EXAMINING THE ROLE OF COACHES’ EMOTIONS IN THE ADOLESCENT TEAM SPORT ENVIRONMENT

by

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Abstract

According to a 2008 Statistics Canada report, 76% of children under the age of 17 participate in organized sports. Considering this fact, sport is increasingly recognized as a context in which to study Positive Youth Development. Notably, coaches play an extremely influential role in shaping athletes’ experiences and development through sport. However, behavioural research in coaching has focused heavily on the content or instructional nature of coach behaviours – neglecting the contextual qualities that may contribute to effective coaching practices. Despite an extensive focus on the emotional experiences of athletes, the role of emotions in coaching has yet to be examined. Thus, this program of research sought to explore the emotions associated with coach behaviours, particularly concerning the developmental experiences of young athletes.

To achieve this objective, two studies were conducted. The first study served to develop a valid and reliable systematic observation instrument specifically designed to assess the emotions of coaches in the team sport environment. This instrument represents a unique and novel approach to the study of emotions in the sport context, and the first of its kind to focus exclusively on coaches. The second study applied this instrument to examine the relationship between coaches’ emotional profiles and athletes’ developmental outcomes in the adolescent female competitive soccer context. Results revealed that emotional qualities associated with coach behaviours have a significant influence on the Character development of young soccer players. Together, these studies offer new and valuable insight into the emotional context of coach behaviours, informing effective coaching practices with practical implications for positive athlete development.
Co-Authorship

As thesis supervisor, Dr. Jean Côté is a co-author on all manuscripts (Chapters 3 and 4) contained within this document. Collaboration with Jennifer Turnnidge, Matthew Vierimaa, and Dr. Paul Davis have led to their roles as co-authors on study 1 (Chapter 3). On both manuscripts, Veronica Allan had primary responsibility for study design, data analysis and interpretation, and the drafting and revision of all manuscript documents.
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Chapter 1: General Introduction

According to a 2008 Statistics Canada report, 76% of children under the age of 17 participate in organized sports. Correspondingly, there is growing recognition that sport may offer a fertile context in which to study Positive Youth Development (PYD; Lerner et al., 2005) – a perspective on adolescence advocating that all young people are capable of positive, successful, and healthy development. Through their interactions with athletes, coaches are a substantial influence on the experiences and psychosocial development of young athletes in sport (Fraser-Thomas, Côté, & Deakin, 2005; Horn, 2008; Smith & Smoll, 2007). As a result, coaches represent an important target for research and intervention in the youth sport environment.

Over the past several decades, coaching research has focused increasingly on coach-athlete interactions and explicitly on coaches’ overt behaviours (Potrac, Gilbert, & Denison, 2013). Accordingly, the study of coaching has been influenced heavily by the introduction of systematic observation protocols (Kahan, 1999). Despite the progression of behavioural observation research in the youth sport and broader coaching literature, this research has been criticized for focusing too heavily on coaches’ pedagogical and teaching behaviours, thus neglecting more abstract qualities associated with coaches’ interactive behaviour (Brewer & Jones, 2002; Cushion, 2010; Gallimore & Tharpe, 2004; Gilbert & Trudel, 1999).

For instance, emotional processes in coaching have received little attention in the sport literature to date (Potrac, Jones, Purdy, Nelson, & Marshall, 2013). However, growing interest in emerging interpersonal frameworks of emotion regulation suggest coaches’ emotions may play a large role in the emotional responses of athletes (e.g., Friesen et al., 2013; Uphill & Dray, 2013). In fact, evidence already exists to suggest the emotional characteristics of coaches can influence a range of athlete outcomes, including athletes’ perceptions of pre-game speeches (Vargas-Tonsing
& Guan, 2007), sport experiences (Becker, 2009), and the quality of the coach-athlete relationship (Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008). Furthermore, coaches’ emotional intelligence has been positively correlated with perceptions of coaching efficacy (Thelwell, Lane, Weston, & Greenless, 2008). Therefore, an observational examination of the emotional context underlying coach behaviours represents a necessary next step in advancing the coaching literature.

Current measures of emotion employed in sport research are confined primarily to self-report methods and grounded in the experiences of athletes, if not adapted from work in clinical populations (Jones, Lane, Bray, Uphill, & Catlin, 2005; Lane, Beedie & Devonport, 2012). In order to fully understand emotion in the context of coaching behaviours, the application of systematic observation instruments presents a valuable opportunity to not only add depth to the existing coaching literature, but also supplement the tools available for measuring emotions beyond the subjective experience. As such, the objective of study 1 was to develop a systematic observation instrument, demonstrating evidence of validity and reliability, for the assessment of coaches’ emotions in the sport context.

Using this observational tool to examine emotional behaviours in coaching, insight into coaches’ interpersonal style may inform effective coaching practices and aid in facilitating PYD through sport. Thus, the objective of study 2 was to explore any associations between coaches’ emotional profiles – assessed using the instrument designed in study 1 – and athletes’ self-perceived ratings of developmental markers that contribute to PYD. Together, these two studies outline the development and application of a novel methodology for the examination of coaches’ emotions and behaviours in the context of positive athlete development.
Chapter 2: Literature Review

Research on emotions and emotional processes in the sport context has flourished in recent years (e.g., see reviews by Friesen et al., 2013; Hanin, 2000; Jones & Uphill, 2012; McCarthy, 2011). In particular, the dynamic, interpersonal nature of emotion has gained increasing attention (Friesen et al., 2013; Uphill & Dray, 2013), and as a result, the interplay of emotions may constitute an important feature of coach-athlete interactions. The sport coaching literature has also expanded with steady momentum over the past several decades, and continues to represent an area of profuse interest in the sport psychology field (e.g., Potrac, Gilbert, & Denison, 2013). Despite the resounding growth of research in these areas, however, the role of emotions in coaching has yet to be examined (Potrac, Jones, Purdy, Nelson, & Marshall, 2013). As such, the following review will outline current knowledge and evidence to support the development and application of a novel method for the examination of coaches’ emotions in the youth sport environment.

Conceptualizing Emotion in the Sport Context

The study of emotion is easily complicated due to the presence of similar, yet distinct, constructs represented within several different theoretical frameworks, and consequently, a multitude of corresponding measures (Ekkekakis, 2012). Researchers in general psychology, and more recently the specific area of sport psychology, have noted that constructs such as emotion, mood, and affect are often viewed interchangeably in the literature, with little attention paid to conceptual differentiation (Batson, Shaw, & Oleson, 1992; Lane, Beedie & Devonport, 2012). As the focus of this thesis is on emotion, these constructs will be outlined as a point of clarity and demarcation moving forward with a definition for emotion in sport.
At the broadest and perhaps simplest level, core affect is a non-reflective, neurophysiological state (e.g., pleasure-displeasure, tension-relaxation) that is constantly experienced and often comprises a component of mood and emotion (Ekkekakis, 2012; Russell & Feldman Barrett, 2009). Emotion and mood are often defined in relation to one another; however, the criteria used to achieve this distinction vary considerably across the literature (Ekman & Davidson, 1994). Until recently, these distinctions had yet to be supported by published data (Beedie, Terry, & Lane, 2005). Accordingly, Beedie and colleagues (2005) investigated the characteristics that define emotion and mood and revealed 16 distinctions, noting that duration, cause, and intentionality (i.e., brief versus enduring, specific versus ambiguous, and intent versus no intent for emotion and mood respectively) may represent promising avenues for future research. In general, both academic and non-academic sources agreed that emotions are shorter in duration, less stable, and more intense than moods, while non-academic sources also emphasized the comparatively expressive nature of emotion (i.e., display; Beedie et al., 2005). In line with this work, the general psychology literature also supports duration, intensity, and the presence of causal factors as reliable indicators for distinguishing emotion and mood (Parkinson, Totterdell, Briner, & Reynolds, 1996).

Lazarus (1991) – a prominent figure in the literature on stress and emotion – defines emotion as an organized reaction to continuous, dynamic (primarily interpersonal or social) person-environment relationships, encompassing physiological, subjective, and behavioural components. In conceptualizing the process, Lazarus (1991; 2000) suggests these reactions are mediated psychologically by an evaluation (i.e., appraisal) assessing “the personal significance for well-being that a person attributes to this relationship” (2000, p. 230). At the individual level, emotions can be viewed discretely or dimensionally according to the associated content or
intensity, respectively (Lazarus, 1991; 2000). While these views may appear contradictory in nature, both views are acceptable when considered in the appropriate context: Discrete categories are prevalent in the generation of immediate action impulses, but can be viewed along grouped dimensions at the level of controlled response management (Frijda, 1986).

Accordingly, dominant theoretical conceptualizations organize emotional states into either a finite number of discrete emotions or a series of dimensions along which a range of emotions may be placed. Beginning with the discrete categorization of emotions, Lazarus repeatedly outlined 15 emotions that he contended cover considerable ground in forming an exhaustive list of all emotions: anger, anxiety, fright, guilt, shame, sadness, envy, jealousy, happiness/joy, pride, relief, hope, love/affection, gratitude, and compassion (Lazarus, 1991; 1999; 2000; Lazarus & Lazarus, 1994). The fifteen emotions categorized by Lazarus have been applied hypothetically to athletes’ sport experiences (e.g., Kowalski & Gaudreau, 2010; Lazarus, 2000) and tested empirically with mixed support (e.g., Uphill & Jones, 2007), but theoretical considerations concerning coaches’ emotions have not yet surfaced in the sport literature.

Specifically in the sport context, discrete conceptualizations of emotion are confined to the experiences of athletes. Considering the factors that contribute to athletes’ optimal sport performance, Hanin’s work on the anxiety-performance relationship has evolved to incorporate a range of emotional states (Hanin, 1980; 1986; 1997; 2000). However, Lazarus (2000) has criticized this work for drawing on a “conceptually faulty list of emotions” (p. 239). This list was based on a review of positive and negative affect scales by Watson and Tellegen (1985), summarized in terms of four dimensions from high positive affect (e.g., active, elated) to low positive affect (e.g., drowsy, dull), pleasantness (e.g., content, happy) to unpleasantness (e.g., blue, grouchy), strong engagement (e.g., aroused, astonished) to disengagement (e.g., quiet, still),
and high negative affect (e.g., distressed, fearful) to low negative affect (e.g., calm, placid). Hanin (2007) conceded “existing emotion scales often represent not only ‘pure’ emotions, but also non-emotion components of a state” (p. 36), referring to the cognitive, motivational, bodily, and behavioural features that may accompany an emotion. As evidenced, the criteria used to define an emotion can greatly influence the resulting conceptualization of emotional states.

From an alternative perspective, the circumplex model of affect (Russell, 1980) offers a dimensional approach to the study of emotions. Rather than discretely categorizing an exhaustive list of existing emotional states, emotions can be plotted into one of four quadrants with two axes corresponding to valence (pleasant to unpleasant) and arousal (activation to deactivation), representative of underlying neurophysiological systems (Posner, Russell, & Peterson, 2005). Examples of emotions in each quadrant are outlined in Figure 1. Although somewhat similar to the affective scales reviewed by Watson and Tellegen (1985) and subsequently employed by Hanin (2000), the circumplex model of affect posits that cognitive processes overlaying valence and arousal result in contextually appropriate emotional experiences, consistent with current findings in the affective neuroscience literature (Posner et al., 2005).

In summary, this literature highlights a number of considerations for research examining emotions in coaching. First, emotions are not well defined in the sport literature, and conceptualizations of emotional states vary across theoretical frameworks and measures. Furthermore, athletes are often the focus of emotional conceptualizations that have been applied in the sport context. Moving forward, definitions and conceptualizations of emotions must be carefully considered in the specific context of sport coaches.
Figure 1. A graphical representation of the circumplex model of affect, outlining examples of emotions contained within each quadrant. From “The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology,” by J. Posner, J. A. Russell, & B. S. Petersen, 2005, Development and Psychopathology, 17, p. 716.

Measuring Emotion in the Sport Context

Considering the relative infancy of sport emotion research in comparison to the broader psychology literature, there is still a long way to go in developing measures that appropriately capture emotions in the sport context. Provided that the focus of sport emotion research has fallen largely on the link between athletes’ emotions and sport performance (e.g., Friesen et al., 2013; Hanin, 2000; Lazarus, 2000), the majority of existing measures have been designed or adapted for use with athletes in competition. Emotions can be assessed via one or a combination of a variety
of methods, including physiological measures, self-report, or behavioural observation (Kalat & Shiota, 2007). Although not designed specifically for use with coaches, these methods serve as a relevant starting point for the assessment of emotions in a sport-specific context.

The use of physiological measurements, such as blood pressure or heart rate, is based on the notion that emotion and physiological arousal are interrelated processes; however, this is not always the case and, as such, physiological measurements may not always be representative of an emotional response (Robazza, 2006). In comparison, self-report measures for a broad range of affective states appear much more frequently in the sport literature. Although a popular measurement tool, several issues have been identified with the use of questionnaires for emotional assessment in the sport context. First of all, ambiguous lines of distinction between the terms emotion, mood, and affect can be problematic given the causal and operational features unique to each of these constructs (Lane et al., 2012). Moreover, many tools for measuring emotion were developed originally for use within clinical populations, but have since been applied among other target groups, including athletes (Jones, Lane, Bray, Uphill, & Catlin, 2005). The emotional range present in athletic experiences may differ from the spectrum of emotions experienced in clinical populations, posing limitations on the accuracy of findings in sport settings (Jones et al., 2005).

To illustrate, the Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) was not originally developed for use in sport populations, but has been adapted as a general measure of positive and negative affect in the sport literature. Although a frequently used measure, Lane and colleagues (2012) have noted the potential for information loss when using the PANAS in reference to sport performance following equivocal results from studies investigating the relationship between PANAS scores and athletic success. Another popular scale
is the Profile of Mood States (POMS; McNair, Lorr & Droppleman, 1971), a clinically developed questionnaire aimed at assessing dimensions of anger, confusion, depression, fatigue, tension and vigour. The POMS has been used to predict sport performance but is limited by its extensive and time-consuming length (65 items), lack of positive outcome measures and foundation in clinical settings (Lane et al., 2012). In order to overcome the limitations of the POMS in sport situations, the Brunel Mood Scale (BRUMS; Terry, Lane, & Fogarty, 2003; Terry, Lane, Lane, & Keohane, 1999) was formulated as a shorter, 24-item measure of the same six dimensions. However, because the BRUMS is based on the clinical model of the POMS and measures the same six emotional states, it continues to be limited by its clinical population base and lack of positive constructs that might be particularly relevant in sport settings (Lane et al., 2012).

More recently, the development of the Sport Emotion Questionnaire (SEQ; Jones et al., 2005) has addressed several issues with respect to the measurement of emotion in sport. Jones and colleagues (2005) designed the SEQ specifically to assess five emotional constructs – excitement, happiness, anger, anxiety and dejection – in pre-competition sport-specific contexts. Although significant overlap has been detected between the SEQ and the BRUMS (Lane et al., 2012), the SEQ was developed based on the experiences of athletes and assesses two constructs of positive emotion, thereby overcoming many of the limitations associated with the BRUMS (Jones et al., 2005). Furthermore, the constructs assessed by the SEQ specifically target emotional states, rather than moods, and according to Jones and colleagues (2005), represent a broader range of emotions relative to either the POMS or the PANAS. In addition to demonstrating good evidence of validity and reliability (Jones et al., 2005), the SEQ is the first assessment tool of its kind to be grounded in the experiences of athletes to most accurately assess the emotional states of this population.
Aside from the PANAS, POMS, BRUMS and SEQ, all of which have been designed to assess a broad range of affective and emotional states either in clinical or sport-specific populations, several sport-specific measures have been developed that focus on singular emotions. The majority of these focus specifically on anxiety and its related constructs. For example, the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, Vealey, Bump & Smith, 1990) and the Sport Anxiety Scale (SAS; Smith, Smoll & Schultz, 1990) are both sport-specific measures of anxiety. More recently, the Emotion and Mood Component of Anxiety Questionnaire (EMCA-Q; Beedie, Terry, Lane, & Devonport, 2011) was developed to distinguish mood from emotion in relation to feelings of anxiety experienced by athletes, based on the notion that an individual’s awareness (i.e., causality, intentionality) of the context in which these feeling states occur is reflective of this differentiation.

While self-report measures have been popular among sport psychologists, more objective measures for the assessment of emotional states may broaden the scope of the current literature and provide a valuable new perspective on the role of emotion in sport. Observational techniques have been utilized as a measurement tool for emotion and related concepts in the broader psychology literature, but have yet to be adapted to sport-specific settings. For instance, the Specific Affect Coding System (SPAFF: Gottman & Krokoff, 1989) was originally formulated to assist research investigating emotional behaviours present among married couples, and has since been used to examine parent-child and peer relationships (Coan & Gottman, 2007). Using the SPAFF, trained coders observe audio-visual documentation of the interacting subjects and integrate cues from verbal content, voice patterns, physical features and other indicators to code for specific affective states (Coan & Gottman, 2007). Likewise, researchers from the Oregon Social Learning Center have incorporated emotional valence as a fundamental component in a

Though not without their own limitations, observational techniques possess significant potential for the examination of emotion in the sport context. Through observation, the subjective limitations and potential for retrospective bias associated with self-report methods may be eliminated, although the inability to capture subjective experiences neglects an essential component of the emotional response. Nonetheless, observational methods have maintained a long and productive history in coaching research (Kahan, 1999). Thus, observational assessment of emotion introduces a novel and contextualized perspective on coach behaviours.

**Interpersonal Perspectives on Emotions in the Sport Context**

Burgeoning interest in the area of emotion regulation has resulted in a plethora of new research (e.g., see Lane, Beedie, Jones, Uphill, & Devonport, 2012; Uphill, McCarthy, & Jones, 2009) and attempts to integrate the current sport literature on emotion, emotion regulation, and other related concepts into a singular heuristic model (Uphill & Dray, 2013). Uphill and Dray (2013) have put forward a triadic model of emotion and emotion regulation, suggesting that cognitive emotional processes are influenced by three distinct, yet interrelated factors: (a) self and identity, (b) time and imagination, and (c) others, organization, and culture. Emotion regulation is often conceptualized at the intrapersonal level in sport research, encompassing physiological changes, subjective feelings states, and specific behaviours or impulses to act (see Lazarus, 1991); however, the interpersonal nature of emotional processes is gaining popularity (see review by Friesen et al., 2013). Intrapersonal consequences for athletes may relate to individual
performance, effort, and intrinsic motivation, while interpersonal effects may include the emotions expressed toward a given individual or the thoughts, feelings, and behaviours experienced in response to the emotions of someone else (Vallerand, 1983). As such, coaches’ emotions may have profound effects on not only their own behaviours, but on the thoughts, feelings, and behaviours of athletes in their immediate sport environment.

