Commitment to Coaching: Using the Sport Commitment Model as a Theoretical Framework with Soccer Coaches

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This dissertation titled
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Athletic coaches have the potential to be among the most influential people in a young person’s life and athletes often idolize their coaches. The impact a coach has on an athlete endures psychologically, physically, and emotionally. This study embraced the Sport Commitment Model (Scanlan, T. K., Carpenter, P. J., Schmidt, G. W., Simons, J. P., & Keeler, B., 1993a; Scanlan, T. K., Russell, D. G., Magyar, T. M., & Scanlan, L. A., 2009) as a theoretical framework to understand the antecedents of coaches’ commitment to coaching. The goal of this study was to examine the viability of the Coaches’ Commitment Model (CCM) with soccer coaches. The theoretical framework of the SCM provided a mechanism to understand the determinants of soccer coaches’ commitment to coaching, as the modified measurement model met satisfactory model fit (χ² = 753.5 [df = 215], CFI = .954, NNFI = .946, RMSEA = .039, and SRMR = .0388). While the structural model failed to converge, this does not mean the SCM is not a viable theoretical framework for coaches. The theory behind the models (i.e., SCM and CCM) is that enjoyment, involvement alternatives/other priorities, personal investments, social constraints, involvement opportunities/valuable opportunities and social support predict coaches’ commitment. The soccer coaches in the study seem to express their lifelong involvement in sports, thus their commitment to coaching. Overall, they have been long
time athletic participants and consider themselves more than just novice coaches. Additionally, the opportunity to coach and work with athletes was the strongest predictor of coaches’ commitment. Furthermore, these coaches not only value the opportunities to work with their athletes, they enjoy coaching.

Approved: _____________________________________________________________

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Chapter 1: Introduction

In my field of work the leader is called “a coach”. To excel as a coach and leader, you must be a good teacher; to excel as a teacher, leader, and coach, you must remain a student who keeps learning. (Wooden & Jamison, 2007, p. 5)

The longevity of lifelong participants in sport and recreational activities is in jeopardy as the on-line and technology-based gaming world is consuming recreational time and it seems children lack the ability to play informal games (Elkind, 2001). The rapid growth of youth sports since the industrialization era has led to dismal retention rates of participants (Cote, Lidor, & Hackfort, 2009; Engh, 2002; Gould, 1987; Smoll & Smith, 2002). Early specialization in youth sport has resulted in high burnout as early as the age of ten (Hedstrom & Gould, 2004) and the physical stressors placed on the body have increased the injury rate (Lauer, 2006). Additionally, it has become harder to retain qualified coaches to work with those who do remain engaged in sports (O’Conner & Bennie, 2006).

Athletic coaches have the potential to be among the most influential people in a young person’s life, but seldom do they realize the impact they have on the development of children. Coaches committed to an athlete-centered philosophy, take advantage of educational clinics, reflect on their practice, and tend to produce highly motivated and self-confident athletes (Hedstrom & Gould, 2004). They often dedicate a large amount of time to coaching, because they enjoy positively affecting the lives of young adults in the sporting context. Moreover, athletes often idolize their coaches and the impact endures
psychologically, physically, and emotionally. Specific characteristics and behaviors of qualified coaches have been detailed in the literature.

Coaches, in many domains (e.g., sports coaching, literacy coaching, and executive coaching) influence, motivate, stimulate, and individualize. They are experts in content knowledge, instructional modifications, human development, and problem-solving strategies. Expert athletic coaches exhibit exceptional interpersonal and intrapersonal skills (Cote & Gilbert, 2009), provide a greater amount of overall feedback (Becker & Wrisberg, 2008) and embrace an athlete-centered coaching philosophy. Many of these coaches dedicate time to the longevity of the participants and engage in prolonged teaching and mentoring of young athletes.

For example, Coach Wooden (2007) reflecting on his perfect day said:

If I could go back and pick one single day in my life – in sports- to live over again, my choice might surprise you…I would like to conduct one more day of practice in the gym. Each day of practice was, by far, the most fulfilling, exciting, and memorable thing I did as a coach – teaching those under my supervision how to achieve success as members of a team. (p. 184)

Coaches’ commitment to coaching can be measured by the number of years coached, but for this study, the researcher has defined it as the desire and intent to continue coaching by engaging in educational learning opportunities, designing developmentally appropriate activities and embracing an athlete-centered philosophy. Studies examining commitment to coaching can contribute to the development of
interventions for the retention of not only athletes, but these idolized teachers called coaches.

One way to study the impact coaches have on their athletes is through the psychological construct, sport commitment. In the past, studies with youth, professional, and recreational sports; and adults in the exercise and health industry have helped validate the Sport Commitment Model (Alexandris, Grouious, Tsorbatzoudis, & Zahariadis, 2002; Carpenter, Scanlan, Simons, & Lobel, 1993; Casper, 2004; Casper & Stellino, 2008; Choosakul, Vongjaturapat, Li, & Harmer, 2009; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993a; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993b; Scanlan, T.K., Russell, Beals & Scanlan, 2003; Scanlan, T.K., Russell, Magyar, & Scanlan 2009; VanYperen, 1998; Weiss M. R., Kimmel, & Smith, 2001; Weiss M. R., Weiss, & Amorose, 2010; Weiss, W.M., 2003; Weiss, W.M., & Weiss, 2007). Across these studies, enjoyment has consistently arisen as the number one predictor of commitment to participation in sport. To date, limited research has been conducted on coaches’ commitment to coaching.

A greater understanding of coaches’ commitment to coaching is necessary to increase retention rates, especially for those involved in youth sport. Poor coaching, one of the top reasons youth sport participants’ drop-out of sport, can be linked to the 2.5 million volunteer coaches who lack formal education and experience in coaching young athletes (Ewing, Seefeldt, & Brown, 1997). For example, “coaches average three years before moving onto the next chapter in their lives” (B. de Lench, personal communication, May 10, 2010). Seefeldt (1998) reported that, “Changes in youth sport
primarily depend upon the degree to which the attitudes of its adult leaders can be modified” (p. 338). Dedicated, educated, and experienced coaches, committed to working with our youngest developing athletes are essential to lifelong sport participation.

Soccer, one of the most participated in athletic ventures worldwide; prevalent among children five years of age and well into adulthood, is a viable sport to use to study coaches’ commitment to coaching. Soccer associations that support and provide educational opportunities for athletes, coaches, and officials, are abundant. For example, it is understood that the National Soccer Coaches Association of America (NSCAA) with approximately 30,000 members, is the largest coaching association in the world. The NSCAA estimates educating over 4,000 coaches each year (“The NSCAA,” 2010). Additionally, the Soccer Association for Youth (SAY) is a leader in recreational soccer support with 600 leagues, 150,000 players, and 36,000 coaches (“About SAY,” 2010).

While many soccer coaches fall into the parent volunteer group, a vast majority of coaches have developed careers around coaching youth soccer players. Minimal research has been conducted to understand this populous group of coaches who often volunteer their time and energy to coaching today’s youth.

**Purpose of the Study**

Research has shown that games and sport, when properly taught, provide many life lessons for youth participants such as character development (cooperation, fair play, honesty, respect, and resilience), healthy living (emotional, physical, and social), leadership skills, and lifelong enjoyment (Barber, Suhki, & White, 1999). Wilfried
Lemke (United Nations Development Programme, 2008), Special Adviser to the United Nations Secretary General on Sport for Development and Peace said, “Sport has an important role in improving the lives of people around the world. It builds bridges between individuals and across communities, providing a fertile ground for sowing the seeds of development and peace” (para. 2). It is assumed that coaches who are committed to coaching (i.e., take the time to plan practice, attend coaching clinics, coach multiple seasons) would have the young athletes’ best interest in mind with an athlete-centered philosophy.

The purposes of this study were to (a) examine the Sport Commitment Model (SCM; Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) to see if it provides a viable model to assess coaches’ commitment to coaching, (b) assess enjoyment as a potential mediator to coaches’ commitment to coaching, and (c) subsequently determine the factors that contribute to youth soccer coaches’ commitment to coaching. This was accomplished by using structural equation modeling (SEM) via AMOS (Analysis of Moment Structures), and a modified version of the SCM questionnaire (Scanlan et al., 1993a).

The SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) has been validated for youth sport and adult participants, and even for sporting officials (see Figure 1), but not directly for coaches. This study examined whether the SCM is appropriate to examine the impact on desire and resolve for continued coaching involvement. Not all coaches, especially in today’s world where more than two and half million serve as volunteer
coaches, (Freeman, 1995) realize the impact they have on the development of today’s children.

![Figure 1. The Theoretical Sport Commitment Model](image)

*Figure 1. The Theoretical Sport Commitment Model*
A modification of the Sport Commitment Questionnaire (Scanlan et al., 1993b; Scanlan, T. K. et al., 2009) was piloted for validity and reliability of the instrument for use with coaches. Sport commitment, typically used with athletes, is defined as a psychological construct reflecting “the desire and resolve to continue participation in a sport over time” (Scanlan et al., 1993a, p. 7). The model’s constructs (i.e., commitment, enjoyment, involvement alternatives/other priorities, personal investments, social constraints, involvement opportunities/valuable opportunities, and social support) were utilized for the instrument modification specifically with youth soccer coaches in this study.

A survey was administered to youth soccer coaches to confirm the antecedents (i.e., coaching enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support) relationships to the latent variables and determine if the proposed model was viable. It was hypothesized that the SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) provides a viable model that can be used to evaluate youth soccer coaches’ commitment to coaching.

The target audience for the findings from this investigation is not limited to the novice, volunteer, and/or parent coach, but includes: athletic directors, community center and recreation directors, youth sport club owners and managers, coaching education organizations, and coaching educators. All these individuals have some impact on the overall experience, development, and retention of youth sport participants and their leaders. Athletic directors, community center and recreation directors, and youth sport
club owners should work closely with coaching educators and organizations to disseminate and evaluate current research in youth sport. This line of inquiry is critical, because in this era of high stakes performance, the longevity of lifelong participants is in jeopardy.

**Theoretical Perspective**

Commitment studies in athletics have recently risen to the forefront of sport psychology research. Sport commitment, representing an athletes’ desire or resolve to continue sport participation (Scanlan et al., 1993a), has theoretical roots in social and organizational psychology, and leadership theories. The Sport Commitment Model (Scanlan et al., 1993b; Scanlan, T. K. et al., 2009), as a theoretical framework, proposes that sport commitment can be determined by six constructs: sport enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support. Investigating coaches’ commitment to coaching using a modified version of the SCM further enhances current research in sports.

**Research Questions**

The main research question addressed in this study is whether the Sport Commitment Model (SCM: Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) provides a viable model to assess coaches’ commitment to coaching (i.e., the desire and intent to continue coaching youth soccer, engage in educational learning opportunities, design developmentally appropriate activities and utilize an athlete-centered philosophy).
Secondly, this study was designed to determine whether enjoyment serves as a mediating factor between coaches’ commitment and the remaining factors (i.e., involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support) as measured by the SCM. The final research question in this study sought to determine the main determinants of coaches’ commitment to coaching. Before assessing the different models proposed, a pilot of the Coaches’ Commitment Survey (i.e., modified version of the SCM survey) was tested for reliability and validity issues.

**Delimitations and Limitations**

**Delimitations.** While the organizational leadership model of commitment (i.e., affective, continuance, and normative) has been used to study intercollegiate coaches (Kent & Sullivan, 2003), the Sport Commitment Model was chosen because of the success of its use with diverse youth sport populations (Scanlan et al., 1993b; Carpenter et al., 1993). Permission was granted by the authors to modify the model for youth sport coaches (see Appendix E for email exchange with primary author indicating consent). Furthermore, this research sought to determine whether enjoyment is the number one reason coaches give as the basis of their commitment to coaching.

Even though a large sample (N) was required for this study, the target population was limited to youth soccer coaches. Access to large databases (i.e., NSCAA, USYSA, & SAY Soccer) of the target population was possible because of the researcher’s experience with soccer as an elite player, coach and coaching educator.
The software program used to analyze the data was AMOS (Arbuckle, 2009). Other software programs (e.g., EQS, LISERAL, and Mplus) exist to assist researchers conducting structural equation modeling, but AMOS was chosen for its user-friendly graphical interface. Moreover, this software program was chosen for its publication-quality graphics and quick statistical computations.

**Limitations.** A convenience sample of youth soccer coaches is one limitation in this study as only one type of youth coach was examined. While soccer is one of the most participated in sports, coaches of youth baseball, basketball, football, and other sports may have different perceptions of commitment to coaching. This one time, cross-sectional survey web-based survey was administered to a large population, but the participation was voluntary and it was assumed that participants answered the questions to the best of their ability. A large sample size was accomplished, but some of the non-normality issues might be explained by the sample’s dependency.

The dissemination of the survey was controlled by supporting organizations (i.e., NSCAA, USYSA, and SAY Soccer). Thus, the researcher did not have full control over the delivery of timely reminders and accurate response rates. The target sample requested of the supporting organizations was youth coaches; those that work with children ages 5 years old to 18 years old, but this may not have been truly accomplished. Generalizability of the findings is difficult to determine as the process used to determine what age group the coaches’ work with was unclear.

Furthermore, the survey delivery method chosen by SAY Soccer, linking the survey URL to an online newsletter was not fruitful. The lack of participations stemming
from this organization could have been a timing issue. Coaches involved with SAY Soccer are often volunteer parent coaches. Soccer and coaching many not have been on their minds mid-winter (i.e., January – March), and they may not pay much attention to the monthly newsletter, rather than not elect to take the survey.

Hancock and Mueller (2010) suggest assessing reliability of latent variables using coefficient H, but limited time to learn the technique resulted in the reporting of Cronbach’s alpha. The literature also suggests (Hancock & Mueller, 2010; Kline, 2011) that ML (maximum likelihood) estimations should not solely be used to assess model fit when data are categorical and non-normal. An ADF (asymptotically distribution-free) estimation and bootstrapping techniques have been used to correct for not meeting the assumptions of SEM. ADF estimation was explored, but not reported in this research because of model misspecification. Moreover, the mediation models (i.e., direct and direct/indirect) were not analyzed because the structural model failed to converge. Regression analysis was employed to confirm the determinants of coaches’ commitment to coaching.

Definitions of Terms

Several terms specific to this study are defined below.

AMOS – Analysis of Moment Structures is a statistical software system used for data analysis known as analysis of moment structures, analysis of covariance, structural equation modeling and causal modeling. (Arbuckle, 2009)

Burnout- is the psychological, emotional, and physical withdrawal from an activity that was once enjoyed (Gould, 1987).
Coach – an individual in contact with one or more athletes regularly for at least one sporting season with a goal of developing, not only athletes’ competence, but also confidence, connection, and character (Cote & Gilbert, 2009, p. 318).

Coaches’ commitment – the desire and intent to continue coaching youth soccer, engage in educational learning opportunities, design developmentally appropriate activities and utilize an athlete-centered philosophy.

Coaching Efficacy – the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes (Feltz et al., 1999).

Dropout – the abandonment of participation in an activity (e.g., sports or coaching) (Cashmore, 2002; Coakley, 2007).

Enjoyment – a positive affective response to an experience that reflects happiness, pleasure, and fun (Scanlan et al., 1993a)

Self-Efficacy – an individual’s belief in his/her capacity to produce desired results under specific conditions (Bandura, 1977).

Sport Commitment – psychological construct representing the desire and resolve to continue sport participation (Scanlan et al., 1993a).

Sport Commitment Model (SCM) – the theoretical framework that examines commitment to sport (Scanlan et al., 1993a). It is composed of six latent variables (i.e., sport enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support.
Youth – for the purposes of this study, youth is defined as individuals between the ages of five years and 18 years. Youth soccer in the United States has organized opportunities and leagues for children as young as five years old.

Youth Coach – an individual that works in the sport setting (i.e., instructing, teaching, demonstrating, facilitating, developing and planning) with children between the ages of five and 18 years of age.
Chapter 2: Literature Review

Coaching is potentially a very rewarding pursuit due to the joy of working with aspiring athletes, the challenge of building a successful program, satisfaction derived from teaching sport skills, and the opportunity to facilitate athletes’ psychosocial development. At the same time, coaching can be very consuming, demanding, and frustrating. (Raedeke, 2004, p. 333)

The lifelong sport participant is likely to have been positively affected by coaches, teammates, trainers, and their own sport experiences. Most have the desire and resolve to continue participation without the need to stand at the top of the podium. A confident, dedicated coach is willing to grow, learn, succeed, reflect, and find joy in working with athletes. The more educated, athlete-centered coaches working with the youngest athletes have the potential to increase the overall talent pool in their chosen sport, not to mention positively affect the lives of millions of children. More coaches are needed who would be committed to working with developing athletes versus élite and professional athletes. Many committed youth sport coaches find satisfaction by developing athletes into young adults and not in their lining their own pockets. This level of commitment is critical; therefore, the aim of this study was to evaluate youth soccer coaches’ level of commitment to coaching.

It is first important to understand the characteristics of today’s youth sport participants and their coaches before defining commitment to coaching and framing the theory behind this study. The following sections describe youth sport participants and the characteristics of youth coaches with an emphasis on youth soccer. The Sport
Commitment Model’s developmental framework and a summary of current research findings, follows descriptions of youth sport participants and coaches. Finally, a rationale for modifying the SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) for use with coaches is provided.

**Youth Sport Characteristics**

Studies of model development for sport enjoyment, commitment, and motivation have risen from a need to increase the retention rates and lifelong participation of youth sport participants (O'Connor & Bennie, 2006). The current obesity epidemic has many searching for ways to increase physical activity and lifelong sport participation. Physical educators continue to defend their stance regarding the importance of physical activity and skill development during the school day. Medical specialists, especially those dealing with children, have been sharing their concern for overuse injuries, often resulting from early specialization (Bigelow, Moroney, & Hall, 2001; Lauer, 2006). Definitions of deliberate practice (i.e., a highly structured activity that requires effort) and the importance of deliberate play (i.e., flexible age-adapted activities often organized by children) have been theorized and debated (Cote, Lindor, & Hackfort, 2009; Cote, Strachan, & Fraser-Thomas, 2007; Ericsson, Krampe, & Tesch-Romer, 1993) for years. The concerns listed above provide more than adequate reason to heed the call for increased empirical research in youth sport.

Stakeholders that promote the humanistic and constructivist development of youth have shared their concerns and provided reasons to study youth sport. These philosophers believe that the development of an autonomous self-actualized individual
requires balance among cognition, emotion, and physical health. Metzel and Shookhoff (2008) state that,

What is unique about sports is that they offer kids an arena where they can earn attention and respect by exerting their natural abilities…kids are good at sports because sports are essentially about speed, strength, coordination, vision, creativity, and responsiveness – the necessary physical attributes are the attributes of youth. (p. 11)

Overall, sport studies have confirmed that physical activity involvement, such as youth sport; increases self-confidence, intrinsic motivation, study skills, in addition to other benefits (Coakley, 2007; Ewing, Seefeldt, & Brown, 1997; Hedstrom & Gould, 2004).

The term ‘youth sport’ has been “collectively applied to any of the various athletic programs that serve individuals who are under 18 years of age in which a systematic sequence of practices and contests is supervised by adults” (Ewing & Seedfelt, 2002, p. 40). Youth sport participation has increased dramatically over the last 30 years. For example, it has been reported that approximately 57 million children (i.e., boys and girls) ages 4 to 19 years of age currently participate in organized sports (de Lench, 2006). Forty to forty-seven million youth participants have been consistently reported since the late 90’s (Ewing & Seefeldt, 2002).

The National Council of Youth Sport (NCYS) is one organization that collects data regarding youth sport participation. In their latest report, the NCYS (Johnson, 2008) found that:
• In comparison to the NCYS 1997 study, girls are beginning participation in organized youth sports at a younger age.

• Although the total number of participants – both boys and girls – increased, the percentage of boys and girls involved in the programs showed little change with 66% male and 34% female participation.

• Girls’ participation increased significantly in the 16-18 age group since the 2000 study.

• Thanks to Title IX, girls have been introduced to sport as early as boys.

• Boys’ participation remained about the same in every age group other than an increase in the 10-12 age group.

• There is greater gender equity within younger age groups.

• Organized youth sport programs rely heavily on school and community-owned facilities. There has also been an increase in privately-owned indoor facility use.

• It is imperative that youth sports organizations have a strong alliance with parks and recreation departments and school systems for facility use.

• All organizations rely upon website technology for communicating with their constituents. Blast e-mails, e-newsletters, magazines, calling posts, webcasts, podcasts, RSS feeds, banner ads, list serves, direct mail, and event marketing are the most popular methods of communication.

Potential benefits to youth sport participants include, but are not limited to: learning fundamental motor and sport-specific skills, fitness development and
appreciation, a sense of belonging, self-confidence and autonomy, social competence, and moral development (Balyi & Hamilton, 2004; Coakley, 2007; Hedstrom & Gould, 2004). Furthermore, extracurricular and community-based after school activities are beneficial for children - they foster initiative, concentration, drive, and goal attainment (Hedstrom & Gould, 2004). Time management skills and emotional control are additional benefits to participation in sport (Coakley, 2007).

Conflicting views. Other studies paint a different picture of the youth sport culture. In 2001, it was estimated that 70% of children who play youth sport end up quitting by adolescence or 13 years of age and childhood obesity has doubled since 1980 (Bigelow, Moroney, & Hall, 2001; Elkind, 2001). Additionally, specialization prior to the age of ten contributes to burn out, drop out, and retirement from training and competition (Gould, 1987). The National Youth Sport Safety Foundation (NYSSF) found estimates that upwards of 3-5 million children suffer from sport-related injuries each year (Lauer, 2006). There appears to be a lack of understanding and/or acknowledgement of the many scientific (physiological and psychological) findings research has produced over the years. Finally, similar to the struggles in the educational system, policy and practices are often created without consultation and understanding (Hedstrom & Gould, 2004).

Tom Farrey (2008), an Emmy award winning reporter for ESPN, reported with the help of the Sporting Goods Manufacturers Association (SGMA) in 2005,
…that 26 million boys and girls ages 6 to 17 participated in at least one organized team sport, while 10 million participated only in non-organized team sport and 12 million did not participate in a team sport at all. (p. 16)

Later, SGMA (2005) reported that

…only 30 percent of all sports apparel and athletic footwear sold is actually used for sports or fitness; the rest is purchased for reasons such as fashion or comfort. Among children, the imbalance is even more distinct: Only one quarter of the $8 billion spent on their sports apparel is used for sport and exercise. (p. 83)

When it comes to climbing the ladder of elite status, Farrey (2008) found that

Less than half of all American children will play high school sports. Of those, only 1 in 28 will go on to play any sport in college, at any level. Of those, 1 in 75 will get drafted by one of the major professional leagues. (p. 31)

Farrey is not the only individual to provide statistics related to youth activities. Elkind (2001) provides insight into the development of children in his 25th year edition of *The Hurried Child*.

