developed. In addition, athletes’ knowledge of PST principles may have provided them with the tools to proactively manage emotions and reduce differences in cognitive or emotional capacities. Athletes were generally aware of their thoughts and feelings in their matches, understood that they needed to use psychological strategies to regulate their thoughts, feelings, and focus, and reported that they had become more aware of their thoughts and emotions as a result of the PST program.

In this study, athletes' appraisal and management of their thoughts, focus, and feelings in their tennis matches is in line with Lazarus' CMR theory of emotions (Lazarus, 1991, 1999). Athletes' thoughts and feelings were fueled by primary appraisals of the match situation; specifically, the matches were perceived to be important to athletes' goal-achievement and well-being. These perceptions match the necessary components of primary appraisals in the CMR theory (Lazarus & Folkman, 1984). In addition, athletes' secondary appraisals highlighted an understanding of the emotion-provoking situation (e.g., Zendaya recognized that she was frustrated because she was making errors) and the need to use a coping strategy to regulate emotions (e.g., David used self-talk and breathing between points to manage feelings of pressure). Secondary appraisals also included a decision on which coping mechanisms (i.e., psychological strategy) should be used, and athletes' used each psychological strategy for a specific purpose.

Both before and during competition, the most important thoughts and emotions identified by athletes in this study were confidence and frustration. Confidence has been identified many times in previous literature as a necessary psychological skill for elite athletes to perform at high levels (e.g., Gould, Diefenbach, & Moffet, 2002; MacNamara, Button, & Collins, 2010; Mahoney & Avenier, 1977). Specifically, research with professional tennis athletes found that the ability to maintain self-confidence throughout a match was a component influential to successful performance (De Francesco, & Burke, 1997). Interestingly, though athletes identified that they felt confident both before and during their matches, what they described was a confidence in their ability to perform successfully in their matches. Thus, their thoughts and feelings more closely align with the construct of self-efficacy (Bandura, 1994). In addition, the reasons that athletes provided for their confidence are in line with sources of self-

efficacy. Athletes noted that they were confident because they had previously beaten their opponent or believed they could beat their opponent (i.e., past performance accomplishments) and because a parent, fellow athlete, or even themselves (in the form of positive self-talk) encouraged them prior to or during the match (i.e., verbal persuasion; Bandura, 1994).

In the current study, athletes who were satisfied as well as those who were dissatisfied with their performance indicated that they were confident going into their matches. So, pre-match confidence was not necessarily indicative of performance outcomes. Athletes also reported that they were confident during their matches. In fact, confidence seemed to be a feeling (i.e., “Going in, I felt pretty confident,” Samantha; “I just felt very confident the whole set,” David) and a psychological skill to be maintained throughout competition (e.g., athletes wanted to “boost” themselves up or keep fighting during the match). In this way, athletes who were not satisfied with their performance may have experienced more acute or contextualized feelings of confidence during different points of the match (i.e., when they won a point), but the skill of maintaining confidence was more difficult to execute. Athletes who were satisfied with their match performances experienced feelings of confidence and were successful in maintaining that confidence throughout their matches. In addition, previous research on elite athletes have also noted both the consistency and changes in cognition prior to and during competition (Gould, Eklund, & Jackson, 1992a/b).

Athletes also reported feelings of frustration and nervousness. Because competition is inherently stressful (Orlick, 1987), it follows that athletes would feel negative emotions before and during competition. Interestingly, feelings of anxiety and other negative emotions (e.g., frustration) are associated with less successful performances in elite adult athletes (Highlen & Bennett, 1979; Mahoney & Avener, 1977; Gould, Weiss, & Weinberg, 1981; Uphill, Groom, &

Jones, 2014). However, not all athletes who experienced frustration performed poorly or were dissatisfied with their performance. In fact, feelings of frustration and nervousness were cues for the athletes to engage in psychological strategies. However, athletes who were dissatisfied with their performance seemed to have more difficulty managing their negative thoughts and emotions even though they knew to use psychological strategies (as evidenced by use of these strategies at other points during their matches. These findings are in line with research with elite adult athletes (Highlen & Bennett, 1979). When negative emotions became more extreme (e.g., anger, feeling sick), then performance was influenced more negatively.

Based on the range of emotions experienced—from confidence to frustration and anger—athletes used various coping strategies to change the relationship between themselves and the emotional situation. Using Lazarus' definitions (1991, 1999), coping is considered either problem-focused (i.e., actively changing the person-environment relationship) or emotion-focused (i.e., changing the perceptions or cognitions surrounding the emotion). In this study, athletes used both problem-focused (e.g., planning) and emotion-focused (e.g., calming down and pumping up) strategies prior to their matches. Prior to competition, emotion-focused strategies allowed athletes to withdraw from their environment and relax; specifically, athletes went to the bathroom, walked around the tournament site, or stayed near parents in an attempt to remove themselves from the more stressful environment (e.g., in front of the tournament check-in desk, near other competitors). Then, problem-focused strategies (e.g., self-talk, planning) helped to either suppress unproductive thoughts and feelings (e.g., nervousness) or increase efforts toward goal achievement (Holt, Hoar & Fraser, 2005).

Athletes also used both problem-focused and emotion-focused strategies to cope with their thoughts and emotions during the match. Athletes used problem-focused strategies to help

them problem-solve and plan future actions, reduce negative behaviors, and work toward goal achievement. For example, athletes reported using routines and deep breathing to help them think and plan between points. Athletes reported using “I” statements and motivational phrases to build confidence and refocus. Also, Bob’s “fictional character” helped him to refocus by thinking about a fictional athlete who could successfully refocus his attention after a mistake. This problem-focused strategy created a model for this own responses and behavior. Athletes also used emotion-focused strategies to relax and improve their performance. For example, all athletes reported using breathing and self-talk during their matches to calm themselves down (i.e., relax). In fact, many athletes reported using strategies (e.g., breathing, self-talk) for both emotion-focused and problem-focused purposes. In other words, athletes used breathing to first calm down and then allow them to think and plan for the next point.

These findings on participants’ use of problem- and emotion-focused coping strategies add to the existing youth sport coping and PST literature. Previous research has indicated that early adolescent athletes used both problem-focused and emotion-focused coping strategies (Holt & Mandigo, 2004), and adolescents tend to use more problem-focused than emotion-focused coping efforts outside of sport (Weisenberg, Schwarzwald, Waysman, Solomon, & Klingman, 1993). In general, athletes’ reported use of psychological strategies in this current study matched these findings. It is important to note that a few athletes reported thoughts and behaviors that represented emotion-focused coping strategies not conducive to performance. For example, Timmy’s reflection that he was “getting mad at [him]self for getting mad” is an example of blaming, which falls under emotion-focused coping. However, the majority of athletes’ reported psychological strategies were those that were intended to positively influence performance.

In terms of specific problem- and emotion-focused coping strategies, athletes in the current study reported using breathing, self-talk, routines, refocusing techniques, and energy management techniques for specific purposes during their matches. Overall, breathing, self-talk, and routines were used more often than refocusing and energy management techniques. It is possible that breathing, self-talk, and routines were emphasized more within athletes' PST program, so they were then more likely to use these strategies during competition. Available reports on strategies taught within PST programs indicate that many PST programs focus on teaching young athletes arousal regulation and relaxation techniques. Breathing is a popular arousal regulation strategy. For example, Post, Wrisberg, and Mullins (2010) included deep breathing as a core strategy taught in their season long PST program to center athletes prior to a free throw shot; similarly, Haddad and Tremayne (2009) taught a centering breath as a pre-performance routine. In addition, self-talk was frequently included in PST program curriculums (e.g., Johnson Hrycaiko, Johnson, & Halas, 2004; Mamassis & Doganis, 2004; Ming & Martin, 1996). Johnson and colleagues (2004) taught athletes simple cue words to improve soccer shooting performance. Finally, routines (e.g., pre-performance routines) have also been used in youth PST interventions (e.g., Mamassis & Doganis, 2004) and are a common practice in tennis.

It could also be the case that the simplicity of breathing, self-talk, and routines influenced athletes' use of it during competition. Breathing is a physical, muscle-to-mind strategy, and previous researchers have argued that keeping psychological strategies simple and concrete with you athletes facilitates learning (Orlick & McCaffrey, 1991). The current findings support previous research evidence indicating that athletes as young as 10 years of age were able to learn and use simple breathing pre-performance strategies prior to closed motor

skills, and use of these strategies was related to improved performance (Haddad & Tremayne, 2009, Ming & Martin, 1996). This study's findings are also congruent with research indicating that athletes can use simple cue words to focus their attention (Perkos, Theodorakis, & Chroni, 2002), motivate action, or sustain effort (Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000). For example, athletes in the current study reported using affirmations and motivational phrases in order to motivate action, sustain effort, and focused their attention. Self-talk, relaxation strategies (e.g., breathing), and routines have been used by professional tennis athletes in competition (De Francesco & Burke, 1997). Plus, as Van Raalte and colleagues (1994) identified, self-talk is a common practice in adult and youth tennis culture, and these results match types of self-talk (i.e., motivational self-talk, affirmations) that mid-adolescent athletes use in competition.

Interestingly, a few athletes reported using visualization as a strategy before or during their matches. However, others indicated that they found visualizing difficult to do. It is possible that visualization was covered less consistently within the PST program. Athletes may also have been using a form of visualization or imagery to plan upcoming points but did not recognize this as a psychological strategy. It is common practice for tennis coaches to teach athletes (youth and adult) to use the time between points to plan subsequent points. In the PST program, the terms visualization and imagery were used interchangeably, so findings from research on young athletes' use of imagery can be used to interpret these findings. Several PST programs with young athletes include imagery as the main (e.g., Munroe-Chandler, Hall, Fishburne, Murphy, & Hall, 2012; Wrisberg & Anshel, 1989) or supporting (e.g., Atienza, Balaguer, & Garcia Merita, 1998; Zhang, Ma, Orlick, & Zitzelsberger, 1992) psychological strategy taught. And, researchers have found that athletes as young as seven years of age used

imagery in sport (Munroe-Chandler et al., 2007, 2012). Imagery was one of the most commonly reported psychological strategies used by elite tennis athletes in competition (De Franscesco & Burke, 1997); however, perhaps these athletes did not find imagery appropriate for coping with their thoughts and emotions within competition. More research is needed to understand youth athletes' capabilities and preferences with using imagery during competition experiences.

In addition, maintaining focus or re-focusing were described as a reason for athletes using psychological strategies. However, a few athletes noted that staying focused or refocusing their attention was hard to do. Maintaining attentional focus is a performance skill within Vealey's framework of psychological skills, and these skills begin to develop after more foundational skills are nurtured (Vealey, 1988). So, athletes may have struggled to have a more "advanced" skills based on a combination of their age, development, and experience with PST.

Athletes in the current study also spoke about how using psychological strategies positively influenced both their physical and "mental" performance. Namely, athletes used psychological strategies to maintain confidence and be calm and focused, think and plan, and manage energy. In turn, having those mental skills allowed athletes to play better. Researchers have examined the psychological skills that young athlete believe are necessary for optimal performance in elite, mid-adolescent, male rugby athletes (Holland, Woodcock, Cumming, & Duda, 2010) and elite adult athletes (e.g., Gould, Diffenbach & Moffet, 2002); several of the psychological skills important for athletes in the current study are in line with these elite performers (e.g., confidence, attentional focus). However, sport-related differences could account for differences in psychological skills identified. For example, the need to "think and plan" between points could be bound by the demands of tennis, and it is possible that this

particular skill is influenced by athletes' sport development. In other words, athletes at this age are still learning to strategize, so use of psychological strategies also influences their tactical development. In short, these results provide contextualized evidence of perceived important psychological skills for tennis performance and development.

No sport psychology literature is available specifically on the psychological skill capabilities of child and early adolescent athletes. However, researchers in youth sport psychology have found that children and early adolescents experienced physical and psychological performance gains following engagement in PST programs that introduced psychological strategies (e.g., Copeland, Connell, Reider, & Burton, 2009; Fournier, Calmels, Durand-Bush, & Salmela, 2005; Gucciardi, Gordon, & Dimmock, 2009a/b; Sharp, Holland, Woodcock, Cumming, & Duda, 2013). The current study provides additional evidence that young athletes do actually use psychological strategies during performance; however, the results of this study extend the findings of previous research by gathering athletes' rationales for psychological strategy use. Athletes' reports of why they used psychological strategies highlight their ability to understand the importance of psychological skills and their relationship to performance outcomes.

In addition, in the current study, more successful athletes generally used their psychological strategies more effectively to cope with events (e.g., adversities) that happened during competition than less successful athletes, which is in line with previous research on elite adult athletes (e.g., Gould, Guinan, Greenleaf, Medbery, & Peterson, 1999) and elite youth athletes between the ages of 12 and 19 (Rotella, Gansneder, Ojala, & Billing, 1990). However, not all athletes who were successful (i.e., won their matches) used psychological strategies consistently. Some athletes reported that they were less satisfied with their performance. For

these athletes, it may be the case that they were less able to regulate their thoughts and feelings during competition, specifically when they were losing or making repeated errors, and this negatively influenced their psychological strategy use. This is in line with existing youth sport coping research; namely, that use of coping strategies can change throughout the course of competition (Nicholls & Polman, 2008).

More specific research on athletes' inconsistent use or abandonment of psychological strategies is lacking. What is available in the literature is within coping and youth sport. Previous research indicates that coping styles, which are influenced by affective state, are related to the consistency of coping strategies (Gaudreau & Blondin, 2004). So, athletes in this study who felt sustained anger and frustration also reported abandoning their psychological strategies. Or, they felt that their psychological strategies "didn't work." It is possible that these athletes' negative affective states prevented their psychological strategies from "working" effectively. A strength of the current study was the use of a chronological interview guide to help athletes recount specific match experiences. It is possible this allowed them to recall both use and lack of use of psychological strategies as they recounted their match experiences chronologically. So, inconsistent use of psychological strategies may not have otherwise been captured through more retrospective or generalized methods.

Overall, when comparing athletes' emotions and use of psychological strategies across time-points within their matches competition (i.e., before the match, during the match, on changeovers), athletes were consistent in the types of strategies used and their rationales. This is an addition to available research on youth sport coping and psychological strategy use. While existing research has shown that elite adult athletes use psychological strategies before and during competition, this information is lacking in youth sport literature. It seemed that athletes

experienced recurring emotion-inducing situations before and during their matches, and they had an array of psychological strategies available to cope with the thoughts and feelings produced by those stressors.

Because these athletes were eligible to participate in the current study due to their exposure to a specific PST program, it is important to link the psychological skills and strategies included in their reflections of match experiences to the PST program. Athletes referenced the psychological skills of confidence and focus, which are two of the skills addressed in the PST program. They also explained that they used psychological strategies to relax and manage their stress and energy. However, skills such as self-awareness, resilience, motivation, and determination were not included in their reflections. In terms of psychological strategies, athletes used breathing, self-talk, routines, journaling, and visualization. Interestingly, goal setting was not mentioned in any of the interviews. In addition, athletes did not address any of the skills taught to help athletes develop on and off the court (e.g., respect, responsibility, and professionalism).

Athletes' use of psychological strategies in competition learned from a PST program represents a transfer of learning. Transfer of learning occurs when learning in one context influences performance in another context, and active self-monitoring is one recognized requirement for successful transfer of learning (Perkins & Solomon, 1992). For example, Harry explained that because he had learned "mental skills and how important they can be" through the PST program, he was purposeful in using these strategies during matches because he "realized how it's more important than your physical [play]." In line with the recommendations for PST programs by Martens (1978), education, acquisition, and practice phases were included in the athletes' PST program, and transfer of learning appeared to be facilitated by this three-

step, systematic process. In addition, the acquisition and practice phases within the PST program closely matched the competition environment in line with positive near transfer (Gass, 1985; Perkins & Solomon, 1992). Participants reported a relationship between their use of psychological strategies learned in training and using these strategies during performance.

Interestingly, some important influencers on athletes' match experiences and use of psychological strategies seemed to be parents. Several athletes mentioned the importance of their parents' encouragement or advice prior to the match, and others drew comfort from their parents influence before the match. Athletes also tended to mention that they had learned psychological strategies from the mental skills coach who administered the PST program. However, not all athletes had positive interactions with their parents prior to or during their matches. Some athletes noted that they were frustrated by their parents (e.g., they were distracting) or that they feared the debriefing that would occur with their parents following the match. Based on the available mentions of parents, there may be a relational component to athletes' in-competition experiences and use of psychological strategies. In other words, athletes match experiences were colored by their interactions with parents (positive or negative), and they may have used psychological strategies more readily if they were encouraged by their parents. However, while it was clear that parents played a role in how athletes went into their matches and ultimately experienced competition, the information about parents gleaned from athletes in this study lacked depth because the topic was not a primary research question. Several researchers have investigated the influence of parents on youth athletes sport participation, motivation, and enjoyment (Babkes & Weiss, 1999; Brustad, 2010; Harwood & Knight, 2015; Scanlan, 1996), specifically in tennis (e.g., Gould, Lauer, Rolow, Jannes, & Pennisi, 2006; Harwood & Knight, 2009). Future research should link the

perceptions of parents to a specific match experience to gain more insights on how parent interactions influence athletes' in-competition perceptions and behaviors

Conclusions

The results of this study provide new information about adolescent athletes' reported use of psychological strategies during competition. Reflecting on Van Raalte and colleagues' (1994) work, the current study gathered more in-depth information about young athletes in competition experiences (i.e., thoughts, focus, emotions, and behaviors) due to the inclusion of observations and post-match interviews. Because of the study methodology and procedures, information was gained not only about *what* psychological strategies athletes used, but also *how* and *why* they used them. In this way, a deeper understanding of the ebb and flow that occur with both in-match emotions and psychological strategies used was gained. In addition, observable match behaviors were paired with problem- or emotion-focused coping strategies (e.g., looking at strings near the back curtain was a physical cue to help athletes engage in a refocusing technique). In other words, there was a cognitive process occurring with simple observable behaviors that was not captured in Van Raalte and colleagues (1994) study.

Practical Implications

Understanding early adolescent athletes' in-competition experiences and use of psychological strategies has several practical implications. Asking young athletes about their competition experiences and using observations to supplement individual post-match interviews has never been done; so, athletes as young as 10 years old shared rich, contextualized information about their use of psychological strategies during tournament matches. So, the results of this study provide evidence that even early adolescent athletes can discuss their match experiences in a knowledgeable, detailed way.

In addition, because the most prevalent emotions that athletes identified were confidence and frustration, PST programs should create curriculums that help early adolescent athletes to build and maintain confidence and cope with frustration during competition. More importantly, because some athletes appeared to prefer certain psychological strategies over others or struggle to utilize a particular psychological skill (e.g., staying focused), these programs should be individualized and tailored to athletes' psychological abilities. Thus, the information gained from this study can guide the developers of future PST programs toward building curriculums that meet the needs of young athletes. Young athletes in previous literature have acknowledged that they use coping strategies during competition and want to have more strategies to use (Gould, Wilson, Tuffey, & Lochbaum, 1993). Interestingly, athletes in this study seemed to use similar strategies before, during, and on changeovers within their matches to cope with the emotions they experienced; in fact, they reported using a smaller number of strategies more frequently (e.g., breathing, self-talk, and routines), so sport psychology professionals developing PST programs might consider tailoring a few psychological strategies to meet multiple performance demands.

The results of this study also provide support for the effectiveness of the PST program in which the athletes' participated because athletes reported successfully transferring the strategies learned in practice to competition. Athletes who participated in this study were part of a Player Development program sponsored by a sport national governing body. Thus, these results provide support for the addition of PST to other youth athlete development programs to positively influence young athletes' sport experiences and development. Sinclair and Sinclair (1994) argue that psychological skills should be developed gradually in line with physical,

technical, and tactical skills. So, sporting bodies should consider integrating the development of psychological skills into sport training as soon as early adolescence.

Based on their training regimen and developmental stage, athletes in the current study were in or near the specializing years (Côté, 1999). At this time in their athletic development, athletes in this study were focused on deliberate practice of specific tennis skills to enhance their sport development (Côté & Hay, 2002). Due to this specialization, athletes participated in advanced training and competitive arenas. Therefore, these athletes need additional coping strategies to handle the increased rigor of their training and competitive experiences. So, sport psychology professionals may want to introduce PST programs before or at the specialization years, particularly because athletes begin to experience more stressors during that phase of sport participation and are at a ripe developmental period to learn and improve self-awareness skills (Harter, 1999; Vealey, 2007).

The case of athletes selected for this study was exposed to a PST program that supplemented tennis practice and strength and conditioning training. In addition, these athletes competed at a high level and displayed a high degree of sport knowledge during their interviews (i.e., they were able to discuss technical and tactical information pertaining to their matches). In fact, several athletes used their tournament matches to practice technical or tactical skills. Thus, these athletes were potentially exposed to a more advanced training schedule than other early adolescent athletes; so, it may be assumed that psychological strategies were used by these athletes in competition because they competed at a higher competitive level than other young athletes. Providing early adolescent athletes with PST, particularly one that is systematic and part of their physical and technical sport development, may provide athletes with the opportunity to learn useful psychological strategies that can be used during competition

(Zakrajsek, Lauer, & Bodey, 2017). PST programs can be provided by a sport psychology professional either directly to youth athletes or with and through the coach. Several models for PST programs delivered to youth athletes exist within the sport psychology literature (e.g., Gilbert, 2011), and similar programs can be utilized with young athletes to help them develop psychological skills and strategies in practice that can be transferred to competition.

Sport psychology professionals can also utilize the information gained from this study. Athletes in this case were in early adolescence, and they seemed to use some psychological strategies (e.g., breathing, self-talk, routines) more readily than others (e.g., refocusing techniques, visualization). In addition, athletes noted that they realized the importance of the “mental game” after learning about and using psychological strategies. So, sport psychology consultants should take time to explain to athletes why psychological skills and strategies are important to performance and how they can be used during competition. In addition, some athletes in the current study were critical of their performance, and this included their “performance” of using psychological strategies. Sport psychology professionals should also communicate that psychological strategies work to supplement physical performance, and they should not be characterized as something to critique. In addition, as Vealey (1988) noted, sport psychology professionals can also help young athletes learn that psychological skill progression is similar to physical skill progression; both require time and practice. Importantly, teaching athletes the *what*, *how*, and *why* of psychological skills and strategies requires an effective consultant-athlete relationship (Foster, Maynard, Butt, & Hays, 2015).