**Emotional Qualities in Coaching**

Although the emotions of coaches have yet to be explored in sport research, there is some evidence to indicate that the emotional qualities or characteristics of coaches have important implications for both coaches’ and athletes’ outcomes (e.g., Becker, 2009; Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008; Thelwell, Lane, Weston, & Greenless, 2008; Vargas-Tonsing & Guan, 2007). For instance, athletes have identified emotional characteristics – such as passion and emotional stability – as important traits in their experiences of great coaching (Becker, 2009). As an emotional quality, coaches’ harmonious passion (i.e., autonomous engagement in, and love for, coaching activities based on the intrinsic incorporation of coaching behaviours into one’s identity) has been identified as a significant and positive predictor of coach-athlete relationship quality, mediated by positive emotions (Lafrenière et al., 2008). Coaches may exhibit such characteristics in various practice and competition activities, such as pre-game speeches. In a study of these pre-game talks, athletes preferred differing amounts of informational and emotional pre-game speech content according to the specific game situation, and coaches’ and athletes’ perceptions of necessary emotion were often incongruent (Vargas-Tonsing & Guan, 2007).

Clearly emotions are important to coaches and athletes, so it is not surprising that emotions have also been linked to relationship quality in the sport context. In a review of the
coaching literature, Becker (2013) identified coaches’ supportive behaviours (i.e., demonstrating emotional characteristics such as encouragement, caring, empathy, and understanding) as one of seven qualities necessary for great coaching. According to Becker, coaches that show how much they care are able to foster an environment of open sharing and communication, and this enables the development of satisfying relationships built on mutual respect and trust. Similarly, Thelwell and colleagues (2008) found that coaches’ emotional intelligence – the ability to perceive, facilitate, understand, and manage emotions (see Salovey & Mayer, 1990) – was significantly correlated with perceptions of coaching efficacy. Emotional intelligence is a concept that was originally introduced into the business world, and has quickly become an accepted quality for leadership excellence (e.g., Caruso, Mayer, & Salovey, 2003; George, 2000). Thus, the emotions and emotional qualities of coaches appear to hold a substantial foothold in both intrapersonal and interpersonal processes associated with coaching practice and performance (Gilbert & Côté, 2013).

**Effective Coaching and Athlete Development**

In the youth sport context, the role of coaches in fostering positive developmental experiences among athletes has been embraced as a fundamental approach to effective youth sport programming (Fraser-Thomas, Côté, & Deakin, 2005). According to Horn (2008), an effective coach should be able to cultivate positive sport performance or psychosocial outcomes in his or her athletes. More specifically, Côté and Gilbert (2009) have put forward a cohesive definition of coaching effectiveness that builds on a previously established framework for athlete development: “The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes’ Competence, Confidence, Connection, and Character in specific coaching contexts” (p. 316). In this definition, Competence, Confidence,
Connection, and Character refer to the 4 Cs of Positive Youth Development (PYD), a perspective on adolescence advocating that all youth are capable of positive, successful, and healthy development (Lerner et al., 2005). Thus, PYD represents an important framework to guide coaching practice.

The 4 Cs model, initially proposed by Little (1993), was expanded by Lerner and colleagues (2005) to include a fifth C (Caring/Compassion) in the developmental psychology literature. However, Côté, Bruner, Erickson, Strachan, and Fraser-Thomas (2010) have recommended a return to the original 4 Cs in reference to athlete development following the finding that Caring, Compassion, and Character are not well differentiated in the sports literature. As such, coaching effectiveness may be assessed using the 4 Cs as a framework of desirable athlete outcomes (Côté & Gilbert, 2009), whereby both performance (Competence) and psychosocial outcomes (Confidence, Connection, and Character) are accounted for in developing young athletes (Vierimaa, Erickson, Côté, & Gilbert, 2012).

In sport, Competence refers to the degree of proficiency concerning technical skills, tactical skills, and physical skills (adapted from Martens, 2004). An athlete who is high in sport Competence will demonstrate high levels of achievement, performance, or athletic ability. Sport Confidence, on the other hand, refers to the personal belief in one’s ability to be successful in sport (Vealey, 1986). In terms of athlete development, trait sport confidence, the level of confidence an athlete usually possess, is primarily targeted. Connection encompasses the quality of an athlete’s relationships with both coaches and teammates, and as such, consists of two separate measures. Finally, Character refers to moral development and sportspersonship, particularly in relation to athletes’ engagement in prosocial or antisocial behaviours in sport (Bredemeier & Shields, 2002).
Vierimaa and colleagues (2012) developed a toolkit designed to practically assess each of the 4 Cs using existing instruments and techniques grounded in the PYD literature. These measures include the Sport Competence Inventory (adapted from Causgrove Dunn, Dunn, & Bayduza, 2007), the Self-Confidence Subscale of the Revised Competitive State Anxiety Inventory-2 (Cox, Martens, & Russell, 2003), the Coach-Athlete Relationship Questionnaire (Jowett & Ntoumanis, 2004), the Peer Connection Inventory (adapted from Coie & Dodge, 1983; Coie, Dodge, Coppotelli, 1982), and the Prosocial and Antisocial Behaviour in Sport Scale (Kavussanu & Boardley, 2009). This toolkit represents not only a straightforward method of assessing PYD, but also a comprehensive measure of coaching effectiveness.

**Systematic Observation of Coaches**

Since the pioneering work of Tharpe and Gallimore in 1976, systematic observation protocols have been widely applied in coaching research (Kahan, 1999). In recent years, however, traditional observation systems have been criticized for focusing too heavily on coaches’ pedagogical behaviours – those involved in the explicit teaching of motor skills – thereby neglecting features comprising the specific qualities or context of behavioural interactions during practice time (Cushion, 2010; Gallimore & Tharpe, 2004; Horn, 2008). Calls for more sensitive and contextualized methods of evaluation have led to the development of newer, more refined systematic observation instruments (Brewer & Jones, 2002; Cushion, Harvey, Muir, & Nelson, 2012; Erickson & Côté, in press; Erickson, Côté, Hollenstein, & Deakin, 2011; Gilbert & Trudel, 1999; Turnnidge, Côté, Hollenstein, & Deakin, 2014; Webster et al., 2013). Historically, the dominant and emerging systematic observation instruments employed in coaching research provide a fundamental backdrop for the development of new systems to further advance knowledge and practice with respect to coach behaviour.
As the popularity of systematic observation research increased, early tools such as the Coach Behavior Assessment System (CBAS; Smith, Smoll, & Hunt, 1977) and the Arizona State University Observation Instrument (ASUOI; Lacy & Darst, 1984) emerged as reputable tools for use and modification in the study of coach behaviours (Kahan, 1999). In line with the aforementioned pedagogical focus of such research, these instruments targeted primarily instructional behaviours intended to teach and refine sport-specific skills and strategies. First, the ASUOI is made up of 14 categories aimed specifically at the identification of teaching behaviours (e.g., pre-instruction, concurrent instruction, post-instruction, questioning, manual manipulation, positive modeling, negative modeling, use of first name, hustle, praise, scold, management, silence, and other). On the other hand, the CBAS encompasses more general categories comprising a range of coach-athlete interactive behaviours (e.g., general tactical instruction, general encouragement, organization, general communication, reinforcement, non-reinforcement, mistake-contingent encouragement, mistake-contingent technical instruction, punishment, punitive technical instruction, ignoring mistakes, and keeping control).

More recently, the Coach-Athlete Interaction Coding System (CAICS; Erickson, Côté, Hollenstein, & Deakin, 2011) and the Para-CAICS (Turnnidge, Côté, Hollenstein, & Deakin, 2014) have been modeled after the CBAS for the purpose of examining coach-athlete interactive behaviours in able-bodied and adapted youth sport contexts, respectively. While instruments such as the CBAS, CAICS, and Para-CAICS are focused heavily on the content of coach behaviours, various techniques can be applied throughout data analysis to help unveil the contextual properties of these behaviours. For instance, data from the CBAS has been analyzed to assess individually distinctive behaviour-situation patterns, known as behavioural signatures, in a sample of little league baseball coaches (Smith, Shoda, Cumming, & Smoll, 2009). Furthermore,
the CAICS and Para-CAICS have been paired with the state space grid method (Lewis, Lamey, & Douglas, 1999) – a technique that tracks the trajectory of dyadic interactions over time, demonstrating specific patterns and qualities that characterize an interaction (Erickson et al., 2011; Turnnidge et al., 2014).

Another instrument – the Coach Analysis and Intervention System (CAIS; Cushion et al., 2012) – enlists 23 categories of primary behaviours (e.g., instruction, punishment, praise, etc.) in addition to five branches of secondary behaviours, including the specific activity, recipient, timing, content, and nature of each primary category. As such, the CAIS enables the examination of coaching behaviours in complex environments from a multi-dimensional and highly nuanced perspective (Cushion et al., 2012). Yet, the scope of behaviours and behavioural qualities examined in coaching research is still somewhat limited (Horn, 2008). As Erickson and Côté (in press) argue, understanding the ‘how’ (i.e., delivery, presentation, or quality) of coaching behaviours is just as necessary as the traditionally investigated ‘what’ (i.e., content). Building on this concept, the recent introduction of observational tools designed to assess coach autonomy support (Webster et al., 2013) and motivational tone (Erickson & Côté, in press) has paved the way for new developments in coaching research.

Grounded in self-determination theory (SDT; Deci & Ryan, 1985), the MPOWER includes six behaviour concepts: (M) moves decision-making, (P) prompts for questions and feelings, (O) opts to use player idea, (W) withholds information to guide response, (E) empathizes with negative affect, and (R) rationalizes. Each of these behaviour concepts is intended to capture coaching behaviours that promote athletes’ sense of autonomy, thus nurturing self-determined motivation that can lead to enhanced athlete success (Gillet, Vallerand, Amourea, & Baldes, 2010; Mageau & Vallerand, 2003). In addition to SDT, the ACT draws on concepts
from Achievement Goal Theory (AGT; Nicholls, 1984), evaluating the motivational tone of coaching behaviours based on the associated degree of autonomy support (i.e., autonomy-supportive versus controlling), type of evaluation climate (i.e., mastery-oriented versus ego-oriented), and level of coach-athlete rapport (Erickson & Côté, in press). Moving towards these highly contextualized systems for the behavioural observation of coaches, new methods for examining the emotional underpinnings of coach behaviour present a unique and novel next step in advancing the coaching literature.

**Summary and Purpose**

Clearly, coaches play an important role in the development of young athletes. Thus, research unveiling the features that constitute an effective coach is necessary to promote positive development in the youth sport context. Emerging interest in the consequences of interpersonal emotion regulation, in addition to a growing body of evidence demonstrating the importance of emotional characteristics in coaching, suggest that coaches’ emotions may be an important factor influencing athlete outcomes. Currently, conceptualizations and measures of emotion in sport are confined largely to experiences of athletes. Furthermore, these measures consist of primarily self-report methods assessing subjective emotional states. In contrast, systematic observation instruments have been used effectively in coaching research for several years, but have faced recent criticism concerning the need for enhanced contextual evaluation of coach behaviours. Therefore, the development of an observational tool for the measurement of coaches’ emotions in the youth sport context not only adds depth to the existing coaching literature, but also supplements the tools available for measuring emotions in the sport environment. As such, the purpose of this thesis was two-fold: First, to develop a valid and reliable instrument for the observational assessment of coaches’ emotions in the team sport environment, and second, to
apply this instrument in an examination of the link between coaches’ emotions and athletes’ developmental outcomes (4 Cs) in sport.
Chapter 3

Development of the Assessment of Coach Emotions (ACE) systematic observation instrument
Abstract

Current research on emotions in sport focuses heavily on athletes’ intrapersonal emotion regulation; however, interpersonal consequences of emotion regulation are garnering recent attention. As leaders in sport, coaches have the capacity to regulate not only their own emotions, but also those of athletes, officials, and spectators. As such, the present study set out to develop a valid and reliable observational tool for measuring coaches’ emotions in the sport context. The ACE was designed according to guidelines proposed by Brewer and Jones (2002). Categories were derived and refined through extensive literature and video review, resulting in 12 categories of behavioural content and 8 emotion modifiers (Neutral, Happy, Affectionate, Alert, Tense, Anxious, Angry, and Disappointed). The final coding system is presented herein, complete with supporting evidence for validity and reliability. As a tool for both researchers and practitioners in sport, the ACE offers enhanced insight into the contextual qualities underlying coaches’ interactive behaviours.

KEYWORDS: Emotions; coaching; coach-athlete interactions; observation
Development of the Assessment of Coach Emotions (ACE) systematic observation instrument

Research on emotions and emotional processes in sport has flourished in recent years (see reviews by Friesen et al., 2013; Hanin, 2000; Jones & Uphill, 2012; McCarthy, 2011). In particular, the dynamic, interpersonal nature of emotion has gained increasing attention (Friesen et al., 2013; Uphill & Dray, 2013), and as a result, the interplay of emotions may constitute an important feature of coach-athlete interactions. The sport coaching literature has also expanded with steady momentum over the past several decades, and continues to represent an area of profuse interest in the sport psychology field (e.g., Potrac, Gilbert, & Denison, 2013). Despite the resounding growth of research in these areas, however, the role of emotions in coaching has yet to be examined (Potrac, Jones, Purdy, Nelson, & Marshall, 2013). Accordingly, the present study set out to develop a valid and reliable method for measuring and understanding coaches’ emotions in the sport environment.

The study of emotion is easily complicated due to the presence of similar, yet distinct, constructs represented within several different theoretical frameworks, and consequently, a multitude of corresponding measures (Ekkekakis, 2012). Constructs such as emotion, mood, and affect are often viewed interchangeably in the literature, with little attention paid to their conceptual differentiation (Batson, Shaw, & Oleson, 1992; Lane, Beedie & Devonport, 2012). Moving forward, a basic understanding of these constructs is essential given this lack of conceptual clarity.

At the most basic level, core affect is a non-reflective neurophysiological state that is omnipresent in nature, existing alone or as a component of mood and emotion (Ekkekakis, 2012; Russell & Feldman Barrett, 2009). Mood and emotion, on the other hand, are often directly
contrasted with one another. Beedie, Terry, and Lane (2005) determined that emotions are typically considered to be shorter in duration, more intense, and less stable than moods. Mood is perceived as an ambiguous construct, while emotion is often associated with the presence of a specific cause and more expressive displays (Beedie et al., 2005). At the intrapersonal level, complex cognitive evaluations following the occurrence of some personally significant event are theorized to generate an emotion; consequently, the corresponding response may include physiological changes, subjective feeling states, and specific behaviours or impulses to act (Lazarus, 1991). While intrapersonal processes may influence factors that play into individual performance (e.g. effort, motivation), interpersonal and social influences are manifested in the emotional thoughts, feelings, and behaviours experienced toward others and in response to the emotions of others (Vallerand, 1983).

To date, the focus of research on emotion in sport has fallen largely on athletes’ intrapersonal regulation of emotion, particularly in relation to sport performance (Friesen et al., 2013). However, there is also evidence to suggest that the emotional characteristics of coaches can influence a range of athlete outcomes, including athletes’ perceptions of pre-game speeches (Vargas-Tonsing & Guan, 2007), sport experiences (Becker, 2009), and the quality of the coach-athlete relationship (Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008). Caruso, Mayer, and Salovey (2003) argue that emotional intelligence – the ability to perceive, facilitate, understand, and manage emotions (see Salovey & Mayer, 1990) – is an important trait to consider in the prediction of leadership excellence. Supporting this notion, Thelwell, Lane, Weston, and Greenless (2008) found that coaches’ emotional intelligence was significantly correlated with perceptions of coaching efficacy. Thus, the emotions and emotional qualities of coaches appear to
hold a substantial foothold in both intrapersonal and interpersonal processes associated with coaching practice and performance (Gilbert & Côté, 2013).

Emotions have been theorized to have not only direct causal effects on behaviour, but also to operate as mediators of cognitive processes affecting successive behaviour regulation (Baumeister, Vohs, DeWall, & Zhang, 2007). Whereas emotional influences on behaviour have not been investigated in coaching research, coaches’ overt behaviours have surfaced as a primary focus of research investigating coach-athlete interactions (Becker, 2009; Horn, 2008). Since the pioneering work of Tharpe and Gallimore in 1976, systematic observation of coaches has traditionally examined pedagogical behaviours – those involved in the explicit teaching of motor skills – thereby neglecting features comprising the specific qualities or context of behavioural interactions during practice time (Gallimore & Tharpe, 2004).

As the popularity of systematic observation research increased, instruments such as the Coach Behavior Assessment System (CBAS; Smith, Smoll, & Hunt, 1977) and the Arizona State University Observation Instrument (ASUOI; Lacy & Darst, 1984) emerged as reputable tools for use and modification in the study of coach behaviours (Kahan, 1999). For instance, the Coach Athlete Interaction Coding System (CAICS; Erickson, Côté, Hollenstein, & Deakin, 2011) and the Para-CAICS (Turnnidge, Côté, Hollenstein, & Deakin, 2014) were derived from the original CBAS as a means of assessing coach-athlete interactions in able-bodied and disability youth sport contexts, respectively. In line with the aforementioned pedagogical focus of such research, these instruments targeted primarily instructional behaviours intended to teach and refine sport-specific skills and strategies. For instance, the ASUOI is made up of 14 categories aimed specifically at the identification of teaching behaviours (e.g., pre-instruction, concurrent instruction, post-instruction, positive modeling, negative modeling, etc.), while the CBAS encompasses more
general categories comprising a range of coach-athlete interactive behaviours (e.g., general tactical instruction, general encouragement, organization, etc.)

Nonetheless, calls for more sensitive and contextualized methods of evaluation have led to the development of newer, more refined systematic observation instruments (Brewer & Jones, 2002; Cushion, Harvey, Muir, & Nelson, 2012; Gilbert & Trudel, 1999). For example, the Coach Analysis Intervention System (CAIS; Cushion et al., 2012) enlists 23 categories of primary behaviours (e.g., instruction, punishment, praise, etc.) in addition to five branches of secondary behaviours, including the specific activity, recipient, timing, content, and nature of each primary category, in an attempt to fully capture the context of behaviours present in complex coaching environments. Yet, the scope of behaviours and behavioural qualities examined in coaching research is still somewhat limited (Horn, 2008). As Erickson and Côté (in press) argue, understanding the how (i.e., delivery, presentation, or quality) of coaching behaviours is just as necessary as the traditionally investigated what (i.e., content). Building on this concept, the recent introduction of observational tools designed to assess coach autonomy support (Webster et al., 2013) and motivational tone (Erickson & Côté, in press) have paved the way for new developments in coaching research. As such, observational methods for examining the emotional underpinnings of coach behaviour present a unique and novel next step in advancing the coaching literature.

