A LONGITUDINAL STUDY ON THE CHANGE OF PASSION IN YOUTH SPORT ATHLETES

By

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ABSTRACT

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Vallerand and colleagues (Vallerand et al., 2003) postulated the dualistic model of passion. In this model, individuals can develop harmonious passion where an activity is aligned with other aspects of their life and is well-integrated into one's identity or obsessive passion where the activity may take a disproportionate percentage of an individual's identity and cause conflict with other contexts. Research has supported the dualistic model of passion and shown that, traditionally, harmonious passion leads to more positive outcomes than obsessive passion. Even though research has supported the dualistic model of passion, relatively few studies have investigated how passion for an activity changes. Therefore, the purpose of the current study was to investigate how general passion, harmonious passion, and obsessive passion change across the course of a sport season in a sample of adolescent youth athletes. Additionally, child and family influences and coach-created climate variables were investigated to better understand the influence these variables play on passion change across a season. A total of 174 junior high and high school athletes (129 males, 45 females) aged 13-18 (M = 15.11, SD = 1.25) returned consent forms and completed surveys at both Time 1 (pre-season) and Time 2 (post-season). Athletes were currently involved in a sport and played a number of team and individual sports. In total, the sample was highly passionate for their sport. When investigating the dualistic model of passion, athletes had significantly higher levels of harmonious passion than obsessive passion at both Time 1 and Time 2. Unexpectedly, athletes' level of general passion and harmonious passion significantly decreased from Time 1 to Time 2. Further investigation of these decreases

in general and harmonious passion revealed that male and female athletes experienced these changes differently. From Time 1 to Time 2, male athletes' general and harmonious passion levels increased slightly while female athletes' levels significantly decreased. Exploratory analyses indicated that male athletes perceived a more positive sport environment than female athletes which may help explain why female athletes decreased in general and harmonious passion across the season. There was no change in obsessive passion from Time 1 to Time 2. A regression analysis indicated that from the child and family influence variables collected, only sense of identity derived from sport significantly predicted general passion. When coach-created climate variables were entered into a regression analysis predicting general passion, only autonomy and competence were significant predictors. Investigation of the paths of the structural equation model for child and family influences revealed both a sense of identity derived from sport and perceived sport valuation of parents positively predicted both harmonious and obsessive passion. Further, harmonious passion positively predicted future sport involvement for athletes while the path from obsessive passion to future sport involvement was non-significant. Investigation of the paths of the structural equation model for environmental factors showed that a task climate, ego climate, and basic need fulfillment all positively predicted harmonious passion. Additionally, a caring climate, ego climate, and need fulfillment all positively predicted the path to obsessive passion. Again, the path from harmonious passion positively predicted future sport involvement while the path for obsessive passion was non-significant. The current findings indicate that the sport environment may play a role in how passion changes across the course of a sport season, but more research is needed to better understand the role that negative sport environments may play on that change.

This dissertation is dedicated to my loving and amazing wife and my son Jamison. Kristen - you have allowed me to follow my passion and supported me mentally, emotionally, and financially. Our journey has been amazing so far, and I know we are only at the start of our race. Jamison - thank you for teaching me patience and love beyond what I could have conceptualized before I met you. I apologize in advance that you will be the subject of nearly every story I tell in my future classes. To you both - thank you for inspiring me every day and I hope I can be half the man you both think I am. I love you.

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CHAPTER I: INTRODUCTION

Background and Significance

"Running isn't a sport for pretty boys...It's about the sweat in your hair and the blisters on your feet. It's the frozen spit on your chin and the nausea in your gut. It's about throbbing calves and cramps at midnight that are strong enough to wake the dead. It's about getting out the door and running when the rest of the world is only dreaming about having the passion that you need to live each and every day with. It's about being on a lonely road and running like a champion even when there's not a single soul in sight to cheer you on. Running is all about having the desire to train and persevere until every fiber in your legs, mind, and heart is turned to steel. And when you've finally forged hard enough, you will have become the best runner you can be. And that's all that you can ask for."

- *Paul Maurer, The Gift – A Runner's Story*

Many athletes are born with unbelievable physical talents, but never achieve the heights that many predict for them. For every athlete who achieved fame and fortune, many others never reached their potential. Several explanations may exist for this discrepancy, but one possible reason for these differences in achieving success is that some athletes seemingly are born with a love for their sport that leads to an unquenchable fire to compete, improve, and master their sport while others never develop these qualities. In the above quote, Maurer believes that passion can keep individuals focused on their own goals, and drive them to train when others are not willing to put in the work to succeed. Passion may be the concept that differentiates those athletes who will be successful at the highest levels from those not willing to make sacrifices on the path to sporting success.

This concept of passion is not unique to literary accounts such as Maurer's. In fact, many athletes attribute their success to their love of sport, the overwhelming passion they felt toward sport, and the drive to focus solely on the pursuit of excellence. One example is Sydney Crosby, a hockey player who grew up in Cole Harbour, Nova Scotia. Growing up, Crosby would spend hours and hours shooting puck after puck, at the family laundry dryer, only stopping when he was forced to by his mother. His friends described Crosby as loving hockey above all other activities and never having thoughts of anything else. His obsessive drive benefitted him as he eventually won a Stanley Cup, Gold Medal, and multiple Most Valuable Player Awards. This love for his sport and single-minded drive for improvement and perfection can be seen in a variety of other superstar players including Peyton Manning, Mia Hamm, Michael Jordan, Jackie Joyner-Kersee, and Larry Bird. These athletes were blessed with incredible physical talents, but what separated them from others in their sport was their love of their sport and their willingness to devote time and energy into the long hours of practice in an effort to master their craft. One possible explanation for why these athletes devoted such time and energy to their sport could be the passion each held for sport and this passion drove them to put in the hours needed to become experts in their craft.

While the time and effort these athletes have devoted to their sports have been well-documented, the factors that helped to create this passion has typically been minimized and left unexplored. It is possible that if we can understand how passion changes in athletes, we can better structure the youth sport context to develop passionate athletes that are driven to succeed, have the will to stay involved in their sport for a lifetime, and who strive for higher levels of achievement and personal satisfaction. This study will investigate what factors are related to the change of passion in sport over the course of one season.

Dualistic Model of Passion

Even though the anecdotal use of passion has been used by many athletes in their explanations for why they persevere in long hours of practice in their sport, the passion construct has not been investigated in terms of the psychological literature until more recently. Instead, when passion was cited, it was most frequently in connection with romantic relationships (Rony, 1990) or in terms of positive (e.g., motivation) or negative (e.g., addiction, dependence) consequences of passion. In response to this confusion in the literature, Vallerand and colleagues (Vallerand, Blanchard, Mageau, Koestner, Ratelle, Léonard, Gagne, & Marsolais, 2003) developed a dualistic model of passion where individuals' passion may be dual in nature and result in both positive and negative consequences dependent on the level of each type of passion. Therefore, the model posits that individuals' passion for a given activity could contain both positive and negative aspects which, ultimately, may influence the consequences of participation in the activity.

Vallerand and colleagues (Vallerand et al., 2003; Vallerand & Houlfort, 2003) defined passion as: "a strong inclination toward an activity that people like (or even love), that they find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 757). The proposed definition implies that for an activity to be someone's passion, it must be significant in individuals' lives, be liked by them, and be something that they engage in frequently. Where an individual may participate in a variety of activities, for something to be a passion for that individual it must be a central portion of that individual's identity. As Vallerand and his colleagues (2003) noted, people who are highly passionate about activities such as football, writing, or teaching, do not merely play football, write, or teach. Rather they are, or they have become, football players, writers, and teachers.

The central tenet of Vallerand's dualistic model of passion (Vallerand et al., 2003) is the existence of two distinct forms of passion (harmonious and obsessive). The development of these two types of passion is highly influenced by how the activity is internalized into the identity of participants. If participants feel that the choice to participate is internally motivated and they feel no pressure to continue participation from external sources, their internalization is autonomous and will likely result in harmonious passion. These individuals feel as if they are participating by their own volition and even though the activity may take up a large portion of their time, participants do not feel as if the activity is negatively overtaking other aspects of their lives. Conversely, if participants feel that the choice to participate is external, by either intrapersonal demands (e.g., the thrill received from participation) or interpersonal factors (e.g., pressure from friends or coaches), obsessive passion is likely to manifest. Those individuals who develop an obsessive passion will still enjoy the activity, but they may feel compelled to engage in activities even when dangerous or not in ideal conditions. Additionally, it is likely that the activity will eventually overwhelm a significant portion of the participants' identity and cause conflict with other aspects of their lives.

The passion construct (Vallerand et al., 2003) is firmly rooted in Self-Determination Theory (SDT; Deci & Ryan, 1985; 2000; Ryan & Deci, 2002), but even though these two aspects are related, it is critical to note these two constructs are unique. SDT is a motivational theory that posits that all individuals strive for greater self-regulation, integration in action, and competence in any activity in which they are engaged. Deci and Ryan further proposed that an individual's motivation for a given context is influenced by their perception of autonomy, competence, and relatedness. Motivation for any activity can be grouped on a continuum with various levels of controlled and autonomous forms of motivation. SDT proposes that for any activity, athletes

will hold some type of motivational profile. For example, an individual may feel a form of controlling motivation for their participation in school, but a more autonomous form of motivation for their participation in art-related activities. This individual may not enjoy nor value their participation in school, but they still will hold some type of motivation towards school. In contrast, the child may enjoy art-related activities, spend a large amount of time pursuing this context, and believe that it is critical to their future success. Even though the individual is engaged in both activities and has motivation toward both, they would be likely to develop a passion for art but not for school. In essence, having motivation is merely the start of the development of passion. However, just because a certain level of motivation is seen in a given context, it does not necessarily mean that it will develop into a passionate activity for the participant. A process in which passion may develop has been hypothesized by Vallerand and Miquelon (2007) that involves a three stage process.

Development of Passion

Vallerand and Miquelon (2007) specified a three-stage process toward the development of passion for an activity. The first stage of this process is initiation of participation in a given activity. In this initial stage, participants would hold some level of motivation for the activity. In the second stage of the process, individuals develop personal valuation for the activity and may manifest as personal interest or enjoyment. In the final stage of the process, individuals internalize the activity into their own self-identity. Not all activities will move through these three stages, and as such not all individuals engaged in a given context will develop a passion for an activity. In this third stage of the process, passion is either developed for an activity or not. If passion is developed, the type of passion is determined by the type of internalization an individual experiences for a given activity. If an activity is internalized in an autonomous nature

it is likely that harmonious passion will develop, while a more controlled internalization would likely result in the development of obsessive passion.

There are several aspects of the activity context that may influence whether the internalization of an activity will occur in a controlled or autonomous manner. In the only studies that have investigated the development of passion to date, Mageau and colleagues (Mageau, Vallerand, Charest, Salvy, Lacaille, Bouffard, & Koestner , 2009) conducted a series of studies that showed that social conditions can influence the development of passion. The initial retrospective study (Mageau et al., Study 1) found that expert level musicians and sport performers who reported high levels of harmonious passion were more likely to report higher levels of autonomy support from parents than those participants who exhibited high levels of obsessive passion. A second study (Mageau et al., Study 2) found that children with higher levels of harmonious passion perceived parents as more supportive of their autonomy and valued sport specialization less than children who held high levels of obsessive passion. These two studies indicate that environmental factors may be important in the development of passion, but a longitudinal study was still needed to assess if causation could be asserted from the established relationships.

As the importance of environmental factors was shown in non-longitudinal designs, Mageau and colleagues (2009) attempted to find what aspects were most important in the development of passion. Mageau and colleagues (Study 3; Mageau et al., 2009) followed beginning level music students over a five-month period to determine what factors were important in developing not only general passion, but also harmonious and obsessive passion. At the end of the term, only 36% of students enrolled in the class developed a passion for music. Those individuals who developed a passion were more likely to value specialization, derive some

sense of identity from learning how to play an instrument, have parents who valued music and specialization in music, and perceive significant adults as more autonomy-supportive. When investigating the differences in those who developed harmonious passion and those who developed obsessive passion, differences emerged in these two groups. Children who developed a harmonious passion perceived more autonomy supportive adults in their lives and perceived these adults valued the activity less than those individuals who developed obsessive passion.

The series of initial studies investigating the development of passion only provides preliminary information how passion develops and changes over the course of time and further investigation is warranted. Moreover, little is known about how passion changes in relation to the sport realm, especially in regards to how that change may be influenced according to gender differences. In addition to the value individuals place on the activity and parental support, the SDT framework would suggest that the fulfillment of autonomy, competence, and relatedness would be related to how passion changes and develops. The coach is also a central figure in the lives of youth athletes, so the coach-created environment should be investigated for its role of passion development and change. In particular, how a coach structures the sport motivational climate and how caring the climate is perceived by youth are two aspects that may be especially relevant to passion fluctuation across the course of a season.

Basic Need Fulfillment

Because the passion construct is firmly rooted in SDT, it is highly likely that fulfillment of the three basic tenets of autonomy, competence, and relatedness may impact how passion changes. Basic needs theory (BNT; Ryan & Deci, 2002), a tenet of SDT, predicts that when the basic needs of autonomy, competence, and relatedness are fulfilled participants are more likely to experience positive outcomes (Deci & Ryan, 2000). In the sport domain, fulfillment of basic

psychological needs may be influenced by a variety of significant social agents including coaches, peers, and parents. If athletes perceive their coach as autonomy supportive, willing to listen to their needs and desires, and willing to modify the structure of practices and drills to meet these needs, then athletes' would most likely perceive their need for autonomy as being fulfilled. If athletes perceive themselves as competent and parents or coaches reinforce that athletes are progressing in their sport skills, athletes would most likely perceive their need for competence as being fulfilled. Lastly, if athletes have close friends on the team, are included in team activities, and feel a personal connection to their coach, they may perceive their need for relatedness as being fulfilled. Research in the sport realm has shown that basic need fulfillment is related to a variety of positive outcomes including subjective well-being (Adie, Duda & Ntoumanis, 2008; Gagne, 2003), intrinsic motivation (Hollembeak & Amorose, 2005), persistence (Calvo, Cervelló, Jiménez, Iglesias, & Murcia, 2010; Sarrazin Vallerand, Guillet, Pelletier, & Cury, 2002), and life skills development (Hodge, Danish, & Martin, 2013). However, little information is available on the relationship of basic need fulfillment and passion changes in youth.

In the sport context, coaches play a large role in determining athletes' perceptions of autonomy. Coaches are in a unique position to provide an autonomy supportive environment in which athletes feel they have choice, their concerns are valued, and they have some decision-making power. Mageau and Vallerand (2003) provided several ways in which coaches could create an autonomy supportive environment including providing as much choice as possible within current rule structures and rationale for tasks, acknowledging athletes' feelings, allowing opportunities for athletes to take initiative and do independent work, providing non-controlling competence feedback, avoiding overt control and guilt-inducing criticisms, and preventing ego-

involvement orientations to take place. Coaches who can integrate these guidelines into their own practices and games should see athletes who feel more autonomous, which in turn, should result in a number of positive outcomes. Vallerand and Mageau suggested that a coach's autonomy supportive behavior may be the most critical aspect influencing athlete's motivation toward an activity. Even though autonomy is encompassed within the Basic Needs Theory (Ryan & Deci, 2002), the investigation of athletes' perceived autonomy support from coaches should be investigated in addition to athletes feelings of basic need fulfillment.

Coach-Created Climates

In addition to creating an environment that fulfills athletes' basic needs, coaches are also responsible for creating the climate in which athletes participate. How coaches provide feedback, frame competition within a team, and measure success can all impact the sport environment for youth athletes. Aside from the motivational context, coaches are critical in establishing a climate that either is high or low in caring for athletes' well-being. Ideally, coaches ensure that athletes feel respected and relevant in the sport context. The climate that a coach establishes in terms of both the motivational climate and caring environment may be critical in understanding youths' passion changes in sport.

Researchers have demonstrated that two distinct motivational climates can be established in a given domain, one that emphasizes improvement and mastery of one's own skills and one that emphasizes winning and interpersonal competition (Nicholls, 1984). Specifically, individuals in a task-involving mastery climate view success as high effort and improvement of their own skills. An individual who is in a more performance-involved ego climate would view success in terms of social comparison and demonstration of competence over others. These two motivational climates were first contextualized in the education domain (Ames, 1984, 1992), but

Seifriz, Duda, and Chi (1992) supported this structure in the sport context. Specifically, Seifriz, Duda, and Chi found that coaches who created more of a mastery-oriented climate emphasized the importance of selecting challenging tasks to improve personal skills and framed mistakes as feedback that can help facilitate improvement for athletes. Conversely, coaches that emphasized a performance-involved climate provided reinforcement and preferential treatment to those athletes who they viewed as most competent and most likely to contribute to victory over opponents. Coaches who established a performance-involved climate punished athletes for mistakes and encouraged intra-team rivalry between teammates. A mastery-involved climate may be more beneficial than a performance-involved climate in helping athletes' general passion growth in their sport. Additionally, the difference in a mastery- and performance-involved climate may differentiate how much each type of passion grows for athletes, with a more mastery-involved climate more conducive to the growth of harmonious passion and a more performance-involved climate more conducive to the growth of obsessive passion. This relationship needs to be evaluated in order to better understand the role motivational climate bears on the general passion change as well as harmonious and obsessive change.