Elkind’s (2001) *The Hurried Child*, provides alarming statistics about today’s youth in the preface to his 25th anniversary edition. His book gained notoriety in the early 80’s as it provided sobering information about the stress placed upon young children. The premise of the book is that happiness has roots in childhood and resentment may stem from a rush into an adult lifestyle. The preface mentions that “in the 1960’s there were only 27 hours of TV programming per week dedicated to children; today there are 14 networks that focus on the kids 24 hours per day” (p. xv), and
“children between 8 and 18 spend approximately 6 hours a day using electronic mediums, often multitasking” (p. xv).

Elkind (2001) reports the number of obese children aged 6 to 11 increased 54% in 20 years (p. 15), the rate of suicide tripled over the last 30 years (p. 18), and almost half of the American children under 18 are likely to live in single-parent homes (p. 44). Furthermore, Elkind (2001) explains the importance of play and living in the moment, a few lessons many adults need to revisit, especially those that work with youth sport participants.

All adults need to remember that children are not mini replicas of adults; they are developing individuals with different cognitions, emotional, and physical needs. A five-step program introduced by Hallowell (2002) provides a model that stresses the importance of connecting with the developing needs of children. His cyclical model starts with connection, moves to play, followed by practice, which allows for mastery that leads to recognition before arriving back at connection (Hallowell, 2002). The youth sport constructs of enjoyment, motivation, and commitment have a place within this model and it would be beneficial to use such a model as a foundation for investigating the importance of deliberate play and practice. While the works of Farrey (2008), Elkind (2001), and Hallowell (2002) would not be considered empirical scientific research, their expertise provides a descriptive account of youth and sport in the 21st century and emphasizes the importance for validation of empirical models alongside further scientific investigation for the betterment of lifelong participants.
Farrey (2008), Elkind (2001), and Hallowell (2002) are supported by educators and specialists in their concern with the visible decline of children playing in the streets with neighbors and on playgrounds. It has been frequently noted that cultural changes and fears have children (perhaps parents too) pinned between a rock and a hard place when it comes to unstructured free play opportunities (Coakley, 2007; Elkind, 2001). Ginsburg, Durant, and Baltzell (2006) suggest that,

We are living in an increasingly competitive and overscheduled sport culture. Our children are experiencing stresses and pressures that many of us never felt in childhood. In sports, our kids practice more often and longer, play on demanding travel teams, and are expected to win at every level...finding a balance in challenging and supporting our children in athletics requires diligence and sensitivity, and any approach much evolve over time as our kids grow up. (p. 119-120)

Findings from youth sport research have enabled educators, coaches, administrators, and parents to understand and value the role of adult leadership in a young person’s life. It is not difficult to understand why the quality of a youth coach is a key factor in producing positive life skills (Hedstrom & Gould, 2004). Participation in sport can be very beneficial as young athletes are encouraged to lead a healthy life through physical activity. Coaches can nurture the psychosocial development of cooperation, discipline, leadership, and self-control. In addition, youth sport provides an arena for the development of critical motor skills (Cote, Strachan, & Fraser-Thomas, 2007).
Characteristics of Youth Sport Coaches

Poor coaching, one of the top reasons youth sport participants drop-out, may be linked to the more than 2.5 million volunteer coaches who lack a formal coaching education (Ewing, Seefeldt, & Brown, 1997). The quality of adult leadership is crucial in the development of an autonomous individual with psychosocial, cognitive, and affective balance, especially in youth sport. The adult leader in most sporting environments is known as ‘coach,’ defined as an individual in contact with one or more athletes regularly for a least one sporting season (Cote & Gilbert, 2009). A youth coach is further defined as someone who works (i.e., instructs, teaches, and demonstrates) with athletes between 5 and 18 years of age. For the purposes of this research, a committed coach is defined by the researcher as one who intends to continue coaching, engages in coaching clinics, designs developmentally appropriate activities, and utilizes an athlete-centered philosophy. Over time, these coaches become experts in content knowledge, instructional modifications, human development, and problem-solving strategies.

Youth sport coaches have also been characterized as participation or performance coaches. A participation coach is involved in the initial experiences and development of an athlete, focused on teaching. One the other hand, a performance coach is an effective manager with intense commitment to improving sport performance, more focused on winning (Lyle, 2002). O’Connor and Bennie (2006) support the notion that, …with increased sport participation in private, non-scholastic and agency-sponsored programs (e.g., private schools), there has been a tendency to pay coaches for their work in these settings. As a result, a performance criterion often
becomes relevant, despite the potential existence of a school ethos that may emphasize maximum participation in sport teams. It is in these cases that the balance between ‘performance’ and ‘participation’ coaching delivery remains unclear. (p. 28)

Similarly, in the United States, many youth sport coaches would be considered participation coaches as they are not getting paid for their services. Yet, these coaches probably feel the performance effects as competition is stressed at earlier ages. Both types (i.e., participation and performance) may volunteer or get paid for their coaching. For example, many soccer coaches in the United States are paid to work with children as young as 10 years of age. In reality, these paid coaches should have a participation focus rather than a performance-based focus.

It has recently been estimated that approximately 4.1 million adults serve as youth coaches for the approximately 57 million youth participants (de Lench, 2006). Coaching (i.e., performance-based) for many has become a full-time endeavor, as 75% of youth participants engage year-round in one activity over multiple seasons (NCYS; Johnson, 2008). Haeggquist (2005) identified the following characteristics of 60 Southwestern Texas coaches:

Youth sport coaches are mostly male (73.3%), 61% were married, average age was 35.4 years, and 38.3% had children; 83.1% of the coaches were unpaid volunteers, 47.5% planned to become a coach, and 79.7% were not coaching their own child…and, on average they coached sixteen players for eleven hours per week; some coach longer than others. (p. 55-56)
The view of a male-dominated profession is supported by many. For example, de Lench (2006) explains, “Youth sport organizations say they want more women involved, but the simple fact is that far fewer women coach youth sports than men. Of the 4.1 million youth sport coaches, only 654,000 are women” (p. 219).

Community-based programs (non-school based agencies) such as the YMCA, Boys/Girls clubs, private clubs, and community centers host approximately 4.1 million coaches and more than 50 million young athletes (de Lynch, 2006; Wiersma & Sherman, 2005). These community-based programs rely heavily on uneducated volunteer coaches with good intentions. Wiersma and Sherman (2005) define uneducated as “…lacking formal training or education in developmentally appropriate coaching practices” (p. 325). When training occurs, typically through sport organizations, athletic skill development has been stressed (Liukkonen, Laakso, & Telama, 1996). An untrained coach is frequently unprepared to deal with parents, management issues, practice design, athlete behavioral issues, and the pressure to win. Many of these coaches do not understand that developmentally-inappropriate practices can negatively impact the athletes’ experiences (Wiersma & Sherman, 2005).

Another view of the youth sport coach population is put forth by O’Connor and Bennie (2006) who found that many North American and Australian coaches were former athletes interested in working with young athletes because they wanted to remain involved in a sport they loved. English coaches stated that having fun and enjoyment led to the natural progression from competition to coaching. With the increasing number of youth sport participants and the competitiveness of the postmodern society, it seems these
“former elite athletes are placed on an accelerated coaching journey” (O’Connor & Bennie, 2006, p. 29) where education and mentorship is diminished as they quickly climb the ranks.

Coaches that remain involved in coaching often enjoy their jobs, welcome the challenge of working with athletes, and have worked as an assistant under someone they would call a mentor. Working with an experienced coach is vital to coaching longevity (Hedstrom & Gould, 2004), but experience alone does not ensure commitment. Elite coaches, like all expert performers, accumulate thousands of hours of experience (Gilbert, Cote, & Mallett, 2006). Playing a sport, attending coaching education seminars, and assistantships are just a few ways to gain the experience needed to become a successful coach.

Coaching education programs are designed to increase coaches’ longevity in and efficacy (i.e., an individual’s belief in his/her capacity to produce desired results under specific conditions) for involvement in youth sport. These programs typically range from 2 to 12 hours over several sessions, and cover similar topics (i.e., care and prevention, legal aspects and risk management, practice organization, motivation, and sport-specific technical or tactical skill development).

The Coaching Confidence Scale (Feltz et al., 1999), that measures coaching efficacy, has been an effect tool utilized in the coaching science literature. Coaching education programs have consistently been shown to increase coaches’ confidence for those who have participated in clinics versus those who have not (Campbell & Sullivan,
2005; Malete & Feltz, 2000). Perhaps, for the good of the participants, mandated coaching education is in our future.

That being said, not all coaches remain committed or become experts. Anecdotal evidence in the United States suggests that retention of coaches, especially youth coaches, is problematic. For example, Raedeke (2004) reports that “USA swimming notes that approximately 35% of their coaches discontinue their membership each year” (p. 333). Little support and even less time leaves little room for coaches to commit to coaching and lifelong involvement. O’Connor and Bennie (2006) concur with this concern, “Paradoxically, little educational, social, financial, and psychological support exists for the retention of youth sport coaches given their importance to the overall development of youth athletes” (p. 27).

**Youth soccer coaches.** Soccer, as one of the most prevalent sports among children five years of age and well into adulthood, is a viable population to initiate a study on coaches’ commitment to coaching. Soccer associations (e.g., NSCAA, USYSA, SAY Soccer) support athletes, coaches, and officials, and provide resources and education opportunities. For example, with approximately 30,000 members, the National Soccer Coaches Association of America (NSCAA) is the largest coaching association in the world. The NSCAA estimated educating over 4,000 coaches each year (“The NSCAA,” 2010). Furthermore, 47% of their membership defines themselves as a ‘youth coach’, 22% as a ‘high school coach’ and 31% identified as ‘other’. Approximately 69% of the NSCAA membership works with youth athletes (S. Williams, personal communication, June 3, 2010.)
U.S. Youth Soccer has exploded from 100,000 players in 1974 to 3.2 million today. The organization plays host to the Olympic Development Program, National League, National Championship Series, America’s Cup, Presidents Cup, Soccer Start Program, and TOPSoccer. Founders Karl Grosch and Don Greer aspired to unite all youth soccer programs for every age and ability (“History – US Youth Soccer”, 2010).

The Soccer Association for Youth (SAY) is the leader in recreational soccer support, comprised of 600 leagues, 150,000 players, and 36,000 coaches (“About SAY,” 2010). Finally, The American Youth Soccer Organization (AYSO) that began with nine teams in 1964 has grown to include 50,000 teams and more than 650,000 players. Approximately 250,000 parent volunteers (i.e., coaches, referees, administrators, sponsors) support this association which has branched out, establishing programs in Moscow, the U.S. Virgin Islands, and Trinidad and Tobago (“History of AYSO,” 2010). Collectively, there are hundreds of thousands of youth soccer coaches working with a multitude of young athletes.

Soccer in the United States has exploded on the youth level. Youth soccer registration has more than doubled over the past two decades (i.e., nearly 3.9 million players - 2.3 million boys and 1.6 million girls) as programs have been created for children of increasingly younger ages. Farrey (2008) explains,

When girls are added to the total, we have three times as many registered youth players, 3.9 million, as either France or Brazil. All the gear they wear makes the U.S. the largest soccer market in the world for retailers. But research by the
SGMA shows that participation levels peak at age 9, just as kids in Brazil are
starting to play organized soccer. (p. 103)

Many of the youth that continue to play soccer into their adulthood are immigrants that
were not introduced to soccer in the U.S. and were able to develop their skills in an
unstructured environment (Farrey, 2008).

While many soccer coaches fall into the parent volunteer group, the vast majority
of coaches have developed careers around coaching youth soccer players. From a review
of the literature, youth soccer coaches can be divided into five groups (i.e., volunteer-
participation, volunteer-performance, professional-participation, professional-
performance, and director of coaching). A volunteer participation coach is often a parent
coach who works with athletes 5 to 12 years of age. The volunteer-performance coach
typically works without pay, but performance (i.e., winning) is a major focus. These
individuals can be young novice coaches looking to gain experience especially at the high
school or Olympic Development Level. The remaining three types of soccer coaches get
paid for their expertise and success.

A professional-participation coach typically works with athletes aged 5 to 12
years, much like the volunteer participation coach, but this individual gets paid for his/her
services. These coaches typically work for a club (i.e., a soccer organization that
manages multiple soccer teams at a variety of levels) where the development of the
player is emphasized. The professional-performance coach differs in that winning and
competition are stressed. Their involvement with the club depends on their ability to win
not only games, but championships. Furthermore, being able to ensure athletes will be
recruited is a key responsibility for a professional-performance coach. Finally, a director of coaching (DOC) typically manages an entire club. These individuals usually coach a team, but their job is either to develop players or get them recruited to play soccer at the next level.

Minimal research has been conducted to further understand this populous group of coaches. Studies examining commitment to coaching (i.e., the desire and intent to continue coaching by engaging in educational learning opportunities, designing developmentally appropriate activities, and embracing an athlete-centered philosophy) can contribute to the development of interventions for the retention of athletes and coaches.

A greater understanding of coaches’ commitment to coaching is necessary to increase retention rates, especially those involved in youth sport. Poor coaching, one of the top reasons youth sport participants’ drop-out of sport, may be linked to the 2.5 million volunteer coaches who lack formal education and experience in coaching young athletes (Ewing, Seefeldt, & Brown, 1997). Coaches average three years of coaching before moving onto the next chapter in their lives (B. de Lench, personal communication, May 10, 2010). Seefeldt (1998) reports, “Changes in youth sport primarily depend upon the degree to which the attitudes of its adult leaders can be modified” (p. 338).

Dedicated, educated and experienced coaches committed to working with the youngest developing athletes are essential to lifelong sport participation. The next section explains the theoretical background of the latent variable, commitment, and how the Sport
Commitment Model (Scanlan et al., 1993; Scanlan, T.K., et al., 2009) is a viable framework for understanding youth soccer coaches’ commitment levels.

**Theoretical Underpinnings**

The major psychological constructs of sport enjoyment, burnout, and dropout surfaced in the 1970’s when sport psychologists were establishing their professional identity. Organized youth sport was expanding as the population grew in the United States. Private sporting organizations began to provide interscholastic opportunities for youth. The increase in organizations with a focus on competition equated to less unstructured play, uneducated coaches, and higher levels of anxiety and aggression (Smoll & Smith, 2002). Sport psychologists sought to educate those working with youth sport participants, test existing psychological theory in the sport setting, and develop new psychological theories (Gould, 1982).

Researchers and sport psychologists began to understand the psychology of youth sports. For example, Smith, Smoll, and Curtis (1978) found that positively ranked coaches were more technical, functional, and offered more reinforcement in their feedback than negatively ranked coaches. Young children subjected to competition before their cognitive abilities have developed, are more likely to experience anxiety, develop low self-esteem, and lack the motivation to continue participation (Passer & Wilson, 2002). While it’s true that children like to be with their peers in the youth sport environment, they thoroughly enjoy improving and testing their game skills (Wankel & Kreisel, 1985).
Several key concepts (i.e., sport enjoyment, burnout, drop-out, and commitment) are important to understand before delving into the theories underpinning this study. Sport enjoyment has been defined as a positive response to the feeling of happiness or joy when participating in sport (Scanlan et al., 1993a). Burnout is described as an emotional and psychological withdrawal from sport over time due to repeated stressors (Gould, 1987). By contrast, drop out is when athletes abandon their participation in sport (Cashmore, 2002; Coakley, 2007). However, not all athletes who leave a sport do so because of burnout (Smith, 1986), which is also likely true of coaches. “Some coaches may discontinue participation when their alternatives rise to a level that exceeds their outcomes” (Schmidt & Stein, 1991, p. 255), meaning that alternative activities they might participate in are more attractive than their current coaching activities.

Commitment, longevity to a relationship, activity, or goal has been studied as a psychological construct since the 1950s. In the literature, romantic relationships and work force retention are a few areas where commitment has received the most attention. In particular, sport commitment emerged from the social exchange theory (Thiabaut & Kelly, 1978) and the investment model (Rusbult, 1980). The following sections outline the development of the Sport Commitment Model (Scanlan et al., 1993b; Scanlan, T.K. et al., 2009) and how this theoretical framework can be used for coaches.

**Commitment Theories**

**Social exchange theory.** The social exchange theory (SET), conceptualized in 1959 by Thibaut and Kelley, deals with the growth of a relationship (e.g., friendship) and makes the assumption that humans long to maximize positive experiences. Outcomes,
comparison level (CL) and comparison level for alternatives (CL_{alt}) are important concepts in the social exchange theory. Outcomes are rewards and costs a person experiences through participation in an activity. If the costs are lower than the rewards, there are greater outcomes. In order to determine one’s satisfaction with an activity or one’s ability to discontinue participation in an activity, outcomes are compared against CL (i.e., the neutral point on a scale of goodness and badness). Dependence, on the other hand, is the relationship between outcomes and CL_{alt} (i.e., the lowest level of outcomes a person will accept without leaving an activity in favor of another).

Social exchange theory (SET) makes the important theoretical point that attraction and dependence are conceptually distinct. It explains the more obvious observations that persons who enjoy an activity often stay and those who find little enjoyment in it typically choose to leave. But, the theory also illustrates why person[s] who are satisfied sometimes leave (their alternatives come to exceed current outcomes) and why those who are dissatisfied stay (outcomes are below the CL but above the CL_{alt}) (Schmidt & Stein, 1991).

In a coaching context, winning a contest or tournament would be an example of a tangible outcome and positive reward. A psychological reward would be the feeling of positively affecting athletes’ motivation. Examples of costs coaches experience would be time away from family or disappointment after a losing season. Overall, coaches experience satisfaction and enjoyment when the rewards outweigh the costs (Smith, 1986). It might be assumed that commitment to coaching would be the result of high rewards, but this is not always the case.
Commitment to coaching can be theorized as the relationship between outcomes, CL and CL_{alt}. For example, a coach could experience a winning season but poor behavior by the parents could diminish the level of enjoyment below the neutral point (CL). Furthermore, the end of the season might mark the last year the league allows parent coaches (CL_{alt}). The coach could remain committed to coaching by working with a team that does not involve their child or choose to become a fan. Smith (1986) used SET to distinguish between burnout and dropout of athletes, but theoretically it could be generalized for use with coaches.

As social exchange theories continued to evolve, psychologists developed other models to explain the phenomena of social interactions. The investment model, developed by Rusbult in 1979, is an example of a theoretical framework psychologists used to further understand relationships and investigate sport commitment. Characteristics of the investment model and its usefulness to sport commitment are described in the following section.

**Investment model.** Rusbult’s (1980) investment model, which also has roots in the social exchange theory, is another theoretical framework used by psychologists to investigate commitment to sport. In this model, commitment is defined as the result of rewards, minus costs, plus alternatives and investments (commitment = rewards – costs + alternatives + investments). The concept can also be viewed as dependence plus investments (Schmidt & Stein, 1991) and the investments provide a temporal component missing in the social exchange theory.
Studies involving the investment model (Rusbult, 1980) demonstrate that a decrease in relationship costs (i.e., the emotional and physical costs to the individuals remaining in the relationship), and an increase in reward value (e.g., feelings of acceptance) increased perceived satisfaction of individuals involved in the relationship. The model was able to distinguish between individuals who stayed, left, or were abandoned in a relationship. For example, after conducting a 9-month study with collegiate couples, Rusbult (1983) found that individuals who remained committed to their relationship reported increasing rewards, diminishing alternatives, and increasing investments.

In a sporting context, one might assume that a coach who enjoys his/her job with limited alternatives would likely stay involved as a coach. A coach that wins games, but loses dedication or control of his/her players may or may want to continue coaching, and a coach that does not win but sees his/her players developing may or may not want to continue coaching. According to Schmidt and Stein (1999), “Rusbult’s investment model paradigm provides a clear, conceptual guide to distinguish between various concepts (e.g., between enjoyment and commitment, or between commitment and its antecedents) and makes possible the development of specific scales to measure these components” (p. 261).

Sport commitment has continued to develop with the social exchange theory and the investment model as its underlying theoretical framework. The following section details the origins of sport commitment and the maturation of the SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009).
Measuring Sport Commitment

It is reasonable to assume that a participant who enjoys sport and has the motivation to engage in its activities would be more committed to developing techniques and tactics to better play the game, thus becoming a lifelong participant. Based on the literature, a premise is that this individual would eventually become a coach committed to enhancing the experiences of the athletes. Studies and model development regarding sport enjoyment, commitment, and motivation have come from a desire to increase the retention rates and lifelong participation of youth sport participants (O'Connor & Bennie, 2006).

When developing and defining the psychological construct, sport commitment, Schmidt and Stein (1991) believed Thiabut and Kelley’s model of the social exchange theory was missing a temporal component and did not help explain why continued participation occurred even in stressful environments. While the processes of burnout and dropout are similar constructs, the timing of exit from an activity is different. Thus, Schmidt and Stein turned to Kelley’s (1983) model of commitment where love was distinguished from commitment by extrapolating the positive pulls (e.g., compassion) from non-positive pushes (e.g., shared friends) to define stability. An enduring relationship may have love and commitment, love without commitment, and/or commitment without love. This can be related to youth coaching in that a volunteer parent coach might have a strong desire to coach and dedicate the time to perform the tasks associated with coaching. A volunteer parent coach might love his/her child, but not be serious about a coaching career. Finally, a coach might be serious about the
profession, but lack compassion for the athletes. Studying relationships over time provides the added temporal component Schmidt and Stein desired and believed was missing from previous models.

Schmidt and Stein (1991) believed Kelley’s commitment model could be used for studies in the world of athletics. For example, enjoyment or satisfaction could be substituted for love; while commitment would remain unchanged.

For instance, commitment to sport would be defined as duration of participation in sports. In this way, one could distinguish between persons who stay in the sport for the sheer enjoyment of it, versus those who stay for reasons other than enjoyment, and finally those who remain as the result of some combination of these factors. (p. 259)

Although Schmidt and Stein (1991) initiated the development of a model that includes enjoyment, dropout, and burnout for athletes, the Sport Commitment Model, proposed by Scanlan et al., (1993a) is a model that attempts to explain the motivations and barriers to continued sport participation.