Although systematic observation of emotional states and behaviours has yet to be applied to individuals in the sport setting, researchers in other areas of psychology have been exploring emotions and related constructs using observational techniques for the past few decades. At the Oregon Social Learning Center, a series of interaction-based observational coding systems have been employed to examine the development of children in a variety of contexts, accounting for
the specific activity, content, and emotional valence associated with dyadic interactive behaviours (Dishion et al., 1987; Dishion et al., 1989; Rusby, Estes, & Dishion, 1991; Stubbs, Crosby, Forgatch, & Capaldi, 1998). In addition, the Specific Affect Coding System (SPAFF: Gottman & Krokoff, 1989) was introduced as a means of examining affective behaviour in marital relationships, but has also been applied to parent-child and peer interactions (Coan & Gottman, 2007).

While the development and use of such instruments tap into a prospectively prolific line of inquiry, the specific study of emotional states is limited by the ambiguous differentiation of constructs (i.e., emotion, mood, and affect; Batson et al., 1992; Lane et al., 2012). Self-report measures, primarily questionnaires, intended for the evaluation of emotion in sport suffer from similar limitations. Non-sport-specific scales such as the Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) and the Profile of Mood States (POMS; McNair, Lorr & Droppleman, 1971) appear frequently in the sport literature, despite the fact that neither of these scales were designed to measure emotions in the sport context (Jones, Lane, Bray, Uphill, & Catlin, 2005). Currently, the only questionnaire designed to target sport-specific emotional states is the Sport Emotion Questionnaire (SEQ; Jones et al., 2005); however, the SEQ is grounded in the pre-competition experiences of athletes and is therefore limited to this particular population and temporal period. The Emotion and Mood Component of Anxiety Questionnaire (EMCA-Q; Beedie, Terry, Lane, & Devonport, 2011) also differentiates emotion from mood, but only in relation to athletes’ experiences of anxiety.

As evidenced, questionnaire research examining emotion in sport has advanced considerably toward clearly defined sport-specific measures, representative largely of athletes’ subjective emotional responses. While these advances indicate general progress in the area of
sport emotion research, the need for (a) instruments assessing observable measures of emotion (i.e., physical and verbal expressions and behaviours) and (b) investigations targeting other significant figures in the sport environment (i.e., coaches) is clear. In order to fully understand emotion in the context of coaching behaviours, the application of systematic observation instruments presents a valuable opportunity to not only add depth to the existing coaching literature, but also supplement the tools available for measuring emotions beyond the subjective experience. Thus, the purpose of the present study was to develop a systematic observation instrument, demonstrating evidence of validity and reliability, for the assessment of coaches’ emotions in the sport context.

Methods
Development of Coding System

Overview. The Assessment of Coach Emotions (ACE) systematic observation instrument was designed according to the guidelines proposed by Brewer and Jones (2002) for developing contextually valid observation instruments. Prior to beginning any substantive work on the system, a review of the literature was carried out, encompassing theoretical and methodological considerations relevant to the development of appropriate emotion coding categories. A series of coaching videos were initially reviewed and coded, which led to the establishment of initial coding system categories. These categories were further refined through continuous observation, test coding, and the implementation of validation strategies and coder training protocols. The final coding system, complete with evidence to support external and face validity, in addition to both intra- and inter-observer reliability, is presented in the ensuing results section.

General structure. Several coach behaviour observation instruments obtained from a review of the dominant and emerging systems in the current coaching literature informed the
general structure of this coding system. These included the Coach Behaviour Recording Form (Tharpe & Gallimore, 1976), CBAS (Smith et al., 1977), ASUOI (Lacy & Darst, 1984), CAICS (Erickson et al., 2011), Para-CAICS (Turnnidge et al., 2014), CAIS (Cushion et al., 2012), and ACT (Erickson & Côté, in press). Given that these systems use similar, albeit tailored codes, the content and recipient subject codes employed within the ACE were adapted from these instruments in order to provide a foundation for the primary feature of interest: the emotions. In contrast with the primarily pedagogically focused nature of these other systems, the ACE emphasizes emotions as a contextual quality of coach behaviour. Thus, several of the content and recipient subject codes were collapsed or modified from their original form, although the list remained exhaustive. For greater detail, these codes are outlined in the results.

**Literature review.** Drawing on relevant theoretical and methodological approaches, a review of the literature was initially conducted to inform a preliminary list of emotion-specific categories for the ACE. Building on the foundation formed by this review, initial coding system categories were formed as the result of supplementary observation and test coding of coaching videos. For an overview of the initial and refined emotion categories and their sources, refer to Table 1.
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<th>Initial Categories</th>
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<td>Disappointed&lt;sup&gt;b&lt;/sup&gt;</td>
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<sup>a</sup> Pride includes the emotion state of joy.

<sup>b</sup> Sadness/Dejection and Anxiety/Distress include the emotion states of sorrow, pity, and regret.

<sup>c</sup> Tense includes the emotion state of tension/strain.
Difficulty differentiating *Pride* from *Affection* during observation and test coding of coaching videos led to the removal of *Pride* as an independent category in the initial coding scheme. Indicators of *Pride* (referring to individual athletes or the team) have been included in the finalized *Affectionate* category.

The labels *Sadness/Dejection, Anxiety/Distress*, and *Anger/Aversion* (originally derived from a coding system for children) were revised to better suit the specific emotions of coaches in the team sport environment. The finalized categories – *Disappointed, Anxious*, and *Angry*, respectively – encompass similar meanings, but have been updated to reflect coach observations.

Categories for *Alert* and *Tense* were included in the revised coding scheme following the identification of these emotions (unspecified in the initial list of categories) during coach observation and test coding.
Validation strategies. Development of the ACE was conducted with coach-focused videos obtained from a variety of youth team sport settings, continuously analyzed for exhaustive classification and clearly defined conceptualizations of all reported behaviours and emotions. Preliminary validation of emotion categories was completed with 54 undergraduate students engaged in a research methods course. Students were provided with six video clips, ranging between one and four minutes in duration, which were intended to represent examples of each of the emotion categories under consideration for inclusion in the ACE. Upon viewing the clips, these students were first asked to identify and provide qualitative descriptions of the emotions they perceived in each clip. Students were then supplied with descriptions and cues for each of the previously established emotion categories and asked to again review each clip, this time using the categories provided to identify key emotions (i.e., test coding). Informal content analysis of students’ qualitative responses and frequency counts derived from student’s test coding provided support for the emotion categories included in the final version of the coding system, thus providing a general indication of face validity and the feasibility of training coders with limited specialized knowledge. Additional face validity was achieved through continuous coding system review by sport researchers familiar with observation techniques and an external consultant with expertise in emotion research.

Coder training protocol. Coder training procedures were based on the protocols outlined in the CAICS and the ACT, both of which were based on the original CBAS. In line with Brewer and Jones’ (2002) first stage of coding system development, initial coder training was carried out to a limited degree on the use of one or both of these instruments. One undergraduate-level research assistant was trained on the use of the ACE, in addition to the primary researcher. Preliminary training involved a period of initial familiarization with the equipment and the ACE
coding system manual (Appendix A). The trainee was initially introduced to the software currently used by the research team (Noldus Observer Version 9: Noldus, Trienes, Hendrickson, Jansen, & Jansen, 2000) and supplied with a full copy of the coding manual for independent study. Once the trainee felt sufficiently comfortable with the information presented in the coding manual, the primary researcher initiated active instruction on the use of the system. The trainee was shown videotaped examples of various code categories and allowed to begin verbally coding coaching videos. Throughout this stage of training, the primary researcher remained available to respond to questions and facilitate discussion surrounding important coding points. At this time, the trainee was gradually introduced to independent coding practice.

In order to complete the training process, the trainee was required to complete two separate assessments of both inter-observer reliability and intra-observer reliability. Inter-observer reliability was assessed by coding two 10-minute video segments to an overall minimum agreement of 75% when compared to a “gold standard” of coding completed by the primary researcher (e.g., Erickson et al., 2011; Hollenstein, Granic, Stoolmiller, & Snyder, 2004). The trainee recoded these same video segments two weeks following initial coding to ensure this same standard was met in terms of intra-observer reliability. Once this standard had been achieved on two consecutive assessments for each test, the observer was allowed to begin coding videos intended for future data analyses.

Reliability procedures. Separate assessments of both intra- and inter-observer reliability were conducted to assess the overall reliability of the system. One primary coder was selected for the coding of all video segments – 37 in total, each 10 minutes in length. Inter-observer reliability was assessed with a sample of nine coded video segments, including one randomly selected video clip from each target coach. The primary researcher recoded each of the video segments in this
sample in order to provide an initial measure of inter-observer reliability. A separate sample of six clips, randomly selected to represent 15% of all coded video segments, was recoded a minimum of two weeks post initial coding in order to assess the intra-observer reliability of the primary observer (e.g., Stubbs et al., 1998). The acceptable standard for all measures of reliability was set at a minimum of 75% agreement. For this system, agreement refers to the activation of the same complete three-code sequence (i.e., content-emotion-recipient) within a three-second window relative to the total elapsed time of the video, followed by the subsequent deactivation of the same code, also within a three-second window, with the initiation of the next code. In the event that the minimum standard was not met, the results were discussed and discrepancies were rectified before a second round of coding was completed.

Results

Final Coding System

The ACE systematic observation instrument was developed for observations of coaches’ emotions and associated behaviours in a team sport environment. As such, the codes comprising the ACE characterize coaches’ observable behaviours along three concurrent dimensions: coach content, coach emotion, and recipient subject of coach interactive behaviour (refer to Figure 2 for overview). Each coding sequence is initiated with the recording of a content code, describing the specific nature of a given coach behaviour and thus providing a contextual basis upon which to ground corresponding emotion and recipient subject codes. An emotion modifier – representing the primary focus of the instrument – is assigned to each content code, in addition to a recipient subject modifier in the event of any interactive or communicative coach behaviours. In total, each coding sequence consists of two or three consecutive codes (i.e., content-emotion or content-emotion-recipient), encompassing an exhaustive and mutually exclusive list of possible coding
categories. For more information, the complete ACE coding system manual is available in Appendix A.

*Figure 2.* Overview of the Assessment of Coach Emotions (ACE) coding system categories.
At the first level of coding, the ACE consists of 12 content codes: *Organization, Keeping Control/Standards of Behaviour, Hustle, Instruction/Feedback, Encouragement, Positive Evaluation, Negative Evaluation, Questioning, General Communication, Communication with Others, Observation, and Not Engaged*. In the event that the coach cannot be seen or heard for coding purposes (e.g., audio or visual quality is compromised or the coach is out of range), a *Not Code-able* category can be recorded. These content categories were derived from several previously established instruments (e.g., Coach Behaviour Recording Form, CBAS, ASUOI, CAIS, CAICS, Para-CAICS, ACT). However, several categories were collapsed or modified in an effort to contextualize the emotion categories as the primary feature of interest, while continuing to provide an exhaustive list of possible codes. For example, the *Instruction/Feedback* and *Encouragement* codes were collapsed from several categories in the CBAS, CAIS, CAICS, and Para-CAICS. Additionally, *Keeping Control* was modified from its original form in the CBAS to capture the *Social/Moral Behaviour* element included in the ACT. A few additional categories were also incorporated to cover the full range of coach behaviours identified throughout coding system development. For instance, *Hustle* and *Questioning* were included following test coding with pilot videos, and have been validated with the use of previously existing coach behaviour coding systems such as the CAIS, Para-CAICS, ASUOI, and the Coach Behaviour Recording Form. Finally, the *Communication with Others* code was intended to capture any type of communication from the coach with anyone other than the athletes, although this code was not present in other coding systems.

For the initiation of every content code, with the exception of the *Not Code-able* category, an associated emotion code must also be recorded. The emotion categories represent the main focus of the ACE; the preceding content codes and the subsequent recipient subject codes
are intended to provide a contextual basis for the instrument. A combination of cues, including verbal content and voice tone, facial expressions, and body language, are used to indicate the presence of a particular emotion code. In total, there are eight emotion codes: Neutral, Happy, Affectionate, Alert, Tense, Anxious, Angry, and Disappointed. First, the Neutral code is used to specify expressions from the coach associated with a non-affective, even-tempered quality that do not indicate the presence of any other emotion. Second, there are three emotion codes with a positive valence:

(a) Happy – verbal or non-verbal expressions that indicate the coach is experiencing joy or pleasure in response to some stimulus in the sport environment. Cues may include smiling, laughter, and exaggerated or enthusiastic expressions (e.g., “Great play, team!”).

(b) Affectionate – verbal or non-verbal expressions that indicate the coach is conveying warmth, caring, concern, support, and/or interest in one or more athletes. Possible indicators include expressions of empathy (e.g., “I know this drill is tough”), general support and reassurance (e.g., “If anyone can do this drill, it’s you”), and gestures of endearment (e.g., a pat on the back, good-natured teasing, etc.).

(c) Alert – verbal or non-verbal expressions that indicate the coach is experiencing high levels of arousal or intensity (e.g., voice is faster/louder than usual, short/unanticipated exclamations, full engagement/focused attention); alert responses and expressions will be relatively neutral, but maintain a slight positive valence.
Finally, there are four emotion codes with a negative valence:

(a) *Tense* – verbal or non-verbal expressions that indicate a sense of urgency, exasperation, or impatience conveyed by the coach (e.g., changes in voice rhythm or tempo, rigid body posture, stern or serious demeanor); tense responses and expressions will be relatively neutral, but maintain a slight negative valence.

(b) *Anxious* – verbal or non-verbal expressions that indicate the coach is experiencing general discomfort or anxiety (i.e., nervousness, fear, embarrassment, worry, or shock) in response to some stimulus in the sport environment. Cues may include an elevated tone of voice, fidgeting, and nervous smiling or laughter.

(c) *Angry* – verbal or non-verbal expressions that indicate the coach is experiencing anger, displeasure, or hostility (e.g., raised voice, sarcasm or mockery, unreciprocated humour). Often an angry reaction will indicate that some interpersonal boundary or standard has been transgressed (i.e., the coach has been offended in some way).

(d) *Disappointed* – verbal or non-verbal expressions that indicate the coach is experiencing resignation, hopelessness, or disappointment. Feelings of disappointment will likely accompany situations in which personal expectations or expectations placed on one or more athletes are not met (e.g., “I expected better from you”).

The finalized emotion categories presented here have been derived through relevant theoretical and methodological reviews, free observation and test coding of videotaped coaching sessions, and implementation of preliminary validation strategies. As such, the coding of
emotions with the use of the ACE requires a moderate level of both content meaning and coder inference (Alexander, Newell, Robbins, & Turner, 1995). Alexander and colleagues (1995) developed this two-dimensional framework for classifying systems of observation in order to provide a common basis for observation research in family therapy process research. Applied to the ACE, a moderate level of content meaning stipulates that the emotion categories are contextual but independent; definitions are based on a specific and consensually developed meaning system (as outlined in the coding manual). Moreover, coders require some knowledge, but not necessarily any unique knowledge, of the general cultural meanings associated with these definitions in order to make the appropriate coding decisions. This corresponds to a moderate level of coder inference. Thus, the coding manual represents an important tool and structured system for training coders to use the system in a valid and reliable manner, but there will always be some degree of individual interpretation in the execution of coding decisions.

For any interactive or communicative behaviour (i.e., Organization, Keeping Control/Standards of Behaviour, Hustle, Instruction/Feedback, Encouragement, Positive Evaluation, Negative Evaluation, Questioning, and General Communication), a recipient subject code must also be assigned in sequence with the corresponding content code and associated emotion. There are only two recipient subject codes: Individual Athlete and Team. The Communication with Others content code does not include a separate recipient subject code as these codes have been reserved for explicit coach-athlete interactions; additionally, the recipient “others” can be inferred from the code label.

Validity of Coding System

External validity. Development of the ACE was conducted with coach-focused videos obtained from 37 different sport groups or teams, primarily with youth ages 6 to 18. Multiple
sports (volleyball, basketball, hockey, soccer, and synchronized swimming), both recreational (i.e., sports camps) and competitive (i.e., high performance clubs) in nature, with male and female coaches of both single gender and mixed participation groups, were included in these videos. As such, this instrument is designed to accurately represent coaches’ behaviours and emotional expressions in the youth team sport context, with prospective extension and adaptability to various other sport contexts (e.g., individual sports, disability sports, elite or adult athletes, etc.).

**Face validity.**

*Testing with undergraduate students.* Qualitative responses from a sample of undergraduate students indicate successful identification of happy, anger, and disappointed. Additionally, emotions such as affectionate, alert, and tense were indicated with similar, alternative terms including excited (alert), frustration/annoyance (tense), and supportive/encouraging/reassuring (affectionate). Students were not asked to identify non-expressive codes (i.e., neutral) and the anxious emotion was not exemplified, nor identified by the students, in any of the video clips. Using the ACE emotion categories, frequency counts for the emotions identified in four of the six clips (there were not enough responses for two of the clips to provide accurate results) demonstrated that students were able to accurately categorize alert, happy, disappointed, and tense. Affectionate and anger were not coded with a high degree of frequency in the clips intended to illustrate these emotions, although this could be due to the presence of alert and tense emotions in each of these clips. In general, alert and tense tended to be coded with a similar degree of frequency suggesting that the students understood the high degree of arousal associated with each of these emotions, but had difficulty differentiating the positive and negative aspects. Only the three most frequently counted emotions for each clip were included in the results, thus, coding both alert and tense in similar instances limited the space
available to include other relevant emotions in the final results. Altogether, these results indicate a reasonable degree of face validity among some of the current ACE emotion categories.

**Expert review.** Throughout coding system development, continuous modification and refinement of categories and coding procedures occurred in response to relevant issues or areas of discrepancy detected by the research team. For example, the need to add or remove categories in order to reflect the reality observed in the various videotaped coaching sessions, while ensuring that each observed coaching behaviour or expression could be appropriately and exclusively classified. In particular, attention was paid to the identification of appropriate cues and operational definitions for each emotion category, subsequently captured in the preparation of a comprehensive coding manual. Updated drafts of the coding system were continuously reviewed and subject to revision by sport researchers familiar with behavioural observation, in addition to an external researcher with expertise in the subject of emotion, further contributing to the overall face validity of the system.