In addition to motivational climate, coaches can establish a climate where athletes feel valued and respected. Even though the concept of a caring climate was thought to be critical to positive development in youth, not until the work of Newton, Fry, Watson, Gano-Overway, Kim, Magyar, and Guivernau (2007) was a caring climate conceptualized in the sport literature. Those coaches who provided attention to others and were empathetic, demonstrated concern for others, and prioritized the need of others over one's own needs were creating a caring climate for athletes. A caring climate has been shown to be positively related to future involvement in a program (Newton et al., 2007), commitment (Brown & Fry, 2013), and better quality

attachments with teachers and peers (Stark & Newton, 2014). Additionally, multiple studies have shown that a caring climate has been positively related to task-involved environments and negatively related to performance-involved environments (Brown & Fry, 2013; 2014a; Stark & Newton, 2014). Gould, Flett, and Lauer (2012) found that when coaches were perceived to create an environment that focused on a mastery-oriented climate and was high in caring, it was more likely that developmental gains would occur. Taken together, these studies indicated that youth who are engaged in an environment with a caring climate experience more beneficial outcomes than those who are not engaged in such a climate. However, even though these studies provide a foundation for the importance of a caring climate, one area that has not been investigated is the relationship of a caring climate and its relationship with passion change.

The series of studies by Mageau and colleagues (2009) provided the initial basis for some contextual factors that may encourage the development of passion for an activity. However, these studies only begin to investigate the possible constructs that may influence passion development and further research is needed to better understand how passion changes across time. It is important to note that the current study will investigate passion change over the course of the season and not passion development. Even though the concepts of development and growth are similar, they are conceptually different and a brief statement on their differences is warranted. Development can be understood in two distinct ways. One way development is defined is through a cycle of increases or decreases that all individuals experience over the course of a lifetime through maturation and natural changes. In this manner, every individual goes through developmental milestones, but may experience the milestones in vastly different manners. The second way development can be defined is by the appearance of a construct that was previously not present. In essence, defining development in this manner indicates an

individual gains some characteristic or construct that was previously not present. Conversely, the idea of change takes a construct that is already apparent and monitors it over some course of time. If the construct changes it is due to some external environmental factors or internal perceptions, and not the result of a natural cycle that everyone will experience. As youth athletes in the junior high and high school age have already been playing sport for some time, it is unlikely that these youth have no passionate feelings toward sport. Instead, investigating athletes' levels of passion at the beginning of the season and passion change across the course of a season due to various environmental influences can help researchers and practitioners better understand what aspects can influence passion across time. Therefore, the current study will assess many of the same variables that were investigated by Mageau and colleagues including sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents. In addition, environmental factors largely influenced by the coach will also be investigated. In the Mageau studies, autonomy support was one factor that contributed to the development of passion, but the researchers did not measure if the fulfillment of the two other basic needs, competence and relatedness, impacted passion development. Further, the influence of various coach-created environmental conditions, such as the establishment of a motivational and caring climate, have not yet been investigated in their role on passion change. Lastly, and key to the current study, the literature on how passion changes in the sport setting over time is nearly non-existent and this context needs to be investigated to better understand why some youth see gains in passion for sport while others do not.

Purposes and Hypotheses

The current study has a number of purposes and hypotheses. As the study of passion in sport is in its infancy we lack basic information concerning the construct. For example, how many athletes start a season passionate about their sport? If athletes are passionate, how does their passion change across the course of the season? In what circumstances are athletes' levels of passion most likely to experience changes? Finally, how much passion can be gained or lost across a youth sport season? These are important questions that were addressed in the current study. Additionally, little research exists on the level of passion in American youth sport participants and this study aims to gain a better understanding of the prevalence of passion in a sample of youth sport athletes. In addition to measuring the level of general passion in youth, the levels of the harmonious and obsessive passion also need to be investigated. Further, no study has yet to examine these types of passion changes across the course of a youth sport season. The current study will fill these voids. In regards to the passion change, the researcher will investigate a number of factors that may influence this process including constructs that are central to the athlete, family, and coach-created sport environment. Additionally, for that group of athletes that experience passion changes across the course of a season, it is critical to understand if these same aspects impact the differentiation of passion into its two types, harmonious and obsessive passion, and needs to be investigated. Therefore, this study aims to investigate the following research questions and hypotheses are forwarded for each question.

Research Question 1. What is the prevalence of passion in a sample of youth sport participants?

H1. As many of the athletes will have some previous playing experience and elect to participate in sport as an extracurricular, a majority of youth sport athletes will be considered passionate for their sport.

Research Question 2. For those athletes that are passionate about sport, what is the prevalence of harmonious and obsessive passion in a sample of youth sport participants?

H1: Athletes will display higher amounts of harmonious passion than obsessive passion.

Research Question 3. How will passion change across the course of a season?

H1. As one of the three key tenets of passion is the engagement of the activity (along with enjoyment and sense of identity gained from the activity), general passion will increase significantly over the course of a season due to the time investment in practices and games.

Research Question 4. How will each type of passion change across the course of a season?

H1. Both harmonious and obsessive passion will significantly increase over the course of a season.

Research Question 5. What factors influence the change of general passion in a group of youth sport athletes?

H1. Individual and Family influences: A positive relationship will be seen between general passion and the sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents. (A graphic illustration of these relationships is presented in Figure 1). More specifically, the sense of identity derived from the activity and the perceived valuation of the activity by parents will be the most significant predictors in the change of general passion.

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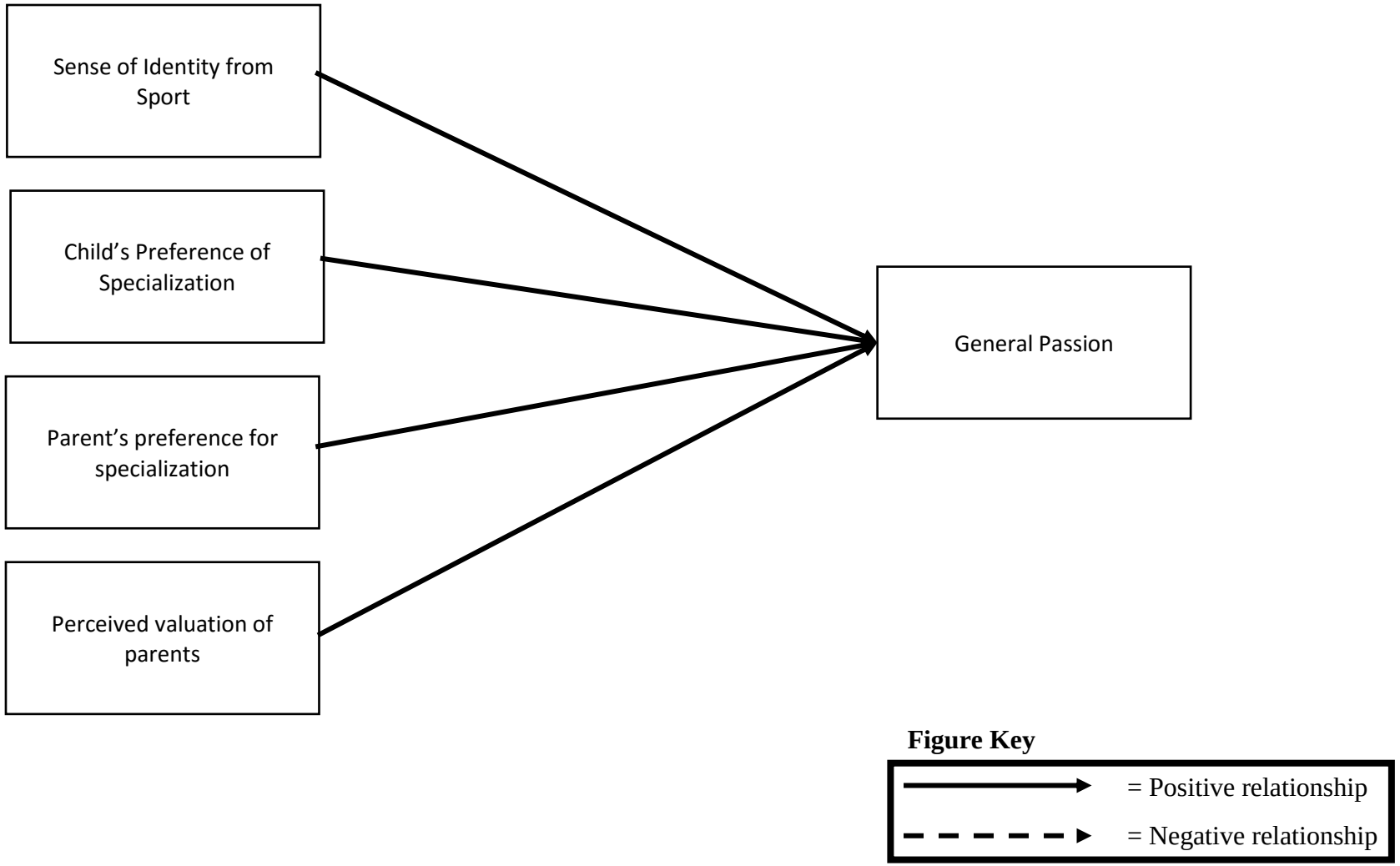

Figure 1. Predicted Individual and Parental Correlates for General Passion.

H2. Coach and environmental influences: A positive relationship in general passion change will be seen with the factors of need fulfillment that encompasses autonomy, relatedness, competence, a mastery created climate, and a caring climate. A negative relationship in general passion change will be seen with an ego-created climate. (A graphic illustration of these relationships is represented in Figure 2.) More specifically, the fulfillment of autonomy and mastery-created climate will be the most significant predictors in the general passion change.

Research Question 6. What factors influence the change of each type of passion (harmonious and obsessive) across the course of a season?

H1. Individual and Family influences: A negative relationship will be seen between harmonious passion and the sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents. (A graphic illustration of these relationships is presented in Figure 3). More specifically, all four constructs will negatively predict harmonious passion, but the child's preference for activity specialization and the perceived valuation of the activity by parents will be the most significant negative predictors of harmonious passion.

H2. Individual and Family influences: A positive relationship will be seen between obsessive passion and the sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents. (A graphic illustration of these relationships is presented in Figure 3). More specifically, all four constructs will positively predict obsessive passion, but the child's preference for activity specialization and the perceived valuation of the activity by parents will be the most significant predictors of obsessive passion.

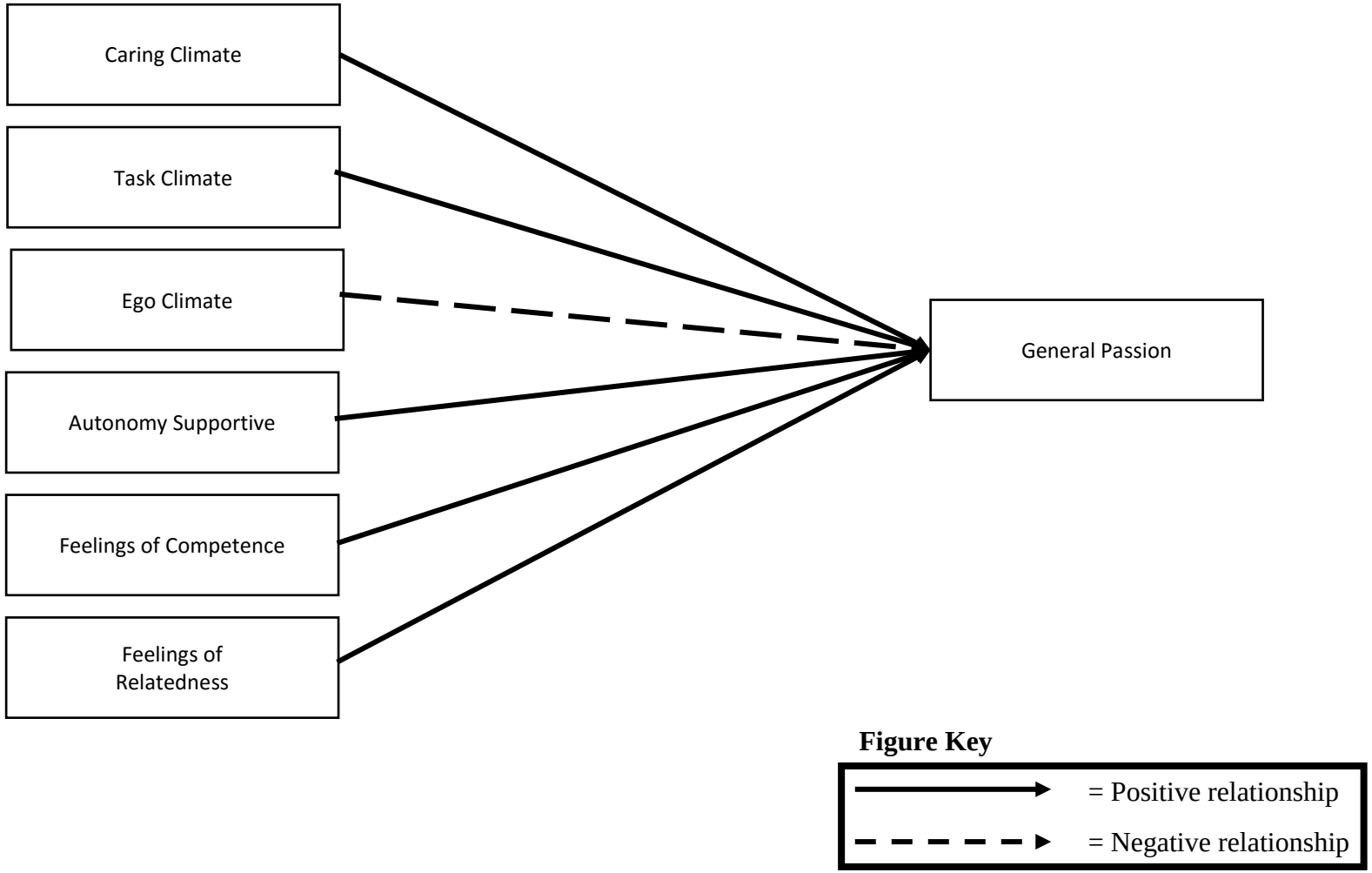

Figure 2. Predicted Environmental Relationships for General Passion

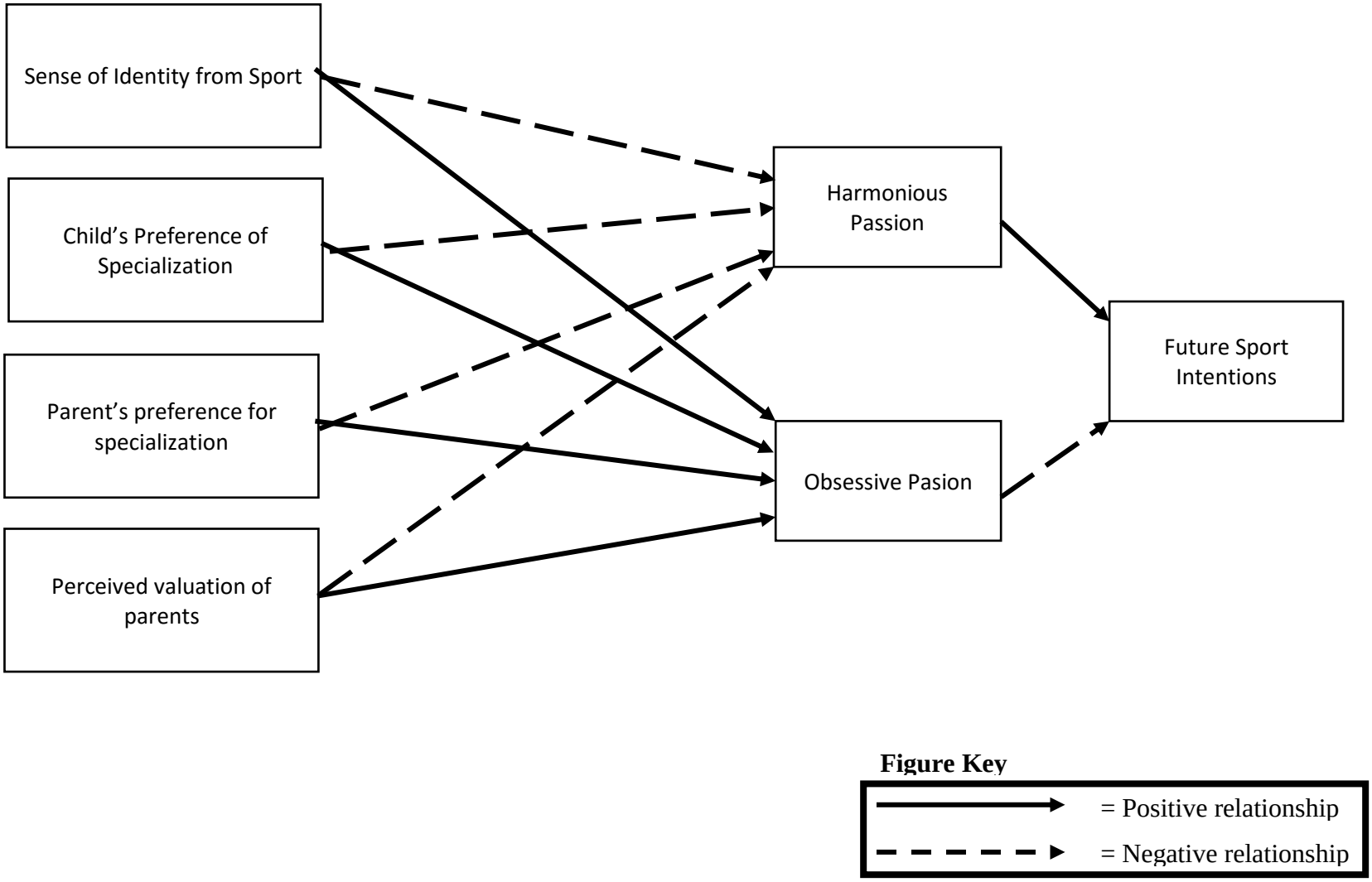

Figure 3. Predicted Model for Individual and Parental Relationships for Harmonious and Obsessive Passion

H3. Coach and environmental influences: The factors of need fulfillment that encompass autonomy, relatedness, competence, mastery-created climate, and caring climate will positively predict harmonious passion in youth athletes. An ego-created climate will negatively predict harmonious passion in youth athletes. (A graphic illustration of these relationships is presented in Figure 4). More specifically, autonomy support and a mastery-created climate will be the most significant positive predictors of harmonious passion.