Limitations and Future Directions

This study is not without limitations, and these weaknesses serve to drive future research. First, this was a case study and not a comparative case study. In other words, a

comparable “case” of athletes who did not receive PST was not selected to participate. So, contrasts could not be made to provide evidence that athletes exposed to PST had “better” match experiences than those not in a PST program. This limited the conclusions that could be drawn from these results because it could not be determined whether athletes’ match experiences and use of psychological strategies are more advanced than those who had not received such training. With that, the uniqueness of the case—namely, that athletes received regular PST sessions and trained at a high volume—also limited the generalizations that can be formed from the results. However, because qualitative research is focused on capturing meaningful, contextualized experiences, generalization to a larger population (e.g., all youth athletes) is typically not done (Creswell, 2013). More research should be done on early adolescent athletes’ perceptions and use of psychological strategies.

Some athletes in the study had challenges recalling their thoughts during the match. However, a strength of this study is that athletes were interviewed about their match experiences at most 30 minutes after they left the court. In many cases, athletes were interviewed within five to 10 minutes after their matches ended. Previous research on elite athletes use of cognitive strategies during competition has been retrospective, with recall of psychological strategies ranging from four months to years after competition (Gould, Ecklund, & Jackson, 1992a/b; Gould & Maynard, 2009; Rotella et al., 1980). So, future researchers should consider capturing the match experiences of youth athletes immediately following competition to ease recall and allow for rich descriptions of match experiences.

In addition, parents clearly influenced athletes’ in-match experiences and use of psychological strategies. Because this influence was not a primary research question for this study, future researchers should focus on the ways parents prime athletes’ experience before

specific competition experiences. In addition, interactions with parents after the match but before individual interviews could have influenced athletes' interview responses. As noted previously, a strength of the current study is that most of the athletes were interviewed immediately following their matches, but greater comparisons and conclusions may be drawn from future research that examines the influence of parental debriefing sessions following competition. Finally, interviewing the parents to gain their perspective on PST training and their child's behavior and performance could strengthen the themes constructed from observations and interviews with athletes.

Finally, only two of 12 athletes lost their matches. Thus, it is possible that the results could have been strengthened by more equal groups of win and loss on which to compare athletes' experiences. These match outcomes may have occurred based on the timing of data collection. Because several of the events in which athletes competed were single elimination (i.e., athletes would be out of the tournament with a loss), the researcher was forced to collect data for several first matches of the tournament. While there are perceived negatives to collecting during early round matches versus later in the tournament (e.g., the match may be "easier" than later rounds), each match carries a significant amount of stress for young athletes competing at an elite level. So, any tournament match, particularly at participants' competitive level, would be inherently stressful. However, observing and interviewing athletes after both a win and a loss would provide within-participant comparison on how they described their appraisal processes, emotions, and use of psychological strategies.

One athlete who indicated initial interest in participating in this study declined an individual interview after she lost her match. On observation, she was clearly upset about her loss, and she asked her mother if it would be alright if she did not do an interview. Only two

other athletes lost their matches in the case, and one of the athletes (Aron) was heavily encouraged by his father to complete his interview. The other athlete had a generally optimistic disposition and seemed to be resilient through her loss. So, there is a possible response bias in athletes who agree to participate despite losing their matches.

Overall Conclusions

Overall, this study provides novel information on athletes' in-competition and use of psychological strategies to manage emotions; namely, early adolescent athletes were clear in their use of and rationale for psychological strategies, and these results were in line with Lazarus' CMR theory of emotions and coping (1991, 1999, 2001). In addition, research in more applied youth sport psychology is beginning to emerge, and these results begin to uncover the types of psychological strategies that transfer from practice to competition and establish support for the notion that early adolescent athletes are capable of understanding their thoughts, focus, and feelings during competitions (regardless of perceived performance) and are able to use psychological strategies to regulate their emotions and positively influence psychological and physical performance outcomes. These results also expand on existing youth psychological skills training research by gathering athletes' accounts of their personal evolution in regard to their emotional management and tennis performance before and after exposure to a PST program and provides compelling evidence for the perceived effectiveness of the PST program. Ideally, more research will be done on the in-competition experiences of young athletes to learn more about their mental and emotional management needs during competition and better inform the content of PST interventions.

SECTION 3: Extended Literature Review

Over 60 million children are estimated to participate in organized youth sport (National Council of Youth Sports, 2008), with 7.6 million interscholastic athletes (National Federation of State High School Associations [NFHS], 2012). Youth sport structures place child and adolescent athletes under increasingly more competitive and professionalized arenas of competition (Heinila, 1982). Thus, many young athletes, regardless of competitive level, engage in competitive situations that create a platform for psychological and emotional stressors (Lazarus, 2000). Understanding how young athletes interpret aspects of competition (i.e., psychological and emotional stressors) can provide sport psychology professionals with tools to help these young athletes actively and effectively manage their thoughts, emotions, and behaviors to promote a positive competition experience.

Here, I examine how young athletes' understanding of competition can be theoretically grounded in Lazarus's (1991, 1999, 2000) Cognitive-Motivational-Relational (CMR) theory of emotions. The term "young athlete", for the purposes of this paper, refers to children and early adolescents between the ages of 9 and 13 years. Accordingly, developmental theories (i.e., Bandura, 1986; Erikson, 1950; Piaget, 1932; Weiss & Bredemeier, 1983) inform how developmental aspects of athletes between the ages of 9 to 13 influence the framework. Then, I explore the use of learned psychological skills and strategies in sport competition as a seemingly unvalued interpretation of "coping" with emotions, a key tenant of Lazarus's emotion appraisal and emotion experience process. This understanding of emotions, development, and coping (i.e., psychological skill and strategy use) also has implications for the ways in which young athletes regard sport, athletic development, and competition generally.

The Cognitive-Motivational-Relational Theory of Emotions

The CMR theory of emotions (Lazarus, 1991, 1999, 2000) is one of the most popular frameworks for exploring emotions and coping in sport. In his view, Lazarus (2000) defines emotion as a

Phenomenon... that is organized psychophysiological reaction to ongoing relationships with the environment, most often, but not always, interpersonal or social. This reaction consists of responses from three levels of analysis—namely, introspective reports of subjective experience (often referred to as an affect), overt actions or impulses to act, and physiological changes that make the emotions organismic.

The CMR theory of emotions (Lazarus, 1991, 1999, 2000) operates through five metatheoretical themes (Lazarus 1991).

1. CMR theory is a systems theory that interprets emotions through an “organized configuration of many variables” (Lazarus, 1991, pp. 39).
2. Two principles—the process principle and the structure principle—account for the interdependent existences of change and consistency regarding emotional patterns of individuals.
3. The developmental principle posits that the emotion process changes and develops across the lifespan.
4. The specificity principle suggests that each emotion has a distinct emotion process.
5. The relational meaning principle defines the emotion and is expressed through appraisal and the interpretation of a core relational theme.

Each of these metatheoretical themes will be discussed in more detail as the theory is introduced. Essentially, the relationship between the person and the environment is central to

creating the platform for the appraisal process, the central construct of the CMR theory (Lazarus, 1991).

The Emotion Process

The emotion system occurs in a three-step process. First, personal characteristics and environmental conditions are antecedent variables that inform how a person appraise an emotion-provoking situation. Personal characteristics include personality, motivation, knowledge, and beliefs. Environmental conditions that are important to emotion are perceptions of the demands, constraints, and resources pertaining to the emotion provoking situation. Second, emotions are mediated through a process of appraisal, action tendencies, and coping. In Lazarus's (1991, 2000) view, a person appraises a situation by evaluating its significance in relation to his or her personal well-being. With time, the person develops core relational themes, or patterns, about frequently experienced emotions as a result of the appraisal process. These themes provide meaning related to the threat or benefit profile of an emotion-provoking situation. Action tendencies account for the physiological response accompanied by an emotion. Based on information gained from appraisal and action tendencies, the coping process works to either change the change the meaning or reality of the person-environment relationship to help alter the existing emotional state. Third, short and long term outcomes of emotion, commonly characterized as affects, influence cognition and behaviors specifically related to the emotion-provoking situation and more broadly to constructs such as mood and personal well-being. The model of the CMR theory system is located in Figure 1.

In sport, the negative emotions associated with competition can have a harmful effect on performance, enjoyment, and other psychosocial variables. For example, stress is an important part of competition and has both positive and negative implications. In psychology,

many emotion researchers (e.g., Arnold, 1960; Gross, 1998, 2013; Hanin, 2000; Lazarus, 1991, 1999, 2000; Pekrun, 2000; Schachter, 1964; Weiner, 1986) view stress and the coping process as an emotional event. Lazarus (1999) has an intriguing emotional conceptualization of stress and its relation to the coping process. In his view, stress and emotion are a single, complex phenomenon (Lazarus, 1993). Both positive and negative stress beget emotional responses and more importantly, according to Lazarus, stress is an emotion; thus, the two processes cannot be disentangled. Because sport, especially sport competition, is a stress-inducing situation (Orlick, 1982), examining experiences within competition may require an emotion lens.

Why Cognitive, Motivational, and Relational?

Lazarus's CMR theory of emotions rests on the notion that emotions are precipitated by an important interaction between the person and the environment. This interaction is influenced by the person's cognitive capabilities, abilities, and tendencies, motivational considerations (e.g., goal attainment, goal commitment), and relations among the interdependent variables that influence emotion, appraisal and coping (Lazarus, 1991). These considerations influence all aspects of the emotion system described above.

Motivational. According to Lazarus's conceptualization (Lazarus, 1991, 1999, 2000), emotions are ultimately responses to the perceptions of goals set by the person that have been generated implicitly or explicitly throughout everyday encounters (Lazarus, 1991). Therefore, motivation is viewed as a primary antecedent variable that drives a person to strive for a goal and influences the appraisal and coping process. In this way, motivation can present as a personality trait, where a person who is more goal-oriented has a stronger emotional reaction to a person-environment encounter that actively thwarts intended goals. Moreover, a reaction to environmental conditions (e.g., a national junior tournament) can also influence the intensity of

goals set. Regardless of the way in which the motivational component of the CMR theory (Lazarus, 1991, 1999, 2000) are interpreted, it is clear that motivation is a strong personal variable within the emotion process. Because it is a personal variable, motivation is mediated by individual and group differences, knowledge, and development (Lazarus, 1991). Thus, understanding the specific trait and transactional motivators within a person-environment interaction can inform the type and strength of emotions experienced.

Relational. Within the CMR theory (Lazarus 1991, 1999, 2000), the relationship between the person and the environment is essential to every interdependent component of the emotion process. Two possible relationships exist within the personal-environment interaction. Stable arrangements are those that are relatively enduring and persistent over time yet still have the capability to create emotion-provoking situations. For example, the relationship between a youth athlete and his or her coach can be a long-term arrangement. Thus, positive emotions such as mutual respect and appreciate or negative emotions such as fear or anxiety can precipitate from this relationship. Transient arrangements are relations between the person and environment that are continually changing. For example, the relationship between a young athlete and his or her competitor represents an ever-changing and relatively brief interaction and can produce strong negative and positive emotions based on the appraisal of that interaction. The relationship between the person and the environment leads to the generation of a core relational theme. This core relational theme represents the person's general understanding of the emotion, and the core relational themes can be influenced by age and development (Lazarus, 1991), which will be discussed further in a subsequent section.

It is important to note that an emotion occurs only if a person perceives an emotion provoking situation from the environment, and in Lazarus's view, the environment can be an

internal or external source. Ultimately, the relational component of the CMR theory (Lazarus, 1991, 1999, 2000) posits that a person will not experience negative emotions, which indicate a potential threat, unless the environment actively does not compliment the person's wants or does not provide personal benefits. Additionally, positive emotions will be experienced only if the environment can fulfill the person's wants.

Cognitive. Because emotion is closely tied to thoughts and behaviors (Ellis, 1962), it follows that a theory of emotions should have a cognitive element. According to the CMR theory of emotions (Lazarus, 1991, 1999, 2000), cognitions precede the development of an emotion, as elements from the person-environment interaction must be perceived as emotion-provoking to elicit the induction of the emotion process. Additionally, cognitions work through existing knowledge and work to generate new knowledge with each person-environment encounter, and this knowledge influences the ways in which a person responds to an emotion provoking situation. Importantly, this knowledge is mediated by judgments about the world (Solomon, 1980), which matches a phenomenological epistemology in which knowledge depends on the person, their experience, and interpretation of information to generate knowledge.

Cognitive, Motivational, and Relational Aspects of Youth Sport

Youth sport competitions create a platform for emotional experiences, the inherent stress related to competition generated through person-environment interactions can produce both positive and negative emotional responses that can ultimately facilitate or damage sport performance. From a motivational perspective, sport competitions generally have a clear outcome goal, to win. Thus, athletes have a strong drive to attain this goal, though it is important to note that mediating motivational factors such as personality and goal commitment

can influence this drive. For young athletes, this motivational drive is also influenced by a developing understanding of the meaning of competition and the goals of sport (Vealey & Chase, 2016). Developmental differences in the cognitive ability to generate knowledge surely play a role in how young athletes interpret the situations that they encounter in competitions.

In addition, young athletes consistently interact with coaches, parents, other youth athletes, and additional aspects of the sport environment (e.g., environmental conditions, competition stakes, competitive level, sport type) during their sport experiences. All of these relations are interpreted by the young athlete, which is mediated by their cognitive developmental abilities. In short, the motivational and relational components relate to the sport experience for youth athletes and are mediated by cognitive developmental factors specific to the growing child/adolescent athlete. These developmental differences are discussed in a subsequent section.

The Appraisal/Coping Process

An essential component of the emotion system is the appraisal and coping process in response to a person-environment interaction (Folkman & Lazarus, 1985; Lazarus, 1991, 2000). As discussed previously, this process includes the appraisal of the person-environment interaction, the action tendencies that account for the physiological response to the interaction, and the resulting coping process used to handle the emotions produced. This section provides a detailed description of the appraisal and coping process and how these processes relate to experiences within sport competitions.

Primary appraisals. Within the appraisal process, primary appraisals are used to measure whether the person-environment situation has generated the possibility for emotion production (Lazarus, 1966, 1981; Lazarus & Folkman, 1984, 1987; Lazarus & Launier, 1978).

In this way, emotions are produced only if the situation may influence the person's well-being in regard to three elements: the degree to which the situation is relevant to the person's ultimate goal, whether the situation facilitate or inhibits the achievement of the goal, and the commitment level of the person to the goal (Lazarus, 1991). Using a youth sport example, a young tennis athlete playing a match may experience an emotional reaction to a missed shot because she believes that the miss is relevant to her ultimate goal of winning the match, missing a shot is incongruent with that goal, and because she is deeply committed to winning. On the other hand, she does not have a goal to win the match or her drive to win is not strong, the primary appraisal of the missed shot may not create an emotional response or may cause a weak emotional response in comparison to the young athlete with a goal to win. This primary appraisal process occurs upon recognizing these elements of the person-environment situation and is influenced by personal knowledge, which includes a person's traits, their ability to interpret the world. Following the primary appraisal, an emotion is produced. This emotion can be positive or negative, and will influence action tendencies, including the physiological response, affect. Additionally, subsequent thoughts and behaviors will be influenced through the secondary appraisal and coping processes.

Secondary appraisals. Following the primary appraisal of the person-environment interaction, secondary appraisals work to identify coping options that can help handle emotions. Secondary appraisals provide further interpretation of the emotion and its action tendencies by investigating the extent to which blame or credit needs to be given to the party responsible for the emotion-producing situation, the potential for the person to cope with the demands of the situation, and the future expectancy about the likelihood that things will change. The secondary appraisal does not include the coping process; rather, it provides an assessment of the necessity

for and availability of coping resources that can be used. Similar to primary appraisal, secondary appraisals are mediated by a person's working knowledge (i.e., beliefs about the world). The appraisal process allows a person to recognize, interpret, remember, and learn from emotion-producing person-environment interactions and leads to decision-making and coping processes (Lazarus, 1991)

Coping. Following the appraisal processes, which generate the primary emotion and the action tendencies, a person engages in a coping process. According to Lazarus (1991, 1999, 2000), the coping process is inherent to the appraisal process, because every emotion has a response, and both positive and negative emotions include an appraisal and coping process. Coping refers to cognitive and behavioral tactics used to manage demands, both internal and external, that the person believes exceeds existing resources (Lazarus & Folkman, 1987). Essentially, coping is the purposeful engagement in a strategy to deal with the emotion that occurred, and even positive emotions may need to be managed when they are not facilitative for the situation (Lazarus & Folkman, 1987).

There are two types of coping procedures that a person can use to either change the conditions or the perceptions of the situation that caused the emotion. Problem-focused coping involves actively changing the person-environment relationship to eliminate or reduce the environmental factors that produced the emotion. Within the competition setting, problem-focused coping could include efforts to problem-solve, plan subsequent actions, gather more information, suppress behavior not conducive to goal achievement, or increase efforts toward goal achievement (Holt, Hoar & Fraser, 2005). Emotion-focused or cognitive coping strategies change the perceptions or cognitions surrounding the emotion, they do not actively change the person-environment situation. They change the meaning of the relationship between the person

and environment rather than the actual physical relationship. These mental efforts include withdrawing from, denying, relaxing, blaming, avoiding, and accepting the existing person-environment situation. Both problem- and emotion-focused coping can be used to manage emotions within a youth sport competition setting.

Problem-focused and emotion-focused coping processes influence subsequent cognitions (i.e., appraisals) about the person-environment situation, which in turn influences the secondary appraisals, action tendencies, and coping efforts related to the emotion. Thus, appraisal and coping become intertwined following the primary appraisal and interpretation of the person-environment situation that holds enough motivational and relational value to warrant an emotional response. This process continues until the coping process has helped the person-environment situation to be congruent with the person's goals and ego-orientation, and this process may persist throughout an emotion stimulating event such as a youth sport competition.

Important Emotions in Youth Sport

There are countless emotions that a person can experience. In sport, specifically for young athletes, there are several key positive and negative emotions that can influence perceptions regarding competition and ultimately performance (Lazarus, 2000). Additionally, anxiety is an emotion that can produce positive or negative performance outcomes depending on personal factors.

Positive emotions. Young athletes can experience several positive emotions in their sport experience. Pride, happiness, relief, and hope are some emotions that have been identified by Lazarus as relevant to athletes. These emotions can facilitate performance and increase the likelihood of flow experiences (Csikszentmihalyi, 1975). Positive emotions arise when the presenting person-environment situation is in line with the person's ultimate driving goals. In

sport, actions that support inherent goals such as successful and effective performance produce and uphold these positive emotions (Lazarus, 1991, 2000). Importantly, the interpretation of successful and effective performance, and the degree to which that is tied to outcome oriented achievements such as winning, can influence how and when positive emotions are experienced within competition. Moreover, because young athletes are still developing cognitively, emotionally, and socially, it is important to recognize the connections between positive emotions and successful performance. In short, positive emotions are typically related to positive sport outcomes including performance.

Negative emotions. In contrast to positive emotions, negative emotions such as guilt and shame are also part of the youth sport competitive experience. At a young age, children are able to interpret feelings of guilt and shame (Erikson, 1950). These emotions are associated with the person's development of moral and social standards (Lewis & Haviland, 1993). In sport, mistakes and negative interactions with coaches and parents (e.g., receiving criticism that ties personal value to performance) can threaten the young athlete's feelings of personal value and results in strong emotions of guilt and shame. Additionally, some young athletes may be more prone to these negative emotions than others, which can certainly influence their appraisal and coping processes.

Anxiety. Anxiety is the most popular emotion studied in competitive sport, with several prominent theorists (e.g., Hanin, 2000) and sport psychology researchers (Anshel & Delany, 2001; Crocker & Isaak, 1997; Goyen & Anshel, 1998; Klint & Weiss, 1986) exploring the relationship between anxiety (or more generally, arousal) and performance in youth sport. Anxiety can have both positive and negative influences on performance depending on how the anxiety is perceived. Competition is an anxiety provoking situation because of its evaluative

nature (Lazarus, 2000). However, some athletes find anxiety facilitative to performance.

Though this anxiety is considered a negative emotion, because it produces action tendencies and affects that facilitate outcome performance, its positive effects on performance and may not be detrimental to young athletes' competitive experiences.

The Interdependent System of Emotions

The CMR process of emotions (Lazarus, 1991, 1999, 2000), consisting of anticipation of an emotion-provoking event informed by the personal and environmental characteristics, the appraisal and coping processes, and the emotion outcomes, works through a temporal model with interdependent relationships among variables. In line with the metatheoretical principle of reciprocal determinism (Bandura, 1982), each of the variables within the CMR theory of emotions (Lazarus, 1991, 1999, 2000) can play more than one role in the production and management of an emotion; however, the variables cannot play more than one role at a time. Because of the interdependent nature of the variables, it is important to understand how each of the variables influences the emotion generating and management processes for the person. Thus far, I have discussed how the elements of the model work within the theory; however, if the model is to be applied to young athletes, knowing their cognitive, emotional, and social developmental factors that may influence the variables within the CMR model is essential to utilizing this theoretical lens for understanding emotions in youth sport competitions.

Alternatives to the CMR Theory of Emotion

The Cognitive-Motivational-Relational theory of emotion (Lazarus, 1991, 1999, 2000) is the most popular theory used within sport psychology literature; however, it is not the only cognitive theory of emotions. Several other theorists (Arnold, 1960; Gross, 1998, 2013; Hanin, 2000; Pekrun, 2000; Schachter, 1964; Weiner, 1986) have developed theoretical frameworks of

emotion. In this section, these theories will be briefly reviewed and compared the CMR theory of emotions (Lazarus, 1991, 1999, 2000) to support its use as a framework for the emotional experiences of young athletes in competitions.