**Reliability of Coding System**

**Inter-observer reliability.** Three of the nine initial test results did not meet the minimum 75% agreement standard (range = 60-84%, $M = 76\%$, $SD = 4\%$; kappa range = .56-.81, $M = .74$, $SD = .08$). A second round of coding was applied to any video segments corresponding to the two coaches that were the subject of the lowest scoring first round reliability assessments, and one clip was selected from each coach for re-testing. The third coach was disregarded as the score (74%) fell within a reasonable range of the minimum standard. Secondary assessments were successful, thus, results for all nine coaching videos met or fell within a reasonable range of the minimum acceptable value (range = 74-87%, $M = 81\%$, $SD = 4\%$; kappa range = .71-.85, $M = .79$, $SD = .04$).
Intra-observer reliability. All assessments of intra-observer reliability met the minimum acceptable standard of agreement (range = 75-81%, $M = 78\%, SD = 2\%$; kappa range = .74-.79, $M = .76, SD = .02$).

Discussion

Presented here is the development of a new valid and reliable systematic observation instrument – the first of its kind to explicitly target the emotions of sport coaches. To date, examinations of emotions in the sport context have focused largely on the experiences of athletes (Friesen et al., 2013); however, recent evidence indicating emotional qualities also play an important role in coaching has illuminated the need for research specifically investigating coaches’ emotions in sport (e.g., Becker, 2009; Lafrenière et al., 2008; Thelwell et al., 2008; Vargas-Tonsing & Guan, 2007). In a similar vein, tools for assessing emotion in sport settings have been primarily adapted from other contexts or specifically designed for use with athletes, relying heavily on self-report methods (Lane et al., 2012). From a methodological standpoint, the development of the ACE holds important implications for the advancement of sport coaching knowledge and practice. In addition to providing a key segue from the coaching literature to emotions as a significant contextual feature underlying coach behaviours, this new instrument permits the specific study of emotions from a behavioural perspective, beyond only subjective experience.

Growing interest in the interpersonal regulation of emotions suggests coaches, athletes, and individuals in other sport roles experience emotions as part of dynamic, reciprocal interactions between one another (Friesen et al., 2013; Uphill & Dray, 2013). As prominent figures in the sport environment, coaches have the capacity to regulate the emotions of not only themselves, but also their athletes, parents of athletes, spectators, and sport officials. In particular,
the potential for coaches’ emotional behaviours to reinforce or alter the emotions of athletes can produce significant consequences for athletes’ performance and continued participation in sport (e.g., Hanin, 2000; Lazarus, 2000; Mohiyeddini, Pauli, & Bauer, 2009). Additionally, burgeoning awareness of negative spectator behaviours – specifically in reference to youth sport parents (e.g., Omli, LaVoi, & Wiese-Bjornstal, 2008; Smoll, Cumming, & Smith, 2011) – further emphasizes the need for coaches to be cognizant of how their emotions may influence the emotional behaviours of others in the sport context.

Emotional intelligence training has already been successfully adopted as a means of improving intrapersonal and interpersonal competencies concerning the expression, comprehension, regulation, and discrimination of emotions among students in business and medicine, as well as professionals in management positions (Clarke, 2010; Fletcher, Leadbetter, Curran, & O’Sullivan, 2009; Tucker, Sojka, Barone, & McCarthy, 2000). As leaders in the sport domain, coaches may also benefit from training designed to enhance interpersonal emotion skills and regulation. Accordingly, sport organizations or program directors may wish to employ the ACE as a tool to assist in the design, implementation, and evaluation of emotion-targeted coaching interventions. For instance, observational assessments of coaches’ emotions pre and post intervention may supplement additional measures (e.g., Emotional Intelligence Scale: Schutte et al., 1998) to evaluate intervention effectiveness, while also providing coaches’ with direct feedback concerning their emotional behaviours. As an added benefit, the ACE can easily be adapted to code for multiple individuals in the sport environment, thus highlighting the dynamic emotional interactions that occur between coaches and athletes, officials, or even spectators (e.g., Lewis, Lamey, & Douglas, 1999; Hollenstein, 2007).
The ACE can also be easily adapted for use with any content-based systematic observation instrument designed to assess coach behaviour. Dating back to the 1970s, instruments such as the Coach Behavior Recording form (Tharpe & Gallimore, 1976), CBAS (Smith et al., 1977), and ASUOI (Lacy & Darst, 1984) have been adapted and evolved into more refined, intensive tools, including the CAIS (Cushion et al., 2012), CAICS (Erickson et al., 2011), and Para-CAICS (Turnnidge et al., 2014). While these newer tools enable more detailed and nuanced data regarding coaches’ individual and interactive behaviours in practice, competition, and intervention contexts, these instruments have yet to hone in on the contextual qualities that determine not what, but how coaches’ perform as coaches. In line with the recent development of observational coding systems designed to capture coaches’ motivational tone (Erickson & Côté, in press) and autonomy support (Webster et al., 2013), the ACE enables enhanced contextualization of coaching behaviours. Altogether, the addition of ACE emotion categories to any content-based behavioural observation instrument not only emphasizes the emotional context of coach behaviours, but also allows such systems to be tailored to the specific environment or intervention setting.

Limitations

Although a novel and unique tool for coaching research and intervention, use of the ACE is not without limitations. First, emotions can be difficult to discern in the sport environment. Given the size, volume, and – at times – chaotic nature of a typical sport setting, these environments are often problematic for audio-visual recording requiring the degree of detail necessary to convey subtle emotional cues, including facial expressions, body language, and verbal tone. Second, the ACE can only measure emotions that are expressed through visible cues. Although there is a behavioural component to the emotional response, emotions are also
experienced through subjective feeling states or physiological changes that may not be explicitly stated or observed (see Lazarus, 1991). Third, the emotion categories that make up the ACE were designed with moderate levels of content meaning and coder inference (Alexander et al., 1995); thus, some degree of observer bias is inevitable. Fourth and finally, the ACE is subject to the limitations of any observational research. For instance, the Hawthorne effect: Participants may alter their behaviour as a result of their awareness of being observed (Colman, 2008).

To address these limitations, a number of strategies can be implemented in future research. For example, the use of high quality audio-visual recording equipment would allow for more detailed coding of the resulting footage. In addition, prospective observers may be screened to assess emotion coding potential using measures of Emotional Intelligence or by test coding short video clips. To strengthen inter-observer reliability, multiple coders (i.e., > 2) should be employed when feasible, while also enforcing stringent coder training protocols and standards of acceptable agreement. Furthermore, integration of additional measures of emotion (e.g., self-report questionnaires) may improve the overall content validity of the system by enabling the joint assessment of emotional behaviours, subjective feeling states, and physiological arousal. Further validation of the ACE should be carried out in sport contexts not included in the development of the current system, including competition settings, individual sports, and adapted sport contexts. Finally, an overview of the system with a representative sample of sport coaches may serve to enhance the face validity of the ACE.

**Conclusion**

Throughout a rigorous system of development, validation, and establishing acceptable levels of reliability, this paper presents the ACE as an important tool for both researchers and practitioners to advance the coaching literature and inform best practices for sport coaches.
Ideally, continued use and adaptation of the ACE will enhance insight into the contextual qualities underlying coach behaviours and the interpersonal nature of emotion regulation.
References


Chapter 4

Examining the influence of coaches’ emotional profiles on adolescent athlete development
Abstract

In light of recent interest concerning the interpersonal consequences of emotion regulation in sport, the current investigation sought to explore the relationship between coaches’ emotions and adolescent athletes’ psychosocial development. Participants were male head coaches ($N = 9$, $M = 47.00$, $SD = 5.89$) and their respective female adolescent competitive club soccer athletes ($N = 134$, $M = 14.54$, $SD = 1.31$) from southeastern Ontario. Systematic observation was employed for the assessment of coaches’ emotions using a novel methodology, and athletes completed measures of the 4 Cs (Competence, Confidence, Connection, Character) to assess developmental outcomes through sport. Cluster analyses based on the proportional frequencies of observed emotion-behaviour combinations revealed the presence of two distinct groups: ‘calm, inquisitive’ coaches ($n = 6$) and ‘intense, hustle’ coaches ($n = 3$). No significant effects of group membership were found for Confidence, Competence, or Connection to the coach; however, there was a significant impact of coach group on measures of Character. Despite the comparable success of all coaches in facilitating 3 of the 4 Cs, emotional qualities of coaches’ behaviours appear to have a distinct influence on Character development of young athletes.

KEYWORDS: Emotions; coaching; positive youth development; moral behaviour; observation
Examining the influence of coaches’ emotional profiles on adolescent athlete development

In the youth sport context, the role of coaches in fostering positive developmental experiences among athletes has been embraced as a fundamental approach to effective youth sport programming (Fraser-Thomas, Côté, & Deakin, 2005). According to Horn (2008), an effective coach should be able to cultivate positive sport performance or psychosocial outcomes in his or her athletes. More specifically, Côté and Gilbert (2009) have put forward a cohesive definition of coaching effectiveness that builds on a previously established framework for athlete development: “The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes’ Competence, Confidence, Connection, and Character in specific coaching contexts” (p. 316). In this definition, Competence, Confidence, Connection, and Character refer to the 4 Cs of Positive Youth Development (PYD), a perspective on adolescence advocating that all youth are capable of positive, successful, and healthy development (Lerner et al., 2005). Thus, PYD represents an important framework to guide coaching practice.

The 4 Cs model, initially proposed by Little (1993), was expanded by Lerner and colleagues (2005) to include a fifth C (Caring/Compassion) in the developmental psychology literature. However, Côté, Bruner, Erickson, Strachan, and Fraser-Thomas (2010) have recommended a return to the original 4 Cs in reference to athlete development following the finding that Caring, Compassion, and Character are not well differentiated in the sports literature. As such, coaching effectiveness may be assessed using the 4 Cs as a framework of desirable athlete outcomes (Côté & Gilbert, 2009), whereby both performance (Competence) and psychosocial outcomes (Confidence, Connection, and Character) are accounted for in developing
young athletes (Vierimaa, Erickson, Côté, & Gilbert, 2012). Subsequently, Vierimaa and colleagues (2012) developed a toolkit designed to practically assess each of the 4 Cs using existing instruments and techniques grounded in the sport and PYD literature. This toolkit represents not only a straightforward method of assessing PYD, but also a comprehensive measure of coaching effectiveness.

Over the past few decades, coaching research has focused increasingly on coach-athlete interactions and explicitly on coaches’ overt behaviours (Potrac, Gilbert, & Denison, 2013). As such, the study of coaching has been influenced heavily by the introduction of systematic observation protocols (Kahan, 1999). The Coach Behavior Assessment System (CBAS; Smith, Smoll, & Hunt, 1977), a systematic observation instrument developed to examine the influence of coach behaviours on child athletes, has led the way in terms of research designed to enhance youth sport coaching with respect to positive athlete development (e.g., Curtis, Smith, & Smoll, 1979; Smith & Smoll, 1990; Smith, Smoll, & Curtis, 1978; Smith, Smoll, & Curtis, 1979; Sousa, Smith, & Cruz, 2008). More recently, the Coach-Athlete Interaction Coding System (CAICS; Erickson, Côté, Hollenstein, & Deakin, 2011) and the Para-CAICS (Turnnidge, Côté, Hollenstein, & Deakin, 2014) have been modeled after the CBAS for the purpose of examining coach-athlete interactive behaviours in able-bodied and adapted youth sport contexts, respectively.

Despite the progression of behavioural observation research in the youth sport and broader coaching literature, this research has been criticized for focusing too heavily on coaches’ pedagogical and teaching behaviours, thus neglecting more abstract qualities associated with coaches’ interactive behaviour (Cushion, 2010; Horn, 2008; Gallimore & Tharpe, 2004). While instruments such as the CBAS, CAICS, and Para-CAICS are focused heavily on the content of coach behaviours, various techniques can be applied throughout data analysis to help unveil the
contextual properties of these behaviours. For instance, data from the CBAS has been analyzed to assess individually distinctive behaviour-situation patterns, known as behavioural signatures, in a sample of little league baseball coaches (Smith, Shoda, Cumming, & Smoll, 2009). Furthermore, the CAICS and Para-CAICS have been paired with the state space grid method (Lewis, Lamey, & Douglas, 1999) – a technique that tracks the trajectory of dyadic interactions over time, demonstrating specific patterns and qualities that characterize an interaction (Erickson et al., 2011; Turnnidge et al., 2014).

Additionally, the recent publication of several new instruments have begun to answer the calls for more sensitive and contextualized behavioural observation protocols in coaching research (Brewer & Jones, 2002; Cushion, Harvey, Muir, & Nelson, 2012; Gilbert & Trudel, 1999). For instance, the Coach Analysis and Intervention System (CAIS; Cushion et al., 2012) contextualizes coaching behaviours by detailing the specific activity, recipient, timing, content, and nature of each behaviour identified within the system. As such, the CAIS enables the examination of coaching behaviours in complex environments from a multi-dimensional and highly nuanced perspective (Cushion et al., 2012). Other examples include the Assessment of Coaching Tone (ACT; Erickson & Côté, in press) and the MPOWER (Webster et al., 2013), systematic observation instruments designed specifically for use in the youth sport context. More specifically, the MPOWER is intended to capture coaching behaviours that promote athletes’ sense of autonomy (Webster et al., 2013). Alternatively, the ACT evaluates the motivational tone of coaching behaviours based on the associated degree of autonomy support, type of evaluation climate, and level of coach-athlete rapport (Erickson & Côté, in press).

Although observational work evaluating coaches’ motivational tone and autonomy support represents an important first step in exploring the delivery and facilitation of effective
coaching behaviours, other tone-related qualities may also hold important implications for coaching practice and consequently athlete development. For instance, the emotional nature of coaching has received relatively little attention in the sport literature (Potrac, Jones, Purdy, Nelson, & Marshall, 2013), despite the emphasis placed on emotions and emotional processes among athletes (e.g., Friesen et al., 2013; Uphill & Dray, 2013). Emotion regulation is often conceptualized at the intrapersonal level in sport research, encompassing physiological changes, subjective feelings states, and specific behaviours or impulses to act (see Lazarus, 1991), but the interpersonal nature of emotional processes is gaining popularity (see review by Friesen et al., 2013). That being said, emotions have the capacity to influence interpersonal relationships in two ways: (a) the behaviour expressed toward an individual as the result of the emotion experienced toward that same individual, and (b) the effect that one person’s emotional expression can have on the thoughts, feelings, and behaviours of others (Vallerand, 1983). As such, coaches’ emotions may have profound effects on not only their own behaviours, but on the thoughts, feelings, and behaviours of athletes in their immediate sport environment.

Observational tools such as the Specific Affect Coding System (SPAFF; Gottman & Krokoff, 1989) and the Family and Peer Process Code (FPPC; Stubbs et al., 1998) have been used to examine the emotional tone of interactions between children, their parents, and their peers outside of the sport context (e.g., Coan & Gottman, 2007; Stubbs et al., 1998). Following a comparable structure, the recent development of the Assessment of Coach Emotions (ACE) systematic observation instrument (Allan, Turnnidge, Vierimaa, Davis, & Côté, 2014; refer to first manuscript) enables the evaluation of coaches’ observable emotions in the context of specific coaching behaviours. While the literature on emotion in coaching is limited, there is some evidence to indicate that coaches’ emotional characteristics can have important implications for
coaching efficacy (Thelwell, Lane, Weston, & Greenless, 2008), the quality of the coach-athlete relationship (Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008), athletes’ perceptions of pre-game speeches (Vargas-Tonsing & Guan, 2007), and athletes’ perceptions of the coach (Becker, 2009). Given the influential role of the coach in developing young athletes (Fraser-Thomas et al., 2005; Horn, 2008), the ACE permits a novel and unique methodological approach to a previously unexplored topic in the sport psychology literature.

The purpose of the present investigation was to examine any associations between coaches’ emotional profiles in the team training environment and athletes’ self-perceived ratings of the 4 Cs as indicators of PYD. In this study, an emotional profile referred to the presence of characteristic emotion-behaviour combinations, determined via ACE coding, that distinguished one coach or group of coaches from another coach or group of coaches. As such, the investigation was guided by the following research question: How will athletes’ perceptions of their own competence, confidence, connection, and character differ depending on the emotional profile of their coach?

**Methods**

Recruitment of participants and collection of all data was initially carried out as part of a qualitative examination of coach-athlete interactions in youth sport (see Buckham, 2013). As such, the participants and procedures in the present paper are in accordance with those reported in the initial study. Subsequently, this data has been re-analyzed and the results are presented herein.

**Participants**

Head coaches of nine female competitive club soccer teams and their athletes were recruited from cities in eastern and southern Ontario. All coaches were male, between the ages of 35 and 54 (\(M = 47.00, SD = 5.89\)), with an average of 13.10 years of sport-specific coaching
experience ($SD = 7.08$). At the time of data collection, participating coaches had been working with their respective teams for a minimum of 6 months and were certified with an entry-level coaching qualification or higher. Recruited teams consisted of adolescent female athletes ($N = 134$) between 12 and 18 years of age ($M = 14.54$, $SD = 1.31$), with an average of 8.73 years of experience playing soccer.

**Procedure**

Prior to study participation, coaches, athletes, and parents of athletes were required to provide active written consent (letters of information and consent forms are included in Appendix C and Appendix D, respectively). For each team, data collection took place mid- to late-season within a two-month time period. Each team was video-recorded during two training sessions occurring within two weeks of one another. The first training session recorded served as a pilot in order to familiarize coaches and athletes to the presence of the researcher and the recording equipment, in addition to ensuring the proper functioning and settings of all equipment. The second training session recorded was intended for the purpose of data analysis. One actively-operated video camera was used to capture coaching behaviours and coach-athlete interactions. Each coach also wore a lapel microphone in order to capture coaches’ verbalizations during interactions and practice instruction. Training sessions were all between 1 and 2 hours, with an average duration of approximately 1.5 hours, resulting in roughly 27 hours of total video-recorded footage. Preceding the video-recorded sessions, athletes from each team completed the PYD toolkit without any interference from the coach.

**Measures**

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1 Please note that Sara Buckham is listed as the principle investigator on all letters of information and consent forms. This data was originally collected as part of a study for which she was the primary researcher (refer to Buckham, 2013).
**PYD toolkit.** The PYD toolkit (Vierimaa et al., 2012) was employed to assess athletes’ perceptions of the 4 Cs in their current organized sport context, encompassing the following battery of questionnaires: (a) the Sport Competence Inventory (adapted from Causgrove Dunn, Dunn, & Bayduza, 2007), (b) the self-confidence subscale of the Revised Competitive State Anxiety-2 (CSAI-2R; Cox, Martens, & Russell, 2003), (c) the Coach-Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004), and (d) the Prosocial and Antisocial Behavior in Sport Scale (PABSS; Kavussanu & Boardley, 2009). To view the complete questionnaires, refer to Appendix B.