H4. Coach and environmental influences: The factors of need fulfillment that encompass autonomy, relatedness, competence, mastery-created climate, and caring climate will negatively predict obsessive passion in youth athletes. An ego-created climate will positively predict obsessive passion in youth athletes. (A graphic illustration of these relationships is presented in Figure 4). More specifically, the strongest negative predictors of obsessive passion will be autonomy support and a mastery-created climate while the strongest positive predictor will be an ego-created climate.

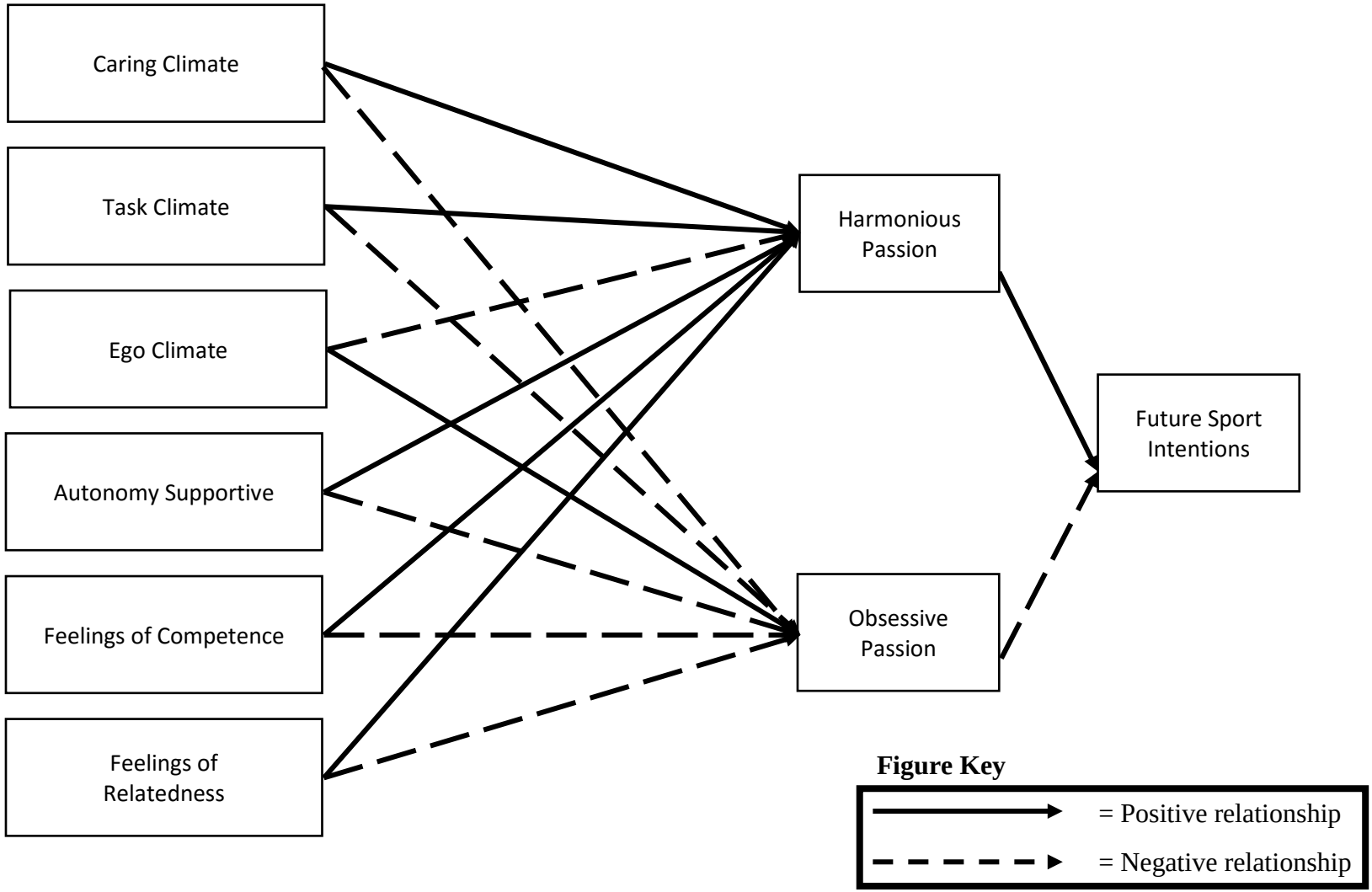

Figure 4. Predicted Model for Environmental Relationships for Harmonious and Obsessive Passion

CHAPTER II: REVIEW OF LITERATURE

This review of literature will provide a comprehensive summary of the research on the passion construct, particularly studies that have been conducted in the athletic realm. Additionally, factors that are hypothesized to be related to passion change are also covered in the review of literature including self-determined regulation and its three tenets of autonomy, relatedness, and competence, as well as autonomy supportive environments, the perceived motivational climate of a sport activity, and the caring climate. First, the dualistic approach of passion will be defined and the outcomes associated with harmonious and obsessive passion will be briefly discussed. Additionally, past studies that have investigated the development of passion will be reviewed.

The Passion Construct

The concept of passion has a long history of study in academia, but primarily in the area of philosophy. In particular, as noted by Rony (1990) in his review of this work, two distinct and opposite perspectives of passion were seen in the philosophic literature. The first perspective is more negative in that passion was believed to be a result of a loss of reason and control. This perspective is associated with the notion that people with high levels of passion are seen as "passive" or slaves to their passion. The second perspective was more positive in suggesting that individuals with high passion would be more motivated to reach the highest levels of achievement.

While passion has generated a lot of attention from philosophers (Rony, 1990), not until recently has it received empirical notice in the psychology literature. As Vallerand and his colleagues (Vallerand et al., 2003; Vallerand & Miquelon, 2007) noted in more recent reviews of this literature, most of the psychologically-based research and theory on passion has focused on

its role in the area of romantic relationships (e.g., physical or sexual attraction) or has separated passion into its positive (e.g., motivation) or its negative (e.g., addiction, dependence) effects. Thus, this psychologically-based research perspective has not examined the possibility that passion can be dualistic in nature (i.e., can have both positive and negative effects).

Recently, however, Vallerand and his colleagues (Vallerand et al., 2003) proposed a model of passion that assumes a dualistic perspective regarding passion towards activities. Sports are one such activity that may benefit from the application of the passion construct. As the passion construct draws its origins in large part from self-determination theory (SDT), a brief overview of SDT will be described. Additionally, a more thorough description of the dualistic model of passion will be explained including positive and negative outcomes of passion, the relationship between passion and performance, and the literature that investigated the development of passion toward a given activity.

Self-Determination Theory

In proposing their new conceptualization of passion toward activities, Vallerand and his associates (Vallerand et al., 2003; Vallerand & Houlfort, 2003) developed the dualistic approach based largely on Self-Determination Theory (SDT) (Deci & Ryan, 1985; 2000; Ryan & Deci, 2002). SDT is a motivational theory that proposes that humans strive for greater self-regulation, integration in action, and competence. These processes are dependent on need fulfillment of three basic psychological needs and help explain the activities individuals choose, continue, and ultimately drop out. SDT proposes that all humans strive to fulfill the basic needs of competence, relatedness, and autonomy. The need for competence is supported when individuals seek challenges, demonstrate their capabilities, and succeed in tasks that help develop confidence. The need for relatedness is supported when individuals feel a sense of belonging with significant

others and peers. The need for autonomy is seen when individuals feel as if their actions are their own and not controlled by others. When no external contingencies are associated with an individual's behavior, they can act in ways that are congruent with their own interests and values. When these three basic needs are met, SDT proposes that individuals will be more likely to take ownership and responsibility for their own actions (Pelletier, Rocchi, Vallerand, Deci, & Ryan, 2013). Further, as individuals' needs for competence, relatedness, and autonomy are fulfilled, there is a greater likelihood that they will continue to engage in the activity. SDT also hypothesized that how individuals engage in an activity may vary with many factors influencing whether the motivation is autonomous or controlled.

Self-determination theory proposed that individuals' motivational orientation within any particular achievement context (e.g., academics, sports, music) can vary in the degrees of self-determined motivation which is best represented as a continuum. The continuum of self-determined motivation can be separated into two categories of motivation, specifically autonomous forms of motivation and controlled forms of motivation. Autonomous forms of motivation are regulated by internal self-determined forces. Conversely, those forms that are in the controlled portion of the continuum are regulated by non-self-determined processes. These two categories include five different types of behavioral regulation that individuals may develop for an activity and can be classified as most self-determined to least self-determined.

At one pole of this continuum is the least self-determined type of motivation, amotivation (Deci & Ryan, 1985; 2000). Amotivation consists of a lack of intention to act and an absence of motivation for an activity. In essence, the individual no longer puts effort into the sport and demonstrates little interest in the activity. Moving across the continuum from amotivation, four types of regulation are characterized as extrinsic in nature. If an individual is extrinsically

motivated to participate in an activity, they participate for some type of tangible or intangible outcome.

The four types of extrinsic motivation are further differentiated into two forms that are controlled in nature and two that are more autonomous in nature. External regulation is the most controlled and the least self-determined form of motivation. Those athletes who participate due to external regulations are largely interested in participating to receive some type of monetary or tangible reward or avoid punishment. With time, these athletes may no longer need these tangible awards to participate, but instead feel as if they are participating to avoid their own feelings of shame or guilt or to enhance their own feelings of self-worth. When an athlete participates to avoid these negative feelings or enhance their own self-worth, their behavior is said to be regulated by an introjected regulation. Even though these feelings are more self-determined than external regulation, they are classified as controlling, because individuals are participating due to internal pressures and not of their own will. Even though identified and integrated regulation are classified as extrinsic in nature, they differ from external and introjected regulation, because they are autonomous in nature. Identified regulation is when athletes participate in an activity because they value the activity and find the outcomes personally important. Similarly, if athletes value the activity as important and also believe that the activity is in congruence with their own values and sense of self, then they participate in the activity in the most autonomous form of extrinsic motivation, integrated regulation. Finally, at the end of the continuum of motivated behavior is intrinsic motivation. Intrinsic motivation is the most self-determined form of motivation and exists when individuals participate in an activity for the interest or enjoyment of the activity itself. In essence, individuals participate in the activity for the joy they receive from participation (for a visual representation see Figure 5).

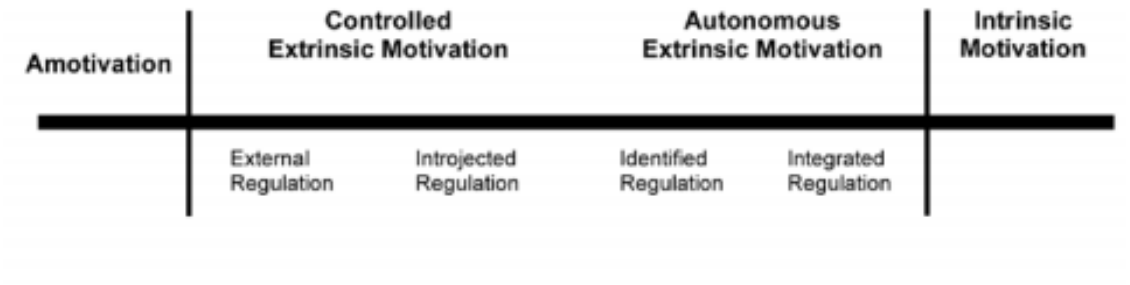

Figure 5. Self-Determination Continuum.

Vallerand and his colleagues (Vallerand et al., 2003) used SDT as a foundation in developing their dualistic model of passion. Even though forms of self-determined motivation and passion share some characteristics, one key differentiation between the two constructs is the level of internalization of the activity into one's own identity. Where an individual can show forms of self-determined motivation for an activity in which they participate, those who are passionate internalize this activity into their own identity. This dualistic model of passion will be discussed in the next section

A Dualistic Model of Passion

Vallerand and associates (Vallerand et al., 2003; Vallerand & Houlfort, 2003) defined passion as "a strong inclination toward an activity that people like (or even love), that they find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 757). This definition implies that for an activity to become a passion, it must be significant in individuals' lives, be liked by them, and be something that they engage in frequently. More specifically, the activity that an individual may feel passionate about may not be merely an activity in which she or he participates. Rather, the activity becomes a central portion of that person's identity. As Vallerand and his colleagues (2003) noted, people who are highly passionate about activities

such as football, writing, or teaching, do not merely play football, write, or teach. Rather they are, or they have become, football players, writers, and teachers.

The dualistic concept of passion (Vallerand et al., 2003; Vallerand & Houlfort, 2003) posits that two distinct forms of passion exist: harmonious passion and obsessive passion. Regardless of the type of passion one develops, the levels of the two passion constructs that an individual exhibits toward an activity is determined by how the activity is internalized into his or her identity. Harmonious passion results from an autonomous internalization of the activity into the person's identity. This type of internalization has no contingencies associated with the activity, and it is freely accepted by the individual into his or her identity. Autonomous internalization allows the individual to perceive that it is her or his own volition to identify so strongly with that activity, and thus he or she feels no external pressure to continue participation. These individuals feel free to participate in the activity as they choose and feel no compulsion or need to continue activity participation. Furthermore, even though the activity occupies a significant amount of an individuals' time, it does not overpower other aspects of their identity and does not cause conflicts with other aspects of the individuals' lives.

Conversely, obsessive passion results from a controlled internalization of the activity into individuals' identities. A controlled internalization can originate from either intrapersonal (e.g., thrill received from participation or internal pressure to continue participation) or interpersonal factors (e.g., pressure from parents or guilt from others if not playing). It is important to note that the passion construct necessitates the enjoyment of an activity, and thus individuals who are obsessively passionate still enjoy the activity, but they also feel compelled to continue participation when participation may not be most beneficial. One example of this obsessive passion is if an injured athlete continues to participate in a sport even if further participation may

further harm the individual. Ultimately, obsessively passionate individuals feel as if their engagement in the activity is, or never was, under their own control. Additionally, it is possible that the activity will eventually take a disproportionate portion of the individuals' identity and lead to conflicts with other activities in the person's life.

In many cases, when researchers discuss relationships of variables with harmonious and obsessive passion, they indicate which variables are most strongly related to each passion type. This may give the impression that individuals are either solely harmoniously passionate or solely obsessively passionate for an activity. However, that is not the case. Even though the two constructs are correlated, they are independent. Typically, individuals have either high levels of harmonious passion or obsessive passion for an activity, but it is possible for individuals to hold high levels of both types of passion for a single activity. However, even though many possible passion profiles may exist, the examination of these individual profiles has been neglected in the literature. Investigation of these passion profiles and the change in these profiles across time may help researchers better understand the relationship of passion with other variables. The different types of passion have been linked to vastly different outcomes in the literature. These outcomes are investigated in the next section.