Magda Arnold. In her view of emotions, the critical components of the production of an emotion or affect lies in the cognitive appraisal of the presenting situation (Arnold, 1960, 1970; Arnold & Gasson, 1954). Similar to Lazarus, this appraisal has two parts, the first of which is intuitive and essential to the production of an emotion whereas the second type of appraisal is more reflective and is not necessarily for to an emotional response. This appraisal process produces an emotion that draws the person toward or away from the stimulus that produced the emotional response. Importantly, Arnold highlights the physiological changes that occur with each emotion, and that these in combination with action tendencies produce emotions (Arnold, 1960; 1970). Many of the elements of the CMR theory of motions (Lazarus, 1991, 1999, 2000) such as the emphasis on the appraisal process and the ability to examine both positive and negative emotions, were developed from Arnold's theory. In contrast to Lazarus's theory, Arnold simplifies the cognitive component of the emotion process to one that could simply be a conditioned response (Buck, 1976). Furthermore, Arnold's conceptualization of personality, emotion, and self-ideals are steeped in Christian concepts and a Thomistic perspective (Cornelius, 2006), which inhibits its use for non-Christian cultures and participants. While Arnold's theory is appreciated by many emotion theorists for its comprehensive nature, its underlining religious epistemological framework is a liability.

James Gross. In his theory of emotion regulation, Gross (1998, 2013) posits that emotions arise from person-situation transactions that require attention, have personal meaning in relation to goals, and lead to responses that react to these transactions. Thus, the production

of an emotion and its subsequent regulation occurs in a sequential response pattern that can ultimately repeat. First the situation, which includes several environmental and contextual elements, occurs. Then, attention is drawn toward the situation, and the appraisal process ensues, possibly involving a change in cognitions related to the situation. The appraisal process ultimately leads to a response regarding the emotion being produced, and this response can work to change the situation and restart the emotion sequence (Gross, 1998). While this model specifically addresses emotional regulation processes, the sequential nature of the model limits the relationships among the variables. The CMR theory of emotions (Lazarus, 1991, 1999, 2000) posits that emotional elements can be interdependent and more clearly accounts for personal factors that influence emotion interpretation and regulation.

Yuri Hanin. This model is specific to the competitive sport context, and Hanin (2000) attempts to comprehensively address emotions in sport in his theory. Specifically, Hanin (2000) posits that athletes have Individual Zones of Optimal Functioning (IZOF), and athletes must be within their specific IZOF to perform at the optimal level. In Lazarus's CMR theory (1991, 1999, 2000), the relational component of emotions and the appraisal and coping processes are more descriptive and explicit. Moreover, Hanin's (2000) model lists many components of the IZOF that are not, in fact, emotions.

Reinhard Pekrun. In the Control-Value Theory of Achievement Emotions (Pekrun, 2000), addresses achievement emotions (i.e., those emotions that directly relate to achievement activities and outcomes) and has been applied to conceptualizations of emotions within academic achievement. This theory cites appraisals of control and personal value related to the achievement situation, goals and existing knowledge, general temperament, and elements of the social environment as important factors for experiencing achievement emotions, which can be

either positive or negative (Pekrun, Frenzel, Goetz, & Perry, 2011). Then, those emotions are managed through a variety of learned and inherent regulation strategies. While this theory is highly descriptive and comprehensive, it has been used minimally in sport research (e.g., Dewar & Kavussanu, 2011).

Stanley Schachter. In this theory, physiological changes (i.e., arousal) and cognitive interpretations of those changes produce emotions. In this view, physiological changes can either arise from a continuum of expected and natural explanations in relation to the environmental situation to no logical explanations for the situation, resulting in either positive or negative emotions based on the cognitive interpretation of the arousal. Schachter's (1964) theory of emotions is very popular within social psychology research and literature; however, methodological inconsistencies and lack of theory depth regarding the relationship between arousal and the cognitive interpretation of that arousal has led to extensive critique of the theory (Vallerand, 1983). Thus, Lazarus's (1991, 1999, 2000) CMR theory of emotions is a more rigorous and comprehensive model.

Bernard Weiner. In his Attributional Theory of Motivation and Emotion (Weiner, 1986), Weiner posits that an event (i.e., outcome) is interpreted as positive or negative depending on how it relates to personal goals (Weiner, 1986). For negatively interpreted events, a search for the cause of this negative interpretation follows and is further interpreted. Additionally, this causal search produces psychological consequences (i.e., cognitive and emotional reactions) and behavioral consequences. While this theory is important for understanding attribution of emotions, it does not adequately address emotion management and coping processes.

These theories highlight alternative lenses for viewing and interpreting emotions and emotion management. While each of the theories has strengths and limitations, Lazarus's CMR theory of emotions (1991, 1999, 2000) has a more extensive history within sport psychology research, and the motivational and relational elements correlate well to those experienced in sport, specifically competitive situations. Importantly, cognitive considerations require a more specialized lens when applying this framework to young athletes, specially those between the ages of 9 to 13 years. In the next section, developmental theories will be used to generate a comprehensive understanding of important developmental factors related to cognitions, intelligence, emotions, and sport to inform the CMR theory of emotions (Lazarus, 1991, 1999, 2000) for young athletes.

Developmental Considerations

Because developmental theories can support the overarching CMR framework of emotions (Lazarus, 1991, 1999, 2000), the work of several developmental theorists will be compiled in this section to provide an exhaustive image of children between the ages of 9 to 13 in regards to their cognitive, social, and emotional development that may influence the ways in which they experience aspects of competition. In this way, these theories will be used to provide baseline, general information regarding broad characteristics of children that can inform effective research interactions with children. A broad understanding of developmental differences can also inform how young athletes within this age range use psychological skills and strategies to cope with emotions during competitions, however, the descriptive power of Bandura's social cognitive theory will be used to understand how social-cognitive themes can influence development independent of a stage model approach.

Stages of development. For the purposes of this review, the stages of development laid out by relevant developmental theorists will be restricted to the age span of 9 to 13 years. Then, these stages will be compiled and distilled to ease the interpretation of developmental differences among 9 to 13 year-old young athletes. Piaget's theory of intelligence situates children within this age span in the concrete operational stage (age 7 to 12 years) moving into the formal operational stage (age 12 to 15 years). In terms of Piagetian developmental structures that underlie the growth of knowledge, children go through processes of assimilation and accommodation. Assimilation refers to processes in which children develop schemas about their world in terms of their cognitive abilities, and assimilation marks a change in this response based on environmental factors (e.g., aging, learning). Erikson's (1950) psychosocial stage theory of psychosocial development labels children between the ages of 6 and 12 years as school age, and adolescence spanning the ages of 13 to 18 years.

Weiss and Bredemeier's (1983) Developmental Sport Psychology framework frames childhood as 6 to 11 years of age and early adolescence spans the ages of 12 to 14 years. Thus, young athletes between the ages of 9 to 12 years will be categorized as child athletes, and those between the ages of 12 to 13 years will be categorized as early adolescent athletes. It is important to note that individual differences may weaken the age delineations of these categories and they serve to provide general guidelines for understanding the CMR theory of emotions for athletes in this age range.

Child athletes. Child athletes are a unique population compared to their older youth athlete counterparts and adult athletes. Physically, they are still learning to develop basic motor skills (Vernon, 2004), their body proportions are changing relatively consistently, and they are developing muscle and bone mass more than fat (Horn & Butt, 2014). In terms of their

cognitive development, children in this age range are in the concrete operational stage and are limited in their ability to think abstractly (Piaget, 1969). Thus, child athletes work through concepts of accommodation and assimilation; however, their ability to develop schemas is generally restricted to concrete rather than hypothetical or abstract knowledge (Piaget, 1936, 1958). In short, it is more difficult for children in this age range to consider possible existences in contrast to the reality of the situation; their reasoning is more systematic in nature, though they are learning to retain more and more general concepts (Piaget, 1936, 1958).

Emotional and social behaviors are also developing during this stage. Emotional behavior develops early in childhood and tends to remain stable over time (Izard & Ackerman, 2000), and children are starting to develop a range of coping responses (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Emotionally, child athletes experience stronger connections with parents and other adult figures than they do with other children (Horn & Butt, 2014). However, these young athletes are working to develop these important social relationships with their peers (Sroufe & Rutter, 1984). Moreover, children in this stage are learning cooperation, achievement, and the ways in which these concepts are enacted through social interactions (Erikson, 1950). In the sport context, these issues are relevant to the comparisons inherent to competitive situations, as developmental factors can influence young athletes' responses to sport stress (Weiss & Raedke, 2004). Overall, an understanding of the characteristics of child athletes may inform a general view of how knowledge is gained and values and relationships are developed.

Early adolescent athletes. Early adolescent athletes are, logically, slightly more developed than child athletes. Physically, these athletes experience the onset of puberty, which involves rapid growth, sexual maturation, and body shape and composition changes (Horn &

Butt, 2014). Thus, the sport skills of these athletes may become clumsier and uncoordinated as they navigate their changing bodies. Cognitively, early adolescent athletes are developing the ability to think abstractly and consider alternative points of view (Piaget, 1958, 1969). In this way, the ability to consider and test hypotheses allows an early adolescent to consider the possible reasons that may have caused an event is developing and influencing social and emotional interactions.

Emotionally, the onset of puberty also causes changes, and emotional outbursts may be more frequent as complex emotions develop (Vernon, 2004) and approval of peers becomes more important than that of parents or other adults (Vernon, 2004). Early adolescent children also continue to develop the ability to match coping efforts to real or imagined characteristics of stressful situations (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). From a social development standpoint, athletes entering early adolescence may experience the emotional outcomes of the development of a personal identity (Erikson, 1950). When these young athletes are faced with emotionally charged sport situations (e.g., competitions), they may have difficulty interpreting the emotions that precipitate due to the increasing number of sources through which they can draw knowledge and value (Erikson, 1950; Piaget, 1965).

Social Cognitive Theory. Bandura's Social Cognitive Theory (SCT; 1986; 1991, 2001) is another developmental theory that can inform how young athletes experience both emotions and sport experiences (e.g., competition). Bandura pushed back at the notion that cognitive changes are the sole source of development; instead, his view of development considers the role of diversified cognitive, social and behavioral influences and changes (Bandura, 1989). Thus, his theory does not adhere to a categorizational or stage model.

SCT (1986) posits that social behaviors, cognitive processes are influenced from interactions with others. These three factors influence the development of self-efficacy, which can be influenced from six sport-specific sources (i.e., performance accomplishments, vicarious experiences, verbal persuasion, imaginal experience, physiological states, and emotional states) (Bandura, 1997; Feltz, 1984). Because emotional states can influence the development of self-efficacy, it is important to consider social learning implications on emotion and coping experiences of young athletes. According to SCT, the development and display of self-efficacy plays a significant role in how a person views challenging situation.

The CMR Theory and Development

Based on the general developmental stages that can inform abilities and psychosocial processes, these characteristics should be inserted into the CMR theory of emotion (Lazarus, 1991, 1999, 2000) to more accurately interpret how young athletes in childhood and early adolescence experience, appraise, and cope with the emotions they face. Because of the interdependent nature of the variables of the CMR theory of emotions (Lazarus, 1991, 1999, 2000), these developmental factors apply to every facet of the CMR theory and can be characterized as antecedents, mediators, or causal attributes of emotions and coping processes.

Importantly for youth athletes, the coping process in sports has been extensively researched. However, there are several considerations for how sport coping is viewed conceptually within sport psychology and how other concepts central to sport psychology practice (i.e., psychological skills and strategy training and use) could be applied to sport coping. In the next section, Lazarus's CMR theory (1991, 1999, 2000), specifically the appraisal and coping process informed by developmental differences (Skinner & Edge, 1998), will be reviewed. Then, the existing understandings of coping in sport and the possibilities for

further conceptualizations will be discussed.

Coping in Competition: The Use of Psychological Skills and Strategies

Coping, from a developmental perspective, is a “conscious, volitional effort to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances” (Holt, Hoar, & Fraser, 2005, pp. 26). Working through the CMR theory of emotion (Lazarus, 1991, 1999, 2000), coping matches this definition. Much work has been done in the field of emotion research to understand the development of emotion and emotion regulation in children and adolescents conceptually (Band & Weisz, 1988; Barrett & Campos, 1987, 1998; Compas, Connor, Osowiecki, & Welch, 1997; Compas, Connor, Saltzman, Thomsen, & Wadsworth, 1999; Frijda, 1986; Izard, 1977; Lazarus, 1991; McCarty et al, 1999; Rudolph, Denning, & Weisz, 1995; Sroufe, 1996; Tomkins, 1962, 1991; Weisz, McCabe, & Dennig, 1994). Moreover, problem-focused coping strategies used by children have been associated with less emotional and behavioral problems (Ayers, Sandler, West, & Roosa, 1996; Dubow, Tisak, Causey, Hryshko, & Reid, 1991; Ebata & Moos, 1991; Glyshaw, Cohen, & Towbes, 1989; Herman-Stahl, Stemmler, & Petersen, 1995; Sandler, Tein, & West, 1994) and social problems (Compas, Malcarne, & Fondacoro, 1988). On the other hand, use of emotion-focused coping strategies have been linked to increased instances of behavioral problems and risk of anxiety and depressive symptoms (Compas, Ey, Worsham, & Howell, 1996; Compas, Malcarne, & Fondacoro, 1988; Hoffman, Levy-Shiff, Sohlberg, & Zarizki, 1992).

Several researchers (Kliewer, 1991; Losoya, Eisenberg, & Fabes, 1998; Sandler, Tein, & West, 1994) have identified types of specific coping strategies that can be categorized as problem-focused or emotion-focused. These types of coping include instrumental coping (i.e., taking action to improve a situation), instrumental or emotional aggression (i.e., using verbal or

physical aggression to release feelings or resolve a problem), cognitive restructuring (i.e., reframing or thinking about a situation in more facilitative, positive way), and venting emotion (crying out to release frustration and negative emotions). Additionally, others have found coping methods such as self-talk and problem solving to have been used by children (e.g., Moss, Gosselin, Parent, Rousseau, & Dumont, 1997; Normandeau & Gobeil, 1998). This list, though not exhaustive, does include coping strategies that could apply to children and early adolescents who engage in sport, specifically competitions. Additionally, addressing the sport literature on coping can provide insight into the specific coping strategies, and possibilities for additional categories of coping strategies for young athletes participating in inherently emotion-provoking sport competitions.

Coping in Sport Competitions

Within the sport psychology literature, it is widely agreed upon that stress is an inherent part of competitive sport. Competition raises the stakes of the encounter between two athletes or teams. As mentioned previously, the CMR theory of emotion (Lazarus, 1991, 1999, 2000) is the most widely used model to characterize emotions and coping within sport. Several studies have assessed various aspects of coping in youth sport (e.g., coping responses, gender differences, coping consistency, and coping effectiveness); however, relatively few have utilized young athletes in childhood or early adolescence (Anshel & Delany, 2001; Crocker & Isaak, 1997; Eubank & Collins, 2000; Gould, Wilson, Tuffey, & Lochbaum, 1993; Hoar, 2003; Holt & Mandigo, 2004). The term “youth sport” spans a wide range of development, and may be interpreted differently by individual sport researcher or youth sport institutions.

Holt and Mandigo (2004) assessed performance worries and coping responses in young male cricket players who were around 12 years old. Using a qualitative method, they found that

problem-focused coping was used marginally more than emotion-focused coping by these young athletes. Furthermore, few athletes (16%) engaged in no coping strategies in regard to their performance worries. Importantly, Anshel and Delany (2001) found that a positive appraisal of a competitive situation resulting in the use of coping resources, with negative appraisals resulting in negative emotion-focused coping (i.e., avoiding the situation). This is in line with research outside of sport, with young children tending to use problem-focused coping more often than other coping styles (Band & Weisz, 1988; Bull & Drotar, 1991; Kliwer, 1991; Roecker, Dubow, & Donaldson, 1996; Weisenberg, Schwarzwald, Waysman, Solomon, & Klingman, 1993).

Interestingly, Crocker and Issak (1997) assessed types of coping styles and consistency of their use with junior competitive swimmers between the ages of 10 and 16 years. Using the COPE inventory (Crocker, 1992), young swimmers indicated that they used consistent active coping strategies for races, but these strategies were not necessarily used for practice or other competitive situations. Thus, coping may change with the context; however, it is unclear whether these coping styles were learned from coaches within training sessions or if the use of coping strategies was tied to the importance of the event. In other words, the use of coping strategies in competition (i.e., races) may reflect the athletes' need to preserve their ego in relations to other athletes (Crocker & Issak, 1997). Furthermore, athletes may benefit from the teaching of coping skills in practice and the use of these techniques in training and other competitive events.

Gould and colleagues (1993) facilitated qualitative interviews in which four young athletes conducted interviews with focus groups of other young athletes to gain an understanding of coping responses used in sport. These athletes were all between 11 and 16

years of age. Participants indicated that they used specific strategies to manage their sport stress and viewed parents and coaches as responsible for educating them about coping techniques. However, coaches and parents were not effective at providing instruction regarding coping strategies; rather, they simply indicated that these strategies (e.g., relaxation) were important to have. Based on these results, it is clear that young athletes should be purposefully taught specific techniques for dealing with stressors and emotions in sport, especially for competitions.

Psychological Skills and Strategies: A Coping Method

An athlete's emotions can certainly influence performance (Butler, 1996). Physiologically, increased arousal can improve performance on gross motor skills (Hardy, Jones, & Gould, 1996) but harm performance that requires fine motor control (Oxendine, 1970, Parfitt, Jones, & Hardy, 1990). Psychologically, high arousal can have a negative effect on attention and memory (Parfitt, Jones, & Hardy, 1990). In applied sport psychology, professionals teach psychological skills and strategies to athletes to help them regulate their thoughts, emotions, and behaviors in a variety of sport situations (Vealey, 1998). Some research in sport psychology has assessed the use of psychological skills and strategies to enhance emotional control or performance for athletes. For example, Lane and colleagues (2009) found that psychological strategies such as self-talk, imagery, and attentional focus activation were used in practice and competition and associated with a higher ability to regulate emotion in adult male athletes. Additionally, athletes who used more of these strategies also had higher emotional intelligence scores. Other research has indicated that visual-motor rehearsal techniques, which are similar to imagery (Suinn, 1992) and stress management training (Meichenbaum, 1977; Smith, 1980) have been used to regulate emotions in adult sport athletes. Vicarious learning

and modeling are also important forms of teaching psychological skills and strategies, which are central tenants of social cognitive theory (Bandura, 1986).

Applied sport psychology is heavily informed by psychological techniques such as cognitive-behavioral training (Jones, 2003). Several approaches are used to teach psychological strategies (e.g., self-statement modification, imagery, reframing, and problem solving), which can promote the development of psychological skills. Vealey (1998) acknowledged that the development of psychological skills requires specific strategies, which are broken down into two hierarchical categories. Foundation methods include physical practice and education; then, psychological skills training (PST) methods include goal-setting, imagery, physical relaxation, and thought control. For psychological skill building to be effective, they need to be addressed hierarchically and developed using one or more of psychological strategy.

In a systematic way, psychological strategies promote the development of psychological skills. Foundational skills include volition, self-awareness, self-esteem, and self-confidence; performance skills include optimal physical arousal, optimal mental arousal, optimal attention.

These skills are certainly influenced by emotions, which are regulated through the use of the psychological strategies in stress inducing sport situations. Thus, psychological skills training is a form of explicitly taught coping methods to manage emotions, thoughts, and behaviors, all of which have an influence on the others. These methods include elements of both problem- and emotional-coping styles. The coping process is continuous throughout a competition to manage appraisals (i.e., thoughts) related to emotions, which influence subsequent appraisals (i.e., thoughts, focus) and behavioral outcomes.

Children's Introduction and Enjoyment of Youth Sport

Several important individuals within youth sport are instrumental to shaping initial sporting experiences for young athletes. Parents, coaches, peers, and the sporting environment all play a role in how young children are socialized within the context of sport. These early encounters with the sporting experience are vital to sustained participation, enjoyment, and positive development through sport.

Parents and youth athletes. Parents are undoubtedly important in regard to how young children begin their sporting experiences. Parents sign their children up for youth sport experiences, they take them to practices, reinforce (or not) sport behaviors, and ultimately have control over whether their child continues to engage in a sport or not. Hellstedt (1987) characterized parental involvement as a continuum from under-involved to overinvolved. This involvement is determined through financial, emotional, or functional investments. Moreover, young athletes are able to perceive the extent to which their parents support them in their sporting endeavors, and this can have an influence on young athletes' enjoyment and performance beliefs. Additionally, in their study of young (i.e., 9- to 14-year old) wrestlers, Scanlan and Lewthwaite (1984) investigated their competitive stress experiences by assessing competitive state anxiety levels before and after tournament matches. Young wrestlers with higher perceived parental satisfaction experienced increased expectancies of future performance compared to young wrestlers who perceived less parental satisfaction. This evidence provides some support for the influential role that parents play in young athletes' sporting experiences.

Brustad (1992, 1993, 1996b, 2010) has been one of the more prominent researchers to investigate how young people are first introduced to sport. While the importance of the family

on youth development has been well investigated in the areas of academic achievement, social development, and moral development, Brustad (1992) sought to examine the role of family and socialization in young children's sport participation patterns. The influence of the family on sport participation for youth athletes is important because young children typically spend the most amount of time around their families, especially their parents, and these family members can display high levels of involvement in young children's sport experiences. Children rely on this heightened engagement and feedback that important adults (e.g., parents) provide (Scanlan, 1996); thus, parents play a large role in the sport socialization of their children (Greendorfer, 1977; Lewko & Greendorfer, 1988; Loy, McPherson, & Kenyon, 1978). Parents model physical activity behaviors for their children, establish a family culture that promote physical activity, provide access to physical activity (Welk, & Schaben, 2004), and interpret the meaning of children's experiences with physical activity (Fredricks & Eccles, 2004). Parents can act as interpreter of their child's sporting experience in many ways. For example, when a child first enters a formal youth sport experience, the parent has demonstrated a certain level of support by providing access to the sport (e.g., driving the child to practice, paying entry fees). Additionally, parental attitudes are important to children's physical activity behaviors, considering parents introduce physical activity behaviors to their children (Brustad, 2010). Parents can also influence sporting experiences through informal sport play between family members. These initial experiences with sport play an important role in how young children view sport and physical activity.