Using the Sport Competence Inventory, athletes rated themselves on a 5-point scale ranging from 1 (Not at all competent) to 5 (Extremely competent) in three areas: Technical skills, tactical skills, and physical skills. To assess sport confidence, the self-confidence subscale consists of 5 items (e.g., ‘I’m confident about performing well’) rated on a 4-point scale ranging from 1 (Not at all) to 4 (Very much so). Moreover, the CART-Q is an 11-item questionnaire that measures the emotional (i.e., Closeness; e.g., “I trust my coach”), cognitive (i.e., Commitment; e.g. “I am committed to my coach”), and behavioural (i.e., Complementarity; e.g., “When I am coached by my coach, I am at ease”) components of the coach-athlete relationship. These items are rated on a 7-point scale ranging from 1 (Not at all) to 7 (Extremely). Finally, character was assessed using the PABSS, which consists of 20 items evaluating how often athletes engage in specific prosocial (e.g., ‘Encouraged a teammate’) and antisocial (e.g., ‘Criticized an opponent’) behaviours, scored on a 5-point scale ranging from 1 (Never) to 5 (Very often). These items are further broken down into behaviours directed towards teammates and behaviours directed towards opponents, for a total of 4 subscales.
**Behavioural observation.** The Assessment of Coach Emotions (ACE) systematic observation instrument (Allan et al., 2014; refer to first manuscript) was employed for the coding of video-recorded data. Coding was continuous in nature, resulting in a stream of time series data (i.e., a code would remain active once entered, and terminated only at the activation of a new code) and the subsequent ability to calculate both the frequency and duration of a given behaviour. Prior to its utilization in the present study, the ACE was subject to rigorous reliability testing and validation (Allan et al., 2014; refer to first manuscript). Additionally, observers took part in a standard training protocol prior to partaking in any coding for research purposes, and subsequent inter- and intra-rater reliability checks were performed. All behavioural coding was conducted with Noldus Observer Software (Version 9: Noldus, Trienes, Hendricksen, Jansen, & Jansen, 2000).

The ACE was developed for observations of coaches in the team sport environment; thus, coaches are the target subjects of all coding. Using the ACE, coaches’ behaviours are represented by a combination of three codes: content, emotion, and recipient. While not the primary focus of the ACE, content codes describe the various categories of coach behaviours. There are 12 categories of coach behaviours employed within the ACE: organization, keeping control/standards of behaviour, hustle, instruction/feedback, encouragement, positive evaluation, negative evaluation, questioning, general communication, communication with others, observation, and not engaged. As such, content codes provide context for subsequent assignment of emotion modifiers. Accordingly, emotions are the foremost feature of the ACE, and are coded as modifiers of each established content code. Emotions are coded based on a combination of cues, including verbal tone and content, facial expressions, and body language. In total, there are eight emotion codes: happy, affectionate, alert, neutral, tense, anxious, angry, and disappointed.
These emotion codes represent both positive (i.e., happy, affectionate, alert) and negative (i.e., tense, anxious, angry, disappointed) emotions, with a neutral code intended to capture any behaviours not associated with any affective qualities. Finally, a recipient code is required to indicate the target of any interactive coach behaviours: *individual athlete* or *team*. For full details concerning code descriptions and cues, coding decision rules, and specific examples, consult the ACE coding system manual (Appendix A).

**Coder Training and Reliability**

Complete procedures for coder training are outlined in the first manuscript, along with the ACE coding system manual (Appendix A). One primary observer was identified to complete the coding of all videos for data analysis. Prior to coding these videos, this observer was required to meet an overall minimum agreement of 75% (e.g., Erickson et al., 2011; Hollenstein, Granic, Stoolmiller, & Snyder, 2004) on two consecutive test segments when compared to a ‘gold standard’ of coding completed by the primary researcher. Likewise, this observer was also required to meet an acceptable level of intra-observer agreement upon recoding these videos following a two-week interval. Further assessments of intra- and inter-observer reliability were successfully completed throughout the coding process. Full results of reliability testing can be viewed in the first manuscript.

**Data Analysis**

In an attempt to avoid any issues resulting from hierarchical data (e.g., athletes’ responses may be influenced by their coach or training environment, and are thus nested within each team), the data analysis strategy for this study involved grouping the coaches based on emotional qualities associated with coaching behaviours. Consequently, the resulting groups were compared
with respect to athletes’ responses on the 4 Cs questionnaires. All statistical analyses were performed using SPSS software (version 22).

The first stage of analysis comprised a cluster analysis, intended to separate the nine coaches into distinct groups. Frequencies for each content-emotion code combination (e.g., ‘instruction/feedback-alert’, ‘negative evaluation-tense’, etc.), standardized as a proportion of the total frequency count of all combinations for each coach, were included as variables in the cluster analysis. However, in order to maintain focus on the expressive emotions and coach-athlete interactive behaviours, any variable with no data or variables including the emotion code neutral and the content codes communication with others, observation, or not engaged were excluded, respectively. In addition, the following codes were collapsed on the basis of infrequent use, use in similar situations, and representation of similar constructs: (a) happy and affectionate, (b) anxious, angry, and disappointed, (c) organization and keeping control/standards of behaviour, and (d) encouragement and positive evaluation. In total, four emotion codes and seven content codes were combined (excluding one variable with no data), resulting in 27 variables of interest entered into the cluster analysis. A hierarchical cluster analysis, using Ward’s method and applying squared Euclidean distance as a measure, was first conducted to determine the number of clusters. Second, a \( k \)-means cluster analysis was performed to form the resulting clusters. Follow-up statistical tests (i.e., independent samples t-tests) were conducted to analyze specific group differences.

In the second stage of data analysis, the previously formed coach groups were compared with respect to athletes’ self-rated scores on the 4 Cs questionnaires. Following initial screening of the data, one-way ANOVAs were employed for group comparisons independently assessing average scores for Competence and Confidence. Given the presence of distinct subscales in the
measures of Character and Connection to the Coach, MANOVAs were performed to assess each of these constructs. For Connection to the coach, average scores for each of three subscales – closeness, commitment, and complementarity – were included in the MANOVA. Alternatively, four subscales were assessed in the MANOVA for Character, including prosocial behaviours directed towards teammates, antisocial behaviours directed towards teammates, prosocial behaviours directed towards opponents, and antisocial behaviours directed towards opponents. In the case of a significant MANOVA, individual ANOVAs were planned to determine specific differences in each of the subscales. Planned contrasts were also reported in the event of a significant ANOVA.

**Results**

**Behavioural Data**

**Data screening.** Non-normal distributions and unequal variances were identified for 11 and 8 of the 46 total observation variables (includes independent emotion and content variables and combination variables), respectively. Violations of assumptions were primarily confined to variables containing small amounts of data, particularly considering the small size of the sample ($N = 9$). Thus, bootstrapping techniques were used in subsequent statistical tests to estimate the properties of the sampling distribution based on a bootstrap sample of 1000 (Efron & Tibshirani, 1993).

**Sample size.** Presently, there is no generally accepted rule governing the minimum sample size or relationship between sample size and the number of clustering variables used within a cluster analysis (Mooi & Sarstedt, 2011). Nonetheless, to further validate the division and successive composition of coach groups, qualitative observations were included to support the results of the cluster analysis.
Cluster analysis. A hierarchical cluster analysis determined the presence of two distinct clusters. Subsequently, a k-means analysis was used to identify the group membership of each of the nine coaches: three coaches in the first cluster (C2, C8, C9) and six coaches in the second cluster (C1, C3, C4, C5, C6, C7). To determine the characteristics representative of each cluster, independent samples t-tests were conducted on all emotion and content variables, independently and in combination. On average, the coaches in Group 1 engaged in significantly more instances of ‘organization/keeping control/standards of behaviour-alert’, ‘hustle-neutral’, ‘hustle-alert’, and ‘hustle’ overall than coaches in Group 2. Also relative to Group 2, coaches in the first group tended to be more ‘alert’ overall, although this was not a significant difference. Alternatively, coaches in the Group 2 engaged in significantly more instances of ‘organization/keeping control/standards of behaviour-neutral’, ‘questioning-neutral’, ‘questioning-anxious/angry/disappointed’, and ‘questioning’ overall than coaches in Group 1. Refer to Table 2 for descriptive statistics by cluster and results of significant independent samples t-tests as outlined in the above text.

Observers’ reflections of coaches in the previously-coded video footage – recorded in a coding log – confirmed the presence of two distinct clusters, differentiated primarily by engagement in ‘hustle’ (i.e., verbal statements intended to activate or intensify the efforts of the athletes) and ‘questioning’ (i.e., questions posed to elicit athletes’ knowledge, thoughts, feelings, and opinions) behaviours, in combination with the ‘alert’ emotion (i.e., positive arousal or intensity). Accordingly, Group 1 coaches (n = 3) are characterized by engagement in more alert organizational behaviours, overall hustle behaviours, and high levels of arousal; comparatively, Group 2 coaches (n =6) tend to display more neutral organizational behaviours, overall questioning behaviours, and a more balanced, even-tempered emotional demeanor.
<table>
<thead>
<tr>
<th>Individual and Combination ACE Variables</th>
<th>Cluster 1 M (SE)</th>
<th>Cluster 2 M (SE)</th>
<th>M_difference</th>
<th>BCa 95% CI</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization/Keeping Control/Standards of Behaviour-Neutral</td>
<td>.113 (.011)</td>
<td>.194 (.020)</td>
<td>.081</td>
<td>.042, .140</td>
<td>2.758</td>
<td>7</td>
<td>.028</td>
<td>.722</td>
</tr>
<tr>
<td>Organization/Keeping Control/Standards of Behaviour-Alert</td>
<td>.115 (.016)</td>
<td>.047 (.005)</td>
<td>-.068</td>
<td>-.100, -.047</td>
<td>-5.178</td>
<td>7</td>
<td>.001</td>
<td>.891</td>
</tr>
<tr>
<td>Hustle-Neutral</td>
<td>.007 (.001)</td>
<td>.001 (&lt;.001)</td>
<td>-.006</td>
<td>-.008, -.004</td>
<td>-5.534</td>
<td>7</td>
<td>.001</td>
<td>.902</td>
</tr>
<tr>
<td>Hustle-Alert</td>
<td>.040 (.013)</td>
<td>.008 (.003)</td>
<td>-.032</td>
<td>-.059, -.006</td>
<td>-3.356</td>
<td>7</td>
<td>.012</td>
<td>.786</td>
</tr>
<tr>
<td>Questioning-Neutral*</td>
<td>.016 (.001)</td>
<td>.045 (.007)</td>
<td>.029</td>
<td>.011, .051</td>
<td>3.932</td>
<td>5.310</td>
<td>.010</td>
<td>.863</td>
</tr>
<tr>
<td>Questioning-Anxious/Angry/Disappointed*</td>
<td>0</td>
<td>.002 (.001)</td>
<td>.002</td>
<td>.001, .003</td>
<td>2.662</td>
<td>5.000</td>
<td>.045</td>
<td>.765</td>
</tr>
<tr>
<td>Hustle</td>
<td>.051 (.013)</td>
<td>.016 (.004)</td>
<td>-.034</td>
<td>-.063, -.007</td>
<td>-3.366</td>
<td>7</td>
<td>.012</td>
<td>.787</td>
</tr>
<tr>
<td>Questioning*</td>
<td>.025 (.005)</td>
<td>.062 (.007)</td>
<td>.037</td>
<td>.019, .054</td>
<td>4.249</td>
<td>6.997</td>
<td>.004</td>
<td>.849</td>
</tr>
<tr>
<td>Alert*</td>
<td>.279 (.035)</td>
<td>.142 (.009)</td>
<td>-.138</td>
<td>-.190, -.068</td>
<td>-3.750</td>
<td>2.291</td>
<td>.052</td>
<td>.927</td>
</tr>
</tbody>
</table>

Note. Cluster 1 includes 3 coaches and Cluster 2 includes 6 coaches. Bias corrected and accelerated bootstrapping based on 1000 bootstrap samples. *For these variables, equality of variances could not be assumed and alternative values have been reported for the independent samples t-test.
4 Cs Data

Data Screening. Targeted variables from athletes’ scores on the 4 Cs questionnaires were initially screened for the presence of outliers and violations of normality and homogeneity of variance. One univariate outlier was detected as falling outside the acceptable range of 3.29 standard deviations from the mean (Tabachnick & Fidell, 2009), and this value was substituted for the next highest value falling within the acceptable range in subsequent analyses (Field, 2013). Variables representing antisocial behaviours as a part of the Character construct (i.e., antisocial behaviours directed towards teammates, antisocial behaviours directed towards opponents), each presented significant violations to assumptions of normality and homogeneity of variance. Consequently, a random sample of the larger coach group (group two) was selected such that the sample sizes for each group were equivalent. Field (2013) presents evidence to suggest that when group sizes are equal, ANOVAs are quite robust to non-normality and unequal variances; thus, equalizing the sample sizes served to reduce the impact of any corresponding bias. As an additional measure, Welch’s F (Welch, 1951) – a corrected version of the F-ratio, accounting for unequal variances – has been reported for all one-way ANOVAs.

In reporting the results of any planned contrasts, values for ‘equal variances not assumed’ have been reported in the appropriate cases. Bootstrapped estimates for the parameters of the sampling distribution based on a bootstrap sample of 1000 have also been reported as necessary. Finally, having corrected for any issues stemming from violated assumptions of the one-way ANOVA, assumptions supporting the MANOVA were subsequently examined and met. Although various measures have been implemented to address statistical issues arising from the sample at hand, it is possible that such issues (i.e., unequal variances, non-normal distribution patterns) represent characteristics corresponding to this particular population. The results
presented here may not be generalizable beyond the current sample, but are still able to offer meaningful avenues for future research and thoughtful considerations for coaching practice.

**Group comparison.** Using independent one-way ANOVAs, no significant effects of group membership were found for athletes’ ratings of Competence, $F(1, 75.277) = 2.280, p = .135$, or Confidence, $F(1, 76.258) = 2.758, p = .101$. For Connection to the Coach and Character, MANOVAs were performed to assess the combined effect of the subscales that make up these constructs. According to Pillai’s trace, there was no significant effect of group membership on the behavioural, cognitive, and emotional components that constitute Connection to the coach, $V = .015, F(3, 88) = .436, p = .728$. However, there was a significant effect of group membership on athlete-reported prosocial and antisocial behaviours, $V = .164, F(4, 87) = 4.353, p = .003$. To better understand the components of Character that differed as a result of the coach groups, independent one-way ANOVAs were conducted on each of the Character subscales.

First, no significant effects of group membership were present for athletes’ ratings of prosocial behaviours directed towards teammates, $F(1, 87.638) = .002, p = .965$; however, there was a significant effect of coach group on ratings of prosocial behaviours directed towards opponents, $F(1, 86.292) = 12.503, p = .001$. Examining this effect more closely, athletes of Group 2 coaches scored significantly higher on ratings of prosocial behaviours directed towards opponents ($M = 2.833, SE = .138, BCa 95% CI [2.542, 3.136]$) than their Group 1 counterparts ($M = 2.217, SE = .106, BCa 95% CI [2.014, 2.418])$, $t(90) = 3.536, p = .001, r = .349$. Similarly, no significant effects of group membership were found for athletes’ ratings of antisocial behaviours directed towards teammates, $F(1, 78.487) = .001, p = .973$; but, there was a significant effect of coach group on ratings of antisocial behaviours directed towards opponents, $F(1, 85.170) = 4.240, p = .043$. Planned contrasts revealed that athletes of Group 1 coaches scored
significantly higher on ratings of antisocial behaviours directed towards opponents ($M = 2.348$, $SE = .117$, BCa 95% CI [2.120, 2.574]) than athletes of Group 2 coaches ($M = 2.041$, $SE = .091$, BCa 95% CI [1.876, 2.208]), $r(85.170) = -2.059$, $p = .043$, $r = .218$.

For full details concerning descriptive statistics by cluster for measures of Competence, Confidence, and Connection to the coach, see Table 3. Descriptive statistics and planned contrasts corresponding to measures of Character among the coach groups are shown in Table 4.

Table 2

*Descriptive statistics by cluster for athletes’ responses on measures of Competence, Confidence, and Connection to the coach*

<table>
<thead>
<tr>
<th>Measures</th>
<th>Group 1 (n = 46)</th>
<th>Group 2 (n = 46)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$ (SE)</td>
<td>BCa 95% CI</td>
</tr>
<tr>
<td>Sport Competence Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>4.031 (.066)</td>
<td>3.902, 4.156</td>
</tr>
<tr>
<td>CSAI-2R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Confidence</td>
<td>3.241 (.065)</td>
<td>3.111, 3.362</td>
</tr>
<tr>
<td>CART-Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>5.580 (.133)</td>
<td>5.290, 5.862</td>
</tr>
<tr>
<td>Closeness</td>
<td>6.386 (.085)</td>
<td>6.201, 6.561</td>
</tr>
<tr>
<td>Complementarity</td>
<td>5.978 (.118)</td>
<td>5.723, 6.221</td>
</tr>
</tbody>
</table>

*Note.* Bias corrected and accelerated bootstrapping based on 1000 bootstrap samples.
Table 3

*Descriptive statistics by cluster and planned contrasts for athletes’ responses on measures of Character*

<table>
<thead>
<tr>
<th>PABSS Subscales</th>
<th>Group 1 (n = 46)</th>
<th>Group 2 (n = 46)</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prosocial Behaviours</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directed towards teammates</td>
<td>4.016 (.093)</td>
<td>4.011 (.077)</td>
<td>-.045</td>
<td>90</td>
<td>.965</td>
<td>.005</td>
</tr>
<tr>
<td>Directed towards opponents</td>
<td>2.217 (.106)</td>
<td>2.833 (.138)</td>
<td>3.536</td>
<td>90</td>
<td>.001</td>
<td>.349</td>
</tr>
<tr>
<td><strong>Antisocial Behaviours</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directed towards teammates</td>
<td>1.696 (.107)</td>
<td>1.691 (.070)</td>
<td>-.034</td>
<td>78.847</td>
<td>.973</td>
<td>.004</td>
</tr>
<tr>
<td>Directed towards opponents</td>
<td>2.348 (.117)</td>
<td>2.041 (.091)</td>
<td>-2.059</td>
<td>85.170</td>
<td>.043</td>
<td>.218</td>
</tr>
</tbody>
</table>

*Note.* Bias corrected and accelerated bootstrapping based on 1000 bootstrap samples.
Discussion

Based on these findings, the emotional qualities associated with coach behaviours appear to influence the moral development of young athletes. First, two distinct emotion-behaviour profiles emerged among the coaches: (a) coaches who generally demonstrate high levels of positive arousal or alertness, frequently hustling the athletes, and (b) coaches who are even-tempered in nature, routinely eliciting input or information from athletes. Hence, these groups have been labeled the ‘intense, hustle’ coaches (Group 1) and the ‘calm, inquisitive’ coaches (Group 2), respectively. While no differences were found among the coach groups in terms of Competence, Confidence, or Connection to the Coach, there was a significant effect on the measures that make up the Character construct. More specifically, athletes of ‘calm, inquisitive’ coaches reported higher levels of prosocial behaviours and lower levels of antisocial behaviours than athletes of ‘intense, hustle’ coaches. Interestingly, this effect was only seen in behaviours directed towards opponents; there were no group differences in athletes’ treatment of teammates.