The Outcomes of Passion

The dualistic model of passion has been studied in a variety of environments with a large number of these studies conducted outside the sporting realm. Typically, these studies have found that individuals who possess obsessive passion have a greater number of negative outcomes, and those who possess harmonious passion experience a greater number of positive outcomes and fewer number of negative outcomes. The studies on passion originated with individuals who were frequent gamblers, but has also spread to research involving the general

public, students in academia, and more recently, the work environment. Each of these domains will be covered briefly in this section.

The first studies published on the dualistic model of passion originated in the gambling realm. Individuals who could not control their ability to gamble, who had a compulsion to continue gambling even at the cost of other domains or well-being were thought to hold an obsessive passion. These series of studies have shown that typically those who held an obsessive passion for gambling were more likely to experience negative feelings and consequences than those who were harmoniously passionate. More specifically, researchers have found obsessive passion was positively related to negative behavioral consequences (Rousseau, Vallerand, Ratelle, Mageau, & Provencher, 2002), increased levels of ruminations, anxiety, guilt, problem gambling, decreased levels of positive emotions, vitality, and concentration (Ratelle, Vallerand, Mageau, Rousseau, & Provenchar, 2004), a greater likelihood of experiencing negative affective experiences while engaged in the activity, problematic behavior, and negative physical symptoms (Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008). Those who hold an obsessive passion for gambling are at risk for a variety of very maladaptive outcomes. The studies in the gambling realm provided a base for the dualistic model, but other domains also hold promise.

The dualistic model of passion holds especially well within the gambling domain, but other activities have been shown to share similar consequences and affect from participation in a passionate activity. In academics, those with higher levels of harmonious passion for studying were more likely to have higher dedication, lower cynicism, and decreased feelings of burnout than those who held higher levels of obsessive passion (Stoeber, Childs, Hayward, & Feast, 2011). In a separate study with college students, Carpentier, Mageau, and Vallerand (2012)

found the more harmonious passion a person had, the more they experienced flow in their favorite activity and the higher subjective well-being they felt. Conversely, the more obsessive passion for an activity individuals held, the more they ruminated about their passionate activity while engaged in other tasks. Recently, the passion construct has also been studied in relation to the work environment. Similar to studies investigating the dualistic model of passion in gamblers and those in the academic field, researchers from the occupational literature have found that obsessive passion negatively and directly predicted mental health (Forest, Mageau, Sarrazin, & Morin, 2011), positively predicted the burnout dimensions of emotional exhaustion and depersonalization (Fernet, Lavigne, Vallerand, & Austin, 2014), and positively predicted depression and turnover intentions (Houlfort, Philippe, Vallerand, & Menard, 2013).

Another line of research that has shown promise with the dualistic model of passion is sampling a variety of individuals who hold a passion for a variety of contexts. In fact, in the past, researchers asked individuals to select any activity that they felt passionate about to see if general passion, regardless of the activity, has similar consequences as individuals who feel passionate about gambling, academics, or work. Again, these studies have consistently shown that harmonious passion is typically associated with positive outcomes while obsessive passion is typically associated with more negative outcomes. In one of the first studies done outside of the gambling realm, Vallerand and colleagues (Vallerand et al., 2003) found that harmonious passion was positively related to feelings of flow, positive emotions, and task focus. Conversely, obsessive passion was related to conflict in other aspects of one's life and negative emotions during participation. Additionally, self-esteem seems to be related to passion for an activity and may actually be influenced by one's performance dependent on the passion an individual holds for an activity. Stenseng and Dalskau (2010) showed that individuals who held an obsessive

passion for an activity reported lower global self-esteem compared to those individuals with harmonious passion even though they demonstrated similar levels of activity-related self-esteem. In a follow-up study (Study 2, 2010), they found that activity-related self-esteem was strongly related to comparative performance evaluations for those with obsessive passion while harmoniously passionate individuals did not show this relationship. Further illustrating the influence of obsessive passion on self-esteem, Mageau, Carpentier, and Vallerand (2011) found that obsessively passionate individuals' self-esteem experienced fluctuations of their self-esteem based on their performances in their passionate activity. Harmoniously passionate individuals did not see these fluctuations indicating that harmonious passion may insulate one's self-worth from damage from negative performances.

The passion construct has also been studied in the physical activity and sport realm with non-athletes including sport fans, officials, and exercisers. In a series of studies that assessed passion levels in fan behavior, Vallerand and colleagues (Vallerand, Ntoumanis, Philippe, Lavigne, Carbonneau, Bonneville, Lagace-Labonte, & Maliha, 2008) found that both harmonious and obsessive passion were correlated to holding a strong fan identity, willingness to celebrate their team's victories, and displaying emotion and pride in their teams. Additionally, in sport fans, only harmonious passion was correlated to life satisfaction and fans' self-esteem, while only obsessive passion was related to negative cognition and behavior, difficulty recovering following a loss, inability to concentrate on game day, and hate towards one's opponents. Sport officials typically are individuals with playing experience and a desire to stay involved in their past sport. Therefore, it can be assumed that many of these individuals hold some type of passion toward the sport, and if involved long enough, develop some passion for officiating in general. A series of studies by Phillippe and colleagues (Philippe, Vallerand,

Andrianarisoa, & Brunel, 2009) investigated officials and the possible consequences of passion in the sport domain. Interestingly, officials who were performing at elite levels were shown to have greater levels of harmonious passion than officials working at the non-elite levels. Regardless of level of officiating, those officials who held high levels of harmonious passion were more likely to experience positive emotions and enter into flow states during contests than those who exhibited obsessive passion. Additionally, following an error in officiating, referees with high levels of harmonious passion made a neutral decision while those that held obsessive passion were more likely to make a biased decision following mistakes and consequently experienced negative emotions following this "make-up" call.

The exercise realm is another context where the use of the dualistic model of passion may be especially beneficial. For many, exercise is in harmony with other aspects of their lives and the consequences with repeated exercise is beneficial both physically and mentally. However, for some exercisers it may be possible that instead of being in harmony with other life aspects, exercise becomes a compulsion that leads to negative outcomes. Research has shown that the type of passion one holds for exercise does relate to the consequences that one experiences while engaging in exercise. In a sample of middle aged active women, researchers (Guerin, Fortier, & Williams, 2013) found that daily positive affect was higher and negative affect was lower on days when women engaged in their passion. Additionally, obsessive passion was negatively related to vitality while harmonious passion was positively related to it. Studies have also shown that passion for exercise may be related, but distinct, to symptoms of exercise dependence, especially in relation to obsessive passion. Duncan, Hall, Wilson, and Jenny (2010) found that obsessive passion mediated the relationship between motivation for exercise and exercise dependence symptoms. Additionally, Paradis, Cooke, Martin, and Hall (2010) found that

harmonious passion was positively related to the exercise dependence dimensions of time and tolerance while obsessive passion was positively related to all seven of the exercise dependence dimensions of time, tolerance, withdrawal, continuance, intention effects, lack of control, and reduction in other activities. In total, passion seems to be related to exercise in many of the same ways as other life contexts. Additionally, obsessive passion has been shown to be related to exercise dependence while harmonious passion was not. A final and most relevant context that the dualistic model of passion been applied is in the sport context.

Negative Outcomes on Days when Abstaining from Passionate Activity

The consequences associated with passion may not solely be experienced following participation in the activity. In fact, some research indicates that those who hold obsessive passion for an activity may experience negative consequences on days when they do not participate in the activity. Vallerand and colleagues (Vallerand et al., 2003) found that individuals who were prevented from participation in their passionate activity experienced negative affect only if the passion they held was obsessive. Similar studies have found that middle-aged women experienced similar negative affect when they were not allowed to participate in exercise for which they were passionate (Guerin, Fortier, & Williams, 2013). Athletes have also reported similar results in the sporting realm. In a study by Mageau and Vallerand (2007), participants kept a journal for 12 consecutive days showing whether they engaged in sport activities in which they were passionate. For those individuals who held a harmonious passion for the activity, they experienced high levels of positive affect on days they participated. However, a more surprising finding was that those individuals who held an obsessive passion for the activity experienced a greater relative decrease in positive affect on days they did not participate than increase on days when they did participate. These individuals

also participated in their activity less frequently and for less time when they were engaging in it than those individuals who held harmonious passion for the activity. It is possible that those individuals who hold an obsessive passion for an activity feel obligated to participate in the activity even if they have other responsibilities. This obligation results in negative feelings and less time to become fully immersed when many benefits manifest fully.

Passion and Performance

In the performance setting, individual performance is a primary outcome variable of interest both for individuals and for coaches. Thus, in the sporting realm at some point most psychological variables are tested to indicate if they could help explain or predict performance. Vallerand and colleagues (Vallerand, Salvy, Mageau, Elliot, Denis, & Grouzet, & Blanchard, 2007) performed a series of studies to investigate the link between passion and performance. These studies provided initial support that the type of passion an individual may hold for sport or other performing context may influence performance. These studies will be briefly summarized next.

The studies that have investigated passion and performance have typically investigated a third variable as a mediator of the passion-performance relationship. Additionally, many of these studies have also investigated the relationship between the types of passion and subjective well-being. One such study, conducted by Vallerand and colleagues (Study 1, Vallerand, Salvy, Mageau, Elliot, Denis, & Grouzet, Blanchard, 2007), found that in a sample of high-level performing arts students with both harmonious and obsessive passion predicted the amount of deliberate practice an individual would engage in, which in turn predicted performance. However, even though both types of passion predicted engagement in deliberate practice, only harmonious passion was related to subjective well-being in the sample. Another similar study

looked at the role of goal setting in the passion-performance relationship. In this study, researchers found that in a sample of psychology students enrolled in a specialized program harmonious passion positively predicted the use of mastery goals while obsessive passion was shown to predict both mastery and performance goals (Study 2, Vallerand et al., 2007). Mastery goal setting predicted both short term and long-term deliberate practice that, in turn, positively predicted performance. Again, harmonious passion was positively related to subjective well-being while obsessive passion was negatively related to it. In both of the studies, both harmonious and obsessive passion were indirect predictors of performance; however, only harmonious passion had a positive relationship with subjective well-being.

The series of studies by Vallerand and colleagues (Vallerand et al., 2007) indicated that the passion-performance relationship was significant, albeit moderated by their relationship with deliberate practice. However, the initial studies were all conducted in non-sport performance contexts. Therefore, a second series of studies was conducted to further these conclusions and advance them into the sporting realm. As deliberate practice has been shown to be a key in expert performance in sport, the researchers believed this passion-performance would also be seen in sport and hypothesized that the relationship would be moderated by deliberate practice.

The studies in the sport realm showed similar relationships as the non-sport contexts in the passion-performance relationship. Specifically, Vallerand and colleagues (Study 1, Vallerand, Mageau, Elliot, Dumais, Demers, & Rousseau, 2008) used coach ratings following the first game of a regional tournament to assess if passion and performance ratings were related. The researchers found that in athletes, both harmonious and obsessive passion predicted deliberate practice which, in turn, predicted coach assessed performance ratings. However, unlike previous studies, no assessment of athletes' subjective well-being was assessed. Therefore

a follow-up study was conducted that included both subjective well-being as well as the goals that athletes set to see if these moderated the passion-performance relationship in a group of competitive water polo and synchronized swimmers. In the follow-up study, Vallerand and colleagues (Study 2, Vallerand et al., 2008) found that harmonious passion was only related with mastery goals while obsessive passion was related to mastery goals, performance-approach, and performance goals. Harmonious passion had a positive relationship with subjective well-being, but obsessive passion was unrelated. Additionally, only mastery goals had a positive relationship with deliberate practice.

Some preliminary conclusions can be drawn from this series of studies about the passion-performance relationship in the performance and sport environments. It seems that both types of passion are related to deliberate practice which leads to increased levels of performance. However, only harmonious passion was related to increased levels of subjective well-being. Additionally, obsessive passion was not only unrelated to subjective well-being, but it was also related to some self-defeating goal setting strategies. Both athlete well-being and performance are critical to consider for developing athletes, and therefore, further study is needed in this field to better understand the passion-performance relationship as well as to understand the other consequences associated with the type of passion an individual holds for sport.

Passion and Negative Behaviors in Sport

In the general passion literature (Vallerand et al., 2003; Vallerand & Houlfort, 2003; Vallerand & Miquelon, 2007), even though passion has been shown to relate to many positive aspects, passion has also been associated with negative behaviors and less than ideal outcomes. Almost always, these less than ideal outcomes are attributed to individuals who hold an obsessive passion for an activity. In fact, research has shown that obsessive passion has been

associated with rigid persistence in an activity, even when injury risk is high, exhibition of high levels of aggression, and low levels of moral behavior.

In two studies investigating passion in bicyclists and dancers, passion was linked to behaviors that were considered dangerous for the participants. Vallerand and colleagues (Study 3, Vallerand et al., 2003) found that bicyclists who had either a harmonious or obsessive passion for riding did not differ in their frequency of riding in the summer months. However, in the winter, especially in Canada where the study took place, riding in winter posed many risky challenges for riders. With this in mind, the researchers found that those individuals with an obsessive passion were more likely to engage in risky behavior during the winter months than those who held a harmonious passion for riding. The relationship of obsessive passion with negative actions was also seen in a group of elite dancers (Rip, Fortin, & Vallerand, 2006). In these dancers, harmonious passion was negatively associated with prolonged suffering from acute injuries while obsessive passion was positively associated with prolonged suffering. Additionally, harmonious passion was positively related to healthy coping responses to injury, stopping dance activities while injured to allow for recovery, and engaging in self-initiated injury prevention regimes. Conversely, obsessive passion was associated with ignoring injury-related pain, not stopping dance activities when injured, and failure to seek adequate treatment when injured. In both studies, the researchers believed the individuals with high obsessive passion felt compelled to continue participation even if injury or further damage may occur and the passion was a reason for rigid persistence in the face of injury. This again highlights the fact that the two types of passion may lead to vastly differing results.

The manner in which athletes react to negative situations also is influenced by the type of passion one holds for their activity. In a series of studies, athletes' aggressive reactions and

moral decisions were related to the level of obsessive passion they held for their sport. Donahue, Rip, and Vallerand (2009) found that basketball players with obsessive passion were more likely to display reactive aggression during a game (Study 1), as well as demonstrate situational aggression when placed into an identity-threatened situation (Study 2). A similar set of studies that investigated the relationship between pride and the passion-moral behavior relationship also supported the idea that more negative aspects of behavior are associated with obsessive passion. Researchers found that passionate individuals displayed levels of authentic pride when engaged in the activity. However, those individuals who held an obsessive passion for an activity were more likely to display hubristic pride which negatively predicted moral behavior. In the series of studies that have investigated negative behaviors in sport, obsessive passion is much more likely to be related to negative behaviors.

Passion and Sport Continuation

Many highly successful athletes mention a love of the game, a spark, an inner drive, or a passion that helps them be successful at their craft. Specifically, some athletes say that this inner drive helped them fall in love with their sport and helped them stay focused on their sport when other opportunities existed which may have distracted them from sporting success. However, even though these athletes may attribute much of their success to this passion, in certain individuals negative outcomes may manifest from this passion. Athletes who are not able to develop a well-rounded identity, individuals who are so invested that they show signs of burnout, and participants whose passion drives them to amoral behavior in sport are just a few examples. The fact that this passion may lead to positive or negative outcomes may parallel the dualistic model of passion. Many researchers have conducted studies that have shown passion for sport

does align with certain positive and negative outcomes dependent on the type of passion the individual holds. These studies will be reviewed briefly.

The relationship between the dualistic model of passion and burnout is one area that has received some attention in empirical studies. In fact, Vallerand, Paquet, Philippe, & Charest (2010) compared passion to a double-edged sword:

> "On the one hand, one type of passion (obsessive) is conducive to burnout, whereas on the other hand, the other type of passion (harmonious) prevents its occurrence. Thus, an important issue, with respect to burnout, is not whether someone is passionate or not toward work but rather whether someone displays a harmonious or an obsessive passion. (p. 309)."