Eccles' (1993; Eccles et al., 1998) Expectancy-Value model can be used to understand socialization and gender differences regarding achievement-related choices and performance and can be extended to be used to interpret parent socialization in sport. Within the expectancy-

value model, socializers influence children's motivation through their beliefs and behaviors. Parents can provide access to sport experiences and be the interpreters of those experiences (Eccles, 1993; Eccles et al., 1998). For example, parents can model or explain the value of physical activity or sport participation by engaging in exercise or recreational sport with their children. It is important to note that the Expectancy-Value is influenced by gender norms, beliefs about athletic ability (i.e., physical self-competence) and parental knowledge (i.e., their ability to help their child with athletics; Eccles, 1993). In addition to these factors, the expectancy-value model also considers the larger social context, which cannot be ignored (e.g., sport structure, competitive level, broader considerations).

More recently, Edwardson and Gorely (2010) examined the role of parents on young children's physical activity behaviors. Both age and developmental differences were important factors regarding the influence that parents had on the sporting and physical activity behaviors of their children. For young people in childhood, parents' engagement in moderate-to-vigorous physical activity positively influenced children's overall physical activity and leisure-time physical activity. This occurred both through parental support of their children's organized activities and direct engagement with their children in unstructured sport and physical activity experiences. For adolescents, the influence of parents was less clear; however, because they had sustained sporting engagement into adolescence, it was further hypothesized that they had received positive support through parent role modeling, transportation, and encouragement to have persisted in their sport. This evidence supports previous research on the influence of parents sporting behaviors and perceptions on that of their children. Importantly, development and maturation play a role in the extent to which parents have an influence over their children's socialization into sport.

In contrast to providing positive socialization opportunities, parents can also negatively influence their children's sporting experiences. For example, parents who place high amounts of pressure (e.g., to participate, to perform) tend to have a negative influence their children's sport enjoyment (Babkes & Weiss, 1999; Brustad, 1988). Additionally, parental pressure on young athletes in sport has been associated with negative affective responses from children and adolescents (Gould, Eklund, Petlichkoff, Peterson, & Bump, 1991; Weiss, Weise, & Klint, 1989; Scanlan & Lewthwaite, 1984). In other words, parents who place too much pressure on their children in sports may ironically create a platform for their children to dislike and drop out of sport.

Finally, in their position paper on parents in youth sport, Harwood and Knight (2015) identified six postulates for "expert parents." They recommend that parents who provide the best guidance and support for their youth athlete would

1. Select appropriate sporting opportunities and provide necessary types of social support
2. Understand and apply appropriate parenting styles
3. Manage the emotional demands of competitions (i.e., their own emotional demands from viewing their child in sport)
4. Foster healthy relationships with significant others
5. Manage organizational and developmental demands associated with sport participation
6. Adapt their involvement to different stages of their child's athletic career

These postulates provide a synthesis of the best practices demonstrated by research on parenting behaviors and support within youth sport. Parents and the roles that they play in the early socialization process of their children has a significant influence on young athletes' initial sporting experiences. This socialization process essentially helps to create the lens through

which young children view sport and physical activity; thus, it is important to consider the influence of parents on how children and adolescents engage with sport, and more specifically, competition.

Peers and youth athletes. Peer influence on physical activity and sport is also important. Several developmental theories (e.g., Bandura, 1986; Piaget, 1932/1965; Sullivan, 1953) recognize the influence of peers on engagement, motivation, and learning within sport. Piaget's (1932/1965) conceptualization of the development of intelligence posits peer relationships as an important component of development. Relationships with peers help children to negotiate various conflicts that may arise with their peers and helps to develop social perspective taking. It is important to note that this theory is mostly related to moral development. Additionally, Sullivan's (1953) theory of interpersonal relationships suggests that the salience of peer relationships differs based on development. In early childhood, peer relations occur through shared activities and interests. As children develop and move into middle childhood (i.e., the juvenile period, ages 7 to 9 years), peer acceptance becomes more important and children strive to feel a sense of belonging. As youth enter pre- to early-adolescence (i.e., 10 to 14 years), they begin to seek interpersonal intimacy and friendships with same sex peer dyads. Finally, as they move into late adolescence, relationships with romantic partners begins to become more important than same-sex peer dyads. Finally, social cognitive theory (Bandura, 1986) can be used to interpret children's learning and knowledge of behaviors important for functioning in a variety of contexts. Peers are important components of behavior change through modeling, reinforcement, and punishment.

Young athletes' experiences of social comparison and evaluation in sport can influence their physical activity experiences (Brustad, 1993). Additionally, physical competence

perceptions develop through interactions with peers and is linked to social status within the group (Evans & Roberts, 1987). Equally important, friendships can develop through sport and physical activity experiences (Weiss & Petlichkoff, 1989). Interactions with peers play a large role in children's sport experiences. For example, positive interactions with peers can provide opportunities to form and strengthen friendships, obtain social recognition for achievements, and experience positive team interactions and support, thus providing strong sources of sport enjoyment (Scanlan, Carpenter, Lobel, & Simons, 1993).

On the other hand, negative interaction with peers can have detrimental effects on sport participation and enjoyment. For example, young athlete who experience negative interactions with their teammates can develop fears of failure and negative evaluation (Gould, 1993). Additionally, these negative experiences can create additional interpersonal problems within their existing social relationships (Donnelly, 1993). More recently, Smith, Gustafsson, and Hassmen (2010) found that peer conflict is one factor (in addition to perceived stress, relatedness support, weekly training hours, and low improvement scores) associated with burnout in adolescent individual and team sport athletes. Based on developmental theories (Piaget, 1932/1965; Sullivan, 1965; Bandura, 1986), maturation plays a role in the ways that young people engage with their peers and the degree to which these relationships are important in contrast to relationships with parents and other adults. Thus, peers certainly play a critical role in how young people view sport and competition, but this information, like the influence of parents, must be understood within a developmental lens.

Youth athletes' sport enjoyment. Several studies have specifically addressed youth athletes' enjoyment within sport. In this section, three recent studies of youth sport enjoyment will be reviewed. When parents and peers were mentioned by young athletes as a factor

influencing sport enjoyment, the results are in line with existing research on both the positive and negative influences that parents, coaches, and peers can have on young athletes' decision to pursue sport.

First, McCarthy and Jones (2007) asked male and female athletes who were around 10 years of age what they enjoyed about participating in their sports. For demonstrating elements of performance that related to perceived competence and intrinsic motivation (i.e., mastery processes, mastery outcomes, and superiority), and for intrinsic factors of sport enjoyment that did not directly relate to achievement, older and younger children had two different perceptions. Older children engaged in sport more for excitement and challenge, while younger children valued movement sensations. Additionally, only older children recognized a form of extrinsic achievement (i.e., social recognition of competence) as important for sport enjoyment. However, several factors related to extrinsic nonachievement—a component of the performance environment—were listed by both younger and older athletes. Social involvement and friendships, informational support, enhancement of self-worth, extrinsic rewards, and instruction were listed by both groups, encouragement was identified by older children only, and this referred to encouragement provided within the learning environment (i.e., mastery).

Additionally, Fraser-Thomas and Côté (2009) investigated the positive and negative sport experiences of adolescent athletes. Experiencing challenge, creating meaningful relationships with adults and peers, and feeling a sense of community were some of the positive experiences that adolescents recounted, while poor relationships with coaches, parents, and peers were identified as negative sport experiences. Interestingly, the psychological challenge of competitive sport was also identified as a negative element for adolescents. Finally, Vissek and colleagues (2015) used the mixed-methodology of FUN MAPS, in which young athlete

participants were able to choose and categorize their own codes to understand the components of sport that related to a fun experience. Children cited several social, internal, external, and contextual components that helped to create a fun sport experience. Notably, team friendships and positive coaching were components of fun, and these are in line with previous research and demonstrate the importance of adults and peers within the youth sport experience (e.g., Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993). Additionally, positive team dynamics, team rituals, trying hard, experiencing games and practices, and game time support were also found to be important components of fun as described by young athletes. The results of this study helped to create the youth sport ethos, or the qualities that child and adolescent athletes identified as most important to their enjoyment of sport. These qualities provide concrete, “kid-approved” guidelines for coaches and other important individuals in youth sport to create positive youth sport experiences.

Motivation in Youth Sport

The general logic surrounding youth sport participation and drop out is that young athletes who enjoy sport continue to engage in it, and those who have negative experiences in sport tend to drop out. The previous section investigated the influence of parents and peers on sport initiation and engagement. This section will address the motivational aspects of the youth sport experience that play a role in whether young athletes enjoy and continue to engage in or dislike and dropout of sport.

Four types of motives (i.e., affiliation, excellence, arousal, and esteem) have been identified for young athletes in sport between the ages of 11 and 18 (Alderman, 1978; Alderman & Wood, 1976). More specifically, the motivation to develop and demonstrate personal competency, attain social acceptance or approval, and enjoy the sport experience have

been found to be consistent across age, gender, and sport type. Gould, Feltz, and Weiss (1985) examined participation motives in youth sport and found differences between 8 to 11 year-old and 12 to 19 year-old youth athletes. Athletes between the ages of 8 and 11 were more motivated by social statutes, encouragement from parents and peers, and liking the coach, while those between 12 and 19 years of age were more motivated by developing physical skills and fitness, experiencing excitement and challenge. Finally, the physical activity climate can also influence young people's involvement (Weiss & Petlichkoff, 1989).

There are two prevailing theories of participation motivation for youth sport athletes. First, Harter's (1981) Competence Motivation theory suggests that a child's intrinsic desire to develop competence in a particular domain will lead to mastery attempts. In this view, inherent competence motivation and age-related differences are antecedents to the process of motivation. For children younger than 10 years old, parent and spectator feedback as well as the outcome of the competition are primarily used to measure perceived competence, while children between the ages of 10 and 15 years use more peer comparisons, personal evaluations, and coach evaluations to determine their level of perceived competence. Those athletes with higher competence motivation (i.e., intrinsic) will prefer optimally challenging tasks, and successful mastery gains on tasks will lead to increased self-perceptions and more positive affective responses. Because this theory also considers the wider social context within motivation, significant adults are important to providing approval and reinforcement to help build sustained motivation. In this model, increased perceived competence and control leads to increased competence motivation

Second, Nicholls' (1989) Achievement Goal Theory can also be used to understand motivational profiles of young athletes. Maehr & Nicholls (1980) determined that individuals

in achievement settings are generally motivated to demonstrate high ability and avoid demonstrating low ability. Thus, they developed Achievement Goal Theory (AGT) to help understand how this works. Within AGT, individuals feel successful when they demonstrate high ability and unsuccessful when they demonstrate low ability. Those who are more task involved are focused on performing their best, and best is defined in personal terms. On the other hand, those who are more ego-involved strive to demonstrate superior performance relative to others. Importantly, an individual may be more motivated by a single facet of the theory (e.g., the feeling of success after performing well) than a combination of both motivational positions. Additionally, there are environmental factors, such as subjective factors (e.g., the motivational climate) and objective factors (e.g., the reward structure of the sport) that influence goal achievement (Nicholls, 1990, 1992).

It is important to note that according to AGT, developmental factors contribute to youths' ability to distinguish between luck, effort, and ability. Between the ages of seven and 11, young athletes are in the early stages of a partially differentiated concept of ability. In other words, children are beginning to recognize that luck and skill are not synonymous; however, they have difficulty explaining tasks that require a high amount of skill also require more effort to accomplish them. Additionally, children are unable to determine if failure on a task occurred due to his or her own low task ability or because the task itself was highly difficult. As children grow and mature, their understanding of the difference between luck and skill become more profound, and their perception of task difficulty begins to draw on comparisons to others' performance on tasks. As children reach late childhood (i.e., around 12 years of age), they are more likely to describe their ability by comparing their performance to that of their peers

Helping Coaches Foster Motivation

Much research has been done concerning the ways in which coaches influence young athletes' motivation to continue and thrive within sport. Researchers Smith and Smoll have been instrumental in creating coach training interventions that help coaches create positive motivational climates within their teams. Coaches' behaviors play a crucial role in how athletes perceive sport, and these perceptions can have a profound influence on athletes' self-perceptions (e.g., self-esteem; Smith & Smoll, 1990). Smith and Smoll originally developed Coaching Effectiveness Training (CET; Smith, Smoll, & Curtis, 1979), which emphasized the differences between youth and professional sport, the importance of a positive approach to coaching, and a performance climate that focuses on the mutual relationships between athletes and provides young athletes with decision-making power on their team. Smith and Smoll (1997) then found that positive psychosocial outcomes occurred for those who played for positive coaches who reinforced effort and desirable performance, emphasized fun, and provided technical instruction. This also helped young athletes to like their teammates more. Conversely, negative coaching behaviors were strongly related to children's disenjoyment of sport. Other researchers, such as Coatsworth and Conroy (2006), have also used this coach training intervention to investigate its effectiveness on youth sport outcomes (e.g., self-esteem). Coatsworth and Conroy (2006) found that coach training had a larger influence on the self-esteem of younger athletes and girls who had low levels of self-esteem at the start of the season.

Later, the CET was altered to the mastery approach to coaching (MAC; Smith, Smoll, & Cumming, 2007). This was a motivational climate intervention for coaches on young athletes' performance anxiety. The mastery approach to coaching (MAC) intervention was provided to a

group of youth athletes and youth sport coaches and was found to help coaches to create a mastery performance environment and promote youth athlete performance orientations that decrease stress and worry. Additionally, coaches exposed to the training had athletes with lower levels of performance anxiety. More recently, O'Rourke and colleagues (2014) investigated how parents and coaches may influence the youth sport motivational climate and young athletes' self-esteem, performance anxiety, and autonomous motivation. Both coach- and parent-initiated motivational climates were important for self-esteem, performance anxiety, and autonomous motivation. However, parent-initiated motivational climates had a stronger influence on young athletes' self-esteem, trait anxiety, and autonomous regulation. Based on these findings by Smith and Smoll and other colleagues, coaches, particularly coaches trained in a motivational climate intervention, and parents play a large role in setting the stage for young athletes to be motivated within their sport.

In addition to the work by Smith and Smoll, other researchers have investigated various aspects of sport motivation within young athletes. For example, Weiss and Fretwell (2005) examined the relationships between parent-coaches and child-athletes within Eccles (1993) Expectancy-Value model and Harter's (1981) competence motivation theory. The father-coach dynamic led to both positive and negative perceptions from father-coaches and U-12 boys soccer players. Positive perceptions combined from parent-coach and son-athlete perceptions included spending quality time together and fostering a relationship, while negative perceptions were around the difficulty of separating the parent-coach role and son's emotional experiences and difficulty dealing with emotions and expectations. These results were in line with both Eccles' (1993) expectancy value model and Harter's (1981) competence motivation theory, discussed previously.

Weiss and Weiss (2007) investigated levels of sport commitment among competitive female gymnasts between the ages of 8 and 18 years, and these age groups were divided into three categories (i.e., 8-11 year olds, 11-14.5 year olds, 14.5-18 year olds). Enjoyment was the strongest commitment predictor for all age groups and both competitive levels; however, enjoyment and commitment were closely tied (i.e., high overlapping variance). The perceived costs of the sport were significant predictors across age groups and were strongest for the two older groups. In line with existing research on intrinsic motivation, younger gymnasts experienced more fun, while older older gymnasts reported less intrinsic enjoyment. Additionally, younger gymnasts experienced increased enjoyment, perceived competence, and social support from their parents rather than their peers, in line with developmental and sport research. Parent constraints were reported most by the youngest and middle groups and were related to decreased sport commitment. Personal commitments were more prevalent in the older athlete groups.

Research has also examined the influence of the motivational climate for child and adolescent athletes. Keegan and colleagues (2009) found that even young athletes between the ages of 7 and 11 years can discern elements of the motivational climate created by sport (Keegan, Harwood, Spray, & Lavalley, 2009). Young children's knowledge of the motivational climate influences their sport motivation and perceptions concerning the sport overall and future participation. For adolescent athletes, Eys and colleagues (2013) found that a task-involving motivational climate related to higher experiences of team cohesion (Eys, Jewitt, Evans, Wolf, Bruner, & Loughhead, 2013). Conversely, an ego-involving motivational climate hurt team cohesion. It is clear that the motivational climate is highly influenced by the coach and their actions; however, young athletes are also co-creators of their sport experience. The

relationships between coaches and young athletes are highly important to the motivational climate created, psychosocial outcomes experienced by young athletes, and ultimately young athletes' sustained sport participation.

Participation Theories within Youth Sport

Youth sport settings are increasingly becoming more structured and organized by adults (Ewing & Seefeldt, 1996). Because of this, young athletes enter sport at younger and younger ages (Callender, 2010), and many children begin to specialize in a single sport at an early age rather than engage in multiple sports at one time. Though sport specialization prior to adolescence is not supported by the American Academy of Pediatrics (AAP, 2000), many adolescent athletes who fall into the category of “specializers” began that training schedule prior to adolescence (Russell & Limle, 2013). Several theories of talent development and participation exist within youth sport literature. In this section, participation and performance development frameworks will be reviewed.

Early sport specialization is characterized by participation in a rigorous training and competitive schedule more than 8 months per year, limited free play and participation in only one sport, and engagement in these behaviors prior to puberty. Early sport specialization is detrimental to lifelong physical activity participation and increases the likelihood for sport burnout and overuse injuries. Moreover, early specialization, which requires deliberate practice, has not been linked to later performance advantages. However, for sports in which the peak age is reached before athletes reach physical maturity, early specialization may be necessary. In sum, early sport specialization is generally damaging for psychological and physical outcomes.

The Developmental Model of Sport Participation (DMSP; Côté, 1999; Côté & Fraser-Thomas, 2007) is a well-known and frequently used theory for understanding youth sport

participation patterns. This model provides three pathways for sport participation for youth athletes related to competitive or recreational outcomes. Sampling refers to engaging in multiple sports with a focus on fun (i.e., deliberate play) and the development of motor skills (Côté, 1999). Conversely, specialization denotes the discontinuation of all but one sport, and for early specializers, only one sport is chosen. (Early) specializers engage in deliberate practice to improve sport performance (Ericsson, Krampe, & Tesch-Romer, 1993). Deliberate practice refers to sustained, purposeful engagement on a single task for a set period of time for the purposes of skill improvement. Young athletes who specialize early in their sport careers (i.e., prior to adolescence) run the risk of experiencing sport dropout (Baker, 2003; Coakley, 2009; Gould, 2010; Gould, Tuffey, Udry, & Loehr, 1996), impaired motor development (i.e., less comprehensive motor skill development; Brantra, 2010; Wiersma, 2000), overuse injuries (Kaleth & Mikesky, 2010), and damage to identity (Coakley, 2010) and social relations (Coakley, 2010; Gould, 2010).

Additionally, Gagne (2009) developed the Differentiated Model of Giftedness and Talent 2.0. Originally developed to understand academic achievement, the model distinguishes between potential and achievement in a continuum that includes natural abilities (i.e., raw material) and developed competencies of talent (i.e., the finished product). In this way, talent development is the systematic progression of giftedness to skillful execution of talents. This progression is influenced by intrapersonal or environmental catalysts, acknowledging the power of both nature and nurture. Gagne's (2009) model has been applied to the sport setting to help explain the process of talent development in youth athletes. However, it is much less utilized than Ericsson and colleagues (1993) description of the use of deliberate practice to achieve expert performance on motor skills.

These models of participation and talent development, the most popular within sport being the DMSP (Côté, 1999; Côté & Fraser-Thomas, 2007), help to characterize young athletes' involvement in sports in an ideally developmentally appropriate manner. Issues of sampling and specialization are an increasingly important issue within youth sports and influence the ways in which coaches, parents, and other important individuals interact with children and adolescents. Several other developmental and life-span participation models exist (e.g., Wylleman, Alfermann, & Lavalley, 2004); however, these theories are either not widely used or focus on the development of sport participation across the lifespan and become too generalized.

Facilitating Positive Youth Sport Experiences

It is clear that parents, coaches, and young athletes all play an important role in the youth sport experience. With the increasing professionalization of youth sport (Henilia, 1980) and the decreasing age of entry into sport specialization (Callender, 2010), it is important to consider the ways in which coaches and other adults facilitate positive and developmentally appropriate experiences for young athletes. Within the sporting experience (i.e., practices, competitions), coaches have the most direct access to young athletes, and they have the most power within the co-creation of the coach-athlete relationship and the team motivational climate. Certain coaching behaviors have been found to be instrumental to creating a positive climate for positive youth development within sport.

Sport is one of the largest and most influential activities in which youth athletes participate (Hansen, Larson, & Dworkin, 2003). Coaches have an important role in creating and supporting youth sport programming that is developmentally appropriate and focused on strengths and life skills (Côté & Gilbert, 2009; Fraser-Thomas, Côté, & Deakin, 2005). Positive

youth development through sport is an umbrella concept used to define the teaching and promotion of skills and strategies that provide desirable outcomes for young people (Gould & Carson, 2008). In this way, positive youth development programs work to promote facilitative behaviors rather than try to reduce or eradicate poor behaviors. Positive youth development can help to improve young athletes' health, well-being, productivity (Gould & Carson, 2008; Holt, 2008); moreover, it can be a tool to reduce violence and crime in underserved populations, (Walsh, 2008). In addition, youth sport can be character building and character challenging, as young athletes learn emotional and self-regulation skills along with physical skills; however, sport may not create learning experiences as well as other activities and may create an environment with lower social norms (Hansen, Larson, Dworkin, 2003; Larson, 2004). Thus, youth sport organizations, as many of them list personal development as a key academy goal (Gould & Carson, 2008), and coaches play a large role in creating positive youth development experiences for athletes.