Considering interpersonal frameworks of emotion regulation, athletes’ perceptions of coaches’ emotional behaviours have the potential to generate, reinforce, or alter the emotions and corresponding behavioural responses of athletes (Friesen et al., 2013; Uphill & Dray, 2013; Vallerand, 1983). In the case of the ‘intense, hustle’ coaches, athletes’ perceptions of arousal or intensity may translate into aggressive or antisocial behaviours. “Hustles” are unique to the sport context; they maintain the speed and intensity of a practice, while also encouraging skill and precision (Gallimore & Tharpe, 2004). Though not necessarily negative or hostile in nature, high levels of arousal intended to motivate or intensify the efforts of athletes may induce a “win-at-all-
costs” attitude at the expense of athletes’ ethical or moral development (e.g., Rieke, Hammermeister, & Chase, 2008; Stoll & Beller, 2000).

In contrast, Rutten et al. (2007) found that adolescent athletes who perceive a favourable sociomoral atmosphere and positive relationships with coaches and peers in organized sport report more prosocial behaviour and less antisocial behaviour than those who do not. Correspondingly, the ‘calm, inquisitive’ coach group may foster a sport environment that embodies these characteristics. Drawing on transformational leadership theory (Bass, 1985), coaches who consistently elicit and value the input of athletes demonstrate intellectual stimulation and individualized consideration, key tenets underlying effective leadership behaviours. Athletes have echoed these findings in studies examining athletes’ perspectives on preferred coach behaviours (Rieke et al., 2008; Stewart, 1993).

Athletes also value emotional stability as an important attribute of effective coaches (Becker, 2009). Furthermore, previous research has indicated that coaches who exhibit meaningful, yet predictable behaviours experience more positive athlete outcomes (Erickson et al., 2011; Smith et al., 2009; Turnnidge et al., 2014). As such, coaches who are more even-tempered in nature may be perceived as more predictable or stable than those who engage in more alert, or highly aroused emotional expressions. Fittingly, emotional intelligence – the ability to perceive, facilitate, understand, and manage emotions (see Salovey & Mayer, 1990) – has emerged as an important characteristic of great leaders over the past several years (e.g., Caruso, Mayer, & Salovey, 2003; George, 2000). Among coaches, emotional intelligence has been positively correlated with perceptions of coaching efficacy (Thelwell et al., 2008); coaches must be able to evaluate and regulate their own emotions according to the specific situations they encounter in the sport environment (Gould, Greenleaf, Guinan, & Chung, 2002; Thelwell et al.,
2008). For example, coaches who are unable to effectively manage stress in high-pressure situations may increase the stress levels of their athletes, resulting in possible detriments to performance (Fletcher & Scott, 2010; Gould et al., 2002). Thus, emotional intelligence could represent an important contextual feature underlying the emotional profiles of these coach groups.

Finally, the Prosocial and Antisocial Behaviour in Sport Scale (Kavussanu & Boardley, 2009) was the first instrument of its kind to make the distinction between moral behaviours in sport as a function of the recipient (i.e., teammates and opponents). Coaches who are able to foster quality relationships with their athletes may also foster meaningful connection among peers (Eys, Lougheed, Bray, & Carron, 2009; Jowett & Chaundy, 2004). Additionally, athletes’ perceptions of competence in sport are an important factor determining peer interaction quality (Smith, 2007). Athletes of coaches in both groups scored similarly on Competence and Connection to the coach; thus, the different coach groups may not have influenced the treatment of teammates. Alternatively, differences in moral behaviours directed towards opponents may result from variations in the reasons or motives for engaging in these behaviours (Kavussanu & Boardley, 2009). As earlier mentioned, a “win-at-all-costs” attitude may negatively impact athletes’ ethical or moral development (e.g., Rieke et al., 2008; Stoll & Beller, 2000). On the other hand, coaches who foster a caring climate may develop youth’s ability to regulate positive affect, which in turn can influence athletes’ belief in their ability to empathize and, subsequently contribute to more self-sacrificing behaviours (Gano-Overway et al., 2009). As such, the emotional behaviours of coaches may influence the sociomoral environment experienced by athletes in the competition context – therefore contributing to differential moral treatment of opponents.
The results of this study reflect a necessary first step in elucidating the link between the emotional context of coach behaviours and young athletes’ development through sport. By no means are these findings intended to be prescriptive, but rather, evidence to support the overall importance of coaches’ emotional qualities in the youth sport domain. According to the definition of coaching effectiveness proposed by Côté and Gilbert (2009), these were all reasonably effective coaches – average 4 Cs scores for athletes on every team were relatively high. Furthermore, the coaches possessed a similar capacity to foster athletic skills (Competence), positive beliefs about personal abilities (Confidence), and meaningful coach-athlete relationships (Connection). As such, the emotional profiles revealed and contrasted here do not represent ideal or imperfect styles of coaching. In actuality, these profiles contribute to the small, but growing body of literature highlighting the importance of coaches’ emotional characteristics in athletes’ sport experiences (e.g., Becker, 2009; Lafrenière et al., 2008; Vargas-Tonsing & Guan, 2007).

**Future Directions and Practical Implications**

Given the possibility that coaches’ emotional qualities and behaviours do influence important outcomes in the sport environment – particularly concerning the Character development of young athletes – future research efforts should continue to investigate the emotional nature of coach behaviours. In particular, the mechanism(s) by which coaches’ emotions lead to changes in athletes’ moral development deserve more nuanced attention. There is a need to examine potential mediators or covariates (e.g., motivational tone, passion) that operate in the context of this relationship. Moving forward, this study highlights implications for coaching research in other related areas.

Coaches represent a prospectively important agent in the regulation of athletes’ emotions and thus deserve more specific attention with respect to the interpersonal regulation of emotions.
(e.g., Friesen et al., 2013; Uphill & Dray, 2013). On a similar level, coaches’ emotional intelligence is another area worth further examination (see also Thelwell et al., 2008). Emotional intelligence encompasses the ability to sufficiently understand and regulate the emotions of both the self and others, and therefore aligns closely with the notion of interpersonal emotion regulation (Salovey & Mayer, 1990). These concepts are especially salient given the potential for athletes’ emotional states to influence performance (e.g., Hanin, 2000; Lazarus, 2000), participation (e.g., Mohiyeddini, Pauli, & Bauer, 2009), and now, personal development. Practically, interventions and educational programs targeting youth sport coaches should promote strategies for improving both intrapersonal and interpersonal competencies concerning emotion regulation.

Finally, considering the distinction between teammates and opponents in athletes’ reports of moral behaviours, future research should also examine emotional processes more closely at the recipient level. For instance, what are the motives underlying the execution of prosocial and antisocial behaviours directed towards various individuals and how are these behaviours influenced by emotional properties? In practice, coaches need to be aware that the sociomoral climate they foster among teammates may not translate into the competition setting. Thus, emotional factors influencing sportspersonship represent another important area for consideration in coach education programs.

**Limitations**

Answering the calls for more contextualized methods of examining coaches’ behaviours, the current study features the application of a novel methodology for the assessment of sport coaches’ emotions and behaviours (i.e., the ACE; Allan et al., 2014; refer to manuscript 1). However, observational methods for examining emotions in sport can be limited by the nature of
the sport environment, reliance on visible or audible cues to identify emotions, and observer bias
(refer to manuscript 1). It is also important to note some specific limitations associated with the
present sample. Although the data analysis strategy was intended to avoid any issues related to
hierarchical data by splitting the coaches into distinct groups, rather than looking at athletes’
responses based on individual coaches, the sample used to perform the clustering analysis was
small, particularly considering the large number of clustering variables. Additionally, unique
characteristics of the sampling distribution drawn from some of the athletes’ measures may limit
the generalizability of the sample, despite efforts to manage these variables.

Conclusion

Recognizing the unique and novel aspects of the methodology employed, in combination
with the exploratory nature of the present investigation, the results of this study offer valuable
information concerning the emotional qualities of coach behaviours in the context of adolescent
athlete development. Clearly, the emotions associated with coach behaviours go beyond simply
the content of these behaviours, representing an important factor influencing positive athlete
development, and subsequently, coaching effectiveness.
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Chapter 5: General Discussion

This thesis presents the development of a new valid and reliable systematic observation instrument – the first of its kind to explicitly target the emotions of sport coaches. Additionally, application of this instrument with a sample of nine male soccer coaches and their female adolescent athletes revealed that the emotional qualities associated with coach behaviours may have a significant influence on the personal development of young athletes. Using the ACE, two distinct emotion-behaviour profiles emerged among the coaches: the ‘calm, inquisitive’ coaches and the ‘intense, hustle’ coaches. While no differences were found among these coach groups in terms of Competence, Confidence, or Connection to the Coach, there was a significant effect on the measures that make up the Character construct. More specifically, athletes of ‘calm, inquisitive’ coaches reported higher levels of prosocial behaviours and lower levels of antisocial behaviours than athletes of ‘intense, hustle’ coaches, specifically when directed toward opponents.

To date, examinations of emotions in the sport context have focused largely on the experiences of athletes (Friesen et al., 2013); however, recent evidence indicating emotional qualities also play an important role in coaching has illuminated the need for research specifically investigating coaches’ emotions in sport (e.g., Becker, 2009; Lafrenière et al., 2008; Thelwell et al., 2008; Vargas-Tonsing & Guan, 2007). In a similar vein, tools for assessing emotion in sport settings have been primarily adapted from other contexts or specifically designed for use with athletes, relying heavily on self-report methods (Lane et al., 2012). From a methodological standpoint, the development of the ACE holds important implications for the advancement of sport coaching knowledge and practice. In addition to providing a key segue from the coaching literature to emotions as a significant contextual feature underlying coach behaviours, this new
instrument permits the specific study of emotions from a behavioural perspective, beyond only subjective experience.

Growing interest in the interpersonal regulation of emotions suggests coaches, athletes, and individuals in other sport roles experience emotions as part of dynamic, reciprocal interactions between one another (Friesen et al., 2013; Uphill & Dray, 2013). As prominent figures in the sport environment, coaches have the capacity to regulate the emotions of not only themselves, but also their athletes, parents of athletes, spectators, and sport officials. In particular, the potential for coaches’ emotional behaviours to reinforce or alter the emotions of athletes can produce significant consequences for athletes’ performance and continued participation in sport (e.g., Hanin, 2000; Lazarus, 2000; Mohiyeddini, Pauli, & Bauer, 2009), in addition to personal development – as demonstrated in the second study.

For instance, athletes’ perceptions of arousal or intensity may translate into aggressive or antisocial behaviours. Though not necessarily negative or hostile in nature, high levels of arousal intended to motivate or intensify the efforts of athletes may induce a “win-at-all-costs” attitude at the expense of athletes’ ethical or moral development (e.g., Rieke, Hammermeister, & Chase, 2008; Stoll & Beller, 2000). In contrast, Rutten et al. (2007) found that adolescent athletes who perceive a favourable sociomoral atmosphere and positive relationships with coaches and peers in organized sport report more prosocial behaviour and less antisocial behaviour than those who do not. Drawing on transformational leadership theory (Bass, 1985), coaches who consistently elicit and value the input of athletes demonstrate intellectual stimulation and individualized consideration, key tenets underlying effective leadership behaviours.

Becker (2009) found that athletes value emotional stability as an important quality in their experiences of great coaching. Furthermore, previous research has indicated that coaches
who exhibit meaningful, yet predictable behaviours experience more positive athlete outcomes (Erickson et al., 2011; Smith et al., 2009; Turnnidge et al., 2014). As such, coaches who are more even-tempered in nature may be perceived as more predictable or stable than those who engage in more alert, or highly aroused emotional expressions. Fittingly, emotional intelligence – the ability to perceive, facilitate, understand, and manage emotions (see Salovey & Mayer, 1990) – has emerged as an important characteristic of great leaders over the past several years (e.g., Caruso et al., 2003; George, 2000). Among coaches, emotional intelligence has been positively correlated with perceptions of coaching efficacy (Thelwell et al., 2008); coaches must be able to evaluate and regulate their own emotions according to the specific situations they encounter in the sport environment (Gould, Greenleaf, Guinan, & Chung, 2002; Thelwell et al., 2008).

Emotional Intelligence training has already been successfully adopted as a means of improving intrapersonal and interpersonal competencies concerning the expression, comprehension, regulation, and discrimination of emotions among students in business and medicine, as well as professionals in management positions (Clarke, 2010; Fletcher, Leadbetter, Curran, & O’Sullivan, 2009; Tucker, Sojka, Barone, & McCarthy, 2000). As leaders in the sport domain, coaches may also benefit from training designed to enhance interpersonal emotion skills and regulation. The ACE constitutes a useful tool to assist in the design, implementation, and evaluation of emotion-targeted coaching interventions. For instance, observational assessments of coaches’ emotions pre and post intervention may supplement additional measures (e.g., Emotional Intelligence Scale: Schutte et al., 1998) to evaluate intervention effectiveness, while also providing coaches’ with direct feedback concerning their emotional behaviours. As an added benefit, the ACE can easily be adapted to code for multiple individuals in the sport environment,
thus highlighting the dynamic emotional interactions that occur between coaches and athletes (e.g., Lewis, Lamey, & Douglas, 1999; Hollenstein, 2007).

The ACE can also be easily adapted for use with any content-based systematic observation instrument designed to assess coach behaviour. Dating back to the 1970s, instruments such as the Coach Behavior Recording form (Tharpe & Gallimore, 1976), CBAS (Smith et al., 1977), and ASUOI (Lacy & Darst, 1984) have been adapted and evolved into more refined, intensive tools, including the CAIS (Cushion et al., 2012), CAICS (Erickson et al., 2011), and Para-CAICS (Turnnidge et al., 2014). While these newer tools enable more detailed and nuanced data regarding coaches’ individual and interactive behaviours in practice, competition, and intervention contexts, these instruments have yet to hone in on the contextual qualities that determine not what, but how coaches’ perform as coaches. In line with the recent development of observational coding systems designed to capture coaches’ motivational tone (Erickson & Côté, in press) and autonomy support (Webster et al., 2013), the ACE enables enhanced contextualization of coaching behaviours. Furthermore, the addition of ACE emotion categories to any content-based behavioural observation instrument allows such systems to be tailored to the specific environment or intervention setting, generating new and intensive methods to investigate coach influences on athlete development.

Answering the calls for more contextualized methods of examining coaches’ behaviours, the work presented in this thesis features the development and application of a novel methodology for the assessment of sport coaches’ emotions and behaviours. However, observational methods for examining emotions in sport are not without limitations. First, emotions can be difficult to discern in the sport environment. Given the size, volume, and – at times – chaotic nature of a typical sport setting, these environments are often problematic for
audio-visual recording requiring the degree of detail necessary to convey subtle emotional cues, including facial expressions, body language, and verbal tone. Second, the ACE can only measure emotions that are expressed through visible cues. Although there is a behavioural component to the emotional response, emotions are also experienced through subjective feeling states or physiological changes that may not be explicitly stated or observed (see Lazarus, 1991). Third, the emotion categories that make up the ACE were designed with moderate levels of content meaning and coder inference (Alexander, Newell, Robbins, & Turner, 1995); thus, some degree of observer bias is inevitable. Fourth and finally, the ACE is subject to the limitations of any observational research. For instance, the Hawthorne effect: Participants may alter their behaviour as a result of their awareness of being observed (Colman, 2008).

There are also some specific limitations associated with the sample of participants employed to examine the link between coaches’ emotional profiles and athletes’ developmental outcomes. Although the data analysis strategy in this study was intended to avoid any issues related to hierarchical data by splitting the coaches into distinct groups, rather than looking at athletes’ responses based on individual coaches, the sample used to perform the clustering analysis was quite small, particularly considering the large number of clustering variables. Additionally, unique characteristics of the sampling distribution drawn from some of the athletes’ measures may limit the generalizability of the sample, despite efforts to manage these variables.

To address these limitations, a number of strategies can be implemented in future research. For example, the use of high quality audio-visual recording equipment would allow for more detailed coding of the resulting footage. In addition, prospective observers may be screened to assess emotion coding potential using measures of emotional intelligence or by test coding short video clips. To strengthen inter-observer reliability using the ACE, multiple coders (i.e., >
2) should be employed when feasible, while also enforcing stringent coder training protocols and standards of acceptable agreement. Furthermore, integration of additional measures of emotion (e.g., self-report questionnaires, heart rate monitoring) may improve the overall content validity of the system by enabling the joint assessment of emotional behaviours, subjective feeling states, and physiological arousal. Further validation of the ACE should be carried out in sport contexts not included in the development of the current system, including competition settings, individual sports, and adapted sport contexts. Finally, in future studies attempting to link ACE data to other outcomes, increasing the size of the sample may enhance the generalizability of any findings.

Given the apparent importance of coaches’ emotional qualities and behaviours in the sport environment – particularly concerning the moral development of young athletes – future research efforts should continue to investigate the emotional nature of coaches, and more specifically, coach behaviours. Specifically, this work highlights three key areas for further investigation: (a) Interpersonal emotion regulation between coaches and athletes, (b) emotional intelligence in coaching, and (c) specific processes underlying emotional influences on athlete development.

Based on the current findings, coaches represent an important agent in the regulation of athletes’ emotions and thus deserve more specific attention with respect to the interpersonal regulation of emotions (e.g., Friesen et al., 2013; Uphill & Dray, 2013). On a similar level, coaches’ emotional intelligence is another area worth further examination (see also Thelwell et al., 2008). Emotional intelligence encompasses the ability to sufficiently understand and regulate the emotions of both the self and others, and therefore aligns closely with the notion of interpersonal emotion regulation (Salovey & Mayer, 1990). These concepts are especially salient given the potential for athletes’ emotional states to influence performance (e.g., Hanin, 2000;
Lazarus, 2000), participation (e.g., Mohiyeddini, Pauli, & Bauer, 2009), and now, personal development. More specifically, the processes or mechanisms underlying emotional influences on athlete development warrant more nuanced consideration in the sport literature. Research targeting each of these areas may set the stage for enhanced coach education and training programs, honing in on interpersonal skills and emotional awareness concerning effective coaching practices.