This relationship was examined by Gustafsson, Hassmén, and Hassmén (2011) finding that athletes who exhibited the obsessive form of passion scored higher in burnout, perceived stress, and negative affect than did their peers who exhibited the harmonious form of passion. However, somewhat different results were found by Curran, Appleton, Hill, and Hall (2011) who found support for a model that linked harmonious passion to low levels of burnout, as mediated by self-determined motivational orientation. Thus, athletes who indicated higher levels of harmonious passion also exhibited high levels of self-determined motivation, which, in turn, significantly predicted lower levels of burnout. In contrast, obsessive passion was found to be unrelated to either burnout or self-determined motivational orientation. To try to clarify the passion-burnout relationship, Martin and Horn (2013) investigated adolescent athletes and found that harmonious passion was a negative predictor of all three subscales of burnout while obsessive passion was only linked to the emotional and physical exhaustion subscale of burnout. Even though a majority of the outcomes for individuals who hold either harmonious or obsessive passion occur

when they engage in the activity, individuals see consequences when they are not able to participate in their passionate activity as well. Because these consequences may also influence an individual, the studies that have investigated this phenomenon are reviewed next.

The relationship between passion and burnout indicates that those individuals with an obsessive passion may experience higher levels of burnout. However, increased levels of burnout do not necessarily indicate that athletes will discontinue sport participation. In fact, a large number of athletes suffering from burnout may still participate in sport. Therefore, it would be beneficial to investigate the relationship of the two types of passion and their relationship with the intention to continue sport participation the following season. In the only study to investigate the relationship of passion and the intention to continue, Vallerand and colleagues (Vallerand et al., 2003) found that higher obsessive passion in football players predicted a decreased intention to continue participation in football, while harmonious passion was, surprisingly, unrelated to intention to continue participation. The Vallerand study was conducted with collegiate football players and this passion-intention to continue relationship needs to be further studied in youth sport. Youth are more likely to have a greater number of alternative activities when compared to collegiate athletes, and it is in adolescence when youth begin to see decreases in athletic participation. It may be that youth who do not develop passion for their sport at this critical time point will see a greater likelihood of cessation of participation than those athletes who do develop passion for their sport. To better understand the role that passion plays in youth, the factors that influence passion need to be further studied. A number of studies have investigated the development of passion, but currently no study investigated the passion changes in a longitudinal manner in sport. The next section will overview the hypothesized process of passion development and review the past literature that has investigated this phenomenon.

Passion Development for an Activity

Vallerand and Miquelon (2007) specified a three-stage process for the development of passion towards an activity. In the first stage, individuals begin participation in a given activity. The second stage of the process is encompassed by individuals developing personal valuation for the activity in terms of interest or enjoyment. Finally, the third stage of the process involves individuals internalizing the valued activity into their self-identity. Whether the activity will be harmonious or obsessive depends on the internalization process and whether the activity is internalized in a controlled or autonomous manner. If the activity is internalized into one's identity in a controlling manner due to some external pressures, the development of obsessive passion is likely. However, if the activity is internalized into one's identity in an autonomous manner, through personal choice, then harmonious passion is the likely outcome.

In accordance with SDT (Deci & Ryan, 1985; 2000; Ryan & Deci, 2002), Vallerand and Miquelon (2007) suggested that the internalization process that occurs at stage two can be affected by the social conditions that are inherent in the activity context. Specifically, individuals who participate in an activity context that promotes their perceptions of competence, autonomy, and relatedness should develop an autonomous internalization and harmonious passion. In contrast, individuals whose participation in the activity occurs within a controlling or coercive context may develop a controlled internalization and an obsessive passion toward that activity.

To assess the possible relationship between the environmental conditions and passion development, Mageau and colleagues (Mageau, Vallerand, Charest, Salvy, Lacaille, Bouffard & Koestner, 2009) conducted a series of studies. The first study explored the relationship between passion and autonomy support and activity identification in expert level sport participants and

musicians. Individuals who reported high levels of harmonious passion were more likely to report higher levels of autonomy support than those participants who exhibited high levels of obsessive passion. In the second phase of the study, the researchers explored the role of autonomy in the development of passion in children involved in a summer camp. The researchers indicated that the children who held harmonious passion had parents who were more supportive of their autonomy and valued specialization less than the parents of children who held high levels of obsessive passion. In the final study, researchers followed a group of beginning music students across a five month period to see if passion developed in the students, and if so, what predictors may help explain the development of passion. At the end of the term, 36% of students had developed a passion for the activity and the remaining analyses were conducted in three groups; non-passionate, harmonious passionate, and obsessive passionate individuals. All three groups practice times decreased from the beginning of the term to the end; however, those who developed a passion did practice more than non-passionate students at both mid-semester and end of semester. Individuals who developed passion in music also were more likely to value specialization, derive some sense of activity from learning how to play an instrument, have parents who valued specialization and music in general, and perceive significant adults as more autonomy-supportive.

The researchers also investigated the differences in those athletes who developed a harmonious passion and those that developed an obsessive passion for music. Children who developed a harmonious passion perceived more autonomy supportive adults in their lives and perceived these adults valued the activity less than those individuals who developed obsessive passion. Additionally, the researchers compared the music students from study 3 to the expert musicians from Study 1. The expert musicians valued the activity more and reported spending

more time on the activity when compared to the passionate young musicians, but the two groups did not differ in the amount they loved the activity. Expert musicians had more harmonious passion than the novice musicians, but the differences in obsessive passion was much more pronounced with experts holding significantly higher levels of obsessive passion than novices.

A critical distinction in the development of passion is that mere exposure to certain activities for a prolonged time period does not immediately guarantee the development of passion. If mere exposure to an activity for a prolonged time developed passion, then students in the educational setting would display passion for the subjects that are most commonly taught. However, research shows that not only does passion not always develop in these settings, but these settings may actually interfere with the development of passion. Fredricks, Alfeld, and Eccles (2010) found that when compared to individuals who were placed in a gifted and talented program, students in the general student population were unlikely to develop passion. The authors believed that the students in the gifted and talented program were allowed the opportunity to explore some of their own interests and receive more one-on-one teacher contact than those students in the general population. Another study in the academic realm further supported the idea that autonomy supportive teachers may positively influence the development of passion. Bonneville-Roussy, Vallerand, and Bouffard (2013) found that students who perceived music teachers as autonomy supportive had a greater likelihood of holding harmonious passion toward music and greater persistence in continuing as a music major.

The series of studies investigating the development of passion only provides initial information on how passion develops in individuals, and further investigation is warranted. Additionally, the series of studies only briefly investigated the development of passion in the sport realm. As many athletes attribute success to the “love of the game” and “passion for one’s

sport," this merits investigation. Many possible variables may influence how passion develops and changes in sport, but because the passion construct is firmly rooted in the SDT framework, the fulfillment of autonomy, competence, and relatedness may be especially critical to understanding these two types of passion. To provide a basis for the inclusion of these three variables as key components in passion change across the course of a sport season, the research and theory related to SDT and its tenets of autonomy, relatedness, and competence will be summarized briefly in the next section.

Fulfillment of autonomy, relatedness and competence

Basic needs theory (BNT; Ryan & Deci, 2002), a tenet of self-determination theory, can be used as a conceptual framework for better understanding the consequences of the perceived social environment on a number of participant consequences. Basic needs theory predicts that when the basic psychological needs of autonomy, competence, and relatedness are fulfilled, participants will be more likely to experience growth, positive personal development, and subjective well-being (Deci & Ryan, 2000). If these three needs are not met, then it is possible that individuals will not experience this growth and positive development, and in fact may actually experience negative consequences including ill being (Deci & Ryan, 2000). Basic needs theory has been studied in a variety of life contexts including work (e.g., Baard, Deci, & Ryan, 2004; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010), education (e.g., Deci, Vallerand, Pelletier, & Ryan, 1991; Niemiec & Ryan, 2009), and the physical domain (e.g., Adie, Duda & Ntoumanis, 2008; Gagne, 2003) with results showing that growth and well-being commonly occur when basic psychological needs are fulfilled. Recently, because of critiques for more sport-specific scales, a measure was designed to assess need fulfillment specifically for sport (Ng, Lonsdale, & Hodge, 2011).

In the sport domain, fulfillment of basic psychological needs may manifest in a variety of ways. As the sport experience is influenced by a variety of significant social agents, it seems likely that instead of athletes' needs being met by just a single source, athletes' needs would be met through a variety of sources including coaches, peers, and parents. If athletes perceive their coach as autonomy supportive, willing to listen to their needs and desires, and willing to modify the structure of practices and drills to meet these needs, then athletes' would perceive their need for autonomy fulfilled. If athletes perceive themselves as competent and parents or coaches reinforce athletes' sport skills are progressing, athletes would perceive their need for competence fulfilled. Lastly, if athletes have close friends on the team, are included in team activities, and feel a personal connection to their coach, they may perceive their need for relatedness fulfilled. Research in the sport realm has shown that basic need fulfillment is related to a variety of positive outcomes including subjective well-being (Adie, Duda, & Ntoumanis, 2008; Gagne, 2003), intrinsic motivation (Hollembeak & Amorose, 2005), and persistence (Calvo, Cervelló, Jiménez, Iglesias, & Murcia, 2010; Sarrazin Vallerand, Guillet, Pelletier, & Cury, 2002). Past literature consistently indicates that fulfillment of these basic needs are associated with positive consequences for athletes. However, as youth sport is often cited as being adult-centric (Coakley, 2008), it may be beneficial to investigate athletes' perceptions of their basic need fulfillment. Further, athletes' perceptions are critical to understand, for one athlete may perceive the same coach behavior in distinct ways and experience different consequences.

Encompassed in BNT (Ryan & Deci, 2002) is the concept of autonomy. Whether an individual's motivation for an activity is autonomous or controlling is one of the central themes of self-determination theory. In the sport concept, coaches play a large role in determining athletes' perceptions of autonomy. Coaches are in a unique position to provide an autonomy

supportive environment in which athletes feel they have choice, their concerns are valued, and have some decision-making power. Mageau and Vallerand (2003) provided several ways in which coaches could create an autonomy supportive environment including providing as much choice as possible within current rule structures and rationale for tasks, acknowledging athletes' feelings, allowing opportunities for athletes to take initiative and do independent work, providing non-controlling competence feedback, avoiding overt control, guilt-inducing criticisms, and preventing ego-involvement orientations to take place. Coaches who can integrate these guidelines into their own practices and games will see athletes who feel more autonomous, which in turn, will result in a number of positive outcomes. Mageau and Vallerand suggested that a coach's autonomy supportive behavior may be the most critical aspect influencing athlete's motivation toward an activity. Even though autonomy is encompassed within the Basic Needs Theory (Ryan & Deci, 2002), the investigation of athletes' perceived autonomy support from coaches should be investigated in addition to athletes feelings of basic need fulfillment.

Currently, no literature on the relationship between basic need fulfillment and the passion construct has been conducted. However, as many of the consequences of basic need fulfillment are related to tenets of self-determination theory, and the passion construct is grounded in self-determination theory, it is likely that need fulfillment and passion are related. It makes further conceptual sense that basic need fulfillment is related to the development of passion. Vallerand and Miquelon (2007) believed that the differentiation of passion into either harmonious or obsessive passion was dependent on whether an individual perceived the specific activity in a more autonomous or controlling manner. As all of the basic needs may influence passion change, the relationship between BNT fulfillment and passion will be explored in the current study.

Additionally, as sport coaches largely contribute to the feelings of autonomy of athletes, further investigation of the autonomy support coaches provide is needed.

Coach Created Climate

The coach plays a critical role in not only establishing how autonomy supportive an environment is for athletes, but also the climate in which athletes participate. Coaches strongly influence the quality of the sport experience for their athletes, both by the goals they promote and the interactions they have with their athletes. Coaches are critical in establishing the motivational climate for their team, and how they provide feedback and reinforce behaviors has a large impact on athletes' behaviors. Additionally, coaches may influence athletes by establishing a caring climate (Noblit, 1993) where athletes feel valued and relevant. Both the motivational climate and the caring climate coaches can establish will be briefly overviewed in the next section.

Motivational Climate

Nicholls (1984) and Ames (1984) have suggested that adoption of a goal perspective is largely dependent on an individual's dispositional tendencies and the environmental characteristics of a context. Achievement Goal Theory (AGT; Nicholls, 1984) posits that individuals can hold two different goal perspectives, and depending on the perspective one holds outcomes from participation can vary drastically. When an individual is task-oriented, they experience success when they view their effort as high and their skill level for the activity improves. These individuals view their competence as related to task mastery and exertion of high effort. Conversely, when an individual is ego-oriented, they experience success through social comparisons. Specifically, these individuals view themselves as successful when their

performance is favorably compared to others or if they feel they perform a task similarly as others but with less effort.

Importantly, an individual's disposition may be influenced by the context in which they participate. Initially developed in the education literature (Ames, 1984, 1992), and supported in the sport literature (Seifriz, Duda, & Chi, 1992), two distinct motivational climate goal structures that paralleled the goal perspectives outlined by AGT were created. Specifically, athletes perceived a performance (Ego-Involving) climate or a mastery (Task-Involving) climate. Youth athletes who perceive their climate as a performance climate, base their success on the social comparison with others. Coaches emphasize this performance environment when they give preferential treatment and focus reinforcement on the athletes who they view as most competent and most likely to contribute to victory over opponents. Coaches may punish athletes that make a mistake and encourage intra-team rivalry between peers. Conversely, those athletes who perceived a more mastery climate view success as giving maximum effort, persisting in difficult situations, and demonstrating personal improvements. Coaches emphasize the importance of selecting challenging tasks to improve personal skills, and mistakes are viewed as feedback that can help facilitate improvement for athletes.

In the sport realm, the relationship of the motivational climate with various other constructs have consistently linked a mastery-oriented climate with more positive outcomes than a performance-related climate. MacDonald, Côté, Eys, and Deakin (2011) found that in the youth sport climate, positive experiences were most strongly associated with aspects of a mastery climate including affiliation with peers, self-referenced competency, and effort expenditure, while negative experiences were predicted by a performance-related climate. If coaches can establish an environment that encourages peer affiliation and personal achievement, it can result

in positive personal development of youth sport participants. A mastery-oriented climate has also been shown to have a negative relationship with athlete's levels of anxiety (Smith, Smoll, & Cumming, 2007) and psychological pressure (Barić, 2011), and is positively related to confidence (Magyar & Feltz, 2003). A mastery climate has also been linked to team outcomes in youth sport including team cohesion. In fact, a mastery-oriented climate was positively related to both social and task cohesion while a performance climate was negatively related to both types of cohesion (Eys, Jewitt, Evans, Wolf, Bruner, & Loughead, 2013). In the literature, a mastery-oriented climate consistently is associated with more positive outcomes when compared to a performance-oriented climate.

To test if coaches could be trained to provide more mastery-oriented feedback, Smith, Smoll, and Cumming (2007) conducted a coach workshop aimed at promoting a more mastery-involving motivational climate instead of a performance-involving motivational climate. Athletes of coaches who received the training saw decreases in their total anxiety while those athletes who played for coaches without the training saw their anxiety levels increase during the course of a season. In a continuation of the line of research by Smith and colleagues, Smith, Smoll, and Cumming (2009) followed youth over the course of a season to see if the coach-created motivational climate could influence youths' own goal orientation. The researchers found that a coach created mastery-climate saw youth significantly increase their own mastery goal orientation and decrease their ego orientation. Additionally, a coach created ego-oriented climate was associated with significant increases in ego goal orientation scores. These results were consistent regardless of age or gender. Thus, coaches can be trained to provide more mastery-oriented feedback, and the feedback coaches are providing can influence athletes' goal orientation toward an activity.

The relationship between the motivational climate, self-determination theory, and basic needs theory has been studied previously. Reinboth and Duda (2004) found that basic need satisfaction was associated with an increase in the perceptions of a mastery-involving climate. Conversely, an increase in the ego-performance climate was associated with decreases in just one of the basic needs; team relatedness. In another study, Smith, Cumming, and Smoll (2008) found that a mastery orientation was positively related to intrinsic motivation and negatively related to amotivation. Additionally, the mastery-oriented climate saw the magnitude and sign of the correlations change in an orderly manner along the self-determination continuum with more autonomous forms of motivation more strongly and positively related to a mastery-orientation, and controlled forms of motivation more weakly related to a mastery-orientation. Even though the relationship with SDT, BNT, and the motivational climate has been investigated, the relationship of the motivational climate with the passion construct has not yet been researched. This relationship needs to be investigated, with specific focus placed on the role the motivational climate plays on the passion changes. Therefore, this study will investigate the relationship between these two constructs.

Caring Climate

Another possible influence on changes in passion could be a caring climate. An adult-established caring climate has been identified as critical in the life of young people (Noblit, 1993). In fact, Hellison (2003) stated that caring was a fundamental component of engaging youth in the physical activity domain. Additionally, others have cited caring adults as critical to the development of youth in all venues. Specifically, Benson (2006) identified 40 developmental assets needed by youth to maximize physical and psychological well-being. These 40 developmental assets included internal assets, i.e., competencies and passions, and external

assets, i.e., significant others to support young people. Two of the assets identified by Benson critical for the development of youth, youth interacting with caring adults outside their family and positive peer to peer interactions, attempt to measure caring in these important social agents. As Noblit, Hellison, and Benson all indicated, youth interactions with a caring adult are critical to positive development. In sport, coaches may have an especially beneficial avenue to providing this positive caring environment for youth. Recently, researchers have established an instrument to measure the climate of an activity, and this research will be explored briefly.