To identify how sport coaches may go about teaching and instilling skills that lead to positive youth development, researchers have investigated the strategies used by successful youth coaches (e.g., Camire, Trudel, & Forneris, 2011; Flett, Gould, Griffes, & Lauer, 2012; Gould, Collins, Lauer, & Chung, 2007). Gould and Carson (2008) developed a model of coaching life skills through sport that has been used to characterize positive/effective and negative/ineffective coaching behaviors. In this model, internal and external assets characterize the existing state of the youth athlete. For example, personality characteristics and physical abilities would be internal assets, while parents, siblings, and previous coaches would be possible external assets. From there, the facets of the sport participation experience (i.e., current coach characteristics and direct and indirect teaching strategies) drive the potential for the

teaching of life skills in sport. Coaches who have more positive characteristics and strategies, or those that would fit into a positive youth development model, will promote the teaching of life skills to their athletes. Furthermore, these coaches will use more teaching strategies to deliver lessons about life skills more effectively. In the next step of the model, the possible explanations through which young athletes learn life skills (i.e., social environment utility of life skills explanations) are addressed. These reasons are empirically supported and provide a theoretical foundation for the learning and remembering of life skills by young athletes. Then, positive and negative outcomes of life skills training through sport are outlined, and are divided into subcategories of physical, intellectual, and psychosocial emotional. These outcomes relate to the transferability of life skills to other settings (e.g., academics). The transferability of skills loops back to the internal assets of the athlete, as the use of life skills influences the way in which the young athlete will approach, cope with, and learn from a variety of situations.

Gould and colleagues (2007) investigated the practices and beliefs of 10 award winning high school football coaches (Gould, Collins, Lauer, & Chung, 2007). These coaches used intentional strategies to promote positive youth development, created specific youth coaching philosophies, and were aware of the importance of relational and contextual factors when working with youth athletes. The development of rapport with young athletes, explicit transfer of sport skills to a more general context, and competitive opportunities to enact these skills taught helped young athletes to experience the benefits of an effective coach. Moreover, they were able to better regulate their emotions, engage with the community, provide and receive feedback, utilize their cognitive skills and adhere to prosocial norms (Gould, et al., 2007). This information on effective high school football coaches provides insights into how young athletes

respond to positive coaching practices and the skills and strategies that they learn through this youth development framework.

Additionally, Camire and colleagues (2011) developed strategies for helping youth sport coaches facilitate positive youth development (Camire, Forneris, Trudel, & Bernard, 2011). Based on the research within positive youth development practices, the authors offered practical strategies for youth sport coaches to help young athletes, which are in line with previous studies (e.g., Gould et al., 2007). Developing a coaching philosophy and meaningful relationships with athletes were strategies found to be effective to create an environment primed for the consumption of life skills by young athletes. Furthermore, the planning, teaching and reinforcing of life skills in and outside of sport were noted as effective practical considerations for integrating life skills curriculum into a coaching practice.

In another study of effective coaching practices, Flett and colleagues (2012, 2013) investigated the experiences of more- and less-experienced and effective coaches in an underserved community (Flett, Gould, Griffes, & Lauer, 2012; Flett, Gould, Griffes, & Lauer, 2013). More effective coaches were identified as those who “do a great job of teaching, role modeling, and creating settings that promote responsibility, integrity, perseverance, compassion, and purpose in players” and “attend to detail, teach sportsmanship, create fair opportunities for youth, help to maintain facilities, and they support a positive family environment” (Flett, Gould, Griffes, & Lauer, 2013, p. 327). Less effective coaches did not enact these behaviors or uphold those values. Based on these criterion, more- and less-effective coaches were interviewed to investigate their perceptions of and justifications for their coaching behaviors. More effective coaches helped develop character and life skills by using positive, autonomy-building strategies, being aware of implicit coaching strategies and the

environment, describing how life skills can transfer to the real world, and effectively challenging athletes. Additionally, effective coaches exhibited care for their athletes and were more realistic about performance expectations, which helped athletes maintain motivation and engagement within sport.

Vella and colleagues (2011) investigated coaches' perceptions of important constructs related to positive youth development and to what extent coaches believed that they taught or instilled these constructs within the adolescent athletes they coach. The constructs of competence, confidence, connection, character, life skills, positive affect, sport climate, and positive psychological capacities were identified as important to youth development. Additionally, coaches viewed their role as important to delivering these constructs and helping young athlete create positive sport experiences. These results are in line with previous research on coaching effectiveness (Camire et al., 2011; Côté & Gilbert, 2009; Flett, et al., 2012, 2013; Gould et al., 2007). More importantly, identifying these capacities can provide guidelines for youth sport coaches regarding important skills to develop in sport. The skills identified by coaches go beyond the standard technical, tactical, and physical skills that coaches are often trained to teach. The identified constructs represent a much broader range of skills that can be taught in youth sport, including psychological and life skills, that expand the role of youth sport coaches.

Psychological Skills Training

In the United States, psychological skills training (PST) was developed due to an increased interest in applied work within the field of sport psychology. Specifically, PST is defined as the “techniques and strategies designed to teach or enhance mental skills that facilitate performance and a positive approach to sport competition” (pp. 319, Vealey, 1988).

PST is designed to help athletes cope with the psychological demands of sport by providing them specific psychological strategies (Martens, 1987). Importantly, sport psychology consultants (SPCs) trained primarily with a sport-science background work with athletes through a performance enhancement model rather than a performance decrement model. In other words, a performance enhancement model implies that athletes who receive PST are essentially mental healthy and capable athletes whose performance would benefit from an increased repertoire of coping skills to use in practice and competitions. The use of a decrement model implies that athletes are receiving PST to alleviate a psychological problem that hinders their performance.

Several applied sport psychology consultants have developed their own PST packages that they use with athletes. Most notably, Vealey (2007) expanded and refined her conceptualization of psychological skills based on a previous content analysis (i.e., Vealey, 1988) and a review of the PST programs established since 1988. In her model of mental skills, she outlined foundational skills, performance skills, personal development skills, and team skills. Foundational skills represent the interpersonal resources that set the foundation for the development of subsequent mental skills. Foundational skills include achievement drive, self-awareness, productive thinking, and self-confidence. Performance skills are mental qualities that allow for the successful execution of sport skills and include perceptual-cognitive skills, attentional focus, and energy management. Personal development skills represent significant developmental markers of personal growth and promote high-level abilities. Personal development skills include identity achievement and interpersonal competence. Finally, team skills refer to collective team qualities that help determine an optimal team environment and overall team success. These include include leadership, communication, cohesion, and team

confidence. Table 1 provides a descriptive table of all the psychological skills within Vealey's (2007) model.

To build and enhance these psychological skills, psychological strategies are used. The most widely used strategies by sport psychology professionals are imagery, thought control, goal setting, and physical relaxation and arousal regulation (Gould, Murphy, Tammen, & May, 1991; Vealey, 1988). Imagery involves the use of sensory information to “create or recreate an experience in the mind” (Vealey & Greenleaf, 2010, p. 268). Imagery promotes the mental practice of skills, including preparation competition and coping with adverse sport situations (e.g., mistakes, intense competition, injuries; Morris, Spittle, & Watt, 2005). Thought control refers to awareness and management of self-talk (e.g., evaluation, feedback, reinforcement; Vealey, 2007). Thought control techniques include positive thinking, affirmations, and thought stoppage (Vealey, 1988). Goal setting involves setting a target or specific standard to strive toward and helps to direct attention on specific task demands, mobilize effort, encourage persistence through adversity, and promote the use of new learning strategies to achieve set goals (Locke & Latham, 2002). Finally, physical relaxation and arousal regulation refers to management of energy (i.e., level of activation) to match the demands for successful performance (Williams, 2010). Arousal regulation strategies can direct attention toward energy to facilitate a relaxation or activation response.

Because sport psychology has been touted to benefit all athletes, it is a natural extension of that logic that sport psychology services could benefit the youth sport population. In fact, sport psychology professional should take advantage of young athletes' physical and psychological development and introduce PST programs at an early age (Orlick & Zitzelsberger, 1996; Vealey, 1988). Gould (1983) suggested that children learn psychological

strategies relatively easier than their adult counterparts. In this way, sport psychology professionals can help young athletes learn and develop positive responses to competition and effective coping strategies, rather than altering maladaptive responses or coping strategies of adult athletes (Vealey, 1988). As Orlick (1982) stated, if we encourage children to participate in organized sport, we have a responsibility to teach them strategies to cope with stressful, competitive situations.

There is a lack of evidence regarding children and adolescent athletes' capabilities to use psychological strategies; however, several researchers have provided support for engaging in PST with child and adolescent athletes. First, both children and adolescent athletes have displayed an understanding of PST concepts (Holland, Woodcock, Cumming, & Duda, 2010; McCarthy, Jones, Harwood, & Olivier, 2010). Athletes as young as 10 years of age have shown an implicit knowledge of goal setting and imagery, with older athletes (i.e., 13 to 15 years of age) able to define the four most-widely used psychological strategies (i.e., goal setting, imagery, self-talk, and relaxation; McCarthy et al., 2010). In addition, adolescent male rugby athletes described 31 specific mental qualities required for sport success, including determination, mental toughness, self-awareness, and adaptability (Holland et al., 2010).

Second, several studies have provided evidence that young athlete have utilized psychological strategies in competitive sport. For example, Harwood and colleagues (Harwood, Cumming, & Fletcher, 2004; Harwood, Cumming, & Hall, 2003) found that elite youth athletes (i.e., between the ages of 14 to 20 years) with high task orientations and high or moderate ego orientations used goal setting, imagery, and positive self-talk more than their lower task and lower ego orientation athlete counterparts. In addition, Munroe-Chandler and colleagues (Munroe-Chandler, Hall, Fishburne, O, & Hall, 2007; Munroe-Chandler, Hall, Fishburne, &

Strachan, 2007) investigated the content, and use of imagery by young athletes between the ages of seven and 14 years. This age range was divided into four categories (i.e., 7-8, 9-10, 11-12, and 13-14) to examine the extent to which developmental differences occurred across age groups. Athletes as young as seven years old utilized imagery and were able to create detailed images about their sporting experiences; moreover, all of the age groups reported that imagery was an effective psychological tool for improving performance. Older athletes (i.e., 11-14 years of age) described the use of both positive and negative images, while younger athletes (i.e., 7-10 years of age) did not make this distinction. More recently, Parker and Lovell (2012) also found that young athletes between the ages of 12 to 21 years had moderate imagery abilities that they used to facilitate their sport experiences. These studies provide evidence that athletes as young as seven years of age benefit from and use psychological strategies in sport.

Psychological Skills Training with Young Athletes

As the youth sport market continues to grow and become more competitive and professionalized (Henilia, 1982), sport psychology researchers and practitioners have begun to investigate the best practices for teaching psychological skills and strategies to child and adolescent athletes. Thus far in applied sport psychology, relatively more PST interventions have been provided to elite, adult or collegiate athletes than children or adolescent athletes; however, there have been an increase in applied studies investigating the effectiveness of PST interventions with young athletes. Several sport psychology professionals have documented successful provision of PST, with skills and strategies delivered in isolation or in a predetermined package. Some SPCs provided personal accounts of their consulting philosophies, highlighting the benefits of teaching psychological skills and strategies to children early (e.g., Burton, 1991; Orlick & McCaffrey, 1991). Weiss' (1991) developmental

sport psychology consulting framework identified developmental factors and the sociocultural environment as critical to consider when working with youth athletes. More recently, Visek and colleagues (Visek, Harris, & Blom, 2009, 2013) developed the Youth Sport Consulting Model, which provides an educational framework for helping sport psychology professionals organize and deliver a psychological skills training package. Though theory-driven, these accounts are merely descriptive and have not been evaluated for their effectiveness at improving young athletes' performance.

More formalized PST programs have been designed for and delivered to youth athletes by applied sport psychology professionals (e.g., Gibert 2011; Larsen, Alfermann, Henriksen, & Christensen, 2014). These programs have adopted a theory-to-practice approach (Poczwadowski, Sherman, & Ravizza, 1998) to consulting with young athletes, implementing programming that focuses on a package of core mental skills (e.g., confidence, resilience, motivation, focus, etc.) tailored to the unique needs of youth athletes. These skills are developed through teaching psychological strategies or techniques that are delivered in an age-appropriate manner. Some programs (e.g., Johnson, Hrycaiki, Johnson, & Halas, 2004; Larsen, Alfermann, Henriksen, & Christensen, 2014) integrate PST directly into physical and tactical skill learning, which has been considered a necessary component of skill learning for young athletes (Burton, 1991; Foster, Maynard, Butt, & Hays, 2015; Henriksen, Larsen, Storm, & Ryom, 2014; Sinclair & Sinclair, 1994).

Anderson and colleagues (2002) offer four evaluation components for a comprehensive assessment of sport psychology services: (1) the quality of PST services, (2) an athlete well-being and psychological skills, (3) athlete responses to PST services, and (4) athlete performance (Anderson et al., 2002). Anderson and colleagues' (2002) framework is in line

with a utilization-focused approach to evaluation because they focus on the practicality of the information gathered (Patton, 2008). PST programs that provide services directly to youth athletes (as opposed to youth sport coaches; Diment, 2014; Harwood, 2008) and that focus on performance enhancement (rather than life skills development; e.g., Danish, 2002) are included in this review. Table 2 provides a description of participants, protocols, and results for PST interventions provided to young athletes.

Quantitative Evaluations of Youth Psychological Skills Training Programs

Of the 18 studies found that fit the selection criteria (i.e., PST interventions with youth athletes for performance enhancement), 12 of them were quantitative studies (i.e., Atienza, Balaguer, & Garcia Merita, 1998; Copeland, Connell, Reider, & Burton, 2009; Fournier, Calmels, Durand-Bush, & Salmela, 2005; Haddad & Tremayne, 2009; Ming & Martin, 1996; Munroe-Chandler, Hall, Fishburne, Murphy, & Hall, 2012; Palmer, 1992; Post, Wrisberg & Mullins, 2010; Sheard & Golby, 2006; Wanlin, Hrycaiko, Martin, & Mahon, 1997; Wrisberg & Anshel 1989; Zhang, Ma, Orlick & Zitzelsberger, 1992). Generally, these studies provide support for the effectiveness of their respective PST packages. Only one of the evaluations did not primarily assess sport performance (i.e., Copeland et al., 2009); self-confidence, cohesion, and state anxiety were the primary psychosocial variables assessed. The details regarding PST program participants, protocols, and results are provided in Table 2.

Several competitive levels were represented within these investigations, including novice figure skaters (Ming & Martin, 1996), competitive youth athletes (Atienza, Balaguer, & Garcia Merita, 1998; Haddad & Tremayne, 2009; Wrisberg & Anshel 1989), high school basketball athletes (Post, Wrisberg, & Mullins, 2010) and national level youth competitors (Copeland et al., 2009; Fournier et al., 2005; Sheard & Golby, 2006). Additionally, some

athletes were purposefully recruited for participation because they showed performance and/or discipline problems (Wanlin et al., 1997). Program lengths ranged from 2 days (i.e., Wrisberg & Anshel) to the duration of a competitive season (Post, Wrisberg, & Mullins, 2010).

Several of the quantitative evaluations of PST programs were single intervention studies and assessed improvement of performance on specific skills, including free throw shooting (i.e., Haddad & Tremayne, 2009; Post, Wrisberg, & Mullins, 2010; Wrisberg & Anshel, 1989), the tennis serve (i.e., Atienza et al., 1998), soccer dribbling and shooting (i.e., Munroe-Chandler et al., 2012), specific table tennis shots (i.e., Zhang et al., 1992), and figure skating figure production (i.e., Ming & Martin, 1996). Moreover, some of these interventions (i.e., Haddad & Tremayne, 2009; Ming & Martin, 1996; Munroe-Chandler et al., 2012; Palmer, 1992) isolated the use of a single psychological strategy to improve a single sport skill. For example, Haddad and Tremayne (2009) introduced young Australian basketball athletes between the ages of 10 and 11 years to the use of a centering breath prior to shooting a free throw. Young athletes who engaged in the intervention (i.e., used a centering breath) prior to shooting a free-throw demonstrated statistically significant improvement in free throw percentage from pre- to post-intervention. In addition, Ming and Martin (1996) taught young novice figure skaters between the ages of 11 and 13 to use the Martin self-talk technique (Martin, 1989, 1992) to improve tracing execution on selected figures. Athletes who used the self-talk technique displayed improved performance (i.e., accuracy) on figure tracing. Palmer (1992) introduced two different self-talk techniques (i.e., Martin self-talk technique; Martin, 1989, 1992; and the paper patch technique) to novice figure skating athletes between 12 and 17 years of age. Athletes received higher accuracy scoring using the paper patch technique compared to the Martin self-talk technique. Unfortunately, teaching only one psychological

strategy may underestimate the capabilities of young athletes. Vealey (1988) claimed that young athletes are capable of learning a variety of psychological strategies to promote psychological skill development. So, young athletes may be able to handle learning multiple psychological strategies taught within comprehensive PST packages.

Some of the PST programs that targeted the improvement of a specific sport skill introduced two or three psychological strategies rather than just one (Atenzia et al., 1998; Post, Wrisberg, & Mullins, 2010; Wrisberg & Anshel, 1989; Zhang et al., 1992). For example, Zhang and colleagues introduced a PST protocol that included video observation, imagery, and relaxation to talented young table tennis athletes between the ages of seven and 10 years of age. Video observation included watching the skill execution of top junior table tennis athletes. Athletes who engaged in the program experienced higher scores on accuracy and technical ratings for a specific table tennis stroke (i.e., the forehand attack) than athletes who only engaged in video observation or were in a control group. More recently, Post and colleagues (2010) created a protocol that included the use of a centering breath, deep breathing, and imagery to improve free-throw shooting performance (i.e., accuracy). Team performance improved in games preceded by PST protocol. These evaluations provide support for the delivery of a small package of psychological strategies to improve performance. However, isolating the utility of these strategies to a specific sport skill limits transferability. In other words, athletes may not be able to understand how psychological strategies apply to multiple sport situations and context.

PST programs aimed at promoting performance and interpersonal skills such as psychological indicators (Founier et al., 2005), psychological attributes (Sheard & Golby, 2006), effort and on-task behavior (Wanlin et al., 1997) and competitive state anxiety and

cohesion (Copeland et al., 2009) typically included more diverse quantitative measures. Copeland and colleagues (2009) developed a stress management and cohesion intervention for national level young luge athletes between the ages of 12 and 16 years. These psychological skills were identified through conversations with the coaching staff about the most critical skills for athletes within this competitive level and age group. Athletes who engaged in the intervention rated higher state self-confidence and cohesion scores and lower competitive state anxiety scores from pre-test to post-test. In addition, Fournier and colleagues (2005) introduced a 10-month PST program that included relaxation, self-talk, goal setting, focusing, and visualization to 10 nationally ranked female gymnasts ($M_{\text{age}} = 12$ years). Athletes who participated in the intervention increased their performance scores (i.e., starting scores, final scores) as much as 5% on three of four gymnastic apparatuses (i.e., beams, bar, and floor) and demonstrated increases in the use of relaxation, activation, focusing, refocusing, and imagery.

Though these studies were quantitative in nature, 10 of the 11 evaluations included a social desirability or validation measure to provide information about the perceived effectiveness of the PST program. Social validation measures (Wolf, 1978) provide some information regarding the perceived effectiveness of the PST intervention, the athletes' willingness to use the PST strategies after the intervention, and the extent to which athletes enjoyed or appreciated the PST program. For example, Wrisberg and Anshel (1989) included a question about the actual use of the psychological strategy (i.e., to what extent did you actually use the strategy you learned?). Similarly, some researchers (e.g., Haddad & Tremayne, 2009) asked athletes to what extent they enjoyed using the psychological strategy (i.e., did you like using the centering breath?) and whether young athletes thought the psychological helped to improve performance (i.e., "Did you think the centering breath helped you improve your free

throw shooting?). In addition, Palmer (1992) asked athletes to compare and contrast the strategies taught to them throughout the PST intervention (e.g., “the Martin technique was...”; “the paper patch technique was...”). Other researchers relied more on informal feedback during the course of the intervention about the content and delivery of the PST program (Fournier et al., 2005; Sheard & Golby, 2009). Across the quantitative studies profiled in this review, responses to these social desirability questions were positive. Unfortunately, social desirability questions do not provide a great depth of information about athletes’ perceptions of the PST program.

In general, these quantitative studies fulfilled some of the requirements laid out by Anderson and colleagues (2002) for an evaluation of PST program effectiveness. Specifically, these evaluations were able to report on performance and psychological construct changes in participants before and after the interventions. This is in line with the fourth component of effective evaluation (i.e., athletes’ actual performance). Social desirability and validation measures provide some information about athletes’ perceptions of psychological strategy use; however, a comprehensive evaluation of PST interventions is not possible with quantitative methods. Moreover, researchers have consistently reported problems with quantitative psychometric questionnaires to assess the use of psychological skills (Gould, Tammen, Murphy, & May, 1989). Mixed method and qualitative approaches have been utilized to address this limitation and gain more depth and breadth regarding PST program evaluation.

Mixed-Method Evaluations of Youth Psychological Skills Training Programs

Three mixed-method studies fit the selection criteria for this review (i.e., Gucciardi, Gordon, & Dimmock, 2009a/b; Johnson, Hyrcenko, Johnson, & Halas, 2004; Mamassis & Doganis, 2004). Johnson and colleagues (2004) introduced four female soccer athletes ($M_{age} =$

13 years) to a self-talk strategy to improve shooting performance. Young athletes were purposefully selected because they experienced poor performance on a specific soccer shot (i.e., low-drive). Those exposed to this protocol improved their shooting performance (i.e., accuracy, technique) throughout the intervention. Qualitatively, athletes completed assessments and interviews; prior to the intervention, athletes reported that low drive shooting was an important skill for soccer success. After the completion of the intervention, athletes indicated that they used the self-talk sequence on a majority of the low drive shots. Also, using the self-talk strategy increased confidence and directed their attention to relevant cues. Finally, they valued that the self-talk selected was simple and selected by coaches.