In conclusion, the work presented in this thesis bridges the bodies of literature on emotional processes in sport and the roles of coaches in athlete development. Not only an innovative method of assessing emotions in the sport context, but also the first measure to specifically target the emotions of sport coaches, the ACE stands to make a significant contribution to the future of sport coaching research and intervention. Ideally, continued use and adaptation of the ACE will enhance insight into the contextual qualities underlying coach behaviours and the interpersonal nature of emotion regulation. Clearly, the emotions associated with coach behaviours go beyond simply the content of these behaviours, representing an important factor influencing positive athlete development, and subsequently, coaching effectiveness.
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Appendix A

Assessment of Coach Emotions (ACE) Coding System Manual
Assessment of Coach Emotions (ACE) Coding System Overview:

**Initiator Code:**
- Coach (x)

**Content Codes:**
- Organization (10)
- Keeping Control/Standards of Behaviour (11)
- Hustle (12)
- Instruction/Feedback (13)
- Encouragement (14)
- Positive Evaluation (15)
- Negative Evaluation (16)
- Questioning (17)
- General Communication (18)
- Communication with Others (77)
- Observation (88)
- Not Engaged (99)
- Not Codes-able (x)

**Emotion Codes:**
- **Positive**
  - Happy (31)
  - Affectionate (32)
  - Alert (33)
- **Neutral**
  - Neutral (41)
- **Negative**
  - Tense (51)
  - Anxious (52)
  - Angry (53)
  - Disappointed (54)

**Recipient Codes:**
- Individual Athlete (i)
- Team (t)
**General Overview:**

The Assessment of Coach Emotions (ACE) coding system was developed for observations of coaches in a team sport environment. This coding manual is intended for observation of team practice/training time, but may also be applied to the competition environment.

The codes comprising the ACE represent coaches’ behaviours according to the following three (3) components:

1. Coach content (the content of a given coach behaviour)
2. Coach emotion (the emotion accompanying a given coach behaviour)
3. Recipient subject (target of interactive coach behaviour and/or emotion)

Content codes describe the content of a given coach behaviour. For each code-able content code (i.e., all codes except ‘not code-able’), an emotion code, describing the emotion accompanying a given coach behaviour, must also be assigned. For any interactive or communicative code (i.e., organization, keeping control/standards of behaviour, hustle, instruction/feedback, encouragement, positive evaluation, negative evaluation, questioning, general communication), with the exception of ‘communication with others,’ a recipient subject or target of such behaviour must also be coded.

If there is a change to any of these codes (content, emotion, or recipient subject), the coder must begin a new entry and code as a new independent coach behaviour.
General Rules:

3-second rule

1. Wait three (3) seconds before coding ‘observation’ when changing from any actively communicative code. Code for this behaviour only if it continues past the three (3) second waiting period. If within three (3) seconds a different actively communicative behaviour occurs, do not wait to code that behaviour.

2. Wait three (3) seconds before coding ‘not engaged’ when changing from any actively communicative code. Code for this behaviour only if it continues past the three (3) second waiting period. If within three (3) seconds a different actively communicative behaviour occurs, do not wait to code that behaviour.

3. Wait three (3) seconds before coding ‘uncodable’ when changing from any other code. Code for this behaviour only if it continues past the three (3) second waiting period. If within three (3) seconds a different behaviour visibly or audibly occurs, do not wait to code that behaviour.

Default codes

1. For each content and emotion code, specific codes are to be utilized by default if criteria for any other code are not met. That is, use the default codes in the absence of any other code-able behaviour or emotion:
   - Content: Observation
   - Emotion: Neutral

2. For subject codes, the initiator will always be coded as the coach. Recipients will always be coded as team, unless the behaviour or emotion is targeted at one particular athlete (recipient code: individual) or any non-athlete (content code: communication with others; no recipient code required).
Subject Codes:

Initiator
As coaches will be the focus of all coding, initiator codes will be limited to the coach. Code ‘z’ for coach.

Recipient
Due to the nature of the team sport environment, coaches will often address the team as a unit, in smaller groups (e.g., based on positions, during drills, etc.), or at the level of each individual athlete.

When the coach is interacting with a single athlete, an ‘individual athlete’ subject code will be employed. Code ‘individual athlete’ anytime a statement or behaviour from the coach is obviously directed toward one particular athlete. Start a new ‘individual athlete’ code whenever a new recipient is addressed, even if the actual codes remain the same (e.g., encouragement-neutral-individual [A] to encouragement-neutral-individual [B]).

Code ‘i’ for individual athlete.

A ‘team’ subject code will be employed anytime the coach is addressing two or more athletes at a given time. Additionally, the ‘team’ subject code will be the default code anytime there is uncertainty regarding the intended target of the coach’s interactive behaviour. As long as the content and emotion codes remain constant, do not start a new ‘team’ code when the coach addresses a new group of athletes (e.g., if the athletes are divided into groups during a drill and the coach addresses each group individually with the same information, do not start a new recipient code).

Code ‘t’ for team.

If the coach interacts with any non-athletes (e.g., assistant coaches, parents), employ the ‘communication with others’ content code, and no recipient code is required.
Content Codes:

1. **Organization (Code 10)**

*Description:* Communication from coach related to organization of practice tasks and athlete actions, NOT intended to directly influence performance.

*Indicators/Notes:*
- E.g., “Now we’re doing ___ drill,” “Go over there,” “Do 10 of these,” etc.
- Cannot include any technical/tactical instruction related to movement quality or encouragement. Code for each separately, even if they occur in immediate sequence (e.g., “Get set up for line drills now. Focus on pointing your toes. I know you guys can do it!” to be coded as ‘organization,’ then ‘instruction/feedback,’ then ‘general encouragement’).
- May include statements such as “Let’s go” or “Here we go” when indicating the start of scrimmage or drill, but not for the purposes of reinforcing support (encouragement) or effort (hustle).
- Primarily verbal communication; does not include drill or practice set-up (e.g., positioning cones) that does not involve active interaction with athletes (not engaged).
- Includes timing or counting during skill execution/drills.
- Requires associated emotion code and recipient subject code.

2. **Keeping Control/Standards of Behaviour (Code 11)**

*Description:* Communication from coach intended to maintain order in response to athletes’ inattentiveness, disruptive non-task related conduct, etc., OR to uphold expected standards of behaviour (including physical, social, or moral behaviour) on the part of the team.

*Indicators/Notes:*
- E.g., “Woah, woah, woah!” “Hurry up!” “Stop talking!” etc. (in response to inattentiveness, physical misconduct, etc.).
- May involve disciplinary intervention (e.g., punishment) or statements regarding expectations or criteria for appropriate behaviour.
- Can include general social or moral topics relating to intra- and inter-personal conduct (e.g., respect, support, empathy/understanding, representing the team, etc.) but CANNOT include performance-specific topics (e.g., team coordination to run a specific tactical maneuver, etc.).
- Requires associated emotion code and recipient subject code.

3. **Hustle (Code 12)**

*Description:* Verbal statements intended to activate or intensify the efforts of the athlete(s).

*Indicators/Notes:*
- E.g., “Run it out, run it out!” “Move, move, move!” “Push yourself!” etc.
• Verbal cues often shouted or called out by the coach in response to sub-par effort or to reinforce previously instructed behaviour.
• Words or phrases are stated or repeated with a sense of urgency; the intent must be to activate or intensify the efforts of the athlete(s) (i.e., does not include general instruction or feedback intended to enhance skill execution or performance).
• Requires associated emotion code and recipient subject code.

4. Instruction/Feedback (Code 13)

Description: Technical and/or tactical instruction and/or feedback from coach, directed at athletes’ motor and/or psychological skill execution or performance.

Indicators/Notes:
• MUST include prescriptive/corrective technical information in reference to the quality of motor or psychological skill execution (e.g., how the skill should be executed, how the skill can be improved, etc.).
• Can include general psychological topics related to performance (e.g., confidence, focus, mental toughness, etc.) or specific strategies intended to improve the psychology of performance (e.g., imagery, self-talk, goal-setting, etc.).
• Requires associated emotion code and recipient subject code.

5. Encouragement (Code 14)

Description: Non-technical encouragement or support from coach directed toward athletes’ present or future performance or behaviour, as well as athletes’ errors or mistakes.

Indicators/Notes:
• Focus on present/future behaviours (general encouragement): e.g., “Let’s go guys!” “You can do it!” “Make it count!” etc.
• Focus on errors/mistakes (corrective encouragement): e.g., “You’ll do better next time,” “Don’t worry about it,” “That’s OK,” etc.
• Voice may convey excitement or a warm/supportive tone.
• Requires associated emotion code and recipient subject code.

6. Positive Evaluation (Code 15)

Description: Non-technical positive reaction by coach to desirable performance by athlete(s).

Indicators/Cues:
• Focus is on success.
• Can be verbal (e.g., “Good work,” etc.) or non-verbal (e.g., thumbs up, high five, etc.).
• If non-verbal, communication must be very obvious.
• CANNOT include any technical instruction related to movement quality.
• Requires associated emotion code and recipient subject code.
7. **Negative Evaluation (Code 16)**

*Description:* Non-technical negative reaction by coach to an undesirable performance by athlete(s).

*Indicators/Cues:*
- Can be verbal (e.g., “That was terrible,” sarcasm, etc.) or non-verbal (e.g., shaking head, etc.)
- If non-verbal, communication must be very obvious.
- Must include an evaluative word or implied meaning.
- CANNOT include any technical instruction related to movement quality.
- Requires associated emotion code and recipient subject code.

8. **Questioning (Code 17)**

*Description:* Questions posed by the coach to the athlete(s) for the purpose of either: (a) assessing technical or tactical knowledge of a skill, procedure, routine, or drill; or (b) to elicit the feelings, thoughts, and opinions of athletes with respect to personal performance or skills or practice set-up. May elicit a verbal or non-verbal response.

*Indicators/Cues:*
- (a) E.g., “What are the five key points to remember about butterfly technique?” “Can anyone show me how to do a proper corner kick?” etc.
- (b) E.g., “Do you feel that you’ll be able to do this drill?” “What position would you like to play in this scrimmage?” etc.
- Athletes may or may not be engaged in an activity during this time.
- When the content of a question does not fit the description of either (a) or (b), code the category under which the description fits best (i.e., any category EXCEPT ‘questioning,’ ‘organization,’ or ‘instruction/feedback’).
- Does not include rhetorical statements or questions followed by phrases such as “Right girls/boys?”
- Coach may be posing questions, listening to athletes’ responses, or responding with follow-up questions when employing this code; if coach’s response best fits a different category, then code the most appropriate category.
- Requires associated emotion code and recipient subject code.

9. **General Communication (Code 18)**

*Description:* Communication from coach unrelated to task or performance.

*Indicators/Notes:*
- E.g., joking with athletes, talking about school, reminiscing about old players, etc.
- May or may not be related to sport, but CANNOT be related to performance of the specific skill, drill, or practice-related task (e.g., teasing athletes about breaking the equipment during a drill would be coded as ‘general communication’).
• Requires associated emotion code and recipient subject code.

10. Communication with Others (Code 77)

Description: Communication from the coach directed toward any individual(s) other than the athletes (e.g., assistant coaches, parents, etc.)

Indicators/Notes:
• Can be any topic of communication (including sport or non-sport related).
• Active communication; includes listening and responding.
• Assistant coach may address the coach and the team for the purposes or organization, instruction/feedback, etc. If the coach continues discussion with the assistant coach, code as ‘communication with others’. If the coach listens but does not provide any input, code as ‘observation’.
• Requires associated emotion code but no recipient subject code.

11. Observation (Code 88)

Description: Coach engaged in observing/watching athletes during practice activities, though not directly communicating with athletes.

Indicators/Notes:
• Default code if coach is engaged in training/competition activities but criteria not met for any actively communicative code.
• 3-second rule in effect before coding for ‘observation’ from an actively communicative code.
• Requires associated emotion code but no recipient subject code.

12. Not Engaged (Code 99)

Description: Coach not engaged or communicating directly with athletes in training or competition activities.

Indicators/Notes:
• E.g., organizing notes, setting up/taking down equipment for drills, etc.
• Coach is not paying attention to practice activities or athletes in general
• High threshold to code ‘not engaged.’
• 3-second rule in effect before coding for ‘not engaged’ from an actively communicative code.
• Requires associated emotion code but no recipient subject code.

13. Not Code-able (Code ‘x’)

Description: Visual or audible information unavailable for coding.
Indicators/Notes:
- To be coded if coach is out of view with no verbal communication detected or microphone cuts out.
- 3-second rule in effect before coding for ‘not code-able.’
- No associated emotion or recipient subject code.
Emotion Codes:

General Notes:
- Pay particular attention to voice tone/content, facial expressions, and body language when determining each emotion code. Depending on the setting/quality of the video, it may be necessary to rely on certain cues more than others (e.g., during an outdoor drill, may need to rely more on verbal cues; during small group meetings or instruction, non-verbal cues may be more clear).
- Never rely on one cue only to make an emotion coding decision; rather, rely on a combination of cues to determine the specific emotion.
- When there is inconsistency between voice, body language, and facial expression, voice takes precedence in all cases except for a neutral code. In a situation where it is unclear if the code is neutral or some other emotion code, code the other emotion.
- If the cues appear to divide evenly between two different emotion codes, code your first instinct (‘gut feeling’).
- For some codes, there may be a range of intensities associated with the particular emotion the code represents (e.g., a relatively low-level form of anger may be frustration or irritation, while a high-level form of anger may be described as rage). For the purposes of this coding system (being in its initial development), all levels of intensity for a particular emotion will fall under the same code.
- It may be necessary to first watch the video, or a clip from the video, before doing any coding to get a general sense of the coach’s baseline emotional tone or tendencies (may include habits or mannerisms exhibited by the coach in particular emotional situations).

Positive Codes (30’s)

1. Happy (Code 31)

Description: Verbal or non-verbal expressions that indicate the coach is experiencing joy or pleasure in response to some stimulus or event (real or perceived) in the sport environment.

Descriptors: amiable, amused, animated, content, elated, enthusiastic, excited, over-joyed, pleased, thrilled.

Indicators/Notes:
- Voice is high-pitched or fast-paced.
- Smiling, laughter, giggling, etc.
- Coach sounds or appears genuinely pleased (e.g., you can ‘hear’ the smile in the coach’s voice).
- Exaggerated, expansive, or animated expressions/exclamations (e.g., “Great play team!”) or actions/gestures (e.g., bouncing up and down with excitement).
- Reactions may be unanticipated or sudden in response to some occurrence or event (e.g., an athlete scores a goal).
- May include light-hearted, shared humour (i.e., not intended to be harmful or demeaning).
Often appears infectious among others.
Often a responsive emotion; expressed in response to some pleasing event or occurrence.

2. **Affectionate (Code 32)**

*Description:* Verbal or non-verbal expressions that indicate the coach is conveying warmth, caring, concern, support, and/or interest in the athlete(s). In general, the coach adopts an empathetic manner and expresses a sense of endearment.

*Descriptors:* appreciative, approving, caring, comforting, concerned, empathetic, endearing, interested, reassuring, responsive, supportive, warm.

*Indicators/Notes:*
- Tone of voice may be warm/soothing (conveying caring/support) or high-pitched/sing-song rhythm (conveying enthusiasm/interest).
- Caring or concerned statements (e.g., “Are you feeling OK?”).
- General support and reassurance (e.g., “If anyone can make this penalty shot, it’s you!”).
- Verbal statements or facial expressions conveying sympathy, understanding and encouragement (e.g., “I know this drill is tough/you’re feeling tired,” warm, affectionate smiles or gazes).
- Compliments.
- Good-natured joking or teasing.
- Gestures of support/endearment (e.g., pat on the back, ruffling player’s hair, etc.).
- Often expressed proactively towards another individual; does not occur passively.

3. **Alert (Code 33)**

*Description:* Verbal or non-verbal expressions that indicate the coach is experiencing high levels of arousal or intensity; alert responses and expressions will be relatively neutral, but maintain a slight positive valence (e.g., similar to enthusiasm or excitement).

*Descriptors:* active, attentive, energetic, engaged, intent, vigilant.

*Indicators/Notes:*
- Voice is faster or louder than usual (Note: Only code ‘alert’ if the coach is being loud due to arousal/excitement; do not code ‘alert’ if the coach is being loud because he/she needs to be).
- Short, unanticipated exclamations; intended to reinforce or motivate particular behaviours (e.g., “You’ve got this…Go, go, go!”).
- Full engagement in practice activities and focused attention; no signs of distraction (e.g., eyes fixed on athlete or play; no fidgeting or looking away)
- May appear ‘wound up,’ but overall demeanor is positive.
- Often a responsive emotion; expressed in response to athletes’ effort or performance.

**Neutral Codes (40’s)**
4. **Neutral (Code 41)**

*Description:* Verbal or non-verbal expressions from the coach associated with a non-affective, even-tempered quality. Cues do not indicate the presence of any other emotion and will often correspond to unvalenced (‘matter-of-fact’) information exchange or general observation.

*Descriptors:* calm, even-tempered, flat, matter-of-fact, monotone.

*Indicators/Notes:*
- Flat, even, or monotone voice quality.
- Neutral facial expression (e.g., not smiling, frowning, etc.).
- Common during information exchanges (e.g., organization, instruction) and observation.
- Default emotion code if criteria for any other emotion are not met or if there is any uncertainty.
- Note: It is important to become familiar with the characteristic neutral expressions and behaviours of each coach prior to beginning coding (different people have unique habits or mannerisms that may appear affective if the observer is unfamiliar with them).

**Negative Codes (50’s)**

5. **Tense (Code 51)**

*Description:* Verbal or non-verbal expressions that indicate a sense of urgency, exasperation, or impatience conveyed by the coach; tense responses and expressions will be relatively neutral, but maintain a slight negative valence (e.g., may appear serious or stern).

*Descriptors:* Agitated, apprehensive, edgy, exasperated, impatient, irritated, frustrated, panicky, restless, stressed, uneasy.

*Indicators/Notes:*
- Tone of voice conveys a sense of urgency/changes in voice rhythm or tempo (e.g., particular words may be drawn out or emphasized, tempo may increase or decrease with level of arousal).
- Verbal statements are often authoritative or directive (e.g., “Hurry up! We don’t have time to waste!”)
- Stern or serious demeanor/rigid body posture (e.g., crossed arms, clenched jaw or teeth, etc.)
- May resemble a low-level form of either anxiety or anger (i.e., has the potential to evolve into one of these emotions at a more intense level)
- Often a responsive emotion; expressed in response to athletes’ (likely sub-par) effort or performance

6. **Anxious (Code 52)**
Description: Verbal or non-verbal expressions that indicate the coach is experiencing general discomfort or anxiety (i.e., nervousness, fear, embarrassment, worry, or shock) in response to some stimulus or event (real or perceived) in the sport environment.