**Sport commitment.** Sport commitment is defined as a psychological construct reflecting “the desires and resolve to continue participation in a sport over time” (Scanlan et al., 1993a, p. 7). Derived from social and organizational psychology, the initial model utilized the investment model framework (Rusbult, 1980) and principles of social exchange theory (Kelley & Thibaut, 1978). “The primary goal of the investment model is to predict the degree of commitment to and satisfaction with a variety of forms of ongoing associations (e.g., romantic, friendship, business) with wide ranges of duration


and involvement” (Rusbult, 1980, p. 173). Kelley and Thibaut’s (1978) social exchange theory professes those individuals who are motivated to invest in a relationship will reduce the costs and maximize the rewards associated with that relationship. Furthermore, previous experiences become the standard to which attractions and commitment to a relationship is compared and measured.

Due to increased investments of resources and time, it can be assumed that commitment to a relationship increases as attractive alternative options decrease, but this is not always the case. For example, a person’s increase in skill and competence in a work relationship may attract better alternatives (e.g., higher paying or a more prestigious job) bringing the potential to commit one’s efforts elsewhere. Overall, satisfaction plus investments minus alternatives is the premise of Rusbult’s (1980) investment model and Scanlan and colleagues’ (1993a) Sport Commitment Model.

The Sport Commitment Model

The Sport Commitment Model (Scanlan et al., 1993b; Scanlan, T. K. et al., 2009), as a theoretical framework, proposes that sport commitment can be determined by six constructs (i.e., latent or unobserved variables): sport enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support.

The six constructs that make-up the SCM are defined as (Scanlan et al, 1993a):

*Sport Enjoyment*: A positive affective response to the sport experience that reflects generalized feelings such as pleasure, liking, and fun (p. 6).
**Involvement Opportunities/Valuable Opportunities**: Valued opportunities that are present only through continued involvement (p. 8).

**Involvement Alternatives/Other Priorities**: The attractiveness of the most preferred alternative(s) to continued participation in the current endeavor (p. 7).

**Personal Investments**: Resources that are put into the activity which cannot be recovered if participation is discontinued (p. 7).

**Social Constraints**: Social expectations or norms which create feelings of obligation to remain in the activity (p. 7).

**Social Support**: The support and encouragement the athlete perceives significant others provide for their involvement in sport (Carpenter, 1993, p. 59).

In sum, the measurement items for sport commitment reflect the psychological desire and resolve to continue participation in a particular sport or program (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009). See Figures A1 and A2 in Appendix A.

Research conducted by Scanlan and associates has spanned almost twenty years. A sound theoretical background has allowed the model to evolve. For example, the original model had five constructs while the most recent model includes six. The popularity of the model is evident as other social scientists have used the SCM in their research. Groups that have been studied include youth, elite and professional athletes, recreation participants, and those in the exercise and fitness industry. Studies have also been conducted internationally in New Zealand and Thailand. (Alexandris, Grouious, Tsorbatzoudis, & Zahariadis, 2002; Carpenter, Scanlan, Simons, & Lobel, 1993; Casper, 2004; Casper & Stellino, 2008; Choosakul, Vongjaturapat, Li, & Harmer, 2009; Scanlan,

The SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) was developed using a three-step process. First, items measuring the latent variables (i.e., commitment, enjoyment, alternatives, etc.) were tested and evaluated. Item characteristics, internal consistency of the scales, and discriminant validity of the measures were completed first. According to Scanlan et al., (1993b),

Our psychometric objective for this research effort is to develop a set of core items with which to examine the constructs of the Sport Commitment Model across diverse youth-sport samples. To achieve this level of generalizability, our measurement strategy was to retain those items in the core that were common to a heterogeneous group of athletes. (p. 17)

Most items, with the exception of those measuring personal investments, were internally consistent (reliable) using Cronbach’s (1951) alpha; “sport commitment (.88), sport enjoyment (.90), involvement alternatives/other priorities (.91), social constraints (.87) and involvement opportunities/valuable opportunities (.83)” (Scanlan et al., 1993b, p. 24). A factor analysis indicated a six-factor solution with a complex first factor, as both sport commitment and involvement opportunities/valuable opportunities loaded on
the same factor. According to Scanlan et al. (1993b), “Because sport commitment is the
dependent measure in the Sport Commitment Model and all other constructs are
predictors, it was not surprising to have items from another construct load with the
commitment items” (p. 25). After the separation of commitment from involvement
opportunities/valuable opportunities, the predictor constructs were run through factor
analysis (oblique rotation) resulting in a five factor solution.

The second phase was a replication and extension of phase one with the goal of
reducing the number of items in the survey using another sample of youth athletes. Much
like the initial stage, principle factor analysis with oblique rotation resulted in a complex
primary factor, however in this instance, sport commitment and enjoyment made up the
initial factor. Again, following a factor analysis, commitment separated from enjoyment,
but with an inter-factor correlation of .69. Finally, the predictor constructs were run
through factor analysis, again, resulting in a five factor solution (Scanlan et al., 1993b).

In both phases, the construct of involvement alternatives/other priorities struggled
to form a scale, but modifications were made based on the literature. Additional changes
were made in response to participants’ struggling to understand construct meanings.
Involvement alternatives/other priorities has evolved and remained in the model.
Furthermore, commitment, enjoyment, social constraints, and involvement
opportunities/valuable opportunities constructs formed reliable scales and separated into
distinct factors. Discussions continue to develop the shortest survey possible to
accurately measure the constructs (Scanlan et al., 1993b).
Testing the SCM using factor analysis. A confirmatory factor analysis was run using a large, diverse sample. “Such an approach provides an excellent method for establishing the reliability and discriminant validity of measures for the constructs of a theoretical model” (Scanlan et al., 1993b, p. 31). This heterogeneous sample of young athletes consisted of 1342 participants from three different groups (i.e., football, soccer and volleyball) (Scanlan et al., 1993b). The groups were combined since all were team sports with comparable organization schedules (e.g., practice, games, level of competition). Models were analyzed using EQS for football and soccer, and stepwise regression was used to analyze volleyball. This resulted in the same predictors of commitment, and a multi-group analysis for gender and age were not significant (Carpenter et al., 1993).

Initial confirmatory factor analysis using the five construct model (i.e., commitment, enjoyment, involvement opportunities/valuable opportunities, personal investments, and social constraints) was tested. The involvement-alternatives construct was not included in the model because of limited indicator items. Moreover, the personal investments construct was also removed from the model, as indicator variables failed to measure the construct, and the minimum number of indicator items fell below the acceptable number. The literature suggests a construct be made of four or more indicators and should not be less include less than three indicators (Hancock & Mueller, 2010).
Testing the SCM Using Structural Equation Modeling (SEM). Carpenter et al. (1993) further investigated the SCM using structural equation modeling (SEM). In this study, the measurement and structural model (Figure A3 in Appendix A) was investigated to “test the model’s viability across a diverse youth-sport sample using structural equation modeling” (p. 120). The statistical software package EQS was used to combine factor analysis and multiple regression in one technique. Structural Equation Modeling (SEM) was used to assess the latent variables in the SCM that allowed for interrelationships between constructs and robustness in cases of extreme non-normality, resulting in model converging without problems. Additionally, the model accounted for 68% of the commitment variance and the CFI = .981. As predicted,

Greater commitment was significantly predicted (p < .01) by greater sport enjoyment ($\beta = .222$), involvement opportunities/valuable opportunities ($\beta = .578$), and personal investments ($\beta = .189$). The social constraints component was a low but significant predictor ($\beta = -.069$). Counter to expectation, greater commitment was predicted by lower social constraints. (p. 129)

It was concluded that,

The more athletes enjoy playing, the more opportunities they feel they would miss if they left, and the more they have invested in their sport, the greater their desire and resolve to continue. (p. 129)

**Testing the SCM using mixed-methods.** Recently, a mixed-method approach was used to further test the Sport Commitment Model. The Scanlan Collaborative Interview Method (SCIM; Scanlan, T. K. et al., 2003) was introduced during the Project
on Elite Athlete Commitment (PEAK) in New Zealand. The aim of the study was to examine the influence of professional status on commitment of rugby and netball players and teams. Described as a new and rigorous methodology, the SCIM is an “interview technique that allows the player, in partnership with the researcher, to capture his or her personal picture of commitment on a collaborative interview board” (Scanlan, T. K. et al., 2003, p. 362). This mixed-method approach was used to further test and strengthen the validity of the Sport Commitment Model.

Constructs that have been consistently strong determinants of sport commitment include sport enjoyment, involvement opportunities/valuable opportunities, and personal investments. The construct of involvement alternatives/other priorities has proven to be more complex, while social support has been suggested as another important determinant of sport commitment. Social constraint has surprisingly shown little to no affect (Scanlan, T. K. et al., 2003). These six constructs were further examined during the PEAK study with rugby and netball team members.

Quantitative and qualitative data confirmed that players were encouraged and supported in their commitment to sport. The results indicated that players strongly valued the opportunity to be a member of the team, chose to stay involved even though other alternatives existed in their lives, and invested much time, money, and energy into their sport. The players continued participation because they wanted to, not because they were obliged to play. Finally, parents and significant others were strong supporters that encouraged their participation (Scanlan, T. K. et al., 2003; Scanlan, T. K. et al., 2009).

Overall, the six constructs of the SCM (i.e., sport enjoyment, involvement
opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support) were supported and clearly defined with the PEAK study. Following this research, changes were made to the names of two of the constructs. The involvement opportunities/valuable opportunities construct is now referred to as valuable opportunities, and the involvement alternatives/other priorities construct is now called other priorities. According to T. K. Scanlan et al. (2009), the names were changed, “because of confusion arising from use of the word involvement in the original two names” (p. 686). Besides changing names and strengthening the external validity of the SCM, T. K. Scanlan et al. (2009) defended why enjoyment should not be a mediating variable (Weiss, Kimmel, & Smith, 2001).

The PEAK study reinforced enjoyment as the strongest predictor of commitment, however other factors are needed in the model; not just enjoyment. As T. K. Scanlan et al. (2009) conclude,

Contrary to an enjoyment-mediated model, every personal picture of commitment also included at least one other direct source of commitment. Specifically, none of the participants from the two studies identified Sport Enjoyment alone, all of the identified one or more model constructs other than Sport Enjoyment, and 89% included two or more other model constructs. (p. 701)

Thus, according to the data from rugby and netball players, each construct was identified as a “direct source of commitment and not mediated by Sport Enjoyment” (p. 701).

In summary, continued research regarding the structure, reliability, and validity of the Sport Commitment Model have modified the model in various ways. The initial
theoretical model, conceptualized from Rusbult’s (1980) investment model, included six variables (i.e., commitment, enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, and social constraints). The initial structural model indicated that involvement alternatives/other priorities and social constraints were not predictors of sport commitment.

The plausibility of the SCM has ignited researchers outside the Scanlan paradigm to study the model using a quantitative lens. Moreover, qualitative inquiry via the Scanlan Collaborative Interview Method (Scanlan, T. K. et al., 2003) continues to encourage future research. The SCM has evolved over the past 15+ years to include a minimum of seven variables; two construct name changes, and the identification of enjoyment as a potential mediating construct.

In recent years, other sport psychologists and researchers have experimented with the SCM (Alexandris et al., 2002; Casper, 2004; Casper & Stellino, 2008; Choosakul, Vongjaturapat, Li, & Harmer, 2009; VanYperen, 1998; Weiss M. R., Kimmel, & Smith, 2001; Weiss M. R., Weiss, & Amorose, 2010; Weiss, W.M., 2003; Weiss, W.M., & Weiss, 2007). The model has proven to be strong in character and credible in design. The following section details the findings of these more recent studies.

**Impact of development.** Research using a developmental perspective of sport commitment with competitive gymnasts revealed that enjoyment was the strongest predictor of commitment for all age groups and competition levels (Weiss W. M., & Weiss, 2007). New to the research scene, the developmental perspective was chosen because young athletes grow and mature physiologically, psychologically, and
cognitively at different rates. Using age variations and different competition levels as independent variables, the aim of the study was to explore commitment to sport using the sport commitment framework. In this study, gymnasts were grouped by age into three groups (e.g., 8 - 11 years old, 11 - 14.5 years old and 14.5 - 18 year) and by competitive levels into three groups (i.e., the higher the level, the more competitive the gymnasts: levels 5 - 6, 8 - 9, and 10).

Enjoyment, personal investments, involvement opportunities/valuable opportunities, attractive alternatives, sports commitment, social support and perceived competence were factors used in the study. As predicted, enjoyment was the strongest predictor of commitment. Involvement opportunities/valuable opportunities and attractive alternatives were removed from the final analysis due to multicollinearity (Weiss W. M., & Weiss, 2007). And, enjoyment was removed from the equation to see if other determinants separated themselves as significant predictors of commitment (e.g., personal investments and social support) based on age and competitive level.

The young, less competitive gymnasts showed higher levels of perceived competence and social support from adults than older, more competitive gymnasts whose enjoyment level dropped, and attraction to alternative options increased. These findings parallel the developmental literature in many ways. First, young children seek approval from parents and friends (Horn, 2004). Second, intrinsic motivation declines with age (Harter, 1999). Third, other activities become appealing during adolescence, and social costs have consequences for retention (Coakley & White, 2004). Finally, competence may decline as competitive level increases, placing more demands on the athlete.
Overall, W. M Weiss and Weiss (2007) were able to show that a developmental perspective to sport commitment is appropriate utilizing age and competitive levels in the model.

**Commitment to exercise and fitness.** The exercise and fitness industry, like youth sport leaders, are interested in the retention of its participants. Dropout rates and sedentary life-styles provide similar concerns for the two industries. In an exploratory study, Alexandris et al. (2002) used enjoyment, personal investment, social constraints, and involvement opportunities/valuable opportunities from the Sport Commitment Model (Scanlan et al., 1993b) as predictors of commitment to exercise and fitness participation. Using the SCM, five constructs including commitment, were modified for members of private health clubs in Greece. One example of a modified question addressing the construct of enjoyment is: Do you enjoy being a member of the health club? (Alexandris et al., 2002).

The final modified version of SCM was subjected to structural equation modeling using the EQS statistical package (Bentler, 1994) and resulted in fix indexes (CFI) of .957 (Alexandris et al., 2002). Thus, the factor structure of the model and construct validity was similar to that found by Scanlan et al. (1993b). Simultaneous regression of the final model was able to explain 44% of the variance in commitment of the private health club members with involvement opportunities/valuable opportunities being the biggest predictor, followed by investment, enjoyment, and social constraints (Alexandris et al., 2002). Findings appear to indicate that those most committed to their fitness
levels, appreciate and value the gains in performance more than the money spent, having fun, or feeling obligated to exercise.

The sport and recreation industry thrives on sport consumers who are highly motivated, connected, loyal, and committed. The previous research findings can lead one to question whether commitment to sport can be generalized across age or gender. Using the theoretical antecedents found in the Sport Commitment Model, Casper and Stellino (2008) used demographic predictors (e.g., age, sex, income and skill level) to better understand membership in a community tennis association. The population for this study was 537 adult recreational tennis players that ranged in age from 19 to 84 years of age, with skill levels from 2.5 to 5.5 (e.g., a novice tennis player would have a lower skill number) and made $60,000 or more each year. A web-based survey was administered to members resulting in a 44% return rate. Similar to W. M. Weiss and Weiss (2007) and Scanlan et al. (1993b), enjoyment and involvement opportunities/valuable opportunities were the strongest predictors of sport commitment across all groups in this study. “Both constructs are reflected in the intrinsic aspects of the sport; enjoyment being the hedonic (e.g., pleasure) outcome of participation, and involvement opportunities/valuable opportunities the unique experience and aspects of sport” (Casper & Stellino, 2008, p. 106).

Predictors of commitment were differentiated by the demographic factors of personal investments, involvement activities, and social support. The older, more experienced players were more committed and had less alternative options than the younger, less experienced players. No significant gender differences were found, but
males reported higher levels of social support, while females reported higher levels of enjoyment and personal investments. Furthermore, no significant differences arose from income; however, time, effort, and an investment of money supported continued participation. Skill level did not significantly predict sport commitment; however athletes with lower skills were encouraged by social support, while involvement opportunities/valuable opportunities predicted commitment in participants with higher level skills.

**Enjoyment as a mediating variable.** Researchers have expanded the SCM to test enjoyment as a mediating variable (Casper, 2004; Weiss, M. R., Kimmel, & Smith, 2001; Weiss, M. R., Weiss, & Amorose, 2010). Consistently, enjoyment is the number one reason athletes, young and old, are motivated to participate in their sport. Sport commitment research suggests that commitment, enjoyment, and involvement opportunities/valuable opportunities are high correlated. Mutlicollinearity (i.e., excessive correlation) issues have lead researchers to examine an alternative model to the orginal SCM. This alternative model tests enjoyment as a mediating variable.

M. R. Weiss, Kimmel, and Smith (2001) recognized the close relationship between commitment and enjoyment by testing the original and mediating models when they examined youth tennis players’ levels of commitment. They further justified the mediation model since several variables (i.e., involvement opportunities/valuable opportunities, personal investments, etc.) may have been suppressed by enjoyment’s moderate correlations. As expected, sport enjoyment was the strongest predictor of commitment with personal investments and attractive alternatives (negatively)
contributing significantly to both models. However, “the meditational model
demonstrated strong relationships between these constructs and sport enjoyment” (p.
138).

The satisfactory model fit statistics of the two hypothesized models, Structural –
$CFI = .914, RMSEA = .074, R^2 = 91.7$ and Meditational – $CFI = .903, RMSEA = .078,$
$R^2_{enjoyment} = 68.7, R^2_{commitment} = 91.9$, respectively, influenced the analysis of a
direct/indirect model. This final model, also satisfactory ($CFI = .914, RMSEA = .074, R^2$
enjoyment $= 57.7, R^2_{commitment} = 91.7$), lead to a few interesting findings. For
example, “personal investments and attractive alternatives were also significantly and
more strongly related to enjoyment than to commitment, while social support and social
constraints were not related to enjoyment” (Weiss, M. R., Kimmel, & Smith, 2011, p.
139). Overall, enjoyment was the most consistent and strongest predictor of commitment
for youth tennis players in this study.

Casper (2004) continued to investigate the original, meditational, and
direct/indirect models in his dissertation research with adult (18 and over) recreational
tennis players. A web-based survey resulted in 537 usable cases. Satisfactory results ($\chi^2$
$= 672.43$ (df $= 406$) $CFI = .95, RMSEA = .036, SRMR = .069$) for the final structural
model explained 98% of the variance to commitment. After making modifications to the
hypothesized model, the direct/indirect model was tested. Casper (2004) found

…the output of the model indicated that the Psi matrix was not a positive definite
and the regression path between enjoyment and commitment was a value higher
than one. The output results indicated that the model was not correctly specified
possibly due to the under-identification or the high correlation between enjoyment and commitment. (p.102)

Additionally, the fit indices were similar to the structural model ($\chi^2 = 674.40$ (df = 406), CFI = .95, RMSEA = .035, SRMR = .069). Enjoyment was still a strong predictor of commitment, but a personal investment was the strongest predictor in this study. Social support was statistically significant for commitment, but not enjoyment. Involvement alternatives/other priorities helped explain enjoyment, but not commitment. More recently, additional testing of these theoretical models has been conducted in Thailand.

Recently the SCM has been validated with Thai youth athletes (Choosakul et al., 2009). This cross-sectional study not only validated a Thai version of the Athlete Opinion Survey (TAOS), it also examined the SCM and mediating model using SEM. Participants (validation: N = 469 and calibration: N = 1244) in this study were elite athletes that competed in the Youth National Games. The validation sample (N = 460) model fit the data ($\chi^2 = 799.26$, CFI = .96, RMSEA = .038) as did the calibration sample (N = 1244, $\chi^2 = 2090.14$, CFI = .98, RMSEA = .054). The structural model, including nine latent factors, also fit the data reasonable well ($\chi^2 = 2197.45$, CFI = .98 RMSEA = .54) and explained 58% of the variance. Although the mediation model resulted in acceptable model fit ($\chi^2 = 2362.32$, CFI = .97, RMSEA = .057) with perceived ability, negative affect, personal investments, social opportunities and social support being significantly related to enjoyment, the direct/indirect model provided better fit ($\chi^2 = 2197.45$, CFI = .98, RMSEA = .054), resulting in the rejection of the mediation model.
The direct/indirect model explained 51% variance in enjoyment and 58% in commitment. Consistent with other findings, enjoyment was strongly associated with commitment. “indicating athletes who were having a better time participating were more likely to continue to participate” (Choosakul et al., 2009, p. 136).

The Sport Commitment Model (Scanlan et al., 1993b: Scanlan et al., 2009) has been studied and validated with youth sports, professional sports, recreational sports, and the exercise and the health industry. Enjoyment has consistently been found to be the number one predictor of commitment to sport participation. These studies have implications not only for researchers, but administrators, coaches, educators, and marketers. To date, limited research has been conducted to determine coaches’ commitment to coaching. The Sport Commitment Model framework was determined to provide a valuable and useful framework for investigating commitment to coaching.

Sport Commitment of Coaches

Coaches’ retention and the psychological syndrome of burnout, have been connected to the commitment theory and the investment model (Raedeke, 2004; Raedeke, Granzyk, & Warren, 2000; Raedeke, Warren, & Granzyk, 2002). In theory, “coaches who are satisfied with their position, who experience many benefits and few costs associated with their coaching, who have high investments in their positions, and who do not perceive attractive alternative options, will be committed to coaching” (Raedeke et al., 2000, p. 87). Individuals who are burnt out with their profession, in their relationship, or way of life, will exude less excitement and enjoyment. Coaches, who experience burnout, and a resultant lack of commitment to their profession, could negatively impact
athletes, assistants, peers, and family members. Thus, the commitment perspective is a crucial and viable framework for gaining a better understanding of sport coaches.

Raedeke et al., (2004) describe three coaching profiles: (1) those who want to be involved, (2) those that feel they must continue, and (3) low committed individuals. Coaches, who want to be involved, traditionally experience extreme enjoyment and satisfaction due to increasing rewards (benefits) and low costs. These individuals do not mind spending the time and energy necessary to reap the rewards. Alternative options (socializing) become less attractive.

Similar to an addiction or dependency, there are some coaches who report feeling suffocated or entrapped and feel they must continue their involvement. Their love for the game has decreased for many reasons (e.g., pressure from parents, multiple losing seasons, lack of consistent players); however, the investments keep them involved. These individuals are at risk for burnout. Finally, low committed coaches are unwilling to invest the time and energy to continue involvement. These individuals will probably coach for a season and then move onto the next alternative.