Mamassis and Doganis (2004) taught five elite youth tennis athletes ($M_{age} = 14$ years) psychological strategies within a 25-week PST program (i.e., goal setting, positive thinking and self-talk, arousal regulation, concentration and routines, and imagery). Quantitatively, state anxiety and confidence improved as a result of the intervention. For a qualitative analysis, the profiles of two athletes were used to create case study narratives of performance psychological strategy use in competitions throughout the course of the intervention. Narratives indicated that athletes developed routines, and used relaxation, self-talk, and concentration strategies to prepare for and respond to challenges on-court. These case studies provided an insider view of the specific struggles and triumphs these young athletes experienced as they engaged in the PST program. Additionally, the authors were able to describe the ways in which they adjusted the specific elements of the PST program to fit the needs of each athlete.

More recently, Gucciardi and colleagues (2009a/b) investigated the effectiveness of two PST interventions using both quantitative and qualitative measures. In the quantitative procedures, two different packages were administered to two Australian football teams, a PST

program and a mental toughness training program. The PST program included seven sessions covering six topics: self-regulation, arousal regulation, attentional control, self efficacy, mental rehearsal, and ideal performance state. The mental toughness training program included the psychological skills and strategies of personal and team values, work ethic, tough attitude, self-motivation, self-belief, concentration and focus, resilience, emotional intelligence, sport intelligence, and physical toughness. Both programs included weekly two-hour workshops over a six-week period that occurred prior to the start of the competitive season. Before and after the interventions, coaches, athletes, and parents completed an assessment of athletes' mental toughness qualities, while only athletes completed self-report measures of resilience and flow. A third team, which was exposed to no PST or mental toughness training intervention, served as a control group. Both the PST and mental toughness training intervention groups reported higher ratings of mental toughness, resilience, and flow than the members of the control group.

Qualitatively, athlete and parent dyads as well as three coaches from the mental toughness intervention group were interviewed. The purpose of the qualitative analysis was to gather their perceptions of the consultants who administered the program and the content of the program. Perceptions about athletes' performance outcomes were also obtained. Parents, athletes, and coaches all provided support for the major themes that emerged. Significant mental training program outcomes included valuing quality preparation and increased receptivity to criticism, team cohesion, work ethic, and tougher attitudes. Additionally, all participants expressed that athletes were able to develop skills that could transfer to other contexts. The mental toughness training was thought to increase four psychological processes: self-awareness, self-monitoring, self-regulation, and perspective taking. Participants noted that the program could be improved with increased parental involvement, coach and parent

education, and more holistic assessments. Finally, the single program weakness was its short duration; athletes suggested that the program be divided into two parts, expanded, and delivered over the course of two seasons.

These mixed-method evaluations of PST programs provide more detailed athlete perceptions about the effectiveness of various psychological strategies. Johnson and colleagues (2004) included procedures that represent an extension of previous quantitative methodologies. Specifically, open-ended surveys and structured interviews provided athletes with a rather limited ability to provide their perceptions of the PST program. Mamassis and Doganis (2004) included qualitative data analysis and reporting procedures; however, limited qualitative information (i.e., observations) was systematically gathered. Gucciardi and colleagues' (2009a/b) evaluation represents one of the more comprehensive evaluations to date. Of the four criteria for effective PST evaluations (Anderson et al, 2002), their study satisfied one (i.e., athlete responses to PST services). In addition, the results also provided general perceptions about the major outcomes of the program. However, the study mainly focused on the development of mental toughness and its corresponding constructs rather than a more holistic evaluation of the PST program. Effectiveness of the sport psychology professional, quality of delivery, assessment of mental strategies used to support the mental toughness training program, and the perceived influence of the program on athletes' performance were not addressed within either the quantitative or qualitative analyses. In the past two years, two qualitative evaluations of PST programs for young athletes have emerged; both of which provide the depth of information supported by Anderson and colleagues' (2002) PST evaluation model.

Qualitative Evaluations of Youth Psychological Skills Training Programs

Only two exclusively qualitative evaluations of PST programs fit the selection criteria for this review (Larsen, Henriksen, Alfermann, & Christensen, 2014; Sharp, Holland, Woodcock, Cumming, & Duda, 2013). Larsen and colleagues (Larsen et al., 2014) developed, described, and evaluated a talent development PST program for U-17 male European football athletes grounded in a bioecological model. The program development was guided by an assessment with stakeholders from the sporting academy. Specifically, SPCs worked with the personnel within the program to determine the existing performance environment and areas of improvement. Then, a series of player workshops, meetings with the main coach, and on-field training sessions for the athletes were created to promote the talent development of the athletes from an ecological framework.

Within the PST program, concepts were taught in the classroom and on-pitch to facilitating the learning of psychological skills and strategies. Concepts included an introduction to sport psychology, psychosocial skills (from Harwood, 2008; Larsen, Alfermann, & Christensen, 2012), and goal setting. These were included to help athletes learn to cope with adversity and prepare for the challenges of a career in professional football. Additionally, young professional players who had previously been members of the football club attended the sessions to tell young athletes about their experiences during group discussions. The program was evaluated by the stakeholders in the club (i.e., club manager, youth director, coach, and players). Individual and focus groups interviews through the course of the program indicated that the managers of the club were generally satisfied regarding the program. In addition, the U-17 players noted the effectiveness of including the young professional players in regard to buy-in surrounding the program and their engagement in discussions and the use of

psychological strategies, such as goal-setting. Finally, athletes reported that learning and using goal setting helped their motivation and performance.

Larsen and colleagues identified six elements of an effective program evaluation within a holistic ecological framework. First, the program—including the athletes and coaches—is embedded in an environment. Second, an evaluation of program strengths and weaknesses should be conducted prior to the development of a PST program. Third, the SPC should work with all individuals in the environment. Fourth, the larger cultural context should be considered to develop the PST program. Fifth, the PST program goals should be to create a cohesive organizational culture. Finally, the PST program created should address a holistic package of psychological skills and strategies to be used in sport and life. Overall, perceived program outcomes (e.g., athletes increased understanding and use of goal-setting) were obtained from the qualitative interviews and focus groups with athletes and coaches. However, the ways psychological strategies translated to performance in competition was not evaluated. Thus, it seems as though this evaluation of a PST program, while extensive, still lacks an important evaluative component (i.e., transferability).

Sharp and colleagues (2013) evaluated a PST program delivered to young British elite male rugby athletes in line with Anderson and colleagues' (2002) PST evaluation framework. Young athletes and coaches in a 16 and under development program were invited to participate in a voluntary PST program. This program was developed in line with previous research (i.e., Holland et al 2010; Woodcock et al 2011) in which young rugby athletes identified personal psychological strategies they utilized in competition. The resulting PST was comprehensive, including an introduction to PST, performance profiling, goal setting, self-talk, arousal control, imagery, pre-competition routines, and pre-performance plans. Sport psychology professionals

delivered the material through interactive workshops and on field training support over a seven-month period.

To evaluate the program, young athletes and coaches were interviewed in focus groups. The goals of the evaluation were to gain their perceptions of the PST program, the quality of the content and delivery of the PST program, psychological strategies used, and the influence PST had on rugby performance. These objectives are in line with the evaluation framework by Anderson and colleagues (2002). Coaches and athletes found the PST program to be interactive, well-planned and effective in teaching psychological skills and strategies; in addition, athletes—as well as their coaches—believed that they had learned about specific psychological skills to regulate emotions and behaviors during play. These psychological skills both positively influenced performance and transferred to other areas of life. Moreover, athletes and coaches provided recommendations for the program to improve its content and delivery; athletes and coaches wanted more on-court applications of PST skills and strategies and requested that the program be extended.

This study attempted to conduct an evaluation of a PST program in line with the recommendations provided by Anderson and colleagues (2002). While the results gather information about the quality of services provided and athletes use of psychological strategies, more could be done to gain perceptions of PST delivery and actual use of PST skills and strategies. This study is the first PST evaluation with young athletes to recognize the importance of conducting an evaluation of a program in line with rigorous, established program evaluation methodology. In short, this study sets a benchmark for future evaluations of PST programs because it recognizes the many important constructs within a PST program (e.g., the delivery of program materials, the content of the program, athlete responses to the program,

and athlete performance) that contribute to a holistic picture of the program's overall effectiveness.

SECTION 4: Extended Methodology

In this chapter, I describe several important elements of the methodology for my dissertation study. First, my positionality statement situates me (the researcher) in the context of my research endeavor. This positionality informs my desire to conduct research in the field of youth sport psychology, and ultimately leads to the statement of the problem and guiding research questions for this dissertation. Next, the research paradigm and philosophical assumptions related to this dissertation are described, eventually linking these constructs to the methodology to be used for my dissertation. Then, I describe case study methodology and provide a detailed rationale for why it is appropriate for my dissertation. Finally, the case study methods are outlined, providing specific considerations for conducting qualitative research with child and adolescent participants. These elements combine to create an empirically-supported and thorough qualitative methodology section.

Positionality Statement

I am a 27-year-old, Caucasian, cis-Female from a Midwestern state in the United States. I am from the second largest city in Kansas. The state is typically quite socially and economically conservative; however, the city of Wichita is slightly less socially conservative. I attended the same school district for my elementary, middle, and high school education; thus, I was surrounded by the same 330 or so students for 12 years. A large majority of these students were Caucasian, like me, and very few students were racial minorities. In addition, no person in my high school class, or even anyone who I remember from my school experience, openly identified as gay, lesbian, or transsexual (though, I know of two friends from my high school who came out after they graduated and left the state of Kansas). I tended not to recognize race as an important construct; I valued a person's intelligence, hard-work, and general world-view

before their demographics. Rather, the most defining sociocultural element of my upbringing was my relationship with religion.

I was baptized as Catholic as a baby. My parents were married in the Catholic Church, and I attended church as a young child. During my elementary school years, I went to Sunday school. I was a very shy child; so, I did not particularly enjoy the forced engagement with other people. More importantly, I remember “not buying” the information that was taught in the Sunday school classes. I have always been a skeptical and critical person, and at that point in my life I simply did not engage with the material. Plus, my mother would complain in the car after church about the women that she met at church or the classes that she was encouraged to attend. When I was an adolescent, she told me how she attended a class through the church at the request of a friend. In the class, they learned how to make a pot roast and were told to time the steps in the process to make sure “your husband would walk into the house after a day at work and be greeted by the smell of pot roast.”

My general disinterest in religion was compounded by a few changes in the church my family attended, driven by my mother. She pushed back at patriarchal, non-inclusive (i.e., the second church we attended announced its disdain for gay and lesbian individuals in the sermon) occurrences and would explain the factors that drove her decision to leave the church. Already skeptical about how my peers could wholeheartedly believe clearly fictional stories, I developed the mindset that religion, or the religion I had been exposed to, was not necessary to being a good person, but it helped you to be a certain kind of person if you needed something to believe in. In Kansas, being religious is the norm; going to church is the norm. While not going to church did not have a significant influence on my social or academic status, I was careful not to identify as an atheist until college.

Ultimately, my relationship with religion, in contrast with the norms of central Kansas, portrays my skepticism and inquisitive nature that developed at a relatively early age and has been a central component of my personality. I have never been the type of child, adolescent, or adult to attempt to color life in terms of strict black-or-white, yes-or-no, right-or-wrong principles. For me, everything depends on context and motive. The *why* and *how* is essential to the *what*. Now, I do not mean to imply that religion itself is not concerned with issues of why or how, only that I did not resonate with religion as a way to understand the world. My worldview does not include religion, which is odd for a person from my sociocultural background. As a researcher, understanding how and why individuals have certain perceptions, engage in activities, and respond in particular ways surrounding a specific topic is important to providing a rigorous and quality interpretation of a research question.

In addition to the sociocultural factors that influenced my worldview, my family has influenced my personal and professional development and the lens through which I understand the world. My father is a self-employed mechanic, and my mother was a secretary but decided to be a stay-at-home mom when I was born. I have one older half-brother and a younger brother. All of my immediate family members and a large majority of my extended family live in my hometown. I am the first member of my immediate family to attend college, and one of two members of my extended family to pursue graduate study. I would describe my family's social status as middle class; however, because my dad owns his own business, it has always been a bit of a mystery to me how much money my parents have. Every member of my immediate family played a role in the development of my worldview; however, my half-brother and my mom have had the most influence.

My relationship with my older brother has shown me that a person's reality can be created and influenced by many inherent and environmental factors. To be brief, my older brother had a difficult adolescence that caused him to adopt certain habits and perceptions that have negatively affected his life and that of his family. As such, his choices and actions have represented the epitome of everything I did not want for my life. Essentially, while I know that we had different upbringings, it is clear that his reality is very different than my own, and it is important to recognize the factors that influence his worldview if and when I try to speak with him.

My older brother's influence on my life and worldview brings me to the important influence that my mother has had on my development. The negative events in my mother and older brother's lives associated with divorce occurred before I was born; my mother made a point to try to provide the best opportunities for us. For my upbringing, many of the lessons my mom taught me, opportunities she provided me, and ways she supported me stemmed from wanting to break the lifestyle mold that my extended family had all but solidified. She exposed me to books and extracurricular activities, including athletics and music, at an early age, which helped me to develop my strong work ethic. I am guessing that the intensity of my work ethic was a product of my genetics, the negative modeling from my older brother, and the guidance of my mother to try to do things "right."

My childhood and adolescent experiences have shaped how I see the world. As I have gotten older, the growing disparity between my knowledge and understanding of people, and my general intuitive nature, has influenced how I generate knowledge personally and professionally. Currently, I am a PhD student and have been in higher education for the past nine years. I have a Master's degree in Kinesiology from the University of North Texas, and a

Bachelor of Science in Psychology and a Bachelor of Science in Neuroscience from Drake University. I was the Valedictorian of my Kansas high school class of 2008. I am very proud of my academic achievements.

Today, I find that my athletic interests and achievements hold more weight than that of other personal qualities. I participated in youth sport, like many children, starting at the age of six. I *sort of* enjoyed sport. I didn't especially enjoy attention; as a very shy child (and still a rather shy adult), participating in sports created a platform for me to interact with other children. Unfortunately, I had a tendency to be perfectionistic and see these encounters as challenges designed to allow others to evaluate my abilities or even my worth. Early in my sport participation, even when I competed in club soccer, I did not take pride in or ownership of my sporting experience and development. During the crux of adolescence, at around 12 years old, my obligatory club team sport participation ended, and I was encouraged, or allowed to-- I am really not sure of my 12 year-old self's thoughts on the issue—choose a different sport. I chose to attend a local tennis camp organized by my middle school. Everything changed after that.

Since joining the middle school tennis team, I have engaged in a progressive shift in my way of thinking about sport, both for me and for other young athletes. Tennis is a predominantly individual sport, and I appreciated that achievement in tennis was placed squarely on my shoulders. Every improvement and win was my own. Moreover, my coaches took a special interest in me, primarily due to my work ethic, during my high school tennis tenure. I engaged in an intense program with him, trained daily, worked on my ranking, and read tennis literature. I read about the mental game, journaled about my process, and treated tennis like the other achievement ventures I pursued (e.g., school, academic clubs). As soon as

he provided me with the validation that I could be a tennis athlete, I jumped into that role with both feet. The following tennis season, eight months later, I went from middle of my high school lineup to Number 1 Singles on my high school team and stayed there through my senior season.

My views on achievement, use of rudimentary psychological skills and strategies, interactions with my youth sport coaches, and quick rise to a more advanced level of the game all have shaped how I view the youth sport culture. My desire to achieve and excel undoubtedly in high school tennis helped me to develop; however, in a sport that so purposefully pits two people against each other, I learned quickly that achievement in tennis meant winning. Because of this, I gauged my worth and value as a tennis player on my success against opponents. In other words, I tended to have a fixed mindset when it came to my abilities, specifically in sport (Dweck, 2008). I see this pattern in my works as a coach and in the responses of some youth athletes with whom I have interacted in research. Because of this, I need to recognize this potential bias in regard to the interview process, as I may hope that young athletes utilize their learned psychological skills and strategies to cope with possibly ingrained views about achievement and success within tennis.

Second, in my youth and collegiate sporting experiences, I engaged in the use of psychological skills and strategies, even though I did not necessarily recognize the existence of the sport psychology field. I was a self-starter. In high school, I would study tennis books, learn and practice technique, agility drills, or tactics, and reflect on my tennis game regularly; I did whatever I could to excel. In college, my coach would routinely ask me to act as an assistant coach. I would talk to my teammates on the bench about focus, nervousness, or tactics during their matches, and I enjoyed this practice because I seemed to understand aspects of the mental

game that were difficult for my teammates to enact. Because of these previous experiences, I must recognize that I may have biases regarding my potential participants' engagement with psychological skills and strategies. Moreover, I have inherent biases regarding people who are mature and hard-working. Even if young athletes are unwilling or unable to utilize the psychological skills and strategies that they have learned with their Player Development PST program, I must be aware of how my biases might play a role in interpreting this information (i.e., conducting interviews and observations) and conducting the qualitative data analysis.

Third, because I had positive interactions with my youth sport coaches and am a certified youth tennis coach myself, I have admittedly high standards regarding successful coaching practices. This aspect of my positionality may be tangential to my proposed dissertation study, but because I have observed the coaches who have worked with these young athletes, I must recognize that it would not be appropriate for me to remind an athlete about how they worked on a particular psychological strategy with a specific coach. Just because I have knowledge about the program does not mean that I am able to act as an "insider" regarding these young athletes' training and competitive experiences.

Fourth, within my youth tennis experience, I started at a relatively low level and experienced a large jump in my sport development in a short amount of time. This produced both positive and negative effects for me. Because I had trained hard and become a better tennis player, I was faced with tougher opponents. When I could not achieve, either because an opponent was more skilled or I was committing too many errors, I self-reprimanded. I would slap or hit my leg, which is a common tennis players' reaction to a mistake, but I would walk away from a loss with bruises up and down my right thigh and calf. Now, as a youth sport coach and researcher, I find these types of coping mechanisms all too common and alarming

for young tennis players. Thus, I must be prepared to witness some negative coping mechanisms during match play, even if they are not in line with the psychological skills and strategies they have learned. Importantly, because I plan to use a more interpretivist than critical lens, I must refrain from infusing elements about my own experiences and perceptions into the construction of my participants' experiences. However, I hope to be able to empathize with young athletes who may use negative coping mechanisms during competition.

Integrate Methods Starting here

Research Paradigm and Philosophical Framework

My positionality related to my overall research line undoubtedly informs my research paradigm and philosophical framework for this study. Constructivism, which is historically derived and influenced by several epistemological stances, and pragmatism are the major research paradigms used in this inquiry. In qualitative inquiry, the researcher must choose and adhere to a research paradigm and acknowledge the philosophical assumptions that she may adopt within the research process. According to Crotty (2003), these assumptions (i.e., a researcher's worldview) influence the ways in which information is consumed and interpreted and include a researcher's ontology and epistemology.

Research paradigm

Many qualitative inquirers have outlined research paradigms; for example, Guba and Lincoln (1994) describe postpositivism, critical theories, and constructivism in contrast to the primarily quantitative paradigm of positivism. Markula and Silk (2011) provide a definition of a research paradigm, stating,

A paradigm is an overarching set of beliefs that provides the parameters – how researchers understand reality and the nature of truth, how they understand what is

knowledge, how they act and the role they undertake, how they understand participants and how they disseminate knowledge – of a given research project (p. 25)

Importantly, qualitative researchers have largely rejected research paradigms including logical empiricism and logical positivism; and few qualitative research paradigms require a post-positivist approach (e.g., Consensual Qualitative Research; Hill, Thompson, Hess, Knox, Williams, & Ladany, 2012). Logical empiricism and logical positivism are quantitative research approaches where data is gathered and analyzed outside of the context in which behaviors or perceptions occur. The goals of these paradigms are to generate objective correlational or causal interpretations of data through hypothesis testing (Markula & Silk, 2011). The post-positivist paradigm was adopted by researchers critical of positivist approaches; a post-positivist paradigm involves quantitative and qualitative modes of data collection, which was gathered in more natural settings in contrast to the sterile data collection laboratories commonly used by positivist researchers. However, post-positivist paradigms still include positivist-style research questions and theories. Moreover, post-positivist researchers attempt to remain objective in regard to their research (Markula & Silk, 2011). Thus, post-positivist paradigms may satisfy the researcher who is more comfortable with traditional positivist approaches, unsatisfied with the depth and breadth of information gained from quantitative methods, but unwilling to adopt fully humanistic interpretive or critical paradigms to answer research questions.

I work through constructivism and pragmatism, which fall within the humanist interpretive research paradigm and have evolved from and are influenced by other research paradigms, including naturalistic inquiry, symbolic interactionism, constructivism, and social constructivism. Of note, Denzin and Lincoln draw attention to the interpretive power of a

“bricoleur” qualitative researcher (2005). Bricoleur, translated from French, means “handy[person],” and like a handyperson, the bricoleur qualitative researcher is able to execute many types of tasks with proficiency in regards to approaching, obtaining, and interpreting qualitative information. Within the meaning-making process, the bricoleur researcher is knowledgeable about many interpretive frameworks that can be used to approach specific research questions. It is important to understand the specific research paradigms that inform and drive interpretivism and constructivism within this dissertation study.

Constructivism. In its simplest definition, constructivist researchers recognize the mind as an active agent in the construction of knowledge (Schwandt, 2003). In this way, humans construct knowledge rather than finding it or allowing it to emerge from data. The construction of knowledge exists in context; thus, elements of culture, language, experiences, beliefs, and values are inherent to the construction process. According to Guba and Lincoln (1994), the constructivist paradigm has specific ontological, epistemological, and methodological qualities. In their view, those with a constructivist approach move away from the notions of ontological realism held by positivist and postpositivist orientations and looks through the lens of ontological relativism. Ontological realism implies that reality can be understood, to a degree; while a positivist paradigm assumes that another’s reality can be objectively understood by an outsider (e.g., a researcher), the postpositive paradigm recognizes the imperfect and probabilistic nature of attempting to objectively characterize reality (Guba & Lincoln, 1994). Ontological relativism shifts the nature of reality from objective and singular to specific and individual realities that are created within a specific context. Thus, constructivist researchers view realities as socially and experientially based constructs that reside within the minds of individuals.