Descriptors: afraid, concerned, embarrassed, fearful, nervous, shocked, startled, worried.

Indicators/Notes:
- Elevated voice tone, typically accompanied by rapid speech
- Voice wavers or fluctuates
- Stuttering or difficulty speaking
- Nervous smiling or laughter (e.g., smile appears ‘pasted on,’ laughter is unshared or out of place)
- Tense or rigid body postures
- Rapid, repetitive body movements or fidgeting (e.g., wringing hands, picking at clothing)
- Watch for individually-neutral mannerisms or behaviours that may resemble anxious cues (e.g., nail biting, becoming distracted by some object or event) but are not actually associated with an anxious response

7. Angry (Code 53)

Description: Verbal or non-verbal expressions that indicate the coach is experiencing anger, displeasure, or hostility. Often an angry reaction will indicate that some interpersonal boundary or standard has been transgressed (i.e., the coach has been offended in some way). Anger may also be coded in the case that the coach ridicules, mocks, or is sarcastic to the athlete(s) (i.e., humour is delivered with malicious intent).

Descriptors: abusive, aggravated, annoyed, belligerent, callous, cold, contemptuous, cross, disgusted, displeased, enraged, furious, harsh, perturbed.

Indicators/Notes:
- Loud or hostile voice tone.
- Yelling or screaming.
- Changes in rhythm of speech or the way certain words are expressed (e.g., “Come on guys”).
- Sarcasm, mockery, or unreciprocated humour (e.g., may be demeaning or offensive).
- Commanding statements (e.g., “Stop that!”).
- Forceful or threatening gestures (e.g., threatening with a fist or raised hand).
- Signs of visible impatience (e.g., crossed arms, fixed stares, finger/foot tapping, etc.).
- Clenched jaw or teeth.
- Antagonistic non-verbal behaviour (e.g., sneering, rolling eyes upward).
- Note: Anger may appear at a range of intensities. Relatively low-level forms of anger (e.g., frustration or impatience) may be coded as ‘tense,’ while at higher intensities (e.g., hostility or rage) should be coded as ‘anger.’

8. Disappointed (Code 54)
**Description:** Verbal or non-verbal expressions that indicate the coach is experiencing resignation, hopelessness, or disappointment. Feelings of disappointment will likely accompany situations in which personal expectations or expectations placed on athlete(s) are not met.

**Descriptors:** defeated, dejected, depressed, discouraged, dissatisfied, morose, resigned, sad, somber, sullen, upset.

**Indicators/Notes:**
- Slow pace of speech; words or names may be drawn out or emphasized (e.g., may sound like whining).
- Low, monotone tone of voice.
- Statements of disappointment or dissatisfaction (e.g., “I expected better from you”).
- Pouting or frowning (e.g., expressing disapproval).
- May appear withdrawn or more visibly upset (e.g., sighing, shaking head, etc.).
- Exasperated laughter (i.e., expressing disbelief or dissatisfaction).
- Often expressed in response to athlete or team performance or behaviour falling short of an expected standard (coach may feel disappointed in personal ability to teach/lead or athletes’ ability to follow through).
Instructions for Coder Training:

1. Extensive study of the ACE coding manual.
   a. Trainee should be able to define and identify all code categories on paper before moving on to the next step.

2. Group instruction in use of the scoring system, including viewing and discussion of a videotaped training module.
   a. Trainer will show videotaped examples of various code categories.
   b. Trainees will be able to begin identifying categories on their own with trainer present.
   c. Trainer will be available to respond to questions and facilitate discussion surrounding important coding points.

3. Independent practice using the ACE coding system with practice videos
   a. Extensive practice will be required before the trainee is competent enough to move on to reliability testing.
   b. A trainer will be available to respond to questions and ensure the trainee is learning to code effectively.

4. Assessment of reliability.
   a. Once the trainee feels competent on use of the ACE coding system and the trainer feels that he/she is ready to move forward with reliability testing, the trainee will complete coding of two 10-minute video test segments.
   b. These test segments will be compared against a “gold standard” of coding to be completed by the trainer (i.e., the trainer will code the same two 10-minute video test segments).
   c. Percentage reliability will be assessed for content and emotion codes. Trainees will be required to meet a minimum agreement of 75% for each of these code categories before moving on to coding for research purposes.

5. Coding for research purposes.
   a. Once the trainee has performed extensive independent practice, achieved an adequate level of reliability, and feels competent on use of the ACE coding system, he/she will be able to begin coding videos for research purposes.
Appendix B

PYD Toolkit (4 Cs Questionnaires)
**Athlete Sport Competence Inventory**

Sport competence refers to one’s ability to successfully perform a certain task in sport. In this form you will be rating the sport competence of both yourself and your teammates in soccer.

Please answer each question based on how skilled or competent you perceive yourself or your teammates in each of the areas listed compared to all of the athletes that you know. Please answer truthfully, basing your rating solely on the specific area described in each question.

**Circle the number** that best corresponds to your perceptions. A 5 represents the most competent athlete you know at your age/skill level, while a 1 represents the least competent athlete you know at your age/skill level. Please check the appropriate box when you reach the section where you are rating yourself.

Your answers will be kept completely confidential.

In this section, you will be evaluating Player Name 1 (Check box if this is you).

<table>
<thead>
<tr>
<th>Please rate this person’s sport competence in the following areas:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical skills (e.g., shooting, passing, first touch, etc.)</strong></td>
</tr>
<tr>
<td>Not at all competent</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td><strong>Tactical skills (e.g., decision-making, reading the play, strategy, etc.)</strong></td>
</tr>
<tr>
<td>Not at all competent</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td><strong>Physical Skills (e.g., strength, speed, agility, endurance, etc.)</strong></td>
</tr>
<tr>
<td>Not at all competent</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

*Note.* Additional copies of the three items above are repeated for each member on the team.
Sport Confidence Inventory

A number of statements that athletes have used to describe their feelings in sport are given below. Read each statement and then circle the appropriate number to indicate how you generally feel while participating in your sport.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>2</th>
<th>3</th>
<th>Very much so</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel self-confident.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m confident I can meet the challenge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m confident about performing well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m confident because I mentally picture myself reaching my goal.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m confident of coming through under pressure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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# Coach-Athlete Relationship Questionnaire

This questionnaire is designed to assess your relationship with your coach. Please answer truthfully. All answers will be kept completely confidential.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel close to my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>2. I feel committed to my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>3. I feel that my sport career is promising with my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>4. I like my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>5. I trust my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>6. I respect my coach</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>7. I feel appreciation for the sacrifices my coach has experienced in order to improve his/her performance</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>8. When I am coached by my coach, I feel at ease</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>9. When I am coached by my coach, I feel responsive to his/her efforts</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>10. When I am coached by my coach, I am ready to do my best</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
<tr>
<td>11. When I am coached by my coach, I adopt a friendly stance</td>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Extremely 5 6 7</td>
</tr>
</tbody>
</table>
**Behavior in Sport Scale**

Below is a list of behaviours likely to occur during matches/games. Please think about your experiences while playing your sport and indicate **how often** you engaged in these behaviours **this season** by circling the relevant number. Please respond honestly.

<table>
<thead>
<tr>
<th>While playing for my team <strong>this season</strong>, I…</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gave positive feedback to a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Criticized an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Argued with a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Helped an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Deliberately fouled an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Asked to stop play when an opponent was injured</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Verbally abused a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Encouraged a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Retaliated after a bad foul</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Helped an injured opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Criticized a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Gave constructive feedback to a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Tried to wind up an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. Swore at a team-mate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Congratulated a team-mate for good play</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Tried to injure an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Intentionally distracted an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Showed frustration at a team-mate's poor play</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Intentionally broke the rules of the game</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Physically intimidated an opponent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C

Study 2 Letters of Information
LETTER OF INFORMATION – Examing Youth Development in Sport

I am contacting you to ask for your assistance with a study currently being carried out by myself and a team of sport psychology researchers from Queen’s University. All studies have been approved by the Queen’s University Research Ethics Board.

Who we are and what we do:

Our sport psychology research lab consists of a team of graduate students working under the supervision of Dr. Jean Côté (Professor and Director of the School of Kinesiology and Health Studies at Queen’s University). The focus of my research is on athletic and personal development through youth sport. Youth sport has the potential to promote a number of important developmental outcomes in young athletes’ including increased performance, continued physical activity participation, and personal development. In examining youth development in sport, our primary research inquiries focus on: (1) athletes’ interactions and relationships with coaches, peers, and parents, and (2) environmental features of youth sport (e.g., types of practice activities, participation pathways through age and competitive levels, etc.) Our goal is to generate information that can be used by coaches, parents, sport programmers, and sport policy makers to maximize the quality and productivity of youth’s experiences in sport.

My Research Project:

I am currently conducting a study for my Masters thesis with the help of local soccer sport organizations in both_____ and _______. Specifically, I’m hoping to partner with the ____________________ as it will allow me to increase the relevance and benefits of my findings to as wide an audience as possible.

To collect my data, I will ask athletes to complete a short questionnaire assessing the personal and social outcomes of their sport experience. In addition, I will videotape 2 training sessions with the coach wearing a wireless microphone in order to analyze both coach and athlete behaviour. Further, I may conduct interviews with some coaches asking them to reflect on their experiences while watching a video of a particular training session. We have previously used these data collection methods with several local sport organizations around eastern and southern Ontario and have encountered no issues or complaints from the organizations, participants, or parents involved.

Benefits for you and your organization:

Should you choose to participate with me in my research, I will provide you with a summary of the results and conclusions from my research project. I can also provide coaches with copies
of the video footage of their teams. Further, though all individual results are kept strictly confidential and anonymous, we can provide each team or group with their own unique profile for feedback purposes. These are merely a few suggestions however, if there are any other services that we might offer that could benefit you and your teams, please feel free to let me know.

Thank you so much for your time and I look forward to hearing from you!

Sara Buckham  
*M.Sc. Candidate*  
School of Kinesiology and Health Studies  
Queen’s University  
Kingston, Ontario
PARTICIPANT PARENTAL LETTER OF INFORMATION

Title of the study: Examining Youth Development in Sport

We would like to ask for your daughter’s assistance with a study that is being carried out by a team of researchers from Queen’s University. The purpose of this study is to examine how youth develop personally through sport. The findings from this project will provide important information to coaches, sport programmers, and educators in regard to promoting positive personal development in sport settings and beyond as contributing members of society. This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen’s policies.

If your daughter volunteers to participate in this study, he/she may be asked to participate in two parts of the study. In Part I, participants will be asked to complete a questionnaire once over the course of their season. The questionnaire asks questions about your daughter’s sport environment and their sport experiences. The questionnaire should take about 15 minutes to complete each time. Some of the questions on this questionnaire will ask your daughter to rate other members of their sport group regarding their skill ability and social status. In addition, this questionnaire will involve members of the sport group rating your daughter’s skill ability and social status. These ratings will be kept completely anonymous and will not be shown to the other athletes or coaches. They have the right to not answer any questions that they are uncomfortable with and they are invited to contact TeleHealth Ontario at 1-866-797-0000 if any of these questions trigger emotional upset.

Part II of the study will involve teams being observed twice over the course of their season. Multiple sessions within the sport setting will be videotaped. The videotaped practices will then be watched by the researchers to understand the different coach-athlete interactions that occur within sport. There will be no deception used in this study. Participation is completely voluntary and your child will be informed that she can withdraw at any time.

This is part of a research project for which Sara Buckham is the primary researcher. The results from this study will be published and presented at conferences; however, the identity of your daughter will be kept confidential. All the information provided through the questionnaires and observations will be confidential and will be stored by in a locked office at Queen’s University for a minimum of seven years after the completion of the study. As a reminder, participation is completely voluntary and should you (or your
daughter) wish, she may withdraw from all or part of the study at any time, for any reason, without explanation or consequences by contacting the principal researcher, Sara Buckham. Any information collected up to the time your daughter withdraws from the study will be destroyed.

With your permission and your daughter’s permission, the questionnaires and observations will be used to help improve young athlete development. If you and your daughter decide that she would like to be a part of this study, please complete the attached form. Also, please ask your daughter to read their letter and indicate her consent as well. Any questions about study participation may be directed to Dr. Jean Côté at 613-533-6000 x79049. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Sara Buckham
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Supervisor
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Kingston, ON
(613)533-6000 x 79049
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Joan Stevenson, PhD
Chair
General Ethics Review Board
Kingston, ON
(613)533-6288
stevensj@queensu.ca
COACH LETTER OF INFORMATION

Title of the study: Examining Youth Development in Sport

The purpose of this study is to examine how different coach behaviours affect youth’s development in sport. Specifically, the goal is to understand how the different ways coaches interact with athletes during practices leads to athletes’ experiences in sport. This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen's policies.

The study will have each athlete complete a questionnaire related to his/her experience in this sport (i.e., on this specific team with this specific coach). As a component of this questionnaire, you will be asked to rate your athletes’ level of competence in sport. Two practices in that sport setting will then be videotaped. As a coach, you will be wearing a microphone to record any talking. The videotaped practices will then be watched by the principal investigator to understand the different coach-athlete interactions (i.e., patterns and sequences of coach/athlete interactions). Individual clips from the videos may also be used in a later part of the project. In addition, as a coach you may be asked to participate in an interview to better understand the dynamics of coach-athlete interactions. There are no known or foreseeable risks involved by participating in this study.

This is part of a research study for which Sara Buckham is the primary researcher. Information collected from coaches will remain completely confidential. For the entire study, all information collected will be kept in a locked filing cabinet by the primary researcher. Items will be available to the primary researcher and his research team. As a reminder your participation in this study is completely voluntary and you can decide to stop participating at any point without explanation or consequences. Should you decide to withdraw from participation, information collected to that point will be destroyed. Although there is no financial compensation it is anticipated that your information will help us to better understand the positive developmental experiences of youth sport participation.

The study is only interested in the information collected for the entire group and so all participants’ individual responses will never be known, keeping individuals identity secure. While the information collected may be presented at academic conferences and published in relevant academic journals, anonymity and confidentiality of all participants will be maintained.
Any questions about study participation may be directed to Dr. Jean Côté at 613-533-6000 x79049. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Sara Buckham  
*Primary Researcher*  
School of Kinesiology and Health Studies  
Queen’s University  
Kingston, ON  
7sjb1@queensu.ca

Jean Côté, PhD  
*Supervisor*  
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Kingston, ON  
(613)533-6288  
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Appendix D

Study 2 Participant Consent Forms
PARENTS/GUARDIANS PLEASE READ and SIGN YOUR CONSENT

I have read and understood the purpose of this study and my daughter’s involvement in this study. I am aware that my daughter will remain anonymous throughout the study and in any written results of the data collection through participation in this project.

I understand that my daughter’s participation in this research project is completely voluntary and that she has the right to not answer any question(s) that she feels uncomfortable with. I also recognize that my daughter has the right to withdraw from the study at any time without penalty and that any data collected to this point will be destroyed.

Finally, any questions I have about this research project and my daughter’s participation have been answered to my satisfaction. I understand that I am invited to contact the primary researcher and/or the General Ethics Review Board should I have any further questions or concerns about this research project and my daughter’s participation.

I, __________________________ give permission to allow __________________________ to participate in the study conducted by the School of Kinesiology and Health Studies at Queen’s University.
Signature __________________________ Date __________
Please indicate if you wish to receive a summary of the study findings: [ ] Yes [ ] No
PARTICIPANT CONSENT FORM – ATHLETE

You are invited to participate in a study entitled ‘Examining Youth Development in Sport’. This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen’s policies. Please read this form carefully and feel free to ask any questions you may have.

Purpose and Procedures
The purpose of this research study is to examine the personal development of youth in sport. If you volunteer to participate in this study, you will be asked to complete a questionnaire evaluating your personal experiences in sport. Some questions will ask you to rate other members of your sport group regarding their skill ability and social status. In addition, this questionnaire will involve members of your sport group rating your skill ability and social status. You will also be videotaped during your sport sessions.

Potential Risks
You have the right to not answer any questions that you are uncomfortable with and are invited to contact Telehealth Ontario at 1-866-797-0000 if any of these questions trigger emotional upset.

Potential Benefits
As a participant, you may be making important contributions to the research literature. We cannot and do not guarantee or promise that you will receive any direct benefits from the study.

Storage of Data
The original questionnaires and videotaped observations will be safeguarded and securely stored in a locked filing cabinet at Queen’s University for a minimum of seven years as per University requirements.

Confidentiality
The data from this study will be published and presented at conferences; however, your identity will be kept confidential.

Right to Withdraw
You may withdraw from the study for any reason, at any time, without penalty of any sort by contacting the principal investigator, Sara Buckham (613-533-6000 x78207). There will be no team related effects associated with withdrawal. You do not have to answer any questions that
you do not feel comfortable answering. Any information collected up to the time you withdraw from the study will be destroyed.

Questions
Any questions about study participation may be directed to Sara Buckham at 613-533-6000 x78207. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Jean Côté, PhD  
Supervisor  
Director and Professor  
School of Kinesiology and Health Studies  
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Chair  
General Ethics Review Board  
Kingston, ON  
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Consent to Participate
I have read and understood the description provided above. I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above, understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

__________________________________________  __________________________
Signature of Participant  
Date

__________________________________________  __________________________
Signature of Researcher  
Date
PARTICIPANT CONSENT FORM – COACH

I have read the information letter and understand that this study requires the athletes I coach to complete a survey regarding their experiences in our specific sport setting (i.e., on this specific team, with me as a coach). I have been informed that I will be asked to assess the competence levels of my athletes. I also understand that the second part of this study involves the videotaping of multiple practices in order to examine interactions between coaches and athletes, and that I may be asked to participate in an interview.

I have been informed that my confidentiality will be protected throughout the study, and that the information I provide will be available only to the primary researcher and his research team. While the results of this study may be presented at academic conferences and/or in academic journals, I am aware that any results will be presented for the group only (i.e., no individual data will ever be reported) – thereby maintaining my anonymity. Similarly, the videotaped practices will only be viewed by the primary researcher and/or his research team and only for the purpose of data analysis – they will never be shown at conferences or in any other presentation.

I understand that my participation in this research project is completely voluntary and that I reserve the right not to answer any question(s) I do not feel comfortable with. I also recognize that I may stop participating at any time without explanation or consequence. I understand that any data collected up to that point will be destroyed. Finally, any questions I have about this research project and my participation have been answered to my satisfaction. I understand that I am invited to contact the primary researcher and/or the General Ethics Review Board should any further questions or concerns about this research project or my participation.

I consent to participate in this research project.

<table>
<thead>
<tr>
<th>Name of Participant</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>