While studying current and former swimming coaches, 73% of whom were part-time, Raedeke et al., (2002) hypothesized that coaching commitment would be associated with high satisfaction, unattractive alternative options, and high investments; benefits and costs would be indirectly related to commitment through satisfaction, and it was expected that current coaches would report higher commitment as they experience greater benefits, lower costs, fewer unattractive alternatives options, and greater coaching investments compared to former coaches.
As predicted, current and former coaches differed (3.6%) in their perceptions of attractiveness of alternatives, social constraints, and investments (Raedeke et al., 2002). Current coaches reported being less attracted to alternatives and had higher social constraints and investments than former coaches. When costs were analyzed, six factors resulted from the principle factoring: frustrated with coaching and working with athletes, problems with administration, time conflicts, parent conflicts, not reaching goals, and job limitations (Raedeke et al., 2002). Former coaches reported greater costs dealing with interpersonal issues associated with coaching, potentially indicating a need for more education in the development of administrative skills.

In their study, alternative options and social constraints were found to be unrelated to commitment, while determinants such as satisfaction and investment helped to explain 65% of the variance related to commitment. Current and former coaches differed in their commitment levels; current and former coaches differed (3.6%) in their reports of attractiveness of alternatives, social constraints, and investments (Raedeke et al., 2002). Current coaches reported being less attracted to alternatives and reported higher social constraints and investments than former coaches. Overall, the coaches in the study seem to enjoy coaching, but those who left seemed to have more or stronger things competing for their time (e.g., family or full time job). These findings are not an indication of burnout or disgruntlement; rather these coaches just had other, more appealing options.

Overall, coaches have reported that working with athletes is the most important benefit to coaching (Raedeke et al., 2002; Weiss, M. R., & Stevens, 1993). Coaches also
enjoyed the challenge of building a successful program and exhibited positive self-perceptions (i.e., feelings of self-satisfaction derived from being a coach such as feeling competent and successful). Raedeke et al. (2002) reported that “benefits related to external rewards were rated as least important” (p. 84) by the coaches and “time-related factors emerge as the most salient (stand out) coaching cost” (p. 85). Furthermore, coaching status only explained 10% of the variance in commitment model variables and did not effectively help to explain why some coaches maintain their involvement while others quit. Finally, interpersonal issues associated with coaching were of importance and improving working relationships served to enhance commitment.

Summary

Poor coaching, one of the top reasons youth sport participants’ drop-out of sport, can be linked to the 2.5 million volunteer coaches who lack formal education and experience in coaching young athletes (Ewing, Seefeldt, & Brown, 1997). Retention of sport coaches is an issue as well. For example, coaches average three years of coaching before moving onto the next chapter in their lives (B. de Lench, personal communication, May 10, 2010). A greater understanding of coaches’ commitment to coaching is necessary to increase retention rates for all those involved in youth sport. Studies examining commitment to coaching, like the current study contribute to the development of interventions for the retention of not only athletes, but these often idolized teachers called coaches.

One way to study coaches’ commitment is through the psychological construct, sport commitment. Defined as the “the desire and resolve to continue participation in a
sport over time” (Scanlan et al., 1993a, p. 7), sport commitment has been studied via The Sport Commitment Model (Carpenter et al., 1993). It has been studied and validated with youth sports, professional sports, recreational sports, and the exercise and the health industry. While enjoyment has consistently been found to be the number one predictor of commitment to sport participation with youth, adults place more value on involvement opportunities/valuable priorities and personal investments. Social constraints and social support are important antecedents to sport commitment, but their statistical strength in the model is often weak. Therefore, the objective of this study was to determine if the SCM (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) is a viable model to assess coaches’ commitment to coaching.
Chapter 3: Method

The purpose of the statistical procedures is to assist in establishing the plausibility of the theoretical model and to estimate the degree to which the various explanatory variables seem to be influencing the dependent variables. (Cooley, 1978, p. 13)

The purposes of this study were to (a) examine the Sport Commitment Model (SCM; Scanlan et al., 1993a; Scanlan et al., 2009) to see if it provides a viable model to assess coaches’ commitment to coaching, (b) assess enjoyment as a potential mediator to coaches’ commitment, and (c) subsequently determine the factors that contribute to youth soccer coaches’ commitment to coaching. This was accomplished by using structural equation modeling (SEM) via Analysis of Moment Structures (AMOS), and a modified version of the Sport Commitment Model (SCM) questionnaire (Scanlan et al., 1993a).

One way to study the impact coaches have on their athletes is through the psychological construct, sport commitment. In the past, studies with youth, professional, and recreational sports, and adults in the exercise and health industry have helped validate the Sport Commitment Model (Alexandris et al., 2002; Casper, 2004; Casper & Stellino, 2008, Choosakul et al., 2009; Scanlan et al., 1993b; Scanlan, T. K. et al., 2003; Scanlan, T. K. et al.’ 2009; VanYperen, 1998; Weiss, M. R., Kimmel & Smith, 2001; Weiss, M. R., Weiss, & Amorose, 2010; Weiss, W.M., 2003; Weiss, W.M., & Weiss, 2007). Across these studies, enjoyment has consistently arisen as the number one predictor of commitment to participation in sport. To date, limited research has been conducted on coaches’ commitment to coaching.
The methodology section is divided into eight main sections: 1) research design, 2) description of the model being tested, 3) identification of population, 4) sampling plan, 5) instrumentation, 6) pilot study, 7) data collection procedures, and finally 8) data analysis procedures. The research design outlines the plan for this study, followed by a brief description of Structural Equation Modeling (SEM) in order to help the reader interpret the model tested in this study which is also presented in the same section.

The section defining the population includes a description of the soccer organizations used as a source for participants. A description of the instrument is followed by details of the pilot study, including the reliability and validity of the instrument, as well as modifications made based on findings from the pilot study. Next, data collection procedures are described, followed by a thorough discussion of the data analysis procedures including a more in depth discussion of structural equation modeling.

**Research Design**

This section provides a description of the research design utilized in this study. According to Creswell (2009), a research design includes philosophical worldviews, strategies of inquiry, and research methods. The philosophical worldview in this study is theory driven using data (i.e., the model fit) to support or refute the theory. This study used non-experimental survey research designed to determine the attitudes and opinions of coaches’ commitment to coaching. A web-based survey was chosen for accessibility to a large population, economical reasons, and quick turnaround in data analysis (Creswell, 2009). Data were collected during a six-week period using Qualtrics, an online survey tool.
Following a pilot study, data were collected from youth soccer coaches utilizing a web-based engine to deliver the Coaches’ Commitment Survey. The data were then used to assess the hypothesized models (i.e., measurement, structural, and mediator) of Coaches’ Commitment. Model fit, parameter assessment, and modifications were evaluated using Structural Equation Modeling (SEM) with the Analysis of Moment Structures (AMOS) computer program (Arbuckle, 2009).

The next section provides an overview of SEM to assist the reader in understanding the description of the models tested in the study. Specifically, model notations, specification, identification, estimation, and a two-phase modeling approach are discussed. As previously stated, SEM is an a priori statistical methodology that uses observed and latent variables via a pictorial model based on theory prior to data collection. A goodness-of-fit is then determined for the hypothesized model(s) and correction for measurement error is evaluated to enhance understanding of unexplained phenomena.

In SEM, a series of structural equations (i.e., regression), modeled pictorially, hypothesizes relationships among variables based on theory. These pictorial structures (i.e., symbolic notations) are created with circles, rectangles, and arrows. Unobserved (i.e., latent) variables are represented with circles or ellipses. Rectangles represent the observed variables (e.g., items in a survey) and the arrows indicate the impact of variables on each other.

The steps taken prior to data analysis include model specification and identification. Model estimation, testing, and modification are byproducts of the model
specification and identification process. Model specification, based in theory and
research, determines every relationship and parameter of interest to the researcher, and is
visually modeled using a pictorial structure (Schumacker & Lomax, 2010). “Model
identification enables a computer to theoretically derive a unique estimate of every model
parameter” (Kline, 2011, p. 94). Once the model(s) have been specified, estimation of
parameters leads to model fit analysis, frequently followed by modifications being made
to the model.

**Model specification.** Model specification, a pictorial structure of the relationship
between variables and parameters, is the most important step in SEM. The pictorial
structure can also be thought of as a series of equations. Both the model and equations,
“define the model’s parameters, which correspond to presumed relationships among
observed and latent variables that the computer eventually estimates with sample data”
(Kline, 2011, p. 92-93). Furthermore,

A model is properly specified when the true population is deemed consistent with
the implied theoretical model being tested-that is, the sample covariance matrix S
is sufficiently reproduced by the implied theoretical model. The goal of the
applied researcher is, therefore, to determine the best possible model that
generates the sample covariance matrix. (Schumacker & Lomax, 2010, p. 56)

Incorrectly specifying a model (e.g., leaving out parameters or important relationships)
often creates estimates that are biased (i.e., systematically different from the true model)
and result in data not fitting the model. In the model specification stage, models are
frequently composed of measurement and structural components.
Models incorporate measurement and structural diagrams. Relationships between observed and unobserved variables define the measurement model, while the relationships among unobserved variables define the structural model. Byrne (2010) explains the measurement model as providing “the link between scores on a measuring instrument and the underlying constructs they are designed to measure” (p. 12). Additionally, the structural model “specifies the manner in which particular latent variables directly or indirectly influence changes in the values of certain other latent variables in the model (p. 13).

When working with latent variable analysis, Hancock and Muller (2010) suggest a two-phase model process,

to facilitate the diagnosis and potential remediation of data model misfit. In the first or measurement phase, the model is temporarily respecified such that all the latent variables are allowed to freely covary. If the data satisfactorily fit this measurement model, the second phases can commence; if not, respecification of the measurement model may be entertained. (p. 379)

Figure 2 represents the measurement (confirmatory factor analysis [CFA]) model for coaches’ commitment to coaching tested in this study. This model includes the observed indicator variables e1-e4, ia1-ia4, pi1-pi4, sc1-sc4, io1-io4, ss1-ss4 and cc1-cc4 respectfully, measuring the constructs (factors) of enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, social support, and coaches’ commitment. This
measurement model, classified as over-identified, has several key parameters that are discussed below.
Figure 2. Hypothesized Measurement Model for Coaches’ Commitment
Model identification. The identification process of measurement and structural models includes determining the key parameters to be estimated prior to data analysis. While structural models can be identified three ways (i.e., just, over, and under) it is best if over-identification is determined a priori. An over-identified model has fewer estimated parameters than sample moments creating degrees of freedom allowing for the model to be rejected (Byrne, 2010; Kline, 2011; Schumacker & Lomax, 2010). “The key parameters to be estimated in a CFA model are the regression coefficients (i.e., factor loadings), the factor and error variances, and in some models the factor covariances” (Byrne, 2010, p. 31).

The Coaches’ Commitment measurement model is over-identified because the distinct parameters to be estimated (77) are smaller than the sample moments (406) and positive degrees of freedom (329). The parameters to be estimated were calculated by adding the 28 measurement error variances, 28 regression coefficients (factor loading), seven factor variances, and 21 factor covariances minus the seven fixed parameters equaling 77 distinct parameters to be estimated. Thus, the data will either accept or reject the model. The acceptance of this measurement (CFA) model is critical to model fit in the hypothesized structural models.

Figures 3 and 4 are the structural models representing the research questions: (a) does the Sport Commitment Model (SCM: Scanlan et al., 1993a; Scanlan, T.K. et al., 2009) provide a viable model to assess coaches’ commitment to coaching, and (b) does enjoyment serve as a mediating factor between coaches’ commitment to coaching and the remaining factors (i.e., involvement alternatives/other priorities, personal investments,
social constraints, involvement opportunities/valuable opportunities and social support).

In summary, this study took a two-step approach to latent variable model assessment. A measurement model (CFA) and structural models were tested.
Figure 3. Hypothesize Measurement and Structural Model for Coaches’ Commitment
Figure 4. Hypothesized Indirect Model for Coaches’ Commitment
Identification of the Population

Soccer, one of the most participated in athletic ventures worldwide; prevalent among children five years of age and well into adulthood, was the viable population to initiate a study regarding coaches’ commitment to coaching. Soccer associations (e.g., NSCAA, USYSA, SAY Soccer,) that support the athletes, coaches, officials, and provide education opportunities are abundant. Based on the researcher’s experience as an elite player, collegiate and youth coach, and coaching educator, it appears many soccer coaches fall into the parent volunteer group, and a vast majority of coaches have developed careers around coaching youth soccer players.

For this study, youth soccer coaches are defined as individuals who work with players between the ages of 5 and 18 years of age. Ewing and Seefeldt (2002) define youth as individuals between the ages of 7 and 18 years of age, while O’Connor and Bennie (2006) define youth as individuals between the ages of 10 and 18 years of age. Youth between the ages of 5 to 18 years were chosen because children are beginning to play soccer as young as five years old; and some organizations offer programs for even children younger. Additionally, Farrey (2008) reports that the peak age for soccer participation in the United States is nine years of age. Targeting more than one soccer organization increased the chance of reaching out to the entire youth soccer coaches’ population.

Description of organizations. The sample used in this study is considered to be a sample of convenience, meaning that participants were easy to access and were not randomly selected (Stapleton, 2010). Random selection of all soccer coaches was not
possible, as the large organizations retained control of the email distribution list of potential participants. Therefore, the researcher was not able to directly email the web-based survey to participants.

The National Soccer Coaches Association of America (NSCAA), the largest coaching organization with 30,000 members, was the main group targeted for participation in this study. The NSCAA estimates educating over 4,000 coaches each year (“The NSCAA,” 2010). Furthermore, 47% of their membership defines themselves as a ‘youth coach,’ 22% as a ‘high school coach,’ and 31% identified as ‘other.’ Approximately 69% of the NSCAA membership works with youth athletes (S. Williams, personal communication, June 3, 2010).

U.S. Youth Soccer (USYSA), another coaching organization involved in this study, exploded from 100,000 players in 1974 to 3.2 million today. The organization plays host to the Olympic Development Program, National League, National Championship Series, America’s Cup, Presidents Cup, Soccer Start Program, and TOPSoccer. Founders Karl Grosch and Don Greer aspired to unite all youth soccer programs for every age and ability (“History – US Youth Soccer,” 2010).

Finally, the Soccer Association for Youth (SAY Soccer) is the leader in recreational soccer support, comprised of 600 leagues, 150,000 players, and 36,000 coaches (“About SAY,” 2010). The objective of reaching out to SAY Soccer was to solicit the perspective of volunteer parent coaches in this research. The researcher’s experience playing, coaching, and educating soccer coaches enabled the recruitment of a variety of participants for this study.
Sample size. Assessment of model fit, like other statistical procedures, is affected by sample size (Thompson, 2004; Warner, 2008). While there is no concrete advice on determining the sample size when using SEM, some guidelines have been established to direct researchers. The following section details the necessity for a large sample in this study and how the size of the sample (i.e., youth soccer coaches) was determined.

Sample size is critical to any and all research designs because the number of participants ensures adequate power needed to test hypotheses in statistical procedures (MacCallum, Browne, & Sugawara, 1996). Literature has established how power increases with increases in sample size (Bentler & Yuan, 1999; Fan, Thompson, Wang, 1999; Warner, 2008). However, SEM fit indexes are plagued with basement and ceiling effects. For example, Fan et al., (1999) report that,

Model fit assessment becomes very stringent when sample size is large, and a minimal discrepancy between the original covariance matrix and the reproduced covariance matrix will be declared statistically significant, and consequently, rejected as having poor fit with the empirical data. However, when sample size is small, the statistical test is lenient, and the test may fail to detect meaningful differences between the sample covariance matrix and the covariance matrix reproduced for the specified model. (p. 57)

Additionally, a large sample size results in stable parameter estimates and standard errors that can help strengthen the fit of the model (Schumacker & Lomax, 2010).
When determining the sample size in structural equation modeling, the degrees of freedom (df) are important to establish. The degrees of freedom are defined as “the number of independent pieces of information that a statistic is based on” (Warner, 2008, p. 1006). Hu and Bentler (1999) suggest a minimum sample size of 250, while others suggest an N > 10p, where p = measured variables (Warner, 2008). While a sample size of 250 maybe an acceptable minimum for most studies, those with non-normal distributions require larger sample sizes. Jackson (2003) found support for the N:q rule (defined below) which Kline (2011) suggests “is applicable when the estimation method used is maximum likelihood (ML), which is by far the method used most often in SEM” (p. 12).

The N:q rule considers the ratio of cases (N) to the number of model parameters with 20:1 being the ideal sample size-to-parameters and 10:1 being acceptable (Jackson, 2003; Kline, 2011). In this study, the measurement model has 77 parameters which means the ideal sample size would be 20 x 77, or N = 1540. A less than ideal estimated sample size would be 10 x 77, or N = 770. Although, according to Jackson (2003), “the N:q hypothesis appears to be a manifestation of an underlying assumption that sample size perhaps shouldn’t be thought of in an absolute sense. Rather, features of a model, which the researcher is testing, should moderate this figure” (p. 139). Thus, the study set a target minimum of 500 respondents, but strove to achieve more than 1500 respondents.

**Instrumentation**

The benefits of survey use for data collection are many. For example, survey data provides numeric descriptions of attitudes or opinions of a sample (i.e., coaching
education students and youth soccer coaches) that the researcher can generalize to the
population (Creswell, 2009). Surveys, especially web-based, are an economical way to
rapidly produce raw data, are cost effective, and save time; “Probably, the greatest time
savings is in turnaround time” (Umbach, 2004, p. 24). Moreover, flexibility in design
(e.g., randomly ordering questions) is an advantage. Because of these benefits, a survey
was selected as the method of data collection for the present study.

In this study, respondents completed The Coaches’ Commitment Survey, a web-
based survey containing four sections of questions (i.e., commitment to coaching,
coaching biography, coaching confidence, and demographics) that sought to assess
commitment, enjoyment, alternatives, social constraints, options, investments, social
support, self-efficacy, education, certification and playing experience. The Coaches’
Commitment Survey was piloted before administration to youth soccer coaches.
Permission was granted to modify the survey used in the original development and
testing of the Sport Commitment Model (Scanlan et al., 1993a). Descriptions of the
questions included in the Coaches’ Commitment Survey are included below.

Coaches’ commitment survey. Research using the Sport Commitment Model
(Casper, 2004; Casper & Stellino, 2008; Raedeke, Waren, & Granzyk, 2002; Scanlan et
al., 1993a; Scanlan, T.K. et al., 2009; Weiss, M. R., Kimmel, & Smith, 2001; Weiss,
W.M., 2003) provided the theoretical framework used to develop the model and
subsequently measure coaches’ commitment to coaching in this study. A set of seven
core items (i.e., coaches’ commitment, enjoyment, involvement alternatives/other
priorities, personal investments, social constraints, involvement opportunities/valuable
opportunities, and social support) were used to measure the desire to continue participation in coaching. These seven core items (constructs) were evaluated during a pilot study with coaching education students. Each of the seven constructs were comprised of four indicator variables (i.e., questions) and were measured using a Likert-like scale ranging from 1 = not at all, to 5 = very much. The seven constructs are described in the following sections.

**Coaches’ commitment.** The desire and intent to continue coaching youth soccer, engage in education learning opportunities, design developmentally appropriate activities, and support an athlete-centered coaching philosophy was measured with the following questions: How proud are you to tell other people that you are a soccer coach? How dedicated are you to coaching soccer? How hard would it be for you to quit coaching soccer? And, do you want to continue coaching soccer?

**Coaching enjoyment.** Similar to the questions asked in Scanlan et al.’s (1993a) SCM, a positive affective response to the coaching experience are reflected in feelings such as enjoyment, happy, fun and liking. The questions: Do you enjoy coaching soccer? Are you happy coaching soccer? Do you have fun coaching soccer? And, do you like coaching soccer? were assessed with foils ranging from 1 = not at all, to 5 = very much.

**Involvement alternatives/other priorities.** The attractiveness of the most preferred alternative(s) to continued coaching was measured with the following four questions: How interesting are your alternative choices to coaching youth soccer? How much fun are your alternative choices to coaching youth soccer? How much would you like to do these alternative choices, instead of coaching youth soccer? And, how difficult was it to
choose coaching youth soccer? Participants were instructed to rank each statement from 1 = strongly disagree to 5 = strongly agree.

**Personal investments.** Personal investments are defined as the resources a coach puts into coaching. The amount of engagement in educational learning opportunities, and the time spent designing developmentally appropriate activities that support an athlete-centered coaching philosophy were measured in this study by considering the time, effort, and money required by these activities. This concept parallels the Sport Commitment Model (Scanlan et al., 1993a). The questions used to measure this antecedent with foils ranging from 1 = none, to 5 = a lot included: How much of your time have you put into coaching soccer? How much effort have you put into coaching soccer? How much of your own money have you put coaching youth soccer? And, how much of your own time has been spent watching soccer?

**Social constraints.** Social constraints are defined as the social expectations that create a feeling of obligation to remain a soccer coach, focusing on the coaches’ family, career, friends, and peer groups. Raedeke et al., (2002) recognized that the measure of youth sport participants’ social constraints would be different for coaches and attempted to create a measure for swimming coaches. Although no true measure currently exists to generalize social constraints for coaches, it was important to examine why certain coaches feel obligated to coach in relation to commitment, burnout, and dropout. This construct also provided information regarding the difference between volunteer coaches and paid coaches, coaches that “live through soccer” and those that are just novices to the game.
Examples of questions (measured with foils of 1 = not at all how I feel, to 5 = very much how I feel) included: I feel I have to coach youth soccer for my family, I feel I have to coach youth soccer for my athletes, I feel I have to coach so I can be with my friends (colleagues or peer group), and I feel I have to continue coaching youth soccer so that people won’t think I am a quitter.

**Involvement opportunities/valuable opportunities.** Involvement opportunities/valuable opportunities are defined as the valued situations that are only available to an individual through continued participation in coaching soccer. The construct was designed to measure qualities of coaching soccer that do not necessarily include a winning season, being tournament champs, or having a team of all-stars, but rather place value on the development of athletes, the bond between athlete and coach, and camaraderie with peers. The four questions in this category, measured with foils 1 = definitely not, to 5 = definitely yes include, would you miss being a soccer coach if you left coaching? Would you miss your friends (colleagues) if you left coaching? Would you miss the good times you have had coaching soccer if you left? And, would you miss the players if you left coaching soccer?