Epistemologically, constructivist researchers adopt a subjectivist approach in which the participant and researcher work together through their interactions (e.g., interviews, observations) throughout the study. These epistemological views beget the methodological options for this particular paradigm. Because constructions are created through interactions between the researcher and participant, methodologies that highlight and investigate these meaning making activities are appropriate. Methodologies that favor qualitative forms of data gathering in which the participants have an amount of communicative power that is near or equal to that of the researcher provides the platform for the construction of knowledge (Denzin & Lincoln, 1998). Because my participants are youth athletes in childhood and early adolescence, a research paradigm that supports a more equal power balance between the researcher and participant is important for the quality of the data gathered and the depth of information obtained. The goal within a constructivist paradigm is to create a distilled construction of knowledge from many people's experiences that is representative of the participants' thoughts, perceptions, beliefs, and experiences.

It is important to understand the influences of constructivism to provide a full understanding of the philosophical paradigm for this dissertation. In addition, the bricoleur researcher recognizes the nuances of different modes of meaning making within qualitative inquiry and weaves together parts and wholes of paradigms to fit her worldview related to research (Denzin & Lincoln, 2005). In this way, I recognize that several paradigms influence or are influenced by constructivism, and that I need to combine constructivism with pragmatism, discussed later, to encapsulate my philosophical and paradigmatic position related to this research.

Naturalistic inquiry. Naturalistic inquiry focuses on the ways in which people act and interact in natural settings. Naturalistic inquiry is distinct from social behaviorism (i.e., Mead, 1934, 1938) and is considered to be the first response to the limits of positivism; moreover, the paradigm is also separate from symbolic interactionism (Blumer, 1969; discussed in later section). Denzin (1971) originally characterized naturalistic inquiry as a behaviorism paradigm focused on entering and understanding the native worlds of people and generate theories grounded in their attitudes, feelings, beliefs, and behaviors. The philosophical underpinnings were largely behavioral, though they focused on emphasizing the experiences of participants in their natural settings. In this way, the naturalistic paradigm is largely interpretivist. Put most simply, qualitative researchers focus on and even work within participants' natural settings and value the contextual and individual nature of realities (Guba, 1981; Guba & Lincoln, 1981; 1982; Lincoln & Guba, 1985; Tullis, 2008). Because of many negative implications related to the term "naturalism" (Guba & Lincoln, 1989) this paradigm was later changed to constructionism, which highlights the constructed nature of reality between the researcher and participant. Overall, naturalistic turned constructionist inquirers Guba and Lincoln were instrumental in informing qualitative research in the social sciences regarding the evolution of the constructivist paradigm. In this dissertation, naturalist inquiry is recognized because the development of this paradigm set the stage for interpretivism, which led to constructivism.

Interpretivism. Interpretivism and constructivism are often lumped together or positioned next to each other in the orderings of research philosophies. Many qualitative theorists have characterized constructivism as a synonym for interpretivism (e.g., Creswell, 2013; Guba & Lincoln, 1994; Mertens, 2005). Interpretivist researchers work to understand the contextual and intentional elements within human interactions (with others or with the

environment) and attempt to position themselves in a way that promotes the most objective reporting of data possible. More specifically, an interpretivist ontology is relative, which means that it pushes away from the realist ontology utilized by positivist and postpositivist paradigms (Guba & Lincoln, 1994).

Schwandt (2003) outlines the philosophical traditions of interpretivism. In this view, understanding the meanings that drive social interactions is inherent to understanding people's actions; for example, a deep breath after playing a long point in a tennis match may simply hold the meaning of gaining more oxygen to replenish energy in the muscles or may also include an element of relaxation to help the athlete calm her mind. In short, the meanings of certain actions depend on both the context and the intentions of the person (Schwandt, 2003). These potential meanings are interpreted by the researcher during observation; however, deeper insights are gained through more in-depth data collection methods (e.g., individual interviews) to more fully understand a person's meaning-making process. This interpretation facilitates understanding of the action or perception in relations to the elements of the larger social context.

According to Schwandt (2004), a major component of the interpretivist tradition is *verstehen* (Dilthey, 1958), in which the researcher engages in an emphatic identification with the participant. In this practice, the researcher is encouraged to imagine the experiences of the participant firsthand to help determine the motives, thoughts, and influences that played a central role in the narrative of the experience. Attempting to truly engage in the mindset of the participant is a rather controversial topic within qualitative inquiry (e.g., Geertz, 1979), as there is hesitation regarding whether the researcher can truly slough off her own experiences, thoughts, and influences and adopt those of the participant.

Other characteristics of an interpretivist paradigm are its phenomenological, hermeneutic, and ethnomethodological elements. Phenomenology, according to Schutz (1932/1967), is a paradigm in which the everyday, meaningful experiences of people are examined to elucidate a deep understanding of consciousness and being-ness. In interpretivist research, elements of language and context help to shape the construction of an interpretation about the participant's thoughts, beliefs, and experiences (Outhwaite, 1975). Moreover, understanding the elements important to the construction of meaning is a central feature of *verstehen* (Dilthey, 1958; Giddens, 1993, Outhwaite, 1975). Those who utilize ethnomethodology examine the construct of social order and emphasize the practice of interpretation by the members of a specific group. These interpretations are bound by context and are reflexive in nature. In this way, existing descriptions and understandings set the stage for new ones in a continual process (Holstein & Gubrium, 1998). In line with its ethnomethodological influences, interpretive practice includes considerations for this practical production of meaning within a particular setting.

In general, the interpretivist paradigm considers human interactions as meaningful, genuine, and intentional. Moreover, the researcher can consume and interpret the subjective beliefs, thoughts, intentions, in regard to a participant's specific experience and work to form an objective report about it (Schwandt, 2003). Within interpretivism, the researcher works to preserve participants' multiple realities through an interpretive research process (Denzin & Lincoln, 2005), such as using direct quotes within study results. In this way, perceptions of individuals are interpreted as they are co-constructed (e.g., through individual interviews, observations, historical analysis) between the participant and researcher (Creswell, 2013; Crotty, 2003; Denzin & Lincoln, 2005). Interpretivism is a well-used and central paradigm

within qualitative research that has played a role in the development of constructivism. Thus, I must recognize the central tenants of interpretivism to engage in a better understanding of the constructivist paradigm.

Social constructivism. A close paradigmatic sister of constructivism is social constructivism, which is often equated to interpretivism (Creswell, 2013). Social constructivism, like constructivism, holds the ontological belief that realities are multiple and created through lived experiences and interactions with others. Thus, knowledge is created epistemologically through the interaction between the researcher and the participant (Denzin & Lincoln, 2005; Merriam, 1998). Social constructivist researchers attempt to value the individual beliefs of the participants rather than insert the values of the researcher into the physical representation of the project (i.e., the research report). Instead, a social constructivist methodology allows room for a more literary style of data reporting, in which the perceptions, beliefs, and experiences of the participant gained through a qualitative data gathering process (e.g., an interview) are analyzed inductively and reported with a more narrative style of writing (Guba & Lincoln, 1994).

An inductive analysis requires that few to no theories are overlaid onto participants' responses in a more deductive or objective manner; rather, the rich, subjective, individualistic nature of the participants' words and meanings are preserved and represented, and if these inductively produced results are in line with existing theoretical frameworks, that is highlighted. More likely, the analytic process generates novel and contextualized interpretations of meanings for the participants. Social constructivist research is informed by naturalistic (Guba & Lincoln, 1982) and symbolic interactionist principles (Blumer, 1969) in

addition to the phenomenological and hermeneutic principles pulled down from an interpretivist paradigm.

I hope to use elements of a social constructivist paradigm specifically in the style of writing used for data reporting. Because I am gaining perceptions and examples regarding the use of psychological skills and strategies during competition through qualitative interviews and competition observations, I hope to generate a holistic and detailed data set that includes full accounts of match play point progressions and the visible use of psychological strategies, specifically during between-point breaks. Then, this observational information is supplemented by in-personal interviews. I hope to exercise some literary freedom in the way I construct the results section for this dissertation; however, that largely depends on the depth and breadth of information I obtain from participants.

Symbolic interactionism. The tenants of symbolic interactionism are also important within a constructivist paradigm. According to Blumer (1969), symbolic interactionism is primarily used to understand the lives of people and is informed by Mead, who followed a pragmatic research philosophy. He viewed humans as unique because of their ability to react rather than passively respond to their surroundings (Charon, 2010). By extension, symbolic interactionism considers the ways in which people act towards things and each other and the meanings that they create based on these interactions. Also, the meanings are constructed through an interpretive process that helps to make sense of the world (Blumer, 1969). Within symbolic interactionist principles, meaning is derived from the interactions between people. In my study, symbolic interactionism elements of constructivism are displayed by a focus on the meanings that young athletes make based on their use and perceptions of psychological skill

and strategy use in competition. Symbolic interactionism is a supporting research paradigm in my study that informs a more general constructivist approach.

Pragmatism. Those who work through a worldview of pragmatism focus on information that is useful and practical. They recognize that reality can be understood and assessed through many tools; in addition, both deductive and inductive analytic approaches may be appropriate depending on the research questions (Creswell, 2013). For those adopting a pragmatic orientation toward research, discussing researcher values is necessary because these values often inform the ways in which information was interpreted and presented, and notions of “practical” and “useful” information may be influenced by the positionality of the researcher. Thus, though exploring researcher biases is a common exercise in qualitative research paradigms, pragmatic researchers explore their positionality to expose what types of information they keep as “practical” and “useful.” Both quantitative and qualitative methodologies can be used within pragmatic inquiry, and the focus is on gaining useful and practical information.

I utilize elements of pragmatism in my work because I ultimately want to offer practical suggestions and justification for the adoption of PST programs for young athletes. There are currently few resources for developing and teaching a sport psychology curriculum available to sport psychology consultants wanting to work with youth athletes younger than high-school age. More importantly, very few existing youth sport performance development programs are holistic in the sense that they offer PST to their young athletes. In this proposed study, I am able to interact with young people who have been awarded such access, so their outcomes from the program (i.e., their use of psychological skills and strategies in competition) provides valuable insights into how young athletes engage with a sport psychology curriculum and

develop positive psychological practices within sport. Interestingly, the last of the selected research paradigms that influences constructivism and ultimately my planned dissertation work, symbolic interactionism, was influenced by a pragmatic scholar (i.e., George Herbert Mead).

Based on the synopses regarding constructivism, and the elements of its contributing qualitative orientations, it is clear that a constructivist with pragmatic elements approach to research fits in line with the research questions for my dissertation. Specifically, through my interactions with young elite athletes, I construct an interpretation of how they use psychological skills and strategies in competitions using their perceptions, beliefs, and experiences to guide and shape my report. A recognition of the research paradigms that contribute both to a constructivist lens and to this research undertaking in particular demonstrate that I am a bricoleur qualitative inquirer (Denzin & Lincoln, 2005). As Weinstein and Weinstein describe, I hope to create a “bricolage, a complex, dense, reflexive, collage-like creation that represents the researcher’s images, understandings, and interpretations of the world or phenomenon under analysis” (Weinstein & Weinstein, 1991, p. 164). In line with a constructivist and somewhat pragmatist orientation, I utilize multiple sources of information to construct a meaningful interpretation and orient my study methodologically as a qualitative case study.

Ontology

Ontology is defined as the researcher’s understanding of reality and the nature of existence, in other words, the ways researchers see the world (Markula & Silk, 2011). It is important for researchers who investigate individuals in physical culture to clearly identify their beliefs about the world. Qualitative researchers generally adopt an interpretivist research paradigm in which they are interested in gaining the perceptions of individuals in a specific

context (e.g., Crotty, 2003; Denzin & Lincoln, 2005). As stated previously, my research paradigm is constructivist, which is an alternative term for interpretivism. Within this paradigm, a relativist ontology is appropriate because those who utilize this type of ontology value the multiple realities generated by individuals. A relativist ontology is distinct from the presiding ontology of quantitative inquiry, a positivist lens. In this positivistic view, researchers work to create or uphold explicit theories, generalize participant information, and generate objective and deductive truths about the nature of human experience (Denzin & Lincoln, 2005).

In my research, my relativist ontology is in line with my proclivity to generate research questions that require a qualitative methodology. More specifically, I view reality as relative to the individual; thus, there are multiple realities, and this is supported by literature on relativist ontology (e.g., Manning, 1997). In my research, I work to understand the perceptions of young athletes in relation to how they report consuming and using psychological skills and strategies within sport. Because children and adolescent voices are often marginalized and this particular topic is complex and vastly understudied within the field of sport psychology, it is appropriate to adopt qualitative inquiry practices with a relativist ontology to understand the perceptions and experiences of young athletes (Markula & Silk, 2011). With my dissertation topic, I extend this line of research and seek to investigate elite young athletes' experiences of psychological skills and strategy use in competition, which can influence the ways in which they approach and respond to (i.e., cope with) competitive situations.

Epistemology

Epistemology refers to the ways in which the researcher creates judgments about knowledge (Markula & Silk, 2011). More specifically, epistemological questions ask, "What counts as knowledge?" (Creswell, 2013). In line with an interpretivist paradigm, this inquiry

adopts a subjectivist epistemology, which recognizes the interactive process between the researcher and participant. In this process, knowledge is generated by the interactions between the researcher and the participant, specifically through interviews and observations. All information is interpreted when it travels from one person, object, or entity to another (Guba & Lincoln, 1994). The researcher attempts to represent participants' perceptions and experiences, hoping to match the intended meanings of the participants while being cognizant of the sociocultural aspects of the sport system that may influence this process. Throughout the data analysis process, I keep my own biases and values in check to prevent me from ascribing my own views to the interpretation. It is important for me to adhere to the participants' words to provide a platform for me to help recreate their perceptions and experiences in the form of a research dissertation.

Extended Methods

Interviews. Merriam (1998) recognized interviews as the most common mode of data collection for qualitative studies and characterizes them in line with Dexter's (1970) definition of an interview (i.e., "a conversation with a purpose;" p. 136). Qualitative interviewing, in general, includes several best practices (e.g., Creswell, 2013; Kvale & Brinkmann, 2009; Rubin & Rubin, 2012), and I followed the tenants described by Creswell (2013) and Markula and Silk (2011) for general interviewing procedures. Interview guide questions were open-ended in nature and informed by the research questions; and interviews within the proposed study were semi-structured, which constitutes a mixture of more- and less-structured open-ended questions within the written interview guide (Merriam, 1998). The interviews with young athletes were in person, individual, and focused on their thoughts regarding and use of psychological skills and strategies in competitions. Interpretive questions were used to generate responses (Strauss,

Schatzman, Bucher, & Sabshin, 1981). Because the interview questions asked about athletes' individual match experiences and were coupled with match observation data, one-on-one interviews were deemed more appropriate than small group interviews. Multiple, leading, and/or yes/no questions were avoided (Merriam, 1998), and probing questions were used to seek more detail, clarification, or examples about a particular topic (Glesne & Peshkin, 1992). Moreover, I try to keep my personal biases and values in check during the interview by withholding my personal views, argumentative statements, or objections related to participants' responses (Patton, 1990).

Observations. Because the tournament sites are publicly available spaces, watching young athletes play matches is common among parents and other spectators. Additionally, because the young athletes play tennis at a high competitive level, the use of match tracking and charting sheets or instruments is a common occurrence. Thus, the use of a match-tracking device should represent behaviors that participants and their opponents have experienced. However, efforts will be made to reduce any match distraction caused by the researcher (e.g., sitting in plain view of athletes, conversing with parents or other spectators during the match).

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APPENDICES

Appendix A: IRB Approval Letter



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

November 07, 2016

Earlynn Lauer,
UTK - Kinesiology Recreation & Sport Studies

Re: UTK IRB-16-03284-XP
Study Title: Elite Youth Tennis Athletes' Perceptions and Use of Psychological Strategies in Competition

Dear Earlynn Lauer:

The UTK Institutional Review Board (IRB) reviewed your application for the above referenced project. It determined that your application is eligible for expedited review under 45 CFR 46.110(b)(1), categories (6) and (7). The use of children as subjects is approved under 45 CFR 46.404, in that it involves no more than minimal risk. The IRB has reviewed these materials and determined that they do comply with proper consideration for the rights and welfare of human subjects and the regulatory requirements for the protection of human subjects.

Therefore, this letter constitutes full approval by the IRB of your application (version 1.4) as submitted, including appendix B Parent Recruitment (v 1.2), Parent Informed Consent (v 1.2), Youth Athlete Assent (v 1.1), appendix d youth athlete demographics (v 1.1), appendix f match chart final (v 1.0), appendix g interview guide final (v 1.1). The listed forms have been dated and stamped IRB approved. Approval of this study will be valid from November 07, 2016 to November 06, 2017.

In the event that subjects are to be recruited using solicitation materials, such as brochures, posters, web-based advertisements, etc., these materials must receive prior approval of the IRB. Any revisions in the approved application must also be submitted to and approved by the IRB prior to implementation. In addition, you are responsible for reporting any unanticipated serious adverse events or other problems involving risks to subjects or others in the manner required by the local IRB policy.

Finally, re-approval of your project is required by the IRB in accord with the conditions specified above. You may not continue the research study beyond the time or other limits specified unless you obtain prior written approval of the IRB.

Sincerely,

Colleen P. Gilrane, Ph.D.
Chair

Appendix B: Parent Recruitment Email

Hello,

The USTA Player Development Feeder and Transitional Programs provide your young athlete with tennis, strength and conditioning, and psychological skills training. The psychological skills training curriculum is an important and novel part of the program, and we gained valuable information about it from the evaluation conducted in January and March 2016. We learned about the concepts taught within the curriculum, how coaches reinforce these concepts within tennis and strength and conditioning training, and how young athletes, coaches, and parents understand and perceive psychological skills and strategies.

To expand on this knowledge, we would like to gain information about young athletes' perceptions and use of psychological strategies *during competition*. We hope that learning about how this curriculum transfers to tournament and match-play settings will provide valuable information to the USTA Player Development staff and could even strengthen the curriculum within the program.

To gain this information, I will record the score progression and observable use of psychological strategies in a USTA sanctioned tournament. Observations and match charting will be used to identify your child's observable use of psychological strategies and to help organize information in individual interviews. After the completion of matches for the day, your child will participate in an individual interview about their use of psychological strategies in the observed match.

If you would like to allow your child to participate in this study, please fill in your name, your child's names, and the date and return this letter to me via mail (University of Tennessee, HPER 119, 1914 Andy Holt Ave, Knoxville, TN 37996) or email (elauer1@vols.utk.edu). Additionally, I would like you to supply a tentative schedule of USTA sanctioned junior tournaments in which your child will participate from October 2016 to January 2017.

Thank you for your consideration, I look forward to hearing from you. Please contact me (ph: 865-974-9067) if you have any questions.

Earlylenn Lauer

I am interested in allowing my child to participate in this study.

Your Name: _____

Your Child's Name: _____

Date: _____

Appendix C: Parent Informed Consent Statement

INFORMED CONSENT STATEMENT

Elite Youth Tennis Athletes' Perceptions and Use of Psychological Strategies in Competition

INTRODUCTION

Your child has been invited to participate in a research study about their thoughts, focus, feelings, and use of psychological strategies in competition. The purpose of this study is to gain an understanding of children's perceptions and use of psychological strategies in competition. The research team hopes to gain more information about how the learning and use of psychological strategies transfer from learning and training environments to competition.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY

Your child will be observed during competition at a USTA sanctioned tournament and asked to participate in a post-match individual interview. Observations will be conducted by the researcher at the tournament site, and a match-charting form will be used to record the score progression and observable use of psychological strategies. In the post-match interview, your child will be asked to respond to a series of questions about the match played and his/her thoughts, feelings, and use of psychological strategies during the match. The interviews will be conducted on the day the match was played after the completion of all matches for the day. Each interview will last approximately 30-60 minutes.

The individual interviews will be audio-recorded for the purposes of data collection. All responses in the interviews will be recorded and interpreted to provide a better understanding of young athletes' perceptions and use of mental strategies in competition. Audio recordings will be kept in a locked file cabinet in room 119 in the HPER building at the University of Tennessee to maintain the confidentiality of the participants. Audio recordings will be stored through the duration of the study and will be safely stored in a locked office in the HPER building after data interpretation has ended to maintain the privacy of participants and provide a reference for the research team if any questions about the responses from the young athletes arise. Other than the members of the research team, no one else will have access to the focus group's audio recording.

RISKS

There are minimal risks associated with this study. It is possible that participating in this study may lead your child to become more aware of his/her own experiences within competition and relive past match-play experiences, which may be uncomfortable.

BENEFITS

The information your child provides in this study will be highly valuable for the field of sport psychology, specifically concerning the topic of youth sport. Your child's knowledge of his or her experiences in competition will provide researchers, other consultants, coaches, and the

field of sport psychology with valuable information on how learned psychological strategies are transferred from practice to competition settings.

CONFIDENTIALITY

The information in the study records will be kept confidential. Data will be stored securely and will be made available only to persons involved in the data analysis, unless participants specifically give permission in writing to do otherwise. All investigators will treat your child's interview as strictly confidential.

No reference will be made in oral or written reports that could link participants to the study. The members of the research team are the only ones who will have access to the audio recordings. Audio recordings will be destroyed once the interviews are transcribed. The interview transcript and informed consent document will be kept in a locked file cabinet in room 119 in the HPER building on campus for three years and then destroyed.

CONTACT INFORMATION

If you have questions at any time about the study or the procedures, (or if your child experiences adverse effects as a result of participating in this study,) you may contact the researcher, Earlynn Lauer, elauer1@vols.utk.edu, at HPER 119, and 865-974-0967. If you have questions about your child's rights as a participant, contact the Office of Research Compliance Officer at (865) 974-3466.