Even though the concept of a caring climate has been considered important in youth-based activities, no researchers had tried to conceptualize and measure exactly what a caring climate was until the work of Newton, Fry, Watson, Gano-Overway, Kim, Magyar, and Guivernau (2007). In this study, the authors identified two key characteristics of caring. First, they indicated that caring for someone entails some engrossment or attention of one individual to another. Essentially, this means to demonstrate caring fully one needs to attend to another, be open to their ideas and personality, and receive another in a judgment-free manner. In lay terms this means "really, seeing, feeling, and caring for another (p. 68)." The second aspect of caring requires an individual to engage in motivational displacement, or being empathetic, having concern for others and prioritizing the needs of another individual over your own. With these two guiding principles, the authors created the Caring Climate Scale (CCS) and found in a sample of youth that the CCS was positively related to future involvement in a program and a task-involving climate and negatively related to an ego-involving climate. The study gave credence that the caring climate is an important indicator for future participation.

With the establishment of the Caring Climate Scale, other studies have investigated the relationship of caring climate with several outcomes in various youth programs with a majority

of these studies focused in the sport and physical activity context. In a majority of these studies, the caring climate was also measured concurrently with task- and ego-involving climates. These studies have shown that a caring climate is positively related to a task climate and negatively related to an ego climate (Brown & Fry, 2013; 2014ab; Stark & Newton, 2014). In these studies, it was found that a caring climate in combination with a task-involving environment is positively related to interest, perceived competence, effort, and commitment (Brown & Fry, 2013), global self-worth (Brown & Fry, 2014a) life satisfaction and a greater commitment to exercise (Brown & Fry, 2014b), and positive affect, body esteem, better quality attachments with teachers and peers, and more friends (Stark & Newton, 2014). Additionally, Gould, Flett, and Lauer (2012) found that when coaches created an environment that focuses on a mastery-oriented climate which is high in caring, it was more likely that developmental gains would occur. In fact, those coaches who emphasized these positive climates saw athletes experience greater gains on several positive indicators of growth and development than coaches who did not encourage the caring, task-involving climates. Taken in sum, these studies indicated that youth who are engaged in environments that encourage a caring climate should experience more beneficial outcomes than those who are not engaged in a caring environment. Even though these studies provided a foundation for the importance of a caring climate, one area that has not been investigated is the relationship of a caring climate and passion change.

Many of the outcomes from previous studies concerning a caring climate may be related to the development of passion. However, no study has investigated the relationship between these two constructs. Development of the passion construct has been shown to be related to aspects of self-determination theory (Mageau et al., 2009). Initial research shows that some of the consequences of a caring climate also are tenets of SDT. For example, caring climate has

been linked to increased relationships with peers and leaders (Stark & Newton, 2014), and greater levels of perceived competence (Brown & Fry, 2014ab). These two tenets of SDT, relatedness and competence, are consequences of a caring climate and, if present in an environment, may lead to a greater likelihood of the positive changes to passion in youth. This study aims to investigate if passion change is influenced by a caring climate, and additionally, if a caring climate is more likely to influence harmonious or obsessive passion. Due to the fact that the current literature on the caring climate is related to positive outcomes, it is hypothesized that a caring climate will positively predict passion growth in youth. Additionally, when investigating the dualistic model of passion, a caring climate will be more likely to predict harmonious passion and less likely to predict the obsessive passion.

Future Sport Intentions

A final aspect that is critical to understand in relation to the dualistic model of passion is an athlete's likelihood to continue sport participation in the future. Youth sports have been shown to have a variety of positive physical and psychological benefits to those individuals who continue participation. However, it is not uncommon for youth to cease sport participation and no longer have the opportunity to develop those life skills or gain benefits from participation in the sport context. In a recent systematic review of youth sport dropout in soccer, adolescents who dropped out of sport from one season to the next ranged from 18 to 36% (Temple & Crane, 2015). Temple and Crane cited a number of reasons for youth sport dropout that included time demands, low perceptions of competence, poor relationships with coaches or teammates, lack of enjoyment, and a lack of opportunity to play. Youth today are pulled in a number of directions and it is critical to understand if passion plays a part in whether athletes continue in their current sport to ensure that they continue in their development.

One aspect to help better understand the behaviors of individuals in a given context is the theory of planned behavior. The theory of planned behavior (Ajzen, 1991; Ajzen & Fishbein, 1980) has been widely used in the social cognitive literature, because it has been found to be useful for predicting several different kinds of volitional behavior including sport and exercise participation (Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002; McEachan, Connor, & Taylor, 2011). In the theory of planned behavior, intentions to engage in an activity are the most immediate and powerful determinants of behavior. An individual's intentions are determined by subjective norms, attitudes toward the behavior, and perceived behavioral control. Subjective norms include the perceived social pressure to perform the behavior, attitudes include the degree of positive or negative self-evaluations if individuals were to engage in the behavior, and perceived behavioral control is the individual's perceived ability to carry out the behavior of choice. In recent meta-analyses (Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002), support for the three aspects of intentions was found with approximately 45% of the variance in intentions explained by attitudes, subjective norms, and perceived behavioral control. Further, an individual's intentions were found to explain 26-36% of the variance of engaging in the given behavior (Ajzen, 1991; Armitage & Connor, 2001). The theory of planned behavior may be useful when trying to determine the influence passion plays in sport continuation.

The theory of planned behavior has been adopted and found support in the physical activity realm but also has seen some study in the sport realm in a variety of manners. Most relevant to the current study is the relationship of the theory of planned behavior in explaining sport retention, continuation, and dropout. Theodorakis (1992) found that intentions to participate and perceived behavioral control were highly correlated with actual participation in 4 weeks of team training, with intentions to participate being the most significant factor on

whether participants participated or not in the team training. Additionally, Nache, Bar-Eli, Perrin, and Laurencelle (2005) found that intentions of sport participation at the beginning of the season helped differentiate between those athletes who would dropout before the conclusion of the season and those that would participate the full time. Finally, in a sample of high school aged-athletes, Gucciardi and Jackson (2015) found that intentions to continue in sport successfully predicted sport continuation one year later. Each of these studies provides some framework in using intentions to predict sport continuation and future sport participation for the following year. As the timeline for this study does not allow for monitoring the sport participation behaviors of athletes the following year, and sport intentions has been shown to be an adequate predictor of actual behavior, intention to continue sport behavior will be used for the current study as a proxy for sport behavior.

Conclusion

The current study will investigate the level of general passion and both aspects of the dualistic model of passion in a longitudinal manner to better understand the amount and type of passion that youth athletes possess. Child and family constructs as well as coach-created environmental factors will also be investigated to better understand their relationships with the three types of passion. Very few studies have investigated passion in a longitudinal manner, and this study will track passion from pre-season to post-season to see how each type of passion changes across the course of a sport season in junior high and high school athletes. Additionally, family and child factors and the coach-created climate will be investigated to see how these constructs influence passion changes over time. Finally, as few studies have looked at how passion influences continuation in sport, in hopes of better understanding how these constructs

relate to each other as well as to sport continuation in general, intention to continue in sport will be investigated.

CHAPTER III: METHOD

Research Design

A longitudinal paper-pencil survey design was used to assess passion change in adolescent athletes and factors predicted to influence passion change. Descriptive statistics, correlations, t-test, multivariate multiple regression, and structural equation modelling procedures were used to address each research question and hypothesis. Data collection took place twice, once at the beginning of the season and again at the end of the season. This pre- and post-season data collection allowed the investigation of the growth of passion from the beginning to the end of the season. Each season varied in length due to the nature of the sport, but in general pre-season data collection took place during the first part of August, 2015 and post-season data collection occurred in late October, 2015. The length of each season was approximately 10 weeks.

Participants

A total of 198 athletes provided athlete assent and returned parental consent forms making them eligible for the study. From these 198 athletes, 24 completed surveys at Time1 but not at Time 2 and were eliminated from final analysis. Therefore, the final sample for the current study was 174 adolescent athletes who were currently participating in a sport. Data were collected from 7 local high school teams and one local junior high school team. The high school sports represented were boys' and girls' cross country, boys' lacrosse, boys' soccer, girls' swimming and diving, boys' tennis, and boys' water polo. The sole junior high sport that was represented was football. The sample was drawn from five Mid-Michigan area schools.

Instrumentation

Demographic Information

For the current study, the demographic surveys included age, grade in school, gender, ethnicity, mothers' and fathers' level of education, and various questions concerning the participants sport experience (see Appendix A). Questions concerning their sport experience included sports they currently played for both school and club, whether athletes play their sport year round, how long youth practice in sport, and how often they play their sport outside of organized practices. Additionally, as many high school athletes play multiple sports, athletes were asked to select the sport they would choose if they could only play one sport moving forward. If athletes indicated the sport they were currently playing was the sport they would choose if they could only play one, they were classified as having a match between their current sport and passionate sport. If, however, athletes indicated that the sport they would choose to play was not their current sport, they were classified as having a mismatch between their current and passionate sport. Various analyses used this classification of sport match between the current sport and passionate sport as an independent variable.

Passion Scale

The Passion Scale (Vallerand et al., 2003) was used to assess the level of passion of the young athletes in the sample (see Appendix B). The passion scale is composed of two sections. The first three questions of the Passion Scale are designed to assess whether athletes are passionate about their sport. These three questions assessed the three central tenets of passion. More specifically, do athletes enjoy the activity, do they find it important, and do they invest time and energy in the activity? Previous studies have used these questions to indicate what percentage of their sample is passionate (Vallerand at al., 2003; Phillippe et al., 2009), with

scores on all three subscales above the midpoint indicating that athletes are passionate for their sport. The 3 questions use a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). The current study followed these study guidelines and athletes who scored above the midpoint (i.e., 4 or higher) on all three of these questions were considered passionate about their sport. These three questions were used to indicate whether or not the level of passion athletes hold for sport have changed across the course of the season (see Appendix B).

If individuals indicated they were passionate toward their sport, the second portion of the Passion Scale was used to classify individuals' passion as one of two types, either harmonious or obsessive. The two subscales of the passion construct originally contained seven items each (Vallerand, et al., 2003), however, a more recent scale has been constructed that contains two six-item subscales. All 12 questions use a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). A sample item from the harmonious passion subscale is "(Sport) is in harmony with the other activities in my life" while a sample question from the obsessive passion subscale is "I have difficulty controlling my urge to play (sport)." The Passion Scale has demonstrated adequate factorial structure and internal consistency across a variety of domains including sport (Vallerand et al., 2003, Study 1; Rousseau et al., 2002; Vallerand et al., 2003, Study 1). Previously reported Cronbach's alpha coefficients have ranged from .70-.90. Additionally, the Passion Scale has demonstrated acceptable reliability with adolescents who were the sample for the current study (Mageau et al., 2009, Study 3). In the current study, at Time 1 the alpha coefficients for the passion scale were .78, .81, and .83, respectively for the general passion, harmonious passion, and obsessive passion subscales. For Time 2, the alpha coefficients were .85, .86, and .89, respectively.

Sense of Identity Derived from a Sport

The Sense of Identity Derived from a Sport was measured with 4 items assessed whether playing a sport could become a central part of the students' identity (Schlenker, 1985) (see Appendix C). A sample item is "If I had to describe myself, I would mention that I play sports." Mageau and colleagues (Mageau et al., 2009) have reported acceptable reliability for the scale and reported a Cronbach's alpha coefficient as .90. In the current study, the alpha coefficient for the sense of identity derived from sport was .90 indicating acceptable internal reliability.

Preference for Activity Specialization

The Preference for Activity Specialization was measured with 4 items that asked youth to report the extent to which they believed it is important to fully focus on their sport even if it meant putting some other activities aside (see Appendix D). This was assessed on the same 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*) as the Passion Scale. A sample item is "In my free time, I'd rather give up some activities in order to have more time to do my sport." Mageau and colleagues (Mageau et al., 2009) have reported acceptable reliability for the scale and reported a Cronbach's alpha coefficient as .73. For the current study, the alpha coefficient for the Preference for Activity Specialization was .48. Thus, it failed to achieve the .70 criterion that Nunnally and Bernstein (1994) indicate that signifies adequate internal reliability. As the scale only has four items it does not make sense to eliminate items to attempt to improve fit. When included in analyses, caution should be used in all further interpretations of conclusions.

Perceived Parental Preference for Specializing in Sport

The Perceived Parental Preference for Specializing in Sport was measured with 6 items that evaluate the extent to which participants perceive that their parents value their specialization

in one sport as opposed to their involvement in other activities or sports (see Appendix E). The scale indicated if athletes believe that their parents preferred them to focus on and improve in solely one sport or if they would rather see them have more diversified leisure, where they would learn from many different activities and sports. A sample item is "My parents encourage me to devote all of my time to my sport." Mageau and colleagues (Mageau et al., 2009) have reported acceptable reliability for the scale and reported a Cronbach's alpha coefficient as .61. For the current study, the alpha coefficient for the perceived parental preference for specializing in sport was .52 indicating poor internal reliability. The scale has six items, but elimination of any one item did not significantly improve internal reliability. As the results indicate, caution was used in all further analyses with the subscale.

Perceived Valuation for Sport by One's Parents

The Perceived Valuation for Sport by One's Parents was measured with 4 items that evaluate athletes' perceptions of the importance of the activity in their parents' eyes (see Appendix F). A sample item is "To play my sport is very important for my parents." Mageau and colleagues (Mageau et al., 2009) have reported acceptable reliability for the scale and reported a Cronbach's alpha coefficient as .89. In the current study, the alpha coefficient for the perceived valuation for sport by one's parents was .81 indicating acceptable internal reliability.

Basic Needs Satisfaction in Sport Scale

The Basic Need Satisfaction in Sport Scale (BNSSS; Ng, Lonsdale, & Hodge, 2011) was used to measure athletes' perception of the fulfillment of the three basic psychological needs of autonomy, competence, and relatedness (see Appendix G). The BNSSS contains 20 items and is a multidimensional scale. The need for competence (5 items) and relatedness (5 items) was measured with a single scale. The autonomy construct was divided into three subcomponents;

choice (4 items), internal perceived locus of control (3 items), and volition (3 items). All 20 items used a 7-point Likert scale ranging from 1 (*Not true at all)* to 7 (*Very True*). A sample item from the competence subscale is "I can overcome challenges in my sport," from the autonomy subscales "In my sport, I get the opportunities to make choices," and from the relatedness subscale "In my sport, I feel close to other people." Initial validation studies supported the five-factor structure of the BNSSS as well as demonstrated test-retest reliability with athletes from New Zealand and Hong Kong (Ng, Lonsdale, & Hodge, 2011). However, the scale has also been used with junior athletes from Sweden (Stenling & Tafvelin, 2014), Australia (Mahoney, Gucciardi, Ntoumanis, & Mallett, 2014), and New Zealand and Australia (Gilchrist, 2014) with acceptable reliability (alpha coefficients for each subscale ranged from .74 - .91) (see Appendix G).

The BNSSS has been used in three manners. In the most common method, researchers have computed a score for each subscale and treated individual aspects of basic need satisfaction as unique components (Ng, Lonsdale, & Hodge, 2011). In other studies, researchers have developed a composite score for all basic need subscales and used the single score as a predictor for youth sport outcomes (Stenling & Tafvelin, 2014). Finally, a study by Gilchrist (2014) calculated a composite for the three subscales of the autonomy dimension of basic needs and treated the autonomy composite as a unique construct to the other subscales of competence and relatedness. As the current study aims to investigate the fulfilment of each basic need on passion change, the technique employed by Gilchrist (2014) was used. Therefore, the three subcomponents of autonomy, (choice, internal perceived locus of control, and volition) were calculated into a single subscale and treated as a unique construct in relation to the scales for relatedness and competence. In this way, a single autonomy construct will aid in avoiding

multicollinearity in the related subscales. In the current study, the alpha coefficients for all three subscales of the BNSS were above the .70 acceptable criterions. Specifically, the alpha coefficients were .89, .86, and .87 for the competence, autonomy, and relatedness subscale, respectively.