**Social support.** Defined as the support and encouragement a coach perceives significant others provide, social support is a relatively new antecedent to sport commitment. Questions chosen to examine social support for soccer coaches with foils ranging from 1 = definitely not, to 5 = definitely yes, include: I feel that the team is supportive of my coaching; I feel that my boss (i.e., Athletic Director, Program Director, and/or Director of Coaching) is supportive of my coaching; I feel the fans (e.g.,
community members, parents, and/or boosters) are supportive of my coaching; and I feel my family is supportive of my coaching.

The final section of the survey included demographic questions. Understanding the population of any study is important to the context of the research. Demographics (e.g., age, gender, and ethnicity) help the researcher understand the relationship between participants and the theory supporting the study (Casper & Stellino, 2008). To better understand the characteristics of participants in this study, coaching efficacy and biography (i.e., soccer certifications, years coaching, type of coach, playing experience, money invested, and time spent coaching) were also examined.

In summary, the instrument administered in this study, the Coaches’ Commitment Survey was adapted from the survey used in the original SCM study (Scanlan et al., 1993a) and measured coaches’ commitment to coaching plus several demographics variables. A web-based survey (Appendix C) was first piloted by coaching education students and following modifications, was completed by youth soccer coaches from various coaching associations (e.g., NSCAA, USYSA and SAY Soccer).

Pilot Study

A pilot study was conducted using the Coaches’ Commitment Survey (CCS) to assess instrument measurement quality. Warner (2008) details measurement quality in terms of reliability (i.e., consistent results), validity (i.e., provides information about the underlying construct), and sensitivity (i.e., distinguishes among people who have different characteristics). Internal consistency reliability, reported by the Cronbach alpha (α), is commonly used with multiple-item tests and informs the researcher of “the degree
to which the items on the scale measure the same thing” (Warner, 2008, p. 851). This can also be assessed by internal homogeneity for multiple-item measures using a factor analysis. Construct validity, essentially ensures that the construct is measuring what it set out to measure (e.g., sport commitment). Warner (2008) suggests,

For self-reported questionnaire measurements, two types of evidence are used to assess validity. One type of evidence concerns the content of the questionnaire (content or face validity); the other type of evidence involves correlations of scores on the questionnaire with other variables (criterion-oriented validity). (p. 864)

In this study, reliability and validity of the Coaching Commitment Survey (CCS) was assessed using a confirmatory factor analysis (CFA).

The sample used in the pilot was a sample of convenience. This means that participants were easy to access and were not randomly selected. These participants, coaching education master’s students, included individuals who may or may not have been soccer coaches. A web-based survey, developed using Qualtrics, was distributed to 284 email addresses. After four weeks of active data collection, including two reminder emails (Umbach, 2004) the survey was closed. At the close date, 122 survey responses were downloaded into SPSS. Some non-responses could have been the result of improper email addresses in the alumni coaching database (Stapleton, 2010). While a higher response rate would have increased the N, the goal was to achieve a minimum N = 100.
The participants were emailed an individualized invitation (Umbach, 2004) that implied consent upon clicking on the URL link at the bottom of the letter. The web-based survey developed in Qualtrics was divided into four main sections: commitment to coaching, coaching biography, coaching confidence and basic demographic information (i.e., age, education level, gender, and race). A hybrid, paging/scrolling technique was employed to keep the respondent engaged and limit abandonment in the survey (i.e., more than one question was included on a page, but the respondent did not scroll down through the entire survey (Peytchev, Couper, McCabe, & Crawford, 2006). A limit of five questions per page was set and participants did not have to scroll down more than two screens. A statement of gratitude concluded the survey.

**Reliability and validity.** Of the 122 completed responses, there was a 94% completion rate. The pilot sample (N = 120) were mainly Caucasian (83%) males (78%). Eighteen percent (18%) of the sample reported their age between 18-15, 47% between 26-34 years of age, 33% between 35-54 years of age, and 2% between 55-64 years of age. Descriptive statistics were run on the entire scale. Many of the individual items exhibited a non-normal distribution that can be justified by the convenience sample used. Although a few cases indicated extreme outliers, the data was not manipulated.

Reliability (i.e., consistent results) of the CCS yielded an overall Cronbach’s (1951) alpha of .841 with individual construct values for coaches commitment (.854), enjoyment (.816), involvement alternatives/other priorities (.399), personal investments (.726), involvement opportunities/valuable opportunities (.767), social constraints (.456), and social support (.597). While the overall instrument indicated consistent results, a few
issues within the constructs were evident (i.e., investment alternatives, social constraints and social support).

For example, investment alternatives/other priorities construct was the least reliable construct with a Cronbach’s (1951) alpha of .399. The most troublesome question (i.e., how difficult was it to choose coaching youth sport?) expressed a positive inter-item correlation (+.537) when the other three questions were negative. Removing the question from the construct increased the alpha to .582. Regardless, an alpha of .582 is rather small even though no fully accepted minimum standard is required (Warner, 2008).

Social constraints do not seem to be a very reliable construct as items did not correlate consistently. For example, item sc2 (I feel I have to coach youth sport for the athletes) does not positively correlate with items sc1, sc3 and sc4. Raedeke et al. (2002) recognized that the measure of youth sport participants’ social constraints would be different from coaches. Three of the questions were reworded moving forward in an attempt to better measure this construct.

Questions (i.e., items) related to social constraints and investment alternatives were modified for the study to increase the reliability of the constructs. Warner (2008) warns that,

poor reliability of measurement has two major negative consequences. First of all, reliability is a necessary (although not sufficient) condition for validity; thus if measurements are not reliable, they cannot be valid. Second, when measures of
variable are unreliable, it tends to result in low correlations among variables (p. 838).

Providing evidence regarding the underlying constructs (i.e., validity) proved to be a more difficult task. Similar to the original Scanlan et al. (1993a and b) study, a factor analysis with all seven constructs resulted in a complex 1st factor. One reason for this complexity is the strong relationships between commitment, enjoyment and involvement opportunities/valuable opportunities.

The pilot data were explored using structural equation modeling. According to Warner (2008), “Another way in which we can handle the problems caused by unreliability of measures is to use structural equation models” (p.838). The resulting (CFA) measurement model ($\chi^2 = 512.853 \ [df = 329]$; RMSEA = .069; CFI = .872; SRMR = .0966) was inadmissible possibly because of the small sample size, but other issues were prevalent. Similar to the factor analysis results, involvement alternatives/other priorities parameter estimates failed to exhibit correct sign (i.e., regression weights $ia1 = -.22$, $ia2 = -.18$, $ia3 = -.58$, $ia4 = .5$) and measure the construct (i.e., $ia2$, and $ia3$ were non-significant). Moreover, the correlation ($r = 1.066$) between involvement alternatives/other priorities and enjoyment, and involvement alternatives/other priorities and commitment ($r = 1.072$) were troublesome. Correlations, linear relationships between variables, range from +1 to -1. This construct was not the only problematic construct in this model.

Another problematic finding similar to the factor analysis was the strong relationships between commitment - enjoyment ($r = .926$), commitment – involvement
opportunities/valuable opportunities (r = .924) and enjoyment – involvement opportunities/valuable opportunities (r = .907). Non-normality with item io4 (kurtosis = 5.263, C.R. = 11.769) and item e3 (kurtosis = 4.977, C.R. = 11.129) were not removed nor changed in the model, but methods to correct (e.g., bootstrapping) for this issue should be considered. Analysis using FA and SEM demonstrate poor model fit and instrument inadequacies. Items were modified to address these issues.

Modifications to the instrument. After reviewing the results of the pilot study, an attempt was made to retain four items per latent variable as suggested in the literature (Hancock & Mueller, 2010). Since current research with the SCM includes all six latent variables (Scanlan, T. K. et al., 2009) retaining all latent variables was important for the current study. Thus, several questions in the instrument were reworded to enhance its reliability and validity. Changes occurred for the involvement alternatives/other priorities and social constraints latent variables. Two of the personal investment items were corrected to provide appropriate Likert-scale choices and two enjoyment item foils were reorganized to match the structure of the original SCM questionnaire. The changes to the instrument are described below:

Involvement alternatives/Other priorities. The attractiveness of the most preferred alternatives to continued coaching participation were measured using four revised questions based on research by Weiss (2003). The questions were rephrased as follows: compared to coaching soccer, there are other things I find more interesting, compared to coaching soccer, there are other things I could do that would be more enjoyable, compared to coaching soccer, there are other things I could do that would be
more fun, and I would like to do something else besides coaching soccer were measured with foils ranging from 1 = strongly disagree, to 5 = strongly agree.

Social constraints. The social expectation that creates a feeling of obligation to remain a youth soccer coach targets the coaches’ family, career, friends, and peer groups. Raedeke et al. (2002) recognized that the measure of youth sport participants’ social constraints would be different from coaches and attempted to create a measure for swimming coaches. However, no true measure exists to generalize social constraints for coaches. The three reworded questions (measured with foils of 1 = not at all like me, to 5 = just like me) were: the people important to me expect me to coach soccer, I feel I have to stay coaching soccer for the athletes, I feel I would let other people down if I stopped coaching soccer.

Finally, two of the personal investment items were corrected to provide appropriate Likert-scale choices. For example, the first and the last foil choice were similar (i.e., none and very little) for questions e3 and e4 in the pilot study. The foils were changed to 1 = none, to 5 = very much. And, two of the enjoyment item foils were changed from 5 = definitely yes, 1 = definitely not, to 5 = definitely not, 1 = definitely yes.

Data Collection Procedures

Following review and approval of the research by the university’s Internal Review Board for the use of Human Subjects, soccer associations (i.e., NSCAA, USYSA, SAY Soccer) were contacted to determine if their organizations had interest in assisting with recruitment for the current study. The need for a large number of respondents, as
recommended for use with SEM methodology, was the driving force for contacting more than one organization. The researcher also wanted to ensure participation of all types of soccer coaches (i.e., volunteer, novice, professional, expert) within the sample. Three organizations (i.e., NSCAA, USYSA, and SAY Soccer) agreed to collaborate and provide limited access to their coaching membership.

Similar to the pilot study, a web-based survey developed in Qualtrics was divided into four main sections: commitment to coaching, coaching biography, coaching confidence and basic demographic information (i.e., age, education level, gender, and race). A hybrid, paging/scrolling technique was employed to keep the respondent engaged and limit abandonment in the survey, meaning that more than one question was included on a page, however the respondent did not have to scroll down through the entire survey (Peytchev et al., 2006). A limit of five questions per page was set and participants did not have to scroll down more than two screens. Additionally, the first 28 questions were randomly ordered to prevent sufficing and acquiescing and no negatively worded questions were included in the original questionnaire. Finally, a statement of gratitude concluded the survey.

Gaining access to the membership from each of the organizations resulted in the distribution of the web-based survey via e-mail blasts and a URL link in a monthly newsletter. The NSCAA and USYSA delivered the survey to parts of their membership using an email blast, while SAY Soccer distributed the survey via a URL link in their monthly online newsletter. Working with each organization provided challenges but a sufficient sample population resulted. For example, direct access to an email database
was not an option. Thus, alternative choices were provided. Moreover, since names and email addresses were not provided directly to the researcher, separate URL’s were developed for each organization to keep track of where the respondents came from.

SAY Soccer was the first organization to agree to support the recruitment process for this research; however, the mode of delivery was the least successful in terms of number of respondents. The lower number of responses from this organization may be the result of the delivery method combined with the timing of the research (coaches were out of season). Approximately 2000 coaches are signed up for the weekly newsletter, but only 35 coaches responded to the survey. The NSCAA and USYSA organizations were able to accrue more participants.

An e-mail blast methodology with one reminder email over a three-week period was utilized by both the NSCAA and USYSA organizations. This methodology was more fruitful, as more than 1,200 respondents out of a potential 10,500 from NSCAA and 430 respondents out of 4,000 from USYSA, participated in this research.

Data Analysis Procedures

Demographics. Understanding the population of any study is important to the context of the research. Demographics (e.g., age, gender, and ethnicity) help the researcher understand the relationship between participants and the theory supporting the study (Casper & Stellino, 2008). To better understand the characteristics of participants in this study, coaching efficacy, soccer certifications, years coaching, type of coach, playing experience, money invested, and time spent coaching were also examined. The
statistical analyses used to examine the characteristics of the sample included descriptive statistics; means, SD, skewness, kurtosis and intercorrelations between items.

**Analysis software.** The software used in the analysis was Analysis of Moment Structures (AMOS). AMOS software was created by James Arbuckle in 1989 as a teaching tool and uses friendly visual graphics as the interface (Arbuckle, 2009). This software program was chosen for its publication-quality graphics and quick statistical computations.

**Structural equation modeling (SEM).** In review, basic terminology and concepts of structural equation modeling are necessary to understand why SEM is the appropriate tool for this study. Structural Equation Modeling (SEM) “is a process that allows for the assessment of one or more theories that are hypothesized *a priori* to explain the characteristics of measured variables – correlations, or covariances/variances, and sometimes means” (Hancock & Mueller, 2011, p. 19). This confirmatory statistical methodology has become popular in non-experimental research and provides an avenue to discuss patterns of relationships among unobserved and observed variables (Byrne, 2010; Maruyama, 1998). Moreover, “various theoretical models can be tested using SEM that hypothesize how sets of variables define constructs and how these constructs are related to each other” (Schumaker & Lomax, 2011, p. 2). Essentially, research using this statistical approach determines how well the sample data represents the population that supports the theoretical model (Schumaker & Lomax, 2011). This section will briefly outline the history of SEM and provide important key terms and definitions not described earlier (i.e., model estimation, model fit assessment, indices and other issues).
**Brief history of SEM.** Technological advances in computer software have enabled social scientists to utilize SEM as a respected confirmatory statistical procedure. This growing respect would not be possible without the ingenuity of geneticist Sewell Wright, “who longed to simultaneously disentangle genetic influences across generations” (Maruyama, 1998, p. 15) in the 1920s with path analysis. It was not until the 1960s that social scientists (Blalock, 1964; Duncan, 1966 as cited in Maruyama, 1998) began using multiple regression and liner algebra to estimate parameters. These techniques were difficult to operationalize and measuring observable data was imperfect.

Measurement models continued to advance during the late 60s as Joreskog (1969) and others developed a general linear model approach to path analysis (Maruyama, 1998). Statistical methods have developed alongside technological advances and SEM has benefitted from this development. For example, Jorsekog (1993) provides three strategic frameworks for using SEM. The three scenarios are: strictly confirming a model, testing alternative models, and generating models. A single model is assumed based on theory; data is collected and tested using a strictly confirmatory framework. In an alternative model scenario, the researcher proposes several models, collects a single set of data and selects the most appropriate model after testing.

Finally, model generation using SEM involves an exploratory process after the rejection of a postulated model (Byrne, 2010). While strategic frameworks have been described in the literature, Jorsekog (1993) believes, “even though a model is tested in each round, the whole approach is model generating rather than model testing” (p. 295). Although Jorsekog (1993) provides three strategic frameworks, researchers should
understand that, “SEM is not viewed as a mere statistical technique, but rather as an analytical process involving model conceptualization, parameter identification and estimation, data-model fit assessment, and potential model respecification” (Hancock & Mueller, 2010).

SEM differs from most multivariate procedures as it takes a confirmatory approach, corrects for measurement error, and incorporates latent variables. A confirmatory approach means the researcher designs the pictorial model based on theory prior to data collection. “Once the model is specified, the researcher then tests its plausibility based on sample data that comprise all observed variables in the model” (Byrne, 2010, p. 7). A goodness-of-fit is then determined for the hypothesized model(s). Correcting for measurement error in the observed variables is important, because the error is a reflection accuracy of the latent variables in the model and rarely is a perfect fit found. Incorporating a latent variable is critical because measuring unobserved and observed variables enhances understanding of unexplained phenomena, especially in the social sciences (Byrne, 2010).

The desire to answer more sophisticated questions about variable interrelations coupled with technological advances has advanced research and the ease with which the data is analyzed. There are several types of models that evaluate the relationships between variables. Models in the statistical family tree can be correlational, regression, factor-analytic, and path-analytic (Kline, 1991). For the purpose of this study, factor–analytic and path-analytic models will be described in more detail as they play a role in SEM.
Factor-analytic models include both exploratory and confirmatory methods that assess whether factors measure what they claim to measure. Typically, exploratory factor analysis (EFA) is not driven by theory and is discouraged in SEM studies. Confirmatory factor analysis (CFA) is a support methodology because the *a priori* models, also called measurement models, are theoretically driven (Kline, 1991). This is further supported by Byrne as she explains, “One of the most rigorous methodological approaches to testing for the validity of factor structures is the use of confirmatory factor analysis (CFA) within the framework of structural equation modeling (SEM)” (Byrne, 2001, p. 56).

While EFA and CFA procedures can be performed with traditional multivariate techniques, the ability to adjust for measurement error and incorporate latent (unobservable) variables to the analysis separates the statistical procedures (Byrne, 2010; Kline, 2011; Schumaker & Lomax, 2010). Path-analytic models (e.g., latent variable path analysis) initiate from regression concepts in that researchers designate measures as criterion and others as predictors, but the analyses have grown to incorporate information “about how interrelations among the predictors may affect the criterion” (Kline, 1991, p. 474). Moreover, multiple regression assumes that “all of the measured variables are perfectly valid and reliable, which is unlikely in many applications” (Schumaker & Lomax, 2010, p. 163).

Measurement error is an important distinction between traditional multivariate tests and SEM because it provides information about what portion of the variable is not measuring the hypothesized factor. Schumacker and Lomax (2010) concur, “Conceptually, a measurement error represents the unique variation for a particular
observed variable beyond the variation due to the relevant factor” (p.165). Furthermore, Kline (2011) explains “that measurement errors are proxy variables for all sources of residual variation that are not explained by the model” (p. 113). Measurement errors, a confirmatory approach, and the incorporation of latent variables are components that make SEM unique.

Latent variables, not measureable in traditional multivariate procedures, are unobservable theoretical constructs or behaviors researchers try to measure. CFA (confirmatory factor analysis) and LVPA (latent variable path analysis) use theory-based relationships among factors or latent variables. Furthermore, latent variables imply causal bearing (i.e., explains variance in its measurement indicator variables and induces covariance among them) on one or more measured (observable) variables. Experts recommend that latent variables be made up of four or more indicators to enhance construct definition and to allow replication across samples (Muller & Hancock, 2011). Overall, these hypothetical constructs (i.e., factors) represent a wide range of phenomena, are typically continuous, and distinguish SEM from other statistical models (Kline, 2011).

**Model estimation.** The default method of estimation for AMOS is maximum likelihood, although unweighted least squares, generalized least squares, scale-free least squares, and asymptotically distributed free, are other methods of estimation (Arbuckle, 1989; Byrne, 2010). Maximum likelihood attempts to “define a population that makes the sample have the maximum likelihood of occurring” (Hancock & Mueller, 2011, p. 95), and assumes “data is continuous and multivariate normal” (Byrne, 2010, p. 329). In
cases of severe non-normality, the asymptotically distribute free estimation (ADF); along with the bootstrapping technique may be a better option.

Non-normal data, especially when using Likert scales, is the norm. This can lead to the $\chi^2$ value being excessively large and inflated, fit indices such as the CFI (Comparative Fit Index) yielding underestimated values, and leading to spuriously low standard errors (Byrne, 2010). Assessing the skewness and kurtosis values is one way to analyze data for non-normality issues. Non-normality issues in Casper’s (2004) study of adult recreation tennis players was an issue, therefore it was an issue to be considered in the current study.

**Model fit indices.** According to Byrne (2010), “the primary focus of the estimation process in SEM is to yield parameter values such that the discrepancy (i.e., residual) between the sample covariance matrix $S$ and the population covariance matrix implied by the model $[\Sigma (\theta)]$ is minimal” (p. 73). Structural equation modeling is designed to determine the overall fit of theorized casual associations between a series of unobserved and observed variables. As stated in the literature (Byrne, 2010; Maruyama, 1998; Warner, 2008), there is no clear-cut test, fit index, or determinant of model fit. According to Kline (2011), “Nor is there ever likely to be such a thing. Part of the problem is that behavioral scientists typically study samples, not whole populations, so the problem of sampling error looms over analyses conducted with sample data” (p. 190). A fit index is a statistical measure, a goodness-of-fit per se that informs the researcher of the model’s characteristics.
Kline (2011) provides researchers with useful things to keep in mind regarding the limitations of model fit indices:

- Values of fit statistics indicate only the average or overall fit of a model.
- Because a single statistic reflects only a particular aspect of fit, a favorable value of that statistic does not by itself indicate acceptable fit.
- There is little direct relation between values of fit statistics and the degree or type of misspecification.
- Values of fit statistics that suggest adequate fit do not also indicate that the predictive power of the model is also high as measured by statistics for the individual endogenous variables such as $R^2_{\text{smc}}$.
- Fit statistics do not indicate whether the results are theoretically meaningful.

(p. 192-193)

Regardless, researchers continue to report a multitude of model fit indices. The more diligent researchers dig deeper and match the statistics with theory. Model fit indices analyzed in this study are described in the following paragraphs.

One of the first subjective indices of fit, the Normed Fit Index (NFI), was developed by Bentler and Bonett in 1980, but it “had a tendency to underestimate fit in small samples” (Byrne, 2010, p. 78). Further debate and development led to other indices such as, but not limited to the $\chi^2$, Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Square Residual (SRMR); (Hu & Bentler, 1999). These model fit indices are categorized into at least three classes: incremental, absolute, and parsimonious.
Incremental model fit indices use a baseline model (i.e., independence or null model) to evaluate “improvement of fit” of the researcher’s hypothesized model. This null model is regarded as the ugliest (Hancock & Mueller, 2011). Model fit indices, where larger is better (i.e., > .95) and are respected in the literature include the CFI and NNFI.

Absolute fit indices compare the observed model with the implied covariance matrix, and have a tendency to improve with more parameters. Kline (2011) indicates, For example, if the value of an absolute fit index is .85, then we can say that the model explains 85% of the observed covariance. These indexes are analogous to R² statistics except that they concern model-data matrix correspondence, not explanatory power for individual outcomes. Explaining a high proportion of the sample covariance, such as .95, does not by itself indicate the model is adequate. This is because any incorrect model can be made to explain the data by adding parameters to the point where no degrees of freedom remain (dfm = 0). (p. 195)

Indices such as the model χ² statistic and Standardized Root Mean Squared Residual (SRMR) require smaller values (i.e., ≤ .08) and are sensitive to sample size (Hancock & Mueller, 2011).