PARTICIPATION

Your child's participation in this study is voluntary; your child may decline to participate without penalty. If your child decides to participate, he/she may withdraw from the study at anytime without penalty and without loss of benefits to which your child are otherwise entitled. If your child withdraws from the study before data collection is completed his/her data will be returned to you or destroyed.

CONSENT

I have read the above information. I have received a copy of this form. I agree to allow my child to participate in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix D: Youth Athlete Demographic Questionnaire

Youth Athlete Demographic Information (to be filled out by parent)

This information is based on your child. Please fill out as completely as possible.

Name _____
(identifier for focus groups ONLY, will be redacted)

Child's Chosen Pseudonym _____

Gender _____

Age _____

Race _____

Ethnicity _____

Years of Tennis Experience _____

USTA Ranking:

Regional: _____

National: _____

Months or Years of Experience in the TCE Program _____

TCE program child is involved in (choose one):

Feeder Program

Transitional Program

Appendix E: Youth Athlete Assent Form

Hello,

I am inviting you to help me understand your thoughts and feelings during matches. You are being asked to be part of a research project being done by the University of Tennessee Department of Kinesiology, Recreation, and Sport Sciences. I would like to watch and track the score of your match in a tournament. After the match, when you're done for the day, we will talk after your about your thoughts and feelings during the match. We will also talk about some things you did during the match. Talking about these things will help the researcher learn. You may also learn, too. Our talk will take about 30 minutes to one hour. The talks will be audio-recorded. This is so the researcher can remember what you said. This will help the researcher understand you and your group better. When we have our talk, if you think you want to stop doing the study, you can quit at any time you want to. Nothing bad will happen. There are no right or wrong answers; this will not be graded, and anything that you say or write is important and valuable. I will remind you about this before we talk, and if you do not want to talk after your match, you can say no.

If you want to do this study, please print and sign your name below:

Printed name: _____

Signed name: _____

Researcher signature: _____

Appendix F: Semi-Structured Interview Guide

We are here today to talk about your experiences within your match today. You are being asked to be part of a research project being done by the University of Tennessee Department of Kinesiology, Recreation, and Sport Sciences.

We will talk after your about your thoughts and feelings during the match. We will also talk about some things you did during the match. Talking about these things will help the researcher learn. You may also learn, too. Our talk will take about 30 minutes to one hour. The talks will be audio-recorded. This is so the researcher can remember what you said. This will help the researcher understand you and your group better. When we have our talk, if you think you want to stop doing the study, you can quit at any time you want to. Nothing bad will happen. There are no right or wrong answers; this will not be graded, and anything that you say or write is important and valuable. If you would like do talk, please say “yes.”

1. Tell me in as much detail as you can about the first set.
 - a. What went well?
 - b. Was there anything that didn't go well? Please explain.
2. Let's talk about your thoughts and feelings from the first set.
 - a. Tell me in as much detail as you can about some thoughts you had during the first set.
 - b. Tell me in as much detail as you can about some feelings you had during the first set.
 - c. Tell me in as much detail as you can about some mental strategies that you used during the first set.
 - i. How did you know that you needed to use [strategy]?
 - d. How do you feel that impacted your performance?
 - i. How do you feel that these strategies influenced your thoughts about [thoughts]?
 - ii. How do you feel that these strategies influenced your feelings of [emotion]?
3. Let's talk about your thoughts and feelings from the second set.
 - a. Tell me in as much detail as you can about some thoughts you had during the first set.
 - b. Tell me in as much detail as you can about some feelings you had during the first set.
 - c. Tell me in as much detail as you can about some mental strategies that you used during the first set.
 - i. How did you know that you needed to use [strategy]?
 - d. How do you feel that impacted your performance?
 - i. How do you feel that these strategies influenced your thoughts about [thoughts]?
 - ii. How do you feel that these strategies influenced your feelings of [emotion]?
4. Let's talk about your thoughts and feelings from the third set/super tiebreaker.
 - a. Tell me in as much detail as you can about some thoughts you had during the first set.

- b. Tell me in as much detail as you can about some feelings you had during the first set.
- c. Tell me in as much detail as you can about some mental strategies that you used during the first set.
 - i. How did you know that you needed to use [strategy]?
- d. How do you feel that impacted your performance?
 - i. How do you feel that these strategies influenced your thoughts about [thoughts]?
 - ii. How do you feel that these strategies influenced your feelings of [emotion]?

Were there any key times/critical moments during the match that you used psychological strategies?

What mental strategies did you use in competition that you learned from the feeder/transitional program with player development at the USTA?

How has your use of psychological strategies changed from before the PST program to now?

Is there anything else you'd like to add about your match?

BA = Ball abuse
 R = Racquet abuse
 C = Compliment opponent
 O = Opponent abuse (e.g., questioning line calls)
 FP = Fist pump
 OMG = "Oh God," frustration
 H = Hit oneself
 L = Laugh
 L+ = laugh/smile
 L- = laugh frustration
 M = Practice the stroke motion
 I = Instructional self-talk
 N = Negative self-talk
 P = Positive self-talk
 ST = Self-talk (e.g., unclear, foreign language)
 B = Breathing

R = Routine (unspecified)
 Str = Fix Strings
 T = Touch curtain/fence
 BO = Bounce Ball
 Other = Does not fit the above categories

Forehand: FE
 Backhand: BE
 Volley: VE
 Overhead: OE
 Double fault: DF
 Forehand: FW
 Backhand: BW
 Volley: VW
 Overhead: OW
 Ace: A

Fault: dot on the center line
 Service break: X in Srv column

Appendix H: Tables and Figures

Table 1. Psychological strategies within Vealey's (2007) model

Mental Skill	Component	Description
Foundational skills	Achievement drive	An urgent, compelling desire to apply effort and persistence to overcome obstacles to accomplish something of worth or importance
	Self-awareness	The ability to engage in introspection and retrospection to understand one's thoughts, feelings, and behaviors
	Productive thinking	The ability to manage thoughts to effectively prepare for and respond to life events in a way that facilitates personal success and well-being
	Self-confidence	The belief that one has the internal resources, particularly abilities, to achieve success
Performance skills	Perceptual-cognitive skills	The cognitive knowledge structure that enables optimal strategic processing of task-relevant information
	Attentional focus	The ability to selectively direct and sustain a focus of attention required for the successful execution of a specific activity
	Energy management	The ability to effectively manage various feeling states (e.g., arousal, anxiety, anger, excitement, fear) to achieve personally optimal physical and mental energy levels for performance
Personal development skills	Identity achievement	The establishment of a clear sense of identity that allows the individual to experience psychological well-being and feelings of self-worth
	Interpersonal competence	The ability to interact effectively with others by demonstrating effective communication skills
Team skills	Leadership	The ability of individuals (coaches and athletes) to influence others on the team to think and act in ways that facilitate team success and the quality of the team's social psychological environment
	Communication	The process of interpersonal interaction within the team that facilitates team success and athletes' well-being
	Cohesion	The team's ability to stick together and remain united in the pursuit of its goals
	Team confidence	The belief that the team has the collective resources, or team abilities, to achieve team success

Table 2. Psychological Skills Training Interventions with Young Athletes

Quantitative Evaluation				
Date	Authors	Participants	Protocol	Results
1989	Wrisberg & Anshel	40 boys' basketball athletes, ages 10-12 years, competent in free-throw shooting, randomly assigned to experimental groups	2 day intervention; group 1: imagery (Orlick, 1986), group 2: arousal regulation (Benson, 1985), group 3: imagery and arousal regulation, group 4: control; practiced 15 seconds before skill execution (i.e., 20 free throw shots)	Imagery plus arousal regulation strategies produced the greatest performance gains from pretest (day 1) to posttest (day 2) compared to the other three groups; positive social validation responses
1992	Zhang, Ma, Orlick, & Zitzelsberger	40 talented table tennis athletes, ages 7-10 years	22 week intervention; group 1: video observation, imagery, and relaxation; group 2: video observation; group 3: control;	Mental training group experienced the most performance gains (i.e., accuracy, technical ratings); positive social validation responses
1992	Palmer	12 prenovice and novice level competitive figure skaters (boys and girls, 12-17 years of age), randomly assigned to experimental groups	4 week intervention; group 1: Martin self-talk technique (Martin, 1989, 1992), group 2: paper patch technique (traced outlines of figures on paper and recited self-talk cue-words), group 3: control group; execution of selected figures evaluated by expert judges at pre-test and posttest; multiple-comparison-across subjects design	Performance on figures significantly improved using paper patch technique over the Martin technique or no technique; post study qualitative evaluations (i.e., social validation interviews) revealed that the paper patch technique was preferred over the Martin technique

Table 2 Continued

Date	Authors	Participants	Protocol	Results
1996	Ming & Martin	4 youth figure skaters, age, 11-3 years, prenovice and novice	5 week intervention; multiple-baseline-across-subjects design; 3 experimental participants, 1 control; experimental participants introduced to Martin self-talk technique (Martin, 1989, 1992)	Athletes who received the self-talk package increased performance (i.e., figure tracing); social desirability questionnaire indicated that coaches of participants recommended using self-talk, one of the four athletes considered self-talk to be very helpful; at 6 month and one year follow-ups, athletes expressed positive performance gains due to intervention
1997	Wanlin, Hrycaiko, Martin, & Mahon	4 girls' speed skaters, age 12-17 years, selected due to poor performance or behavior	10 week intervention; 3 experimental participants, 1 control; PST package: mission development, long-term, subgoal, and practice goal setting, self-talk, goal visualization; Observers rated dependent variables (i.e., lap frequency, number of assigned drilled completed, 500 meter pursuit race times, frequency and duration of off-task behavior);	Goal-setting intervention promoted increased effort and decreased off-task behavior; modest performance gains were experienced by 2 of the 3 experimental participants; social desirability questionnaire indicated that athletes received the intervention positively
1998	Atienza, Balaguer, & Garcia Merita	12 girls' tennis athletes, age 9-12 years	24 week intervention; group 1: physical practice (PP) + video (Dowrick & Jesdale, 1991), group 2: PP + video + imagery (Zhang et al, 1992), group 3: physical practice (i.e., control); performance assessed through service placement and judges' ratings	The physical practice + video and physical practice + video + imagery groups experienced increased performance gains (i.e., technique) compared to the control group; no significant difference between PST groups

Table 2 Continued

Date	Authors	Participants	Protocol	Results
2005	Fournier, Calmels, Durand-Bush, & Salmela	10 nationally ranked girls' gymnasts, average age 12 years	10 month PST program (relaxation, self-talk, goal setting, focusing, and visualization); psychological indicators and performance scores collected before and during the intervention	Athletes improved their performance progress 5% more than those not exposed to PST: athletes experienced significant effect over time for psychological indicators of relaxation, activation, imagery, focusing and refocusing; 9 of 10 increased the number of mental skills by four; social validation feedback was positive from athletes; PST program success attributed to athletes' thanking SPC and applying psychological skills in other contexts, and athletes' and coaches' satisfaction with program
2006	Sheard & Golby	36 national level swimmers (13 boys, 23 girls) average age 13.9 years	7 week PST program (goal setting, visualization, relaxation, concentration, and thought stopping); performance quality and psychological attributes (mental toughness, hardiness, self-esteem, self-efficacy, dispositional optimism, and positive affectivity) were measures	Athletes experienced significant improvements following the PST program in 3 swimming events, with nonsignificant improvements in 10 other events; psychological profiles of attributes also improved; social validation feedback was unanimously positive regarding program effectiveness, some athletes reported using PST strategies outside of sport
2009	Haddad & Tremayne	5 talented basketball athletes (2 girls, 3 boys), age 10-11 years	4 week intervention; centering breath on free throw performance, training diaries used to monitor centering breath progress (i.e., frequency, perceived effectiveness)	Athletes exhibited a significant improvement in free throw performance; the addition of a centering breath significantly improved free throw shooting percentage; social validation responses indicated that athletes enjoyed the centering breathe and described it as useful

Table 2 Continued

Date	Authors	Participants	Protocol	Results
2009	Copeland, Bonnell, Reider, & Burton	38 national level lugers (23 boys, 15 girls, age 12-16 years)	2 week intervention; group 1: PST (stress management [Murphy, Carr, Swoap, & Muerhoff, 1994] and cohesion), group 2: attentional control, group 3: control; assessed on competitive state anxiety and social and task cohesion; questionnaires administered to determine effectiveness and 3 month follow-up ratings	For the PST group, scores on state self-confidence and cohesion measures increased, while competitive state anxiety scores decreased; young lugers indicated that the PST program was helpful and effective; 3 month follow up results showed that athletes continued to use strategies learned in PST
2010	Post, Wrisberg & Mullins	16 girls' high school basketball athletes, average age 16.8 years	Season long PST (imagery: centering, deep breathing, free throw shooting images); effectiveness determined by team free throw shooting performance and anonymous quantitative feedback measures	Free throw shooting performance increased on games preceded by imagery PST protocol; athletes indicated in feedback measures that they devoted time to practicing imagery and found the intervention effective
2012	Munroe-Chandler, Hall, Fishburne, Murphy, & Hall	143 competitive girls' and boys' soccer athletes, age 7-14 years	6 week intervention; group 1: cognitive specific imagery, group 2: motivational general arousal imagery; assessed on execution (i.e., speed and accuracy) of soccer skill task, and imagery use and ability	Only 7-8 year old girls in group 1 increased their use of imagery, no other ages in either group increased imagery use; athletes age 7-10 in group 1 improved speed on skill task; no significant changes in accuracy; younger athletes more willing to use imagery and experienced performance gains

Table 2 Continued

Mixed-method Evaluation				
Date	Authors	Participants	Protocol	Results
2004	Johnson Hrycaiko, Johnson, & Halas	4 elite girls' soccer athletes, average age 13 years, selected due to underperforming in shooting	3 month intervention; 3 experimental, 1 control; self-talk sequence (i.e., "down, lock") taught to experimental participants; performance assessed on accuracy of low-drive shot in drill; post experiment interviews explored self-talk use, overall PST perceptions	2 of 3 experimental participants improved performance on low-drive shot; social validation (i.e., post-experiment interview) responses indicated that athletes believed that self-talk helped their performance, that they were satisfied with the results and thought self-talk would be beneficial for other athletes; coach believed that low-drive shooting had increased by up to 40%
2004	Mamassis & Doganis	5 elite junior tennis athletes (1 boy, 4 girls) average age 13.2 years	Season long PST (goal setting, positive thinking and self-talk, concentration and routines, arousal regulation, and imagery), effectiveness evaluated through competitive state anxiety measures, quantitative athlete performance appraisals, tennis-specific statistical data of 2 selected cases	Results of 2 selected athletes reported as case studies: programs individualized for athletes; case studies provide a detailed description of the ways in which programs were individualized and athletes responses to elements of the program; athlete performance appraisals of all 5 athletes showed improvements in perceived performance and self-confidence at posttest

Table 2 Continued

Date	Authors	Participants	Protocol	Results
2009a/b	Gucciardi, Gordon, & Dimmock	3 U15 boys Australian football teams, a parent of each player, coaching staff of each team; qualitative: 10 players from MTT group, a parent of each player, and 3 coaches	6 week intervention; group 1: PST (self-regulation, arousal regulation, mental rehearsal, attentional control, self- efficacy, and ideal performance state), group 2: mental toughness training (MTT; Gucciardi et al 2008), group: 3 control; multi-source quantitative ratings of mental toughness, self-report ratings of resilience and flow; qualitative interviews explored thoughts about MTT intervention goals, procedures and results	Both PST and MTT programs reported more positive changes in ratings of mental toughness, resilience, and flow; athletes, coaches, and parents remarked on quality preparation of MTT intervention, development of self-awareness, self-monitoring, and self-regulation, increased team cohesion, receptivity to criticism, work ethic, development of tough attitudes, and development of transferable skills; program could be improved with increased parental involvement, coach and parent education, and more holistic assessments; single program weakness was short duration

Table 2 Continued

Qualitative Evaluation				
Date	Authors	Participants	Protocol	Results
2013	Sharp, Woodcock, Holland, Cumming, & Duda	21 U16 player development boys rugby athletes, 4 coaches	6 month intervention; PST (performance profiling, goal setting, self-talk, arousal control, imagery, precompetition routines, and precompetition plans); effectiveness evaluated through focus group interviews with athletes and coaches regarding quality of service delivery, responses to PST program, use of mental PST concepts, and perceived influence on performance	Coaches perceived PST program positively, believed that it would help athletes learn PST skills and strategies, help athletes prepare for and deal with competition; athletes described program as interactive and well-planned; athletes increased their knowledge of PST skills and strategies, the program aided team cohesion, openness, honesty, and self-regulation; coaches believed that their knowledge of PST skills and strategies increased, and they were better able to facilitate PST process; recommendations for PST program included integration with competitive environment, and changing session duration and organization from one to two seasons
2014	Larsen, Henriksen, Alfermann, & Christensen	U17 elite boys' youth soccer athletes and coaches in a developmental program	Ecological intervention; PST (goal setting, psychosocial skills; Larsen, Alfermann, & Christensen, 2012) delivered on and off the field; evaluation included a description of program needs assessment, description and perceptions of program delivery, and overall evaluations of the program	Description of the ecological PST noted the importance of time, coach involvement, and on-field training; program personnel satisfied with the depth and integration of PST program; youth athletes valued the inclusion of professional athletes into the program; coaches noticed an increased focus on goal setting, increased motivation

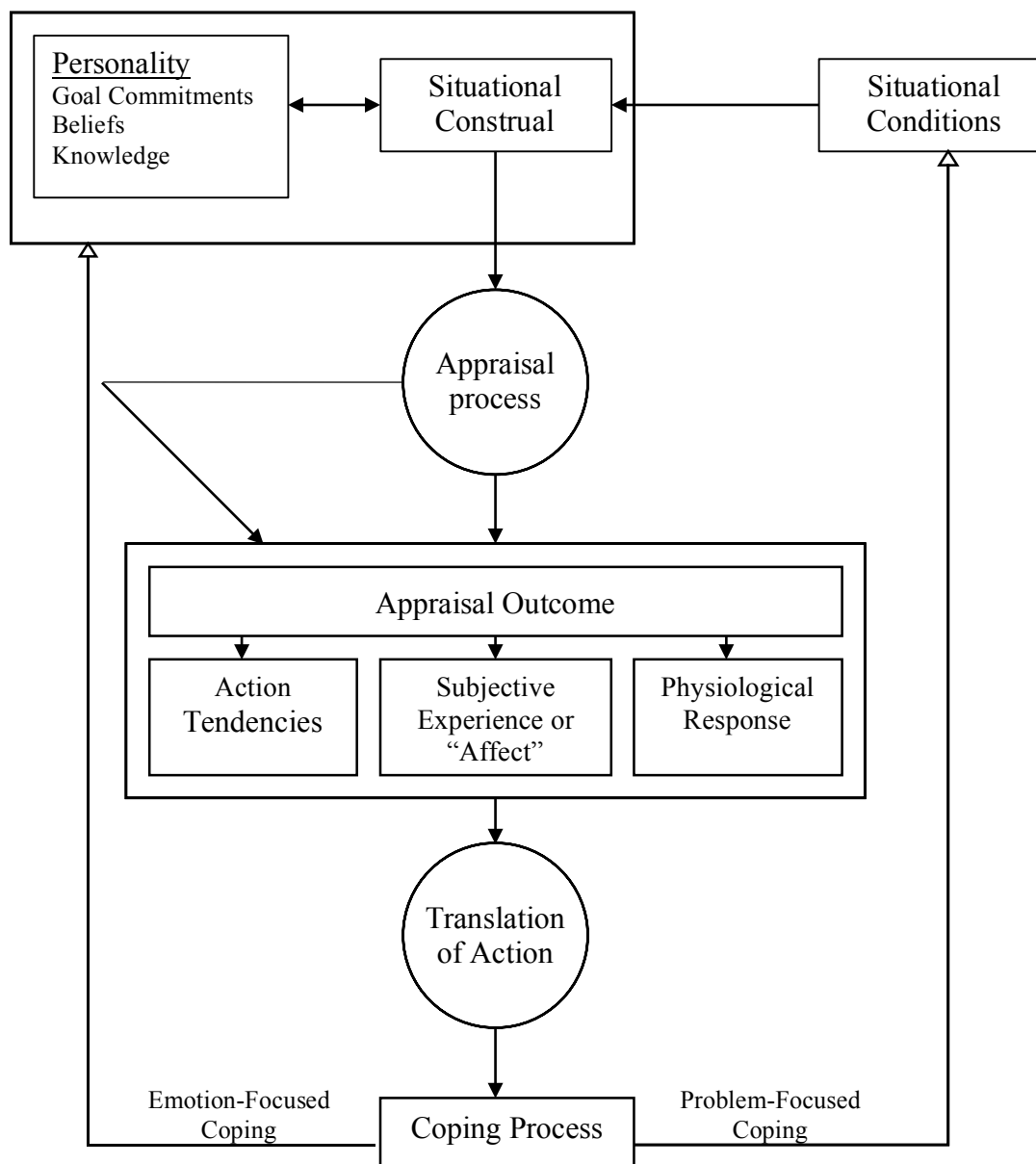


Figure 1.

The Cognitive-Motivational-Relational Model. From Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.

VITA

Emily Earlynn Lauer was born in Wichita, Kansas on July 17, 1989. She is the daughter of Earl and Sherry Lauer and has one older half-brother and one younger brother. Earlynn received her Bachelor's of Science in Psychology and Bachelor's of Science in Neuroscience from Drake University in Des Moines, Iowa in 2012. Then, she attended the University of North Texas in Denton, Texas to achieve her Master's of Science in Kinesiology with an emphasis in Sport Psychology in 2014. She began her doctoral studies in Sport Psychology and Motor Behavior at the University of Tennessee under the supervision of her advisor Dr. Rebecca Zakrajsek. She received a Doctor of Philosophy from the University of Tennessee in May 2017.