Motivational Climate Scale for Youth Sports

The Motivational Climate Scale for Youth Sports (MCSYS; Smith, Cumming, & Smoll, 2008) was used to measure youth athletes' perceptions of the motivational climate in which they are most involved (see Appendix H). The scale is based on the content of the Perceived Motivational Climate in Sport -2 (PMCSQ-2; Newton, Duda, & Yin, 2000). The MCSYS contains 12 items and contains subscales for a mastery climate and a performance climate. This scale has shown acceptable validity for use with youth athletes, and because it only has 12 items, in comparison to 33 for the PMCSQ-2, is much more realistic for completion with youth athletes. Sample mastery items are "The coach made players feel good when they improved a skill" and "The coach told us that trying our best was the most important thing." Sample ego items are "Winning games was the most important thing for the coach" and "The coach paid most attention to the best players." All 12 items used a 5-point Likert scale ranging from 1 (*not at all true)* to 5 (*very true*). Scores ranged from 6 to 30 on each scale. This scale has shown an acceptable 2-factor structure with a group of 10-14 year old athletes (Smith, Cumming, & Smoll, 2008) and has shown acceptable internal consistency with youth sport samples as alpha coefficients have ranged from .76 - .85 (MacDonald, Cote, Eys, & Deakin, 2011; Smith, Smoll, & Cumming, 2009). The motivational climate subscales in the current study had similar alpha levels to past studies with the youth population. Specifically, the motivational climate task subscale alpha level was .69 and the motivational climate ego subscale was .74. Examination of

the inter-item correlations revealed that deletion of item 10 increased the alpha level to .73. Therefore, this item was eliminated and the new subscale had acceptable internal consistency.

The Caring Climate Scale

The Caring Climate Scale (CCS; Newton, Fry et al., 2007) was used to measure the extent to which participants perceive a caring coach-established sport environment (see Appendix I). The Caring Climate Scale contains 13 items and is a unidimensional scale. All 13 items use a 5-point Likert scale ranging from 1 (*strongly disagree)* to 5 (*strongly agree*). The stem for all questions is "during your sport". Sample items include "During your sport, kids are treated with respect" and "During your sport, the leaders want to get to know all the kids". The scale was originally validated with youth aged 9 to 17 (Newton et al., 2007), and further support for the reliability and validity of the scale has been achieved in a variety of studies with youth in the sport realm. Specifically, alpha coefficients have ranged from .91-.92 for studies in which the Caring Climate Scale has been used (Fry & Gano-Overway, 2010; Newton, Watson, Gano-Overawy, Fry, Kim, & Magyar, 2007). In the current study, the alpha coefficient for the Caring Climate scale was .93 indicating acceptable internal reliability.

Future Sport Intentions

To measure athlete's intentions to continue sport during the next season, a modified scale from the work of Chatzisarantis, Biddle, and Meek (1997) were used. The future sport intentions subscale has 3 items and is a unidimensional scale. All three items use a 7-point Likert scale ranging from 1 (*very unlikely*) to 7 (*very likely*). Items included "I am determined to play my sport next season," "I intend to play my sport next season," and "I plan to play my sport next season." The scale originally was used to assess intention to exercise in the physical activity context, but recently, the scale has been adapted to use in the sport environment (Alvarez,

Belaguer, Castillo, & Duda, 2012) with high internal reliability. Specifically, alpha coefficients for previous studies have been ranged from .88-.90 (Alvarez, Belaguer, Castillo, & Duda, 2012; Chatzisarantis, Biddle, & Meek, 1997; Standage, Duda, & Ntoumanis, 2003). In the current study, the alpha coefficient for the future sport intentions subscale was .95 indicating acceptable internal reliability.

Procedures

The study received approval from the Institutional Review Board of Michigan State University prior to participant recruitment. Athletic directors and head coaches were identified across the Mid-Michigan region who would be interested in participating in the study. These individuals were contacted via phone or email. A description of the study was provided and permission to speak to athletes was granted. When permission was granted by the athletic director, another exchange occurred with head coaches indicating the purpose of the study and asking permission to collect data with their athletes.

In exchange for access to athletes, two types of incentives were available to teams. First, the primary investigator offered mental training services during the season to athletes and teams that were interested. Five of the eight teams elected to do the mental training sessions which took place approximately once a month. The three teams that did not choose to do the mental training sessions had a consultant who was already providing services to the team and they did not want to conflict with the services the other consultant was offering. The second incentive was an end of year pizza party. Teams that returned 80% or more of the parental consent forms, regardless of whether parents indicated their child could or could not participate in the study, were eligible for the pizza party. All eight of the teams reached the 80% return rate and, therefore, all eight of the teams earned the incentive.

Following athletic director and coach approval, the lead researcher went into practice to explain to athletes the purpose of the study, incentives for participation, and a brief explanation of parental consent (see Appendix K) and athlete assent (see Appendix L). Additionally, the lead researcher conducted a brief mental training session with the athletes concerning "What is mental training?" and how it can help in the sport realm. At the end of this session, athletes were given parental consent forms and instructed to return them to the coach before the lead researcher returned, typically no more than 2 days later.

The lead researcher returned to practice later that same week to collect parental consent forms and conduct the pre-season data collection. Athletes were again assured that participation in the project was not mandatory, and after indicating they understood their participation was voluntary they completed the pre-season surveys. These Time 1 data collection measures included a Demographics Survey, The Passion Scale (Vallerand et al., 2003), the Sense of Identity Derived from an Activity, Preference for Activity Specialization, Perceived Parental Preference for Specializing in Sport, and the Perceived Valuation for Sport by One's Parents (Mageau et al., 2009). Athletes answered the paper and pencil based surveys and created a unique user id to link their responses at Time 1 to their responses at Time 2 data collection. Data collection took between 10-20 minutes for the initial collection.

During the last weeks of practice a second data collection took place with all teams. At this Time 2 collection period, researchers returned to collect follow-up data that included the Passion Scale (Vallerand et al., 2003), the Motivational Climate for Youth Sports Scale (Smith, Cumming, & Smoll, 2008), the Basic Needs Satisfaction in Sport (Ng, Lonsdale, & Hodge, 2011), the Perceived Autonomy Support in Sport Scale (Hagger et al., 2007), the Caring Climate Scale (Newton, Fry, et al., 2007), and Future Sport Intentions (Chatzisarantis, Biddle, & Meek,

1997). This data collection was conducted at one of the final team practices of the season. The data collection at the end of the season took between 10-15 minutes for athletes to complete. Following survey completion by all athletes, pizza was provided to teams as a thank you for participation. Even though only those individuals who returned parental consent and granted athlete assent completed surveys during collection times, all athletes participated in the mental training sessions and were provided pizza. To ease interpretation, Table 1 represents which surveys were used to collect information at each data collection time surveys were used at each of the data collection times.

Table 1

Data Collection Measures for Study.

Data Collection Measures	
Time 1	**Time 2**
Demographics	Passion Scale
Passion Scale	Motivational Climate for Youth Sports Scale
Sense of Identity Derived from an Activity	Basic Needs Satisfaction in Sport
Preference for Activity Specialization	Perceived Autonomy Support in Sport Scale
Perceived Parental Preference for Specializing in Sport	Caring Climate Scale
Perceived Valuation for Sport by One's Parents	Future Sport Intentions

Data Analysis

For the current study, multiple data analysis procedures were used to answer the research questions posed in the introduction. First, descriptive statistics were calculated for all study measures. To answer research Questions 1 and 2 concerning the level and type of passion that youth hold for sport, descriptive statistics were used. Additionally, various demographic variables were used to see if groups differed in their levels of passion. These variables included gender, whether their current sport matched their chosen passionate sport (identified as sport match), and if individuals were classified as harmoniously or obsessive passionate. For research Question 3, a dependent t-test was used to test the difference in general passion from Time 1 to Time 2 to discern if general passion changed significantly over the course of the season in youth sport athletes. For research Question 4, a repeated measures MANOVA was used to investigate the changes of harmonious and obsessive passion across the course of a season with the two types of passion as dependent variables and the time point as the independent variable. In addition, due to some unexpected differences in male and female athletes in their passion changes across the season, a MANOVA was conducted to examine which of the coach-created climate variables influenced the change in passion.

To answer research Question 5, two linear regression models were used to investigate the development of general passion in youth sport athletes. To assess the relationship that individual and family influences have on the development of general passion, a simple linear regression was used with the change in general passion set as the outcome variable, while the subscales that measure sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents will be used as predictor variables. To assess the relationship that coach and environmental factors have on

passion change, a simple linear regression was used with the change in general passion set as the outcome variable, while the subscales that measured the factors of need fulfillment, mastery- and ego-created climate, and a caring climate were used as predictor variables.

To answer research Question 6, two structural equation model (SEM) analyses were used to investigate the two types of passion as well as the relationship of the two types of passion with athletes' intentions to continue sport participation. To assess the relationship that individual and family influences have with harmonious and obsessive passion, an SEM analysis was conducted with an athletes' sense of identity derived from sport and perceived parental valuation for the activity predicting harmonious and obsessive passion which in turn would predict future sport intentions. For this model, due to reliability concerns, the child's preference for sport specialization and parent's preference for sport specialization were excluded from the model. To assess the relationship that coach and environmental factors have on the two types of passion, a second SEM analysis was conducted with athlete's perceptions of a caring climate, task-climate, ego-climate, and basic need fulfillment (autonomy, competence, and relatedness) predicting harmonious and obsessive passion which in turn would predict future sport intentions.

CHAPTER IV: RESULTS

Demographic Information

A total of 198 youth athletes returned consent permission to participate forms and completed surveys at Time 1. Of those 198 athletes, 174 (88.9%) also completed surveys at Time 2 and were included in the final sample. Therefore, for the current study a total of 174 junior high and high school athletes (129 males, 45 females) ages 13-18 (M = 15.11, SD = 1.25) returned parental consent forms, and completed surveys at both Time 1 and Time 2. All demographic characteristics for boys, girls, and the total sample are presented in Table 2. Athletes in the study were in grades 8-12 with a high proportion identifying as sophomores, and a majority identified as Caucasian. As a group, athletes reported they had highly educated parents. Specifically, athletes reported that 64% of their mothers and 57% of their fathers held at least a Bachelors' degree. In addition to demographic information, athletes also answered a number of questions concerning their sport participation in their current sport and other sports they played. During data collection, athletes were currently playing a variety of sports including cross country (n = 61), soccer (n = 34), lacrosse (n = 32), football (n = 20), swimming and diving (n = 15), water polo (n = 13), and tennis (n = 9). Less than half of the athletes indicated they played their sport year round (yes, n = 71, 40.8%; no, n = 98, 56.2%), and athletes indicated that outside of organized practice, they spent an average of 2.27 hours per week playing their sport. In addition to the sport they were currently playing, athletes engaged in an average of 1.2 other sports in the high school setting.

As the current study was investigating youth athletes' passion in sport, athletes were asked to specify which sport they would play if they could only choose a single sport moving forward. A majority of athletes chose the sport in which they currently participated (current

sport, *n* = 120; other sport, *n* = 54), but a number of other sports were also cited outside of their current sport which included basketball *n* = 11, baseball *n* = 5, golf *n* = 2, boxing *n* = 2, cheerleading *n* = 1, skating *n* = 1, hockey *n* = 1, dance team *n* = 1, wrestling *n* = 1, cricket *n* = 1, gymnastics *n* = 1, horseback riding n = 1, and bowling *n* = 1.

Table 2

Demographic Characteristics of Male Athletes, Female Athletes, and Total Sample

	Male Athletes (n = 129)	Female Athletes (n = 45)	Total (n = 174)
Grade			
8	21 (16.3%)	---	21 (12.1%)
9	16 (12.4%)	10 (22.2%)	26 (14.9%)
10	49 (38.0%)	14 (31.1%)	63 (36.2%)
11	22 (17.1%)	16 (35.5%)	38 (21.8%)
12	21 (16.3%)	5 (11.1%)	26 (14.9%)
Race			
Caucasian	104 (80.6%)	40 (88.8%)	144 (82.3%)
African American	4 (3.1%)	--	4 (2.3%)
Asian	3 (2.3%)	--	3 (1.7%)
Hispanic	2 (1.6%)	--	2 (1.1%)
Multicultural	6 (4.7%)	2 (4.4%)	8 (4.6%)
Other	9 (7.0%)	3 (6.7%)	13 (7.5%)
Mothers Education			
High School	3 (2.3%)	2 (4.4%)	5 (2.9%)
Some college	26 (20.2%)	6 (13.3%)	32 (18.4%)
Bachelors' Degree	43 (33.3%)	9 (20%)	52 (29.9%)
Advanced Degree	37 (28.7%)	23 (51.1%)	60 (34.5%)
Don't Know	18 (14.0%)	4 (8.9%)	22 (12.6%)
Fathers Education			
High School	11 (8.5%)	2 (4.4%)	13 (7.5%)
Some college	22 (17.1%)	5 (11.1%)	27 (15.5%)
Bachelors' Degree	35 (27.1%)	13 (28.9%)	48 (27.6%)
Advanced Degree	33 (25.6%)	19 (42.2%)	52 (29.9%)
Don't Know	25 (19.4%)	5 (11.1%)	30 (17.2%)
Sport			
Cross Country	21(16.3%)	30 (66.6%)	51 (29.3%)
Soccer	33 (26.4%)	---	33 (19.5%)
Lacrosse	32 (24.8%)	---	32 (18.4%)
Football	21 (16.6%)	---	21 (12.0%)
Swimming and Diving	---	15 (33.3%)	15 (8.6%)
Water Polo	13 (10.1%)	---	13 (7.4%)
Tennis	9 (7.0%)	---	9 (5.2%)
Play Sport Year Round			
Yes	59 (45.7%)	12 (26.7%)	71 (40.8%)
No	65 (50.4%)	33 (73.3%)	98 (59.2%)

Notes:
Values are *n* (%)

Evaluation of Research Questions

An evaluation of each of the study's primary research questions is provided in the next section. When necessary, preliminary analyses were conducted to ensure no violation of assumptions was present prior to conducting specific statistical tests (e.g., assumption of normality, homoscedasticity, linearity, multicollinearity). Additionally, as there was some concern that age would be a confounding variable, preliminary analyses were conducted with age included. In simple bivariate correlations, the relationship with age and all study variables was very small (|.20|) and most relationships were not statistically significant. Additionally, when age was included in primary analyses no differences were discovered; therefore, for ease of interpretation, the analyses with age included are not reported in the results section. For all analyses, the criterion of $p < .05$ was used.

Research Question 1. *What is the prevalence of passion in a sample of youth sport participants?*

The hypothesis for research Question 1 was that a majority of youth would be passionate for their current sport. This hypothesis was supported, as nearly all athletes in the sample were highly passionate for their current sport at both the beginning and end of the season (see Table 3). In fact, as per cutoffs from past studies to establish if individuals are passionate about their current activity (Mageau et al., 2008; Vallerand et al., 2003), only three athletes would not be classified as passionate for their sport at the beginning of the season, and seven would be classified as non-passionate at the end of the season. Of those athletes deemed as not passionate, two athletes were not classified as passionate at either time point, one athlete was classified as not passionate at Time 1 but was classified as passionate at Time 2, and five athletes were considered passionate at Time 1 but were classified as not passionate at Time 2.

The total sample held high levels of general passion (see Table 3), but upon investigation of gender (see Table 4) and sport match (see Table 5), there appeared to be some differences in the levels of general passion at each time point. Specifically, males appeared to have higher levels of general passion at both time points than females and those individuals who indicated that the sport they were currently participating matched the sport they would choose to play if they could only choose one sport had higher levels of general passion at both time points than those athletes who indicated they would play a different sport than what they were currently involved.

Table 3

Means and Standard Deviations for General Passion at Time 1 and Time 2 for the Total Sample

	Time 1	Time 2
Total Sample (n = 174)	6.13* (.97)	6.02* (1.08)

*Note: * indicates significant difference at the $p < .01$ level.*

Table 4

Means and Standard Deviations for General Passion at Time 1 and Time 2 for Male and Female Athletes

	Time 1	Time 2
Male Athletes (n = 129)	6.19^{a} (.92)	6.22^{a} (.88)
Female Athletes (n = 45)	5.94^{b} (1.09)	5.45^{c} (1.36)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

Table 5

Means and Standard Deviations for General Passion at Time 1 and Time 2 by Sport Match.

	Time 1	Time 2
Chosen Sport (n = 120)	6.27[a] (.85)	6.18[a] (.91)
Different Sport (n = 54)	5.81[b] (1.14)	5.67[b] (1.33)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

To explore if there were statistically significant differences at each time point in relation to gender and sport match, a MANOVA was conducted with the two general passion subscales (Time 1 and Time 2 General Passion) as dependent variables and gender and favorite sport match serving as independent variables. The MANOVA revealed a significant main effect for gender, F (1, 170) = 9.48, $p < .001$, $\eta^2 = .10$, and a significant main effect for sport match, F (1, 170) = 3.44, $p < .05$, $\eta^2 = .04$. The interaction between gender and sport match was non-significant, F (1, 170) = .09, $p > .50$, $\eta^2 = .00$. Univariate tests indicated that male and female athletes did not differ in their general passion at Time 1, but male athletes held greater levels of general passion for their sport than female athletes at Time 2. For sport match, athletes who chose their current sport as their favorite sport had greater levels of passion than those athletes who chose a different sport at both Time 1 and Time 2.