Finally, parsimonious fit indices adjust for model complexity and prefer a simpler model given two models with similar fit. These indices improve with useful contributions by the parameters, smaller values indicate better fit, and confidence intervals are included (Hancock & Mueller, 2011; Kline, 2011). Typically, the Root Mean Squared Error of Approximation (RMSEA) is reported in the literature. In
conclusion, there are no stringent guidelines but healthy practices when it comes to reporting model fit indices.

**Other potential issues.** Missing data and the failure to meet the assumptions of SEM plagues research and needs to be addressed during data analysis.

SEM assumes that the data are continuous and have a multivariate normal distribution. The researcher needs to address these issues when they arise before attempting model fit analyses. Univariate distributions are most often evaluated by reviewing the skewness and kurtosis of the individual items. Outliers can affect data distribution and be assessed using the mahalanobis distance statistic. After a univariate normality review, the data should be evaluated at the multivariate level.

Non-normality can occur at the multivariate level regardless of normal univariate distributions (Byrne, 2010). Moreover, instruments, such as the CCS, that use Likert scales often result in non-normal multivariate distributions. To assess the distribution at the multivariate level, “the index of multivariate kurtosis and its critical ratio” (Byrne, 2010, p. 104) should be evaluated with a Mardia’s test (i.e., the critical ratio). The literature suggests a C.R. higher than 5 indicates non-normality at the multivariate level (Bentler, 2005).

SEM and the AMOS software provide ways to approach non-normality issues. Of the multiple alternative estimators and approaches, two techniques will be discussed (i.e., bootstrapping and ADF). Bootstrapping, a re-sampling procedure, allows the researcher to create multiple subsamples (Bryne, 2010). An asymptotic distribution free
(ADF) makes no distributional assumptions (Kline, 2011), but requires a large sample. Both techniques were considered in this study.

In summary, this study seeks acceptable model fit for coaches’ commitment to coaching using the SCM as a theoretical framework. A pilot study indicated potential psychometric issues with the instrument. Questions (i.e., items) were reworded based on theory and the modified instrument was distributed via a web-based URL to a large convenient sample of soccer coaches. AMOS software was used to assess model fit.
Chapter 4: Results

In practice, structural equation modeling (SEM) analyses seldom proceed smoothly. Whether by programming error or uncooperative data, problems involving convergence, estimation, and/or identification inevitably occur. (Hancock & Mueller, 2010, p. 378)

The purpose of this chapter is to describe the results of data collection and model testing using SEM. This chapter is divided into five sections: descriptive data analysis, the measurement (CFA) model, the structural models, coaches’ commitment survey, and research questions. The descriptive data analysis includes demographic information about the sample, modifications to the data resulting from missing data and outliers, and non-normality considerations. Following a two-phase approach (Hancock & Mueller, 2010); the measurement (CFA) model section details the steps taken to obtain satisfactory model fit while the structural model section documents results of model fit for the structural and alternative models. Reliability, validity and factor structures are described next. Finally, the research questions will be answered about model fit and the determinants of commitment to coaching will be discussed. “As SEM is a process, documenting the steps followed is necessary just as in other scientific endeavors” (Hancock & Mueller, 2010, p.378).

Descriptive Data Analysis

Target population and sample. The three targeted organizations (i.e., NSCAA, USYSA, SAY Soccer) all agreed to disseminate the survey to a portion of their membership. The memberships of the NSCAA (10,500) and USYSA (4000) received the
consent letter and URL for accessing the survey via an initial e-mail blast followed by a reminder message. SAY Soccer attached the URL, including the consent letter, to their monthly online newsletter, as they believed it was the best way to access their population (i.e., approximately 2000 members).

Data collection occurred over an eight-week period during the months of January – March, 2011. At the end of the eight-week period, there were 1667 completed surveys: 1193 from the NSCAA, 439 from the USYSA, and 35 from SAY Soccer. Further data screening (i.e., elimination of cases that did not complete the coaching confidence section and were missing more than three responses in CCS section) reduced the sample to 1660 (1187 from the NSCAA, 438 from the USYSA, and 35 from SAY Soccer). This means that 72% of the sample came from the NSCAA, 26% from the USYSA and only 2% from SAY Soccer. Because SEM requires a large sample size and the ideal sample size was estimated at N = 1540, data from all three groups were combined for the analysis.

The soccer coaches in this study were predominately Caucasian (89%) males (91%). More than 95% of the coaches had athletic playing experience and nearly 90% had coached more than five years. Also, 81% of the sample held a bachelor’s degree or higher. Approximately 70% of the sample considered themselves part-time coaches, but 37% of them reported being paid professionals. Only 11% considered themselves to be novice coaches while 46% considered themselves to be experts. These coaches reported focusing mostly on participation (90%) rather than performance. For this group, soccer was being coached all year, as 96% of the sample reported coaching in the fall, 85% in
the spring, 68% in the winter, and 71% in the summer. More detailed demographics of the participants are presented in Tables D1 and D2 in Appendix D.

**Coaches’ commitment.** The primary objective of this study was to determine if the SCM provided a viable model for soccer coaches. Before assessing model fit, univariate and multivariate data screening was conducted.

All cases of missing data were not eliminated prior to analysis because incomplete data is inevitable and the literature provides several methods to handle missing data. Preliminary screening resulted in an N = 1660. Incomplete data in the Coaches’ Commitment Survey (CCS) were transformed by single mean substitution prior to data analysis in AMOS because some analyses (e.g., modification indices or asymptotically free distributions) require complete data (Bryne, 2010). Although regression imputation is recommended as a better approach, mean substitution was chosen because only a small number of missing values were presented in the data (Schumacker & Lomax, 2010). For example, .06% of the cases had missing data.

SEM assumes that data are continuous and have a multivariate normal distribution. Issues arose with these assumptions as the sample was not completely independent and Likert-scales were used to assess coaches’ commitment to coaching. Prior to testing the model, skewness and kurtosis of the 28 items in the CCS were analyzed. Two items: Do you enjoy coaching soccer? (e1), and Do you like coaching soccer? (e4) exhibited kurtosis of 17.573 and 12.710 respectively, reflecting extreme item non-normality. Also, two items: Would you miss being a soccer coach if you left coaching? (io1), and Would you miss the players if you left coaching? (io4) demonstrated
kurtosis of 5.765 and 6.942 respectively, reflecting moderate item non-normality (Kline, 1998). Prior to eliminating items based on the normality assumptions, the data was reviewed for outliers using the mahalanobis distance statistic. Six cases were removed during this analysis decreasing the severity of the item non-normality while decreasing the sample to N = 1654. This can be seen in Appendix D, Table D3.

After correcting the distribution of univariate non-normal items in the CCS, the multivariate distribution was assessed. Non-normality can occur at the multivariate level regardless of normal univariate distributions (Byrne, 2010). Moreover, instruments, such as the CCS, that use Likert scales often result in non-normal multivariate distributions. To assess the distribution at the multivariate level, “the index of multivariate kurtosis and its critical ratio” (Byrne, 2010, p. 104) were evaluated. The critical ratio (C.R.) represents Mardia’s test and a C.R. greater than five (5) indicates non-normality. Thus, support for multivariate non-normality was evident, as the multivariate kurtosis score equaled 207.620 with a critical ratio of 103.004. The issues of non-normality will be addressed in greater detail later.

**Phase 1: The measurement (CFA) model.** The measurement (CFA) model, (i.e., phase one of the recommended two-step approach) was assessed to “facilitate the diagnosis and potential remediation of data-model misfit” (Hancock & Mueller, 2010, p. 379). Model fit for Model A (Table 1) was evaluated by assessing the overall model fit and the adequacy of the parameter estimates (Byrne, 2010). While maximum likelihood (ML) estimation resulted in a $\chi^2 = 1738.7$ (df = 329), CFI = .906, NNFI = .892, RMSEA
= .051, and SRMR = .0474 suggesting adequate fit, the solution is not admissible, meaning there are issues within Model A (Figure 5).
Figure 5. Model A – Standardized Measurement (CFA) Model
An inadmissible solution, “not typical in the analysis of recursive path models” (Kline, 2011, p. 158), potentially indicates a Heywood case. This illogical value in a parameter estimate is discerning to overall model fit. Two major concerns arose from the ML analysis: a specification error (mentioned above), and extremely low and high correlations. Following Byrne’s (2010) recommendations, a review of parameter estimates, appropriateness of the standard errors, and the statistical significance of the parameter estimates were evaluated to identify misspecifications and issues within the hypothesized (CFA) model (Figure 5). The feasibility of parameter estimates were evaluated by examining correlations, variances, and the covariance matrix.

Based on the sport commitment literature, the items and latent variables all exhibited the correct sign (e.g., involvement alternatives/other priorities) negatively correlated with the other constructs), but some relationships were extremely weak or strong (refer to Appendix D, Table D3). None of the variances were negative, but err15 (i.e., the measurement error connected to item sc 3 [I feel I have to coach soccer so I can be with my colleagues]) was problematic (variance estimate = 1.016, S.E. = .038, C.R. = 27.038). To address this potential Heywood case, item sc3 – err15 was removed from the analysis. This resulted in better model fit ($\chi^2 = 1457.1 \text{ [df=303]}, \text{CFI = .902, NNFI = .908, RMSEA = .048, and SRMR = .0458}$), but still resulted in an inadmissible solution (Table 1 and Figure D2).

Possible explanations for continued issues with the measurement model is the strong relationship ($r = .91$) between commitment and involvement opportunities/valuable opportunities and low variance estimates ($< .1$) for enjoyment,
involvement opportunities/valuable opportunities, commitment, err4, err3, and err10. Since coaches’ commitment is the overarching construct in this study, it was removed from the model to evaluate the relationships between the remaining latent variables. An admissible solution (Model C) resulted with the following fit indices: $\chi^2 = 753.5$ (df = 215), CFI = .954, NNFI = .946, RMSEA = .039, and SRMR = .0388. Modifications to the original measurement model (i.e., Model C, Figure 6) indicate satisfactory model fit. Model fit indices can be seen in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>NNFI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model A</td>
<td>1738.7</td>
<td>329</td>
<td>0.906</td>
<td>0.892</td>
<td>0.051</td>
<td>0.0474</td>
</tr>
<tr>
<td>Model B</td>
<td>1457.1</td>
<td>303</td>
<td>0.92</td>
<td>0.908</td>
<td>0.048</td>
<td>0.0458</td>
</tr>
<tr>
<td>Model C*</td>
<td>753.5</td>
<td>215</td>
<td>0.954</td>
<td>0.946</td>
<td>0.039</td>
<td>0.0388</td>
</tr>
</tbody>
</table>

Note: P = .000
* admissible solution

The modification indices (MI) suggested allowing measurement err26, associated with item cc2 (i.e., how proud are you to tell other people that you are a soccer coach?) to covary with the personal investment latent variable. This is a systematic rather than random item or respondent issue (Byrne, 2010). Moreover, other MI suggestions regarding regression weights also involve coaches’ commitment and personal
investments. For example, item pi1_1 (how much of your time have you put into coaching soccer?) and item pi2_1 (how much effort have you put into coaching?) want to be associated with cc2_1 (how proud are you to tell other people that you are a soccer coach?). These items seem to be loading on two factors.
Figure 6. Model C – Standardized Measurement Model without Commitment
Model fit analyses for this measurement model were tedious, but still resulted in a satisfactory model. Issues with this model stem from poor psychometrics, a non-normal multivariate distribution, and multicollinearity. The determinants for coaches may be different than those identified for athletes. Since satisfactory model fit was accomplished, the structural model was then tested.

**Phase 2: The structural model.** Hancock & Mueller (2010) suggest a two-phase modeling process when working with latent variable path models. After the measurement (CFA) model was respecified and satisfactory model fit (Model C: $\chi^2 = 753.5$ (df = 215), CFI = .954, NNFI = .946, RMSEA = .039, and SRMR = .0388) was accomplished, the structural model was tested (Figure 7).

The structural model, hierarchical in nature, included the measurement latent variables (i.e., enjoyment, involvement alternatives/other priorities, personal investments, social constraints, involvement opportunities/valuable opportunities, and social support) as predictors of coaches’ commitment. In the structural model, coaches’ commitment is considered an unobserved endogenous variable. Analysis of the regression weights indicated that social support ($p = .227$) is not a statistically significant predictor of coaches’ commitment. The model fit analysis ($\chi^2 = 1457.075$ [df = 303], CFI = .921, NNFI = .908, RMSEA = .048, and SRMR = .0458) resulted in an non-admissible solution.
Figure 7. Standardized Structural Model for Coaches’ Commitment
The illogical value, a Heywood case, of most concern in the structural model is the negative disturbance value associated with coaches’ commitment (-.001, S.E. = .002, C.R. = -.785, p = .432). The standardized disturbance value of 1.02 indicates that too much is explaining coaches’ commitment (Kline, 2011). Suppression effects and model misspecification could be the reason for this illogical parameter estimate.

Model misspecifications were detected by reviewing the standardized residuals and modification indices (MI). Standardized residuals are analogous to Z-scores and values greater than 2.58 are considered to be large (Byrne, 2010). Several items expressed scores greater than 2.58. For example, item cc_4 (how hard would it be for you to quit coaching soccer?) produced large standardized residuals. See Table 2.
The modification indices (MI), again suggested to allow measurement err26, associated with item cc2 (i.e., how proud are you to tell other people that you are a soccer coach?) to covary with the personal investment latent variable. This modification does not make theoretical sense. The MI suggestions regarding regression weights also involve commitment and personal investments. For example, item pi1_1 (how much of your time have you put into coaching soccer?) and item pi2_1 (how much effort have you put into coaching?) want to be associated with cc2_1 (how proud are you to tell other...
people that you are a soccer coach?). Better model fit could be accomplished if the modifications indices made sense.

**Coaches’ Commitment Instrument**

**Reliability.** SEM, LVPA and CFA require consistent and purposeful items, or sound psychometric properties for adequate judgment of generalizability. Model misspecification could be the results of systematic and not random item issues. To assess consistent results (reliability) of the CCS instrument Cronbach’s alphas were evaluated. The overall Cronbach’s (1951) alpha (α) of .681 with individual construct values for coaches’ commitment (.682), enjoyment (.831), involvement alternatives/other priorities (.856), personal investments (.627), involvement opportunities/valuable opportunities (.622), social constraints (.647), and social support (.590) indicates poor reliability.

Inconsistent results are further supported by changes in Cronhach’s alpha (α) from the pilot study (Table 3). Latent variables that remained consistent from pilot to final were enjoyment (.816 and .831) and social support (.597 and .590). The overall difference in Cronbach’s alpha (α), .841 to .681 respectively and poor instrument reliability, could contribute to the systematic issues leading to misspecification of the Coaches’ Commitment Model. The factor structure of the initial measurement (CFA) model (Model A) was assessed next.
Table 3.

*CCS Instrument Reliability Measurements*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pilot</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.841</td>
<td>0.681</td>
</tr>
<tr>
<td>Commitment</td>
<td>0.854</td>
<td>0.682</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>0.816</td>
<td>0.831</td>
</tr>
<tr>
<td>Involvement Alternatives (Other Priorities)</td>
<td>0.399</td>
<td>0.856</td>
</tr>
<tr>
<td>Personal Investments</td>
<td>0.726</td>
<td>0.627</td>
</tr>
<tr>
<td>Involvement Opportunities (Valuable Opportunities)</td>
<td>0.767</td>
<td>0.622</td>
</tr>
<tr>
<td>Social Constraints</td>
<td>0.456</td>
<td>0.647</td>
</tr>
<tr>
<td>Social Support</td>
<td>0.597</td>
<td>0.590</td>
</tr>
</tbody>
</table>

**Validity of factor structures.** Standardized regression weights in SEM analysis are synonymous with factor loadings and provide evidence about the construct’s validity. Factor structures are important to assess because they indicate how much items measure what they claim to measure (Byrne, 2001). The initial factor loadings for the measurement (CFA) are located in Table D5 and factor loadings for Model C are located in Table D6. Higher standardized regression weights and square multiple correlations indicate the item is measuring part of the latent variable. For example, item e1_1 (Do
you enjoy coaching soccer?) has a factor loading of .8 with $R^2 = .640$. This means that 36% of the item is measuring something besides item e1_1. Moreover, item sc3_1 (I feel I have to coach so I can be with my colleagues) has a factor loading of .314 with $R^2 = .117$, meaning 88% of the item is measuring something besides item sc3_1. Removing invalid items from scales often increases the validity and reliability of the constructs. Overall, unreliable and invalid items within the CCS could be preventing the model from achieving good fit.

For example, social support exhibited strong relationships with enjoyment ($r = .525$) and involvement opportunities/valuable opportunities, but less strong relationships with social constraints ($r = .289$), personal investments ($r = .254$), and involvement alternatives ($-.245$). Since reliability of the construct is poor ($\alpha = .590$) the validity is compromised. Factor loadings (i.e., standardized regression weights) were affected by within correlations.

**Research Questions**

**Question 1 – Coaches’ commitment model.** The first research question asked if the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T.K., et al., 2009) provides a viable model to assess coaches’ commitment to coaching. After removing coaches’ commitment and item sc3_1 (I feel I have to coach soccer so I can be with my colleagues) from the measurement model, satisfactory model fit was accomplished ($\chi^2 = 753.5$ [df = 215], CFI = .954, NNFI = .946, RMSEA = .039, and SRMR = .0388). Figure 6 depicts the measurement model with factor loadings, squared multiple correlations between items and latent variables, and correlations between the latent variables.
Satisfactory model fit enabled the testing of the structural model. This model (Figure 7) failed to converge as evident by the large residual (disturbance) commitment score. More instrument reliability and validity may be a systematic issue with the model convergence.

**Question 2 – Mediation model.** The second research question asked if enjoyment was a potential mediator to coaches’ commitment. Enjoyment as a mediating variable to coaches’ commitment was not evaluated as the structural model did not converge. More research needs to be conducted in order to answer this question.

**Question 3 - Determinants of coaches’ commitment to coaching.** Although the structural model was not admissible, information from the output (Figure 7) indicates that involvement opportunities/valuable opportunities, followed by personal investments, involvement alternatives/other priorities, enjoyment, and social constraints are the major determinants of coaches’ commitment to coaching. Social support (p = .227) was not a significant predictor of commitment, but expressed strong relations with enjoyment (r = .525) and involvement opportunities (r = .496). Further exploration of the predictors of coaches’ commitment was conducted using a regression analysis.

Similar to SEM analysis, significant relationships emerged with all variables except social support: F(6, 1647) = 348, p < .001, R² = .56. This means that 56% of coaches’ commitment was predicted by involvement opportunities/valuable opportunities, enjoyment, involvement alternatives/other priorities, personal investments, social constraints and social support. Complete results for the multiple regression analysis are presented in Table 4.
Table 4.

*Regression Table for Latent Variables*

<table>
<thead>
<tr>
<th>Model 6</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.587</td>
<td>.507</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Involvement Opportunities</td>
<td>.275</td>
<td>.019</td>
<td>.301</td>
<td>.000</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>.357</td>
<td>.025</td>
<td>.285</td>
<td>.000</td>
</tr>
<tr>
<td>Involvement Alternatives</td>
<td>-.111</td>
<td>.009</td>
<td>-.218</td>
<td>.000</td>
</tr>
<tr>
<td>Personal Investments</td>
<td>.148</td>
<td>.015</td>
<td>.180</td>
<td>.000</td>
</tr>
<tr>
<td>Social Constraints</td>
<td>.057</td>
<td>.010</td>
<td>.096</td>
<td>.000</td>
</tr>
<tr>
<td>Social Support</td>
<td>.036</td>
<td>.016</td>
<td>.041</td>
<td>.028</td>
</tr>
</tbody>
</table>

a: Dependent Variable: Commitment

A second exploratory regression was conducted. This regression included the six variables of commitment, plus the coaches’ summed coaching efficacy score, the number of years spent playing and coaching, and age. The resulting model ($F[8,1645] = 269, p < .001, R^2 = .57$) included the following significant predictors: involvement opportunities/valuable opportunities, enjoyment, involvement alternatives/other priorities, personal investments, social constraints, coaching efficacy, age and coaching experience. Complete results for the multiple regression analysis are presented in Table 5.
Table 5.

*Regression Table for Determinants of Coaches’ Commitment*

<table>
<thead>
<tr>
<th>Model 8</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.490</td>
<td>.533</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement Opportunities</td>
<td>.271</td>
<td>.018</td>
<td>.297</td>
<td>.000</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>.360</td>
<td>.024</td>
<td>.287</td>
<td>.000</td>
</tr>
<tr>
<td>Involvement Alternatives</td>
<td>-.110</td>
<td>.009</td>
<td>-.215</td>
<td>.000</td>
</tr>
<tr>
<td>Personal Investments</td>
<td>.127</td>
<td>.015</td>
<td>.155</td>
<td>.000</td>
</tr>
<tr>
<td>Social Constraints</td>
<td>.059</td>
<td>.010</td>
<td>.099</td>
<td>.000</td>
</tr>
<tr>
<td>Coaching Efficacy</td>
<td>.006</td>
<td>.002</td>
<td>.067</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
<td>-.177</td>
<td>.046</td>
<td>-.074</td>
<td>.000</td>
</tr>
<tr>
<td>Coaching Experience</td>
<td>.077</td>
<td>.025</td>
<td>.063</td>
<td>.002</td>
</tr>
</tbody>
</table>

a: Dependent Variable: Commitment

**Summary**

The main objective of this study was to examine the viability of the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) with youth soccer coaches. While the theoretical framework had been studied with youth and adult participants, limited research had been conducted with athletic coaches. A modification of the instrument used during SCM studies was disseminated to youth soccer coaches via a web-based survey. The measurement and structural models were tested with structural equation modeling using AMOS. Poor psychometrics (i.e., instrument reliability issues) coupled with multiple factor loadings (i.e., validity issues) hampered model fit analyses,
but not overall data interpretation. The main determinants of coaches’ commitment for this sample population (i.e., soccer coaches) are involvement opportunities/valuable opportunities, enjoyment, involvement alternatives/other priorities, personal investments and social constraints.
Chapter 5: Discussion

The question is not whether you are a role model. The question is whether you choose to be a good, bad, or indifferent one. John Amaechi

The purpose of this study was to examine the viability of the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) in the coaching context with soccer coaches. Structural equation modeling, a powerful statistical methodology, allowed for the interpretation of coaches’ commitment to coaching through the unobserved variables: enjoyment, involvement opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support. Although satisfactory model fit was accomplished with the measurement (CFA) model, the structural model failed to converge because of variance issues and misspecification of the model.

According to Graham, Guthrie and Thompson (2003), “if the measurement models are inadequate, the interpretation of the structural model results becomes much less interesting” (p. 144). This does not mean the measurement item issues and the failures of the structural model to coverage without unrealistic modifications are unimportant findings for the research questions and sample population in this study. The analysis tells a story and opens the door for future research. This chapter includes three sections: a summary of the findings, implications, and recommendations for future research.
Summary of Findings

The main objective of this study was to examine the viability of the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) with youth soccer coaches. Research using the SCM has suggested that enjoyment is the number one predictor of sport commitment, especially with youth and elite athletes. While the theoretical framework had been studied with adult participants, limited research had been conducted with sport coaches. A modification of the instrument used during SCM (Scanlan et al., 1993a) studies was disseminated to youth soccer coaches via a web-based survey. The measurement and structural models were tested with structural equation modeling using AMOS. Poor psychometrics (i.e., instrument reliability issues) coupled with multiple factor loadings (i.e., validity issues) hampered model fit analyses, but not overall data interpretation.

Sample. The participants in this study, soccer coaches, were predominately Caucasian (89%) males (91%). More than 95% of the coaches had athletic playing experience and nearly 90% had coached more than five years. Finally, 81% of the sample held a bachelor’s degree or higher. These characteristics are similar to previous studies conducted by Haeggquist (2005), but the target population (novice volunteer and/or parent coaches) may not actually be represented in this sample. Demographic data indicate that respondents to the survey possessed a high level of commitment to coaching, with over five years of coaching experience.

Model fit. One aim of this study was to examine the viability of the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) with youth soccer
coaches. The theoretical framework of the SCM provides a mechanism to understand the
determinants of soccer coaches’ commitment to coaching, as the modified measurement
model (Model C) met satisfactory model fit ($\chi^2 = 753.5$ [df = 215], CFI = .954, NNFI =
.946, RMSEA = .039, and SRMR = .0388). The model (Model C) analyzed six
constructs (i.e., latent variables) that predicted coaches’ commitment to coaching.

The structural model (Model D) failed to converge, but this does not mean the
SCM is not a viable theoretical framework for coaches. The theory behind the models
(i.e., SCM and CCM) is that enjoyment, involvement alternatives/other priorities,
personal investments, social constraints, involvement opportunities/valuable
opportunities and social support, predict coaches’ commitment to coaching. Based on the
relationships between these variables (as seen in Figures 5-7) combined with too much
explaining commitment, the theoretical framework has viability. According to Hancock
and Mueller (2011), “a model is a theoretical mechanism describing how an unobservable
system functions typically yielding predictions for the behavior that can be observed.
Consistent observations support the model; inconsistent observations refute, and perhaps
refine the model” (p. 2).

In this case, inconsistent results seem to be systematic (i.e., issues with the
measurement instrument), not random. These inconsistencies do not detract from the
sample population’s dependency and multivariate non-normal distribution, but rather
alludes to potential modifications of the measurement items. Important relationships and
factor structures can still be evaluated.
The coaching commitment survey. The Coaching Commitment Survey analyzed in this study struggled with reliability ($\alpha = .681$) and validity (poor factor structure). Warner (2008) warns that,

poor reliability of measurement has two major negative consequences. First of all, reliability is a necessary (although not sufficient) condition for validity; thus if measurements are not reliable, they cannot be valid. Second, when measures of variable are unreliable, it tends to result in low correlations among variables. (p. 838)

Constructs with poor reliabilities had inconsistent factor loadings. Thus, items with poor factor loadings were not predicting the latent variables as hoped. Each construct below will be discussed using the results from structural equation modeling.

Coaches’ commitment. Coaches’ commitment is defined as the desire and intent to continue coaching youth soccer, engage in education learning opportunities, design developmentally appropriate activities, and support an athlete-centered coaching philosophy. This construct, central to the structural model, is being explained by all factors with the exception of social support. The results indicate the number one predictor of coaches’ commitment is involvement opportunities/valuable opportunities followed by personal investments, involvement alternatives/valuable priorities, enjoyment, and social constraints, respectively. Because of model misspecification, the order of association with coaches’ commitment at the construct level is less interesting than the item level.
An interesting finding occurred at the item level for coaches’ commitment. For example, item cc1_1, (Do you want to continue coaching soccer?) did not explain much in the overarching construct (only 17%). Item cc2_1, (How proud are you to tell other people you are a soccer coach?) explained 35% in the overarching construct, but also wanted to associate with item pi1_1 (How much of your time have you put into coaching soccer?) and item pi2_1 (How much effort have you put into coaching?). It is possible that soccer coaches demonstrate their commitment to coaching by investing their time and effort.

**Enjoyment.** The positive affective response to the coaching experience was reflected in feelings such as enjoyment, happy, fun, and liking. The construct exhibited solid reliability (α = .831) and validity, as four measurement items strongly loaded and explained the construct. Besides its significant association with coaches’ commitment, enjoyment has close correlations with involvement opportunities/valuable opportunities and social support.

Coaches’ positive affective response is represented by a combination of their commitment, opportunities, and social support. Similar to studies with other adult participants (Casper, 2004; Weiss, M. R., Kimmel, & Smith, 2001), enjoyment is a strong, but not the number one predictor of commitment. Perhaps maturity and responsibility diminish the fun, or the childlike happiness associated with youth participation.

**Involvement alternatives/other priorities.** The attractiveness of the most preferred alternative(s) to continued coaching defines this construct. Changes made to
the questions from the pilot study seem to measure coaches’ involvement
alternatives/other priorities. The negative relationship with all constructs in the model
indicates that other priorities are suppressed as the level of commitment, enjoyment, and
opportunities arise. Thus, coaching becomes the number one priority.

**Personal investments.** The resources (i.e., time, money, and effort) a coach puts
into coaching defines the personal investment construct. In this study, the sample
indicate that personal investments are reflective of their commitment to coaching as these
items and err want to load with item cc2_1 (How proud are you to tell other people you
are a soccer coach?). This finding indicates that perhaps coaches do not need to brag
about their coaching in order to demonstrate their commitment.

Item pi3_1 (How much of your own money have you put into coaching soccer?)
struggled to explain this latent variable. Perhaps, the Likert scale foils (1 = none, 2 = a
little, 3 = some, 4 = pretty much, and 5 = a lot) did not provide adequate choices for this
sample. However, it is possible that this sample has been provided with the necessary
resources (e.g., equipment and travel expenses) by the local organizations in which they
coach. For example, one coach reported “I spend much more money coaching but it is
reimbursed.” Another coached wrote, “I coach in a Youth Recreation league so the
majority of training and materials are provided free of charge.” Soccer is a relatively
cheap sport to play, therefore, coaches require little equipment. Athletes are often
required to bring their own ball and while goals (in the traditional sense) are a critical
component to the game itself, they are not a necessary component of learning process.
This means that objects, like a trash can, can represent a goal.
In this study, item pi4_1 (How much of your own time have you spent watching soccer?) is a poor reflection of the resources a coach puts into coaching. Is this because of the limited exposure to soccer on the television? It may be been better to ask participants about time spent developing training sessions. For example, one coach wrote “I send out detailed e-mails on strategy, tips, and thoughts. I use these e-mails to build up players mentally and to fine tune their games.” Another coach reported, “Putting together informational materials like pamphlets on coaching philosophy, preseason etc... putting together end of season videos.” While personal investments seem to be a key component with this sample in predicting coaches’ commitment, it’s difficult to discern its true rank.

**Social constraints.** Defined as the social expectations that create a feeling of obligation to remain a soccer coach, social constraints is a problematic construct in this study. Evidence of low correlations among items occurred for most of the social constraints construct. This construct exhibited low correlation with enjoyment (r = .141), involvement alternatives/other priorities (r = -.119), and personal investments (r = .183). This means that social constraints (i.e., the social expectations that create a feeling of obligation to remain a soccer coach, focusing on the coaches’ family, career, friends, and peer groups) were not strongly related to enjoyment, involvement alternatives/other priorities and personal investments. Although statistically significant, social constraints explain little of coaches’ commitment to coaching.

The area of interest in this construct is item sc3_1 (I feel I have to coach soccer so I can be with my colleagues). This item was the first red flag when examining the initial
measurement model. Essentially, coaches do not get involved and remain committed to their athletes because of their peers. Collegiality plays an important role in the lives of coaches, but not the same role “friends” play for an athlete. The significance of letting others down is the driving force in this construct, but it is unclear where the specific constraints come from.

**Involvement opportunities/valuable opportunities.** Valued situations that are only available to an individual through continued participation in coaching soccer are critical to coaches’ commitment. These two constructs (involvement/valuable opportunities) strongly associate, so that considering them one in the same may benefit model fit, particularly with this study’s sample. Coaches in this study would miss being involved because of the players and good times, but did not indicate their colleagues were critical to their level of commitment to coaching. Rather, this finding reflects coaches’ time and effort put toward developing young soccer players.

**Social support.** In this study, the support and encouragement a coach perceives significant others provide was not a significant predictor of coaches’ commitment. However, social support exhibited a strong relationship with enjoyment (r = .525) and involvement opportunities/valuable opportunities, but less strong relationships with social constraints (r = .289), personal investments (r = .254) and involvement alternatives/other priorities (-.245).

Since reliability of the construct was poor (α = .590) the validity was also compromised. To better understand how and if support and encouragement are critical to coaches’ commitment, this construct would require modifications. It would be
interesting to know if the need for social support diminishes with age, experience, and success. If Scanlan et al. (2009) continue to advance the development of this construct, how important is it to coaches? Could this construct theoretically separate the models? How would social support best be measured with coaches, even if items (i.e., questions) struggle to directly measure the construct?

**Summary.** Coaches in the study seem to express their lifelong involvement in sports, thus their commitment to coaching. Overall, they have been long-time athletic participants and consider themselves more than just novice coaches. Additionally, the opportunity to coach and work with athletes was a stronger predictor of coaches’ commitment. These coaches not only value the opportunities to work with their athletes, they enjoy coaching. Every year the NSCAA holds a national convention and the USYSA a workshop where thousands of soccer coaches congregate to learn and discuss ways to become better coaches. The coaching education opportunities for soccer in this country are abundant and exemplify excellence. Although soccer is not America’s sport, it is the World’s game.

**Implications**

Athletic coaches have the potential to be among the most influential people in a young person’s life and athletes often idolize their coaches. The impact a coach has on an athlete endures psychologically, physically, and emotionally. This study embraced the Sport Commitment Model (Scanlan et al., 1993a; Scanlan, T. K. et al., 2009) as a mechanism to understand the antecedents of coaches’ commitment to coaching. In the past, studies with youth, professional, and recreational sports, and adults in the exercise
and health industry have helped validate the Sport Commitment Model (Alexandris et al., 2002; Casper, 2004; Casper & Stellino, 2008, Choosakul et al., 2009; Scanlan et al., 1993b; Scanlan, T. K. et al., 2003; Scanlan, T. K. et al., 2009; VanYperen, 1998; Weiss M. R., Kimmel, & Smith, 2001; Weiss, M. R., Weiss, & Amorose, 2010; Weiss, W.M., 2003; Weiss, W.M., & Weiss, 2007). The results of this research have many implications for the soccer community, coaching as a passion and profession, and future research.

Athletic coaching has been empirically studied for years, but limited research has been conducted on coaches’ commitment to coaching. Coaches’ commitment can be measured by the number of years coached, but a better understanding of the unobservable characteristics of coaches’ commitment was brought out in the study. The soccer coaches in this study value the opportunities they are given to coach young athletes. Most importantly they would miss coaching, especially the good times with their athletes, if they quit coaching. Similar to research with sport commitment, enjoyment is a key component to the longevity of a coach’s career, but not the strongest predictor of coaches’ commitment. Furthermore, coaching is a priority over other interesting alternatives and greater personal investments are made when a coach is committed to his/her team. These findings further support the research on sport commitment.

The soccer community, and possibly other sporting environments, will be interested in knowing that these coaches appreciated the resources provided (e.g., equipment) that are necessary to conduct training sessions. Yes, coaches spend money for coaching, but their commitment to designing developmentally appropriate activities with an athlete-centered philosophy may be more important than physical resources.
However, it is difficult to assume that more money should be spent engaging in educational learning opportunities. Future research could better tap into what exactly coaches spend money on and if they truly value educational learning opportunities. Experience alone does not make a great coach.

A better understanding of whether coaches are affected by social constraints and support is another reason more research should be conducted using SCM as a theoretical framework. Coaches in this study may not have identified with the same social norms that create feelings of obligation to remain in the activity as measured by the SCM. Young athletes are often guided into athlete opportunities by their parents or guardians and seldom do youth want to let adults down, especially those they admire. Also, youth are influenced by their peers. Thus, remaining on the team has less to do with commitment to the sport, and more about belonging. Coaches on the other hand, may experience different social constraints. Apparently, coaches are not committed to coaching so they can be with their peers. This could be an important distinction between sport commitment and coaches’ commitment.

Raedeke et al. (2002) reported that social constraints were unrelated to commitment. Current and former coaches differed in their commitment levels; current and former coaches differed (3.6%) in their reports of attractiveness of alternatives, social constraints, and investments (Raedeke et al., 2002). Current coaches reported being less attracted to alternatives and reported higher social constraints and investments than former coaches. Overall, the coaches in the study seem to enjoy coaching, but those who
left seemed to have more or stronger things competing for their time (e.g., family or full
time job).

Everyone likes support and encouragement for their involvement in activities. Thus, it makes sense that social support actively remains in the theoretical sport commitment model, but this research indicates that social support is not an important determinant of coaches’ commitment. This could mean that coaches remain involved to teach life lessons to youth participants and not because an administrator is telling them to coach.

The assumptions presented here are supported in the literature. Raedeke et al. (2002) and M. R. Weiss and Stevens (1993) found that working with athletes is the most important benefit to coaching. Coaches also enjoyed the challenge of building a successful program and exhibited positive self-perceptions (i.e., feelings of self-satisfaction derived from being a coach such as feeling competent and successful). Raedeke et al. (2002) reported that “benefits related to external rewards were rated as least important” (p. 84) by the coaches and “time-related factors emerge as the most salient (stand out) coaching cost” (p. 85). Also, coaches, who want to be involved, traditionally experience extreme enjoyment and satisfaction due to increasing rewards (benefits) and low costs. These individuals do not mind spending the time and energy necessary to reap the rewards (Raedeke et al., 2004).

This research sheds more light on systematic issues and concerns with the model. For example, sound psychometrics enables research efforts to be replicated across diverse populations. This study indicates that core items measuring the antecedents to coaches’
commitment are vulnerable. Instrument modification and replication with a more diverse population (i.e., more than one type of sport-specific athletic coach) would help achieve generalizability to a heterogeneous population (Scanlan et al., 1993b).

Multicollinearity and distinct factor loadings seem to be a reoccurring issue with sport commitment. For example, W. M. Weiss and Weiss (2007) removed involvement opportunities/valuable opportunities and attractive alternatives from the final analysis due to multicollinearity. And initial factor analysis for the Sport Commitment Model indicated a six-factor solution with a complex first factor, as both sport commitment and involvement opportunities/valuable opportunities loaded on the same factor (Scanlan et al., 1993b). This study also indicates excessive relationships between latent variables. But according to Scanlan et al. (1993b), “Because sport commitment is the dependent measure in the Sport Commitment Model and all other constructs are predictors, it was not surprising to have items from another construct load with the commitment items” (p. 25).

Using the Sport Commitment Model as a theoretical framework with soccer coaches also demonstrates how different populations impact the rank antecedents to commitment (Casper, 2004). Enjoyment consistently ranks as the number one predictor of commitment with youth participants. Involvement opportunities/valuable opportunities and personal investments tend to predict more of commitment than enjoyment with adult populations. Most importantly, this research supports findings of at least four consistent determinants of commitment: enjoyment, involvement
opportunities/valuable opportunities, personal investments, and involvement
alternatives/other opportunities.

This study, via regression analysis, may have linked coaching efficacy to
commitment. Coaches dedicated to the development of the lifelong participant feel
confident in their ability to affect learning and performance (Feltz, Short, & Sullivan,
2008). The psychological construct, coaching efficacy, is another avenue to potentially
understand coaches’ level of commitment and success. Although not a strong predictor,
coaching efficacy statistically predicts part of coaches’ commitment. In this situation,
coaching efficacy predicts more than social support. It can be assumed that a committed
and effective coach would promote the growth of their athletes in the psychosocial,
affective, and cognitive domains

A greater understanding of coaches’ commitment to coaching is necessary to
increase retention rates, especially for those involved in youth sport. Poor coaching, one
of the top reasons youth sport participants drop-out of sport, can be linked to the 2.5
million volunteer coaches who lack formal education and experience in coaching young
athletes (Ewing, Seefeldt, & Brown, 1997). For example, “coaches average three years
of coaching before moving onto the next chapter in their lives” (B. de Lench, personal
primarily depend upon the degree to which the attitudes of its adult leaders can be
modified” (p. 338). This research takes a step closer to understanding sport coaches.
Recommendations for Future Research

There are several recommendations for future research resulting from this study. These recommendations vary from psychometric modifications of the instrument (CCS), to the development of new models, to longitudinal studies over time. Conducting studies of coaches’ commitment with a more heterogeneous population is an obvious recommendation for future research, as the results would provide better generalizability. Reaching out to sport coaches with qualitative inquiry (e.g., interviews) regarding their commitment to coaching could provide validity for current constructs and provide consideration for the addition of new constructs. The next several paragraphs further detail these recommendations and emphasize the need for continued research with sport coaches.

This study has opened the doors for future research with sport coaches, especially for understanding their desire and resolve to remain in coaching. More research needs to be conducted to determine if committed coaches engage in educational learning opportunities, design developmentally appropriate activities, and utilize an athlete-centered philosophy. These three descriptors are important to future research as the literature indicates that coaches with these characteristics tend to retain their athletes -- which are crucial to lifelong participation. Perhaps instrument modification could tap into this researchers’ definition of coaches’ commitment and better evaluate its antecedents.

Modifications to the items in the Coaches’ Commitment Survey (CCS) are necessary to accurately measure the current constructs (i.e., enjoyment, involvement
opportunities/valuable opportunities, involvement alternatives/other priorities, personal investments, social constraints, and social support). Moreover, reliable and valid items could help separate or combine constructs (e.g., commitment and involvement opportunities/valuable opportunities) with extreme relationships. It is possible that sport commitment and coaches’ commitment can mean different things in the sporting context. The combination of items in the current study may not only strengthen model fit, but might allow for other variables to predict coaches’ commitment. Potential predictors of coaches’ commitment could be, but are not limited to: coaching efficacy, the role of a mentor, role-identity and conflict, power opportunities, behavior modification, and success.

Coaches dedicated to the development of the lifelong sport participant feel confident in their ability to affect learning and performance (Feltz, Short, & Sulllivan, 2008). The psychological construct, coaching efficacy, is another avenue to potentially understand coaches’ level of commitment and success. Coaching efficacy, “the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes” (Feltz, Chase, Moritz, & Sullivan, 1999, p. 765) is a viable construct to investigate as related to the effectiveness of coaches. It can be assumed that a committed and effective coach would promote the growth of their athletes in the psychosocial, affective, and cognitive domains.

Many elite-level sport coaches and prominent leaders make mention of their mentors in autobiographies and speeches. Combining the commitment and mentorship literature could lead to the addition of a new construct in the Coaches’ Commitment
Model. Future research should investigate the role of mentorship in relation to a lifelong coaching career whether it is in a volunteer or professional context. Developing skills under a mentor is important because experience learning in a safe environment has proven to be a successful way to climb the ladder (Cassidy, Jones, & Potrac, 2004). The mentor can help a young aspiring or volunteer coach deal with the pressures presented by society. For example, a volunteer parent coach may enjoy working with his/her team, but the pressure to win could out weight their desire to coach. A mentor would be able to calm the nerves of this parent coach and explain how to best deal with the pressure. Furthermore, a mentor would be able to share stories that the young aspiring or volunteer coach can relate to.

Coaches report that learning from experience is crucial to their development, but little is understood about the role of the mentor; especially in combination with commitment studies. Cassidy, Jones, and Potrac (2004) recognize the importance of defining mentorship by saying, “quality mentoring involves doing something with as opposed to a trainee; it is seen as an investment in the total personal growth of the individual” (p. 44). Using theories from this literature base could inform future research investigating coaches’ commitment and the role mentorship plays in the development of a lifelong sport participant.

Role identity and conflict, coupled with power opportunities, are potential constructs or links worthy of future research in combination with coaches’ commitment studies. How important is the status symbol of “Coach” to coaches’ levels of commitment? Identifying as a “Coach” could provide individuals with power or
leadership opportunities not associated with their daily lives. For example, volunteer parent coaches could find empowerment in their roles as “Coach”, but not in their workplace or at home. Conversely, successful novice coaches could use their positions to belittle their athletes although based on playing experience; they claimed to never treat their athletes in such a degrading manner. To advance our understanding of sport coaches, future commitment research should incorporate other psychological constructs and variables not considered in this study.

Different research designs and methodologies in future research would enhance the understanding of coaches’ commitment. After the development of an instrument with sound psychometrics, group analysis studies could provide valuable information about the commitment of different types of sport coaches. For example, does coaches’ commitment differ between the volunteer-participation, volunteer-performance, paid-participation and paid-performance coaches? Longitudinal studies and the investigation of coaches’ commitment over time could help us understand the life-span of a volunteer coach versus a career coach. Perhaps the retention of volunteer parent coaches should not focus on how many years they are involved as a coach, but rather on how they modify their behaviors and tendencies while in this leadership role.