Research Question 2. *For those athletes that are passionate about sport, what is the prevalence of harmonious and obsessive passion in a sample of youth sport participants?*

It was hypothesized that athletes in the sample would display higher levels of harmonious passion than obsessive passion. Therefore, to investigate the prevalence of harmonious and obsessive passion in the youth sport sample, means and standard deviations were calculated for the total sample (see Table 6 and Table 7). The total number of individuals in each analysis

differed slightly from Time 1 to Time 2 because only those individuals classified as passionate at that time point were included in analysis for each type of passion. Investigation of means of those athletes who were classified as having high levels of general passion revealed that they had high levels of harmonious passion and moderate levels of obsessive passion at both Time 1 and Time 2. Two dependent t-tests were used to investigate if these differences in harmonious and obsessive passion were statistically significant at each time point. The dependent t-test for Time 1 was significant, t (171) = 22.65, $p < .001$. Additionally, the dependent t-test for Time 2 was also significant, t (166) = 18.57, $p < .001$. These results indicate that at both times, athletes in the current sample held greater levels of harmonious passion than obsessive passion which supported the hypothesis forwarded for research Question 2.

Table 6

Mean and Standard Deviation of Harmonious Passion for the Total Sample at Time 1 and Time 2

	Time 1 (n = 171)	Time 2 (n = 167)
Harmonious Passion	5.36* (1.00)	5.28* (1.13)

*Note: Note: * indicates significant difference at the $p < .01$ level.*

Table 7

Mean and Standard Deviations of Obsessive Passion for the Total Sample at Time 1 and Time 2

	Time 1 (n = 171)	Time 2 (n = 167)
Obsessive Passion	3.13 (1.43)	3.07 (1.61)

Note: No significant difference existed in Obsessive Passion from Time 1 to Time 2.

To further understand the sample, and as has been done in previous studies (see Mageau et al., 2009; Vallerand & Houlfort, 2003), athletes were classified in the passion group corresponding to their highest standardized scores on the two subscales at each time point. Even though most athletes scored higher on the harmonious than the obsessive passion subscale, some athletes scored noticeably higher on obsessive passion than other individuals. By standardizing the scores, we were able to capture the between-subject differences and classify people in their appropriate passion group (see Koestner & Zuckerman, 1994, for a similar procedure). When investigating the means of these groups (see Table 8 and Table 9), individuals who were classified in the harmonious group had higher levels of harmonious passion than those individuals classified in the obsessive group. Additionally, individuals in the obsessive passion group had higher levels of obsessive passion than those individuals classified in the harmonious group. It is important to note that as each individual may be in one group at Time 1 and a different group at Time 2, these groups are not equal from Time 1 to Time 2 and do not have the same individuals at each time. Because the group composition differed from Time 1 to Time 2, two MANOVAs were conducted to test if differences in harmonious and obsessive passion at each time point were significant. The first MANOVA used the passion groups at Time 1 as the independent variable and harmonious and obsessive passion at Time 1 as the dependent variables. The first MANOVA was significant for group classification, F (2, 168) = 190.74, $p <$ .001, $\eta^2 = .69$. Investigation of follow-up univariate tests indicated, as expected, that the harmonious passionate group had higher levels of harmonious passion and lower levels of obsessive passion than the obsessively passionate group. The second MANOVA used the passion groups at Time 2 as the independent variable and harmonious and obsessive passion at Time 2 as the dependent variables. The second MANOVA was also significant for group

classification, F (2, 164) = 139.94, $p < .001$, $\eta^2 = .63$. Investigation of follow-up univariate tests indicated, similar to the groupings at Time 1, that the harmonious passionate group had higher levels of harmonious passion and lower levels of obsessive passion than the obsessively passionate group.

Table 8

Mean and Standard Deviations of Harmonious Passion for the Harmoniously Passionate and Obsessively Passionate Groups at Time 1 and Time 2

	Time 1	Time 2
Harmoniously Passionate Group (T1 n = 81; T1 n = 86)	5.76[a] (.71)	5.77[a] (.79)
Obsessively Passionate Group (T1 n = 90; T1 n = 81)	5.04[b] (1.07)	4.94[b] (1.08)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

Table 9

Mean and Standard Deviations of Obsessive Passion for the Harmoniously Passionate and Obsessively Passionate Groups at Time 1 and Time 2

	Time 1	Time 2
Harmoniously Passionate Group (T1 n = 81; T1 n = 86)	2.43[a] (.98)	2.36[a] (1.15)
Obsessively Passionate Group (T1 n = 90; T1 n = 81)	3.83[b] (1.42)	3.95[b] (1.62)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

As general passion levels differed dependent on gender and sport match, further analysis of these variables were conducted to see if differences were found in each passion type as well. Specifically, a 2X2 MANOVA was conducted with harmonious and obsessive passion at each

time point (Time 1 and Time 2) serving as dependent variables and gender and favorite sport match serving as independent variables. The MANOVA revealed a significant main effect for gender, F (4, 160) = 6.08, $p < .001$, $\eta^2 = .13$ (see Table 10 and Table 11). The main effect for sport match was not significant, F (4, 160) = .12, $p > .90$, $\eta^2 = .00$ and the interaction between gender and sport match was also not significant, F(4, 160) = .36, $p > .83$, $\eta^2 = .01$. Investigation of means for each group indicated that males and females did not differ in either type of passion at Time 1, but at Time 2, males held higher levels of both harmonious and obsessive passion than females.

Table 10

Harmonious Passion at Time 1 and Time 2 for Male and Female Athletes

	Time 1	Time 2
Male Athletes (T1 *n* = 128; T1 *n* = 127)	5.47[a] (.98)	5.59[a] (.95)
Female Athletes (T1 *n* = 43; T1 *n* = 40)	5.10[b] (.95)	4.66[c] (.98)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

Table 11

Obsessive Passion at Time 1 and Time 2 for Male and Female Athletes

	Time 1	Time 2
Male Athletes (T1 *n* = 128; T1 *n* = 127)	3.29[a] (1.47)	3.30[a] (1.65)
Female Athletes (T1 *n* = 43; T1 *n* = 40)	2.81[b] (1.19)	2.59[b] (1.32)

Note: Within each table, subscale means with differing subscripts are significantly different (as determined through repeated measures ANOVA and follow-up univariate tests [$p < .05$]).

Research Question 3. *How will general passion change across the course of a season?*

It was hypothesized that that general passion would increase significantly over the course of the season. The raw scores for athletes were very similar for Time 1 (M = 6.13, SD = .97) and Time 2 (M = 6.02, SD = .82). However, to investigate if this change was statistically significant, a Repeated Measures ANOVA was conducted. Additionally, as initial analyses indicated that there were differences in general passion between male and female athletes and those athletes who indicated they were playing their preferred sport and those who indicated they were not playing their preferred sport, these variables were included as independent variables in the final ANOVA. Therefore, a Repeated Measures ANOVA was conducted with general passion serving as the within individual variable and gender and sport match serving as the between individual variables. The multivariate test indicated that the main effect for time was significant, F (1, 170) = 10.45, $p < .001$, $\eta^2 = .06$. Athletes held a significantly higher level of general passion at Time 1 than at Time 2. Additionally, the interaction between time and gender and time and sport match were investigated. The time X gender interaction was significant F (1, 170) = 12.81, $p < .001$, $\eta^2 = .07$ (for mean and standard deviation scores see Table 4). From Time 1 to Time 2, male athletes' general passion levels increased slightly while female athletes' general passion decreased. This relationship between general passion and gender is illustrated in Figure 6. The time X sport match interaction was non-significant, F (1, 170) = .011, $p > .50$, $\eta^2 = .00$ (for mean and standard deviation scores see Table 5). The non-significant interaction indicated that change from Time 1 to Time 2 in general passion was not dependent on whether or not athletes chose the current sport as the one they would continue playing if they could only choose one sport.

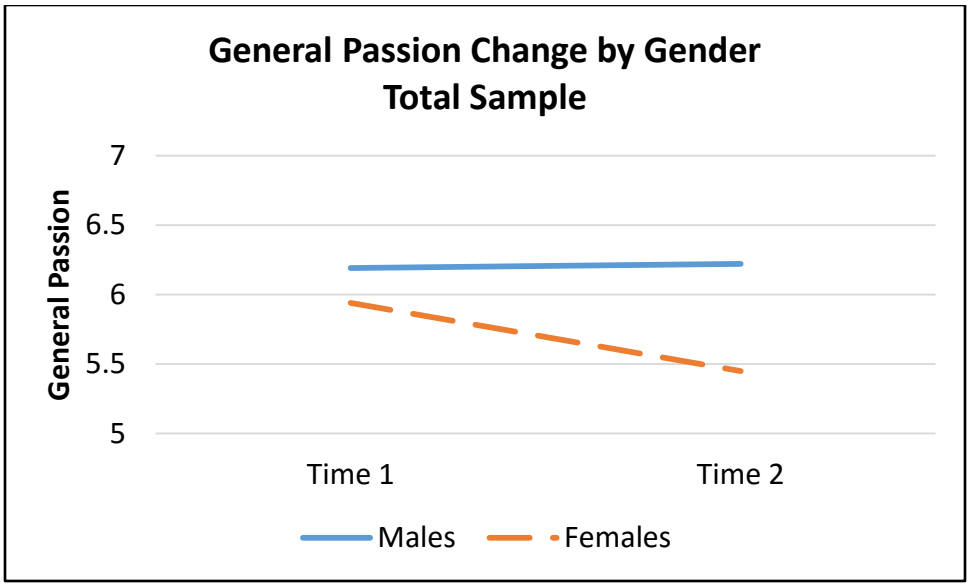

Figure 6. Graphic Illustration of General Passion at Time 1 and Time 2 in Relation to Male and Female Athletes for Total Sample

In addition to the multivariate effects, univariate effects on each of the predictor variables were also investigated. When investigating gender, the univariate effect was significant, F (1, 170) = 7.81, $p < .006$, $\eta^2 = .04$, indicating that males experienced greater levels of general passion than females. The univariate effect for sport match was also significant, F (1, 170) = 6.82, $p < .01$, $\eta^2 = .04$, indicating that those athletes who chose the current sport as the one they would continue playing if they could only choose one sport had higher levels of general passion than those athletes who chose another sport as their preference. The interaction between gender and sport match was non-significant, F (1, 170) = .09, $p > .50$, $\eta^2 = .01$.

As gender differences existed in relation to how general passion changed across the season, further analyses were conducted to better understand these differences. As a variety of sports were included in the sample, it was possible that the differences seen between male and female athletes were more a function of the sports included than due to gender differences. As the sample contained both male and female athletes from cross-country, it was possible to use

this subset to see if these teams reflected the larger sample. Additionally, both cross country teams had the same coach and, in theory, participated in similar coaching environments. Therefore, a Repeated Measures MANOVA was conducted with general passion serving as the within individual variable and gender serving as the between individual variable. The multivariate test indicated that the main effect for time was non-significant, F (1, 49) = 3.80, p >.05, η^2 = .07. Cross country athletes did not differ from Time 1 to Time 2 in general passion. However, similar to the results seen in the larger sample, the time X gender interaction was significant F (1, 49) = 5.22, p < .05, η^2 = .10. From Time 1 to Time 2, male cross country athletes' general passion levels increased slightly while female athletes' general passion decreased. This relationship between general passion and gender is illustrated in Figure 7. We can conclude from this subset that the differences in gender were not due to the actual sports included in the sample, but actually were due to male and female athletes differing in their passion changes across the season.

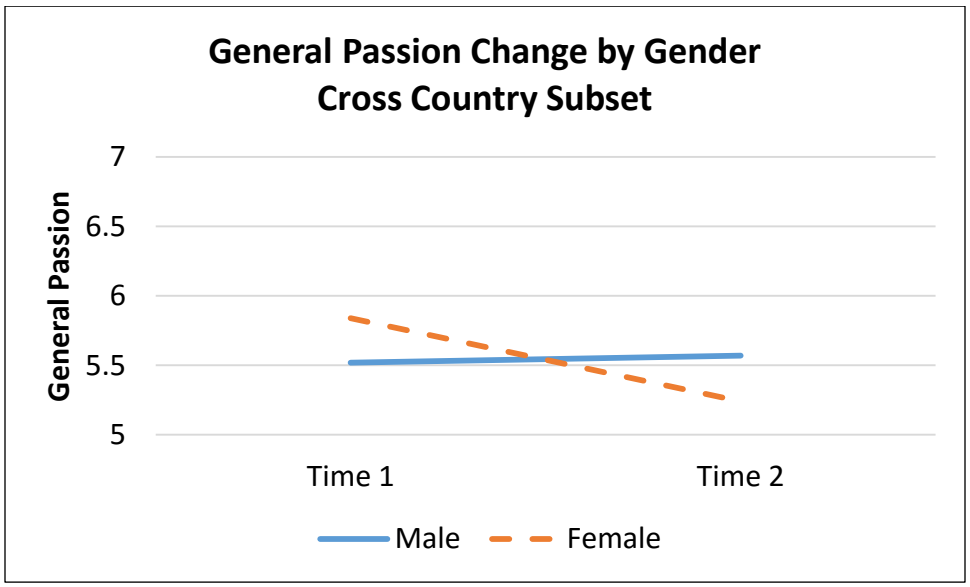

Figure 7. Graphic Illustration of General Passion at Time 1 and Time 2 in Relation to Male and Female Athletes for Cross Country Subset

Research Question 4. *How will each type of passion change across the course of a season?*

We hypothesized that both harmonious and obsessive passion would significantly increase over the course of the season. When investigating the mean for the total sample (see Table 6 and Table 7), harmonious passion and obsessive passion actually decreased from Time 1 to Time 2. To investigate if the changes in harmonious or obsessive passion were statistically significant, two repeated measures ANOVAs were conducted. Additionally, as gender and passionate sport match had shown a relationship with general passion change, these variables were also investigated. Therefore, both repeated measures ANOVAs included gender and sport match as between subject variables and either harmonious or obsessive passion as their within subject variable.

The first repeated measures ANOVA tested the change of harmonious passion across the season with gender and sport match as between subject variables (for means and standard deviations see Table 10). The main effect for time was significant, F (1, 167) = 9.47, $p < .002$ η^2 = .50. Harmonious passion from Time 1 to Time 2 decreased in our sample. The time X gender interaction was significant, F (1, 167) = 13.45, $p < .001$, $\eta^2 = .08$. From Time 1 to Time 2, male athletes' harmonious passion increased slightly while female athletes' harmonious passion decreased. This relationship between harmonious passion and gender is illustrated in Figure 8. The time X sport match interaction was non-significant, F (1, 167) = .63, $p > .50$, $\eta^2 = .00$.

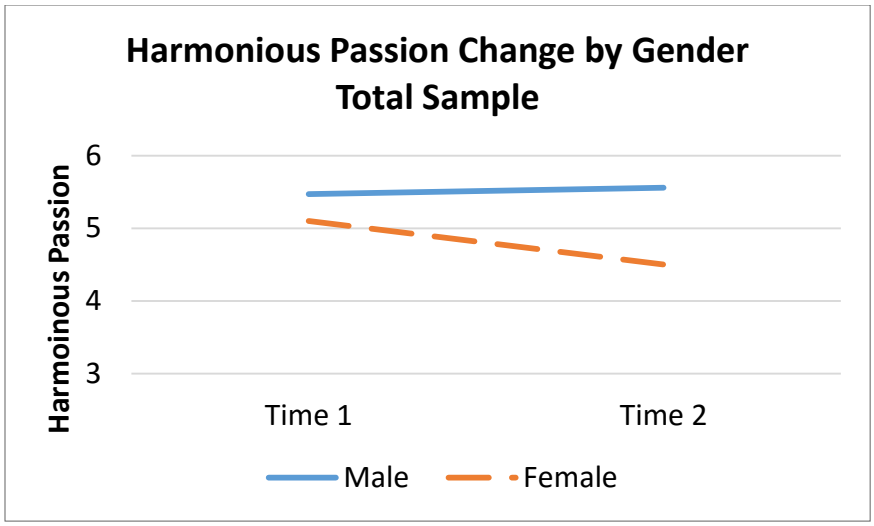

Figure 8. Graphic Illustration of Harmonious Passion at Time 1 and Time 2 in Relation to Male and Female Athletes for Total Sample

In addition to the multivariate effects, univariate effects on each of the predictor variables were also investigated. When investigating gender, the univariate effect was significant, F (1, 167) = 17.02, $p < .001$, $\eta^2 = .09$