Coaching, especially in the sporting context, is an important leadership role that influences the development of young people and penetrates the communities in which we live. Coaches are admired and ridiculed for the decisions they make during each game, training session, and in their personal lives. This leadership role encompasses being a teacher, mentor, parent, friend, and psychologist, among others. Retaining dedicated and
committed coaches is critical to the longevity of lifelong sport and recreation participation. Future studies examining coaches’ commitment will contribute to the development of interventions for the retention of not only athletes, but these idolized teachers called coaches.
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Appendix A: Sport Commitment Models in the Literature

Figure A1. The Initial Theoretical Sport Commitment Model
Figure A2. The Current Theoretical Sport Commitment Model
Figure A3. Measurement and Structural Model for Sport Commitment

Confirmatory Factor Model for Sport Commitment (Carpenter et al., 1993).
(Note: an oval signifies an unobserved construct, a rectangular box indicates an observed variable,
curved two-headed arrow signifies association between two variables,
a single-headed arrow from observed (latent) variable indicates factor loading, and a single-headed arrow
pointing to a observed variable represents the error term.)
Appendix B: Coaches’ Commitment Model

Figure B1. Hypothesized Measurement Model for Coaches’ Commitment
Figure B2. Hypothesize Measurement and Structural Model for Coaches’ Commitment
Figure B3. Hypothesized Indirect Model for Coaches’ Commitment
Appendix C: Coaches Commitment Survey

Dear Coach,

As a coaching colleague for the world’s greatest game, you are being asked to participate in research about commitment to coaching. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. Once you have read this letter and your questions about the study are answered, you may begin the survey by selecting ‘yes’ at the bottom of this letter.

Conducting research with youth coaches is important, because sport coaches have the potential to be the most influential people in a young person’s life (Hedstrom & Gould, 2004). A greater understanding of coaches’ commitment to sport, especially coaching, is necessary to increase retention rates of all those involved in sport, especially at the youth level. Dedicated, educated and experience coaches, committed to working with our developing athletes are essential to lifelong sport participation. Not all coaches, especially in today’s world where more than two and half million serve as volunteers, (Freeman, 1995), realize the impact they have on the development of today’s developing athletes.

One way to study coaches’ influence on their athletes is through the psychological construct, sport commitment. Defined as the “the desire and resolve to continue participation in a sport over time” (Scanlan et al., 1993, p. 7), sport commitment has been studied via The Sport Commitment Model (Carpenter et al., 1993). The SCM has been validated with youth sport and adult participants, but not directly with sport coaches. Thus, the aim of this study is to validate the Coaches’ Commitment Model (SCM; Scanlan et al., 1993) and subsequently determine the factors that contribute to youth soccer coaches’ commitment to coaching.

Some things to consider before filling out the web-based survey are: You must be 18 years old to participate in this research. All responses will be confidential and only aggregated or agglomerated data could be published. This research has been approved from the Office of Research Compliance at Ohio University. Completion of this web-based survey is voluntary and implies your consent to use your responses for research purposes. Finally, competition of this survey takes about 15 minutes. Your responses and time are greatly appreciated.

If you have any questions about this research you can contact me at hucklebe@ohio.edu.

Thank you!

Sheri Huckleberry
In this section you are asked to provide responses to your Coaching Commitment (i.e., the desire and intent to continue coaching, engage in educational learning opportunities, design developmentally appropriate activities and utilize an athlete-centered philosophy).

Q2 How proud are you to tell other people that you are a soccer coach?
- Not proud (1)
- A little proud (2)
- Sort of proud (3)
- Proud (4)
- Very Proud (5)

Q3 How dedicated are you to coaching soccer?
- Not dedicated (1)
- A little dedicated (2)
- Sort of dedicated (3)
- Dedicated (4)
- Very dedicated (5)

Q4 How hard would it be for you to quit coaching soccer?
- Very Easy (1)
- Easy (2)
- Neutral (3)
- Difficult (4)
- Very Difficult (5)

Q5 Do you enjoy coaching soccer?
- Not at all (1)
- A little (2)
- Sort of (3)
- Pretty much (4)
- Very much (5)

Q6 Are you happy coaching soccer?
- Not at all (1)
- A little (2)
- Sort of (3)
- Pretty much (4)
- Very much (5)

Q7 Do you have fun coaching soccer?
- Not at all (1)
- A little (2)
- Sort of (3)
- Pretty much (4)
Q8: Do you like coaching soccer?
- Not at all (1)
- A little (2)
- Sort of (3)
- Pretty much (4)
- Very much (5)

Q9: Compared to coaching soccer, there are other things I find more interesting.
- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

Q10: Compared to coaching soccer, there are other things I could do that would be more enjoyable.
- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

Q11: Compared to coaching soccer, there are other things I could do that would be more fun.
- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

Q12: I would like to do something besides coaching soccer.
- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

Q13: How much of your time have you put into coaching soccer?
- None (1)
- A little (2)
- Some (3)
- Pretty much (4)
A lot (5)

Q14 How much effort have you put into coaching soccer?
- None (1)
- A little (2)
- Some (3)
- Pretty much (4)
- A lot (5)

Q15 How much of your own money have you put into coaching soccer?
- None (1)
- A little (2)
- Some (3)
- Pretty much (4)
- A lot (5)

Q16 How much of your own time has been spent watching soccer?
- None (1)
- A little (2)
- Some (3)
- Pretty much (4)
- A lot (5)

Q17 The people important to me expect me to coach soccer.
- Not at all like me (1)
- Not like me (2)
- Neutral (3)
- Somewhat like me (4)
- Just like me (5)

Q18 I feel I have to stay coaching soccer for the athletes.
- Not at all like me (1)
- Not like me (2)
- Neutral (3)
- Somewhat like me (4)
- Just like me (5)

Q19 I feel I have to coach soccer so I can be with my colleagues (e.g., friends).
- Not at all like me (1)
- Not like me (2)
- Neutral (3)
- Somewhat like me (4)
- Just like me (5)
Q20 I feel I would let other people down if I stopped coaching soccer.
- Not at all like me (1)
- Not like me (2)
- Neutral (3)
- Somewhat like me (4)
- Just like me (5)

Q21 Would you miss being a soccer coach if you left coaching?
- Definitely not (1)
- Probably not (2)
- Maybe (3)
- Probably yes (4)
- Definitely yes (5)

Q22 Would you miss your colleagues (e.g., friends) if you left coaching?
- Definitely not (1)
- Probably not (2)
- Maybe (3)
- Probably yes (4)
- Definitely yes (5)

Q23 Would you miss the good times you have had coaching soccer if you left?
- Definitely not (1)
- Probably not (2)
- Maybe (3)
- Probably yes (4)
- Definitely yes (5)

Q24 Would you miss the players if you left coaching?
- Definitely not (1)
- Probably not (2)
- Maybe (3)
- Probably yes (4)
- Definitely yes (5)

Q25 I feel the team is supportive of my coaching.
- Definitely not (1)
- Probably not (2)
- Maybe (3)
- Probably yes (4)
- Definitely yes (5)

Q26 I feel my boss (e.g., Athletic Direction, Program Director, and/or Director of Coaching) is supportive of my coaching.
Q27 I feel the fans (e.g., community members, parents, and/or boosters) are supportive of my coaching.

Q28 I feel my family (i.e., wife, husband, partner and/or children) is supportive of my coaching.

Q1 Do you want to continue coaching soccer?

Q44 Commitment to coaching can be measured in time invested. To the best of your ability, please answer the following questions in hours per week spent on coaching in season.

Q52 Commitment to coaching can be measured in time invested. To the best of your ability, please answer the following questions in hours per week spent on 'coaching commitments' in the off season.
Q45 Commitment to coaching can be measured in money invested. Please answer the following questions to the best of your ability in $$ per year spent on coaching related activities.

_____ How much money each year do you spend on coaching resources (e.g., books, videos)? (1)

_____ How much money each year do you spend per year on coaching education? (2)

_____ How much of your own money each year do you spend per year on traveling? (3)

Q11 In what other ways do you spend your time and money coaching?

Q1 Coaching Confidence refers to the extent which coaches believe that they have the capacity to affect the learning and performance of their athletes. Think about how confident you are as a coach. Rate your confidence for each of the items below. How confident are you in your ability to:

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at All Confident (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3 (4)</th>
<th>4 (5)</th>
<th>5 (6)</th>
<th>6 (7)</th>
<th>7 (8)</th>
<th>8 (9)</th>
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<td>Develop</td>
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</tr>
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</table>
athletes' abilities? (16)
maximize your team's strengths during competition? (17)
recognize talent in athletes? (18)
promote good sportsmanship? (19)
detect skill errors? (20)
adjust your game/meet strategy to fit your team's talent? (21)
teach the skills of your sport? (22)
built team confidence? (23)
instill an attitude of respect for others? (24)
Q51 Please provide information about your coaching biography. Answers to these questions will help the research better understand the characteristics of soccer coaches.

Q7 Athletic playing experience:
- 0 years (1)
- 1-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- 16-20 years (5)
- 21+ years (6)

Q6 Coaching experience:
- 0 years (1)
- 1-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- 16-20 years (5)
- 21+ years (6)

Q47 How would you classify yourself as a coach?

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes (1)</th>
<th>No (2)</th>
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<tbody>
<tr>
<td>Novice (1)</td>
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<td>☐</td>
</tr>
<tr>
<td>Expert (2)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Volunteer (3)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Paid Professional (4)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Participation (developmental focused) (5)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Performance (focuses on winning) (6)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Part-time (7)</td>
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<tr>
<td>Full-time (8)</td>
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<td>☐</td>
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Q9 When do you coach during the year (check all that apply)

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<td>☐</td>
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<tr>
<td>Fall (2)</td>
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<td>☐</td>
</tr>
<tr>
<td>Winter (3)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Spring (4)</td>
<td>☐</td>
<td>☐</td>
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Q7 Coaching Certifications (please list all):

Edu What is the highest level of education you have completed?
Less than High School (1)
High School / GED (2)
Some College (3)
2-year College Degree (4)
4-year College Degree (5)
Master's Degree (6)
Doctoral Degree (7)
Professional Degree (JD, MD) (8)

Q4 Academic degree/specialization(s):

Q16 How old are you?
18-25 (1)
26-34 (2)
35-54 (3)
55-64 (4)
65-older (5)

Q1 What is your gender?
Male (1)
Female (2)

Q8 What is your race?
White/Caucasian (1)
African American (2)
Hispanic (3)
Asian (4)
Native American (5)
Pacific Islander (6)
Other (7)

Q43 Please comment on your thoughts about coaches' commitment (i.e., the desire and intent to continue coaching, engage in educational learning opportunities, design developmentally appropriate activities and utilize an athlete-centered philosophy).
### Appendix D: Results

Table D1

*Soccer Coaches Playing and Coaching Experience*

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</tr>
<tr>
<td>0</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>1 - 5</td>
<td>170</td>
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<tr>
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Table D2

*Soccer Coaches Demographics*

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**Correlations between Items**

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<th>cc3</th>
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* Correlation is significant at the 0.05 level (2-tailed).
* Correlation is significant at the 0.01 level (2-tailed).

---

**Mean**

- Mean: 4.81
- SD: 0.92

---

**Table Footnotes**

- Footnote 1: Additional notes or explanations.
### Table D4

#### Univariate and Multivariate Analysis for Measurement Model

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Valid N (listwise) 1660
Table D5

Factor Loadings for Measurement Model A

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<th>Estimate</th>
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<td>Do you enjoy coaching soccer?</td>
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</tr>
<tr>
<td>e2</td>
<td>Are you happy coaching soccer?</td>
<td>0.721</td>
<td>0.520</td>
</tr>
<tr>
<td>e3</td>
<td>Do you have fun coaching soccer?</td>
<td>0.732</td>
<td>0.536</td>
</tr>
<tr>
<td>e4</td>
<td>Do you like coaching soccer?</td>
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<tr>
<td>ia1</td>
<td>Compared to coaching soccer, there are other things I find more interesting.</td>
<td>0.749</td>
<td>0.561</td>
</tr>
<tr>
<td>ia2</td>
<td>Compared to coaching soccer, there are other things I could do that would be more enjoyable.</td>
<td>0.860</td>
<td>0.739</td>
</tr>
<tr>
<td>ia3</td>
<td>Compared to coaching soccer, there are other things I could do that would be more fun.</td>
<td>0.873</td>
<td>0.763</td>
</tr>
<tr>
<td>ia4</td>
<td>I would like to do something besides coaching soccer.</td>
<td>0.624</td>
<td>0.389</td>
</tr>
<tr>
<td>pi1</td>
<td>How much of your time have you put into coaching soccer?</td>
<td>0.800</td>
<td>0.639</td>
</tr>
<tr>
<td>pi2</td>
<td>How much of your effort have you put into coaching soccer?</td>
<td>0.806</td>
<td>0.649</td>
</tr>
<tr>
<td>pi3</td>
<td>How much of your own money have you put into coaching soccer?</td>
<td>0.404</td>
<td>0.163</td>
</tr>
<tr>
<td>pi4</td>
<td>How much of your own time have been spent watching soccer?</td>
<td>0.404</td>
<td>0.163</td>
</tr>
<tr>
<td>sc1</td>
<td>The people important to me expect me to coach soccer.</td>
<td>0.543</td>
<td>0.294</td>
</tr>
<tr>
<td>sc2</td>
<td>I feel I have to stay coaching soccer for the athletes.</td>
<td>0.592</td>
<td>0.350</td>
</tr>
<tr>
<td>sc3</td>
<td>I feel I have to coach soccer so I can be with my colleagues.</td>
<td>0.341</td>
<td>0.117</td>
</tr>
<tr>
<td>sc4</td>
<td>I feel I would let other people down if I stopped coaching soccer.</td>
<td>0.704</td>
<td>0.496</td>
</tr>
<tr>
<td>io1</td>
<td>Would you miss being a soccer coach if you left coaching?</td>
<td>0.769</td>
<td>0.591</td>
</tr>
<tr>
<td>io2</td>
<td>Would you miss your colleagues if you left coaching?</td>
<td>0.439</td>
<td>0.193</td>
</tr>
<tr>
<td>io3</td>
<td>Would you miss the good times you have had coaching soccer if you left?</td>
<td>0.615</td>
<td>0.379</td>
</tr>
<tr>
<td>io4</td>
<td>Would you miss the players if you left coaching?</td>
<td>0.574</td>
<td>0.330</td>
</tr>
<tr>
<td>ss1</td>
<td>I feel the team is supportive of my coaching.</td>
<td>0.730</td>
<td>0.533</td>
</tr>
<tr>
<td>ss2</td>
<td>I feel my boss is supportive of my coaching.</td>
<td>0.445</td>
<td>0.198</td>
</tr>
<tr>
<td>ss3</td>
<td>I feel the fans are supportive of my coaching.</td>
<td>0.692</td>
<td>0.479</td>
</tr>
<tr>
<td>ss4</td>
<td>I feel my family is supportive of my coaching.</td>
<td>0.328</td>
<td>0.107</td>
</tr>
<tr>
<td>cc1</td>
<td>Do you want to continue coaching soccer?</td>
<td>0.408</td>
<td>0.167</td>
</tr>
<tr>
<td>cc2</td>
<td>How proud are you to tell other people you are a soccer coach?</td>
<td>0.590</td>
<td>0.348</td>
</tr>
<tr>
<td>cc3</td>
<td>How dedicated are you to coaching soccer?</td>
<td>0.645</td>
<td>0.416</td>
</tr>
<tr>
<td>cc4</td>
<td>How hard would it be for you to quit coaching soccer?</td>
<td>0.590</td>
<td>0.349</td>
</tr>
</tbody>
</table>
Table D6

*Factor Loadings for Measurement Model C*

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Estimate</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enjoyment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e1</td>
<td>Do you enjoy coaching soccer?</td>
<td>0.800</td>
<td>0.640</td>
</tr>
<tr>
<td>e2</td>
<td>Are you happy coaching soccer?</td>
<td>0.718</td>
<td>0.516</td>
</tr>
<tr>
<td>e3</td>
<td>Do you have fun coaching soccer?</td>
<td>0.736</td>
<td>0.542</td>
</tr>
<tr>
<td>e4</td>
<td>Do you like coaching soccer?</td>
<td>0.772</td>
<td>0.591</td>
</tr>
<tr>
<td><strong>Involvement Alternatives (Other Priorities)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ia1</td>
<td>Compared to coaching soccer, there are other things I find more interesting.</td>
<td>0.747</td>
<td>0.558</td>
</tr>
<tr>
<td>ia2</td>
<td>Compared to coaching soccer, there are other things I could do that would be more enjoyable.</td>
<td>0.860</td>
<td>0.740</td>
</tr>
<tr>
<td>ia3</td>
<td>Compared to coaching soccer, there are other things I could do that would be more fun.</td>
<td>0.876</td>
<td>0.768</td>
</tr>
<tr>
<td>ia4</td>
<td>I would like to do something besides coaching soccer.</td>
<td>0.620</td>
<td>0.384</td>
</tr>
<tr>
<td><strong>Personal Investments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pi1</td>
<td>How much of your time have you put into coaching soccer?</td>
<td>0.813</td>
<td>0.661</td>
</tr>
<tr>
<td>pi2</td>
<td>How much of your effort have you put into coaching soccer?</td>
<td>0.794</td>
<td>0.631</td>
</tr>
<tr>
<td>pi3</td>
<td>How much of your own money have you put into coaching soccer?</td>
<td>0.402</td>
<td>0.162</td>
</tr>
<tr>
<td>pi4</td>
<td>How much of your own time have been spent watching soccer?</td>
<td>0.402</td>
<td>0.164</td>
</tr>
<tr>
<td><strong>Social Constraints</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sc1</td>
<td>The people important to me expect me to coach soccer.</td>
<td>0.513</td>
<td>0.264</td>
</tr>
<tr>
<td>sc2</td>
<td>I feel I have to stay coaching soccer for the athletes.</td>
<td>0.571</td>
<td>0.326</td>
</tr>
<tr>
<td>sc3</td>
<td>I feel I have to coach soccer so I can be with my colleagues.</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>sc4</td>
<td>I feel I would let other people down if I stopped coaching soccer.</td>
<td>0.754</td>
<td>0.568</td>
</tr>
<tr>
<td><strong>Involvement Opportunities (Valuable Opportunities)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>io1</td>
<td>Would you miss being a soccer coach if you left coaching?</td>
<td>0.741</td>
<td>0.549</td>
</tr>
<tr>
<td>io2</td>
<td>Would you miss your colleagues if you left coaching?</td>
<td>0.441</td>
<td>0.195</td>
</tr>
<tr>
<td>io3</td>
<td>Would you miss the good times you have had coaching soccer if you left?</td>
<td>0.627</td>
<td>0.393</td>
</tr>
<tr>
<td>io4</td>
<td>Would you miss the players if you left coaching?</td>
<td>0.601</td>
<td>0.361</td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ss1</td>
<td>I feel the team is supportive of my coaching.</td>
<td>0.731</td>
<td>0.534</td>
</tr>
<tr>
<td>ss2</td>
<td>I feel my boss is supportive of my coaching.</td>
<td>0.444</td>
<td>0.197</td>
</tr>
<tr>
<td>ss3</td>
<td>I feel the fans are supportive of my coaching.</td>
<td>0.692</td>
<td>0.479</td>
</tr>
<tr>
<td>ss4</td>
<td>I feel my family is supportive of my coaching.</td>
<td>0.327</td>
<td>0.107</td>
</tr>
</tbody>
</table>
Figure D1. Model A – Standardized Measurement (CFA)
Figure D2. Model B – Standardized Measurement Model with item sc3 Removed
Figure D3. Model C – Standardized Measurement Model without Commitment
Figure D4. Model D - Standardized Structural
Appendix F: Scanlan Communications

From: Tara Scanlan [mailto:tkscanlan@scanlanfam.net]
> Sent: Friday, April 02, 2010 5:54 PM
> To: hucklebe@ohio.edu; Sousa Catarina; Graig Chow
> Subject: Re: Sport Commitment Model Research
>
> Hi Sheri,
>
> You are very welcome to use anything in our research that might help you. I have not extended our research to coaches, but you might want to communicate with my post docs-Graig Chow from MSU and Catarina Sousa from Portugal with a Ph.D. from Spain. I have their e-mails above.
>
> Note that we are significantly updating the Sport Commitment Scale but this won't be ready for quite a while.
>
> Keep us posted on your work and all the best with it.
>
> Cheers,
>
> Tara Scanlan
> 
> > 
> > ----Original Message-----
> > From: Sheri Huckleberry [mailto:hucklebe@ohio.edu]
> > Sent: Fri 4/2/2010 2:09 PM
> > To: Scanlan, Tara
> > Subject: Sport Commitment Model Research
> > 
> > 
> > 
> > 
> > 
> > Dr. Scanlan - I have attached this letter as a PDF, too. Thank you for
> > your
> > time and consideration.
> > 
> > Sheri Huckleberry
> > 
> > Coaching Education
> > 
> > School of Recreation and Sport Sciences
> > 
> > Grover Center E189
> > 
> > Ohio University
> > 
> > 740-593-4651
> > 
> > <image001.gif><image004.png><scm.PDF>
April 2, 2010

Tara Scanlan, Ph.D.
UCLA Department of Psychology
Franz Hall - 3586
Los Angeles, CA 90095-1563

Dear Dr. Scanlan,

Over the past two years I have become very intrigued with research on sport commitment, specifically the utilization of the Sport Commitment Model and the Scanlan Collaborative Interview Method. These tools provide a solid framework for studies in the growing field of coaching education. The purpose of this letter is to request your consent to modify the SCM tool and use the SCIM in my dissertation research. I would like to investigate youth sport coaches’ commitment to coaching.

The College of Education at Ohio University is home to my doctoral studies. The degree is centralized in Curriculum & Instruction with a specialization in Educational Research, and a focus on Coaching Education. My experiences as a coaching educator (i.e., Ohio University instructor for the past 2 years, and the NSCAA), 12 plus years of soccer coaching experience (i.e., Division I, high school, and club) and performances as an elite soccer player (i.e., semi-professional and Division I) have ignited my passion to study and expand the current research on coaches.

The SCM and SCIM are exciting to me because they provide a theoretical framework for understanding athletes and coaches. Their use would contribute to...
continued research on the retention of athletes and coaches, an area of great need, and more research connecting commitment to self-efficacy is important. An example I would like to build upon would be Kent & Phillips’ (2003) *Coaching Efficacy as a Predictor of University Coaches’ Commitment.* I would be interested to know whether you and your colleagues have already expanded the SCM to be used with coaches? If not, may I use the SCM framework to develop a modified SCM tool to investigate the commitment of youth sport coaches? Research using the SCM and SCIM could help better understand the population of youth sport coaches and how they differ from the professional coach. Continuing to connect psychology and education to the growing profession of sports coaching creates much potential for further validation and use of the SCM. If you are in agreement, I would be more than happy to share the results of my research with you, to add to the growing body of knowledge provided by the use of the SCM and SCIM. I look forward to your response and thank you in advance for considering my request.

Sincerely,

Sheri Huckleberry  
Interim Coordinator for Coaching Education 
School of Recreation and Sport Sciences 
Grover Center E189 
Ohio University 
Athens, OH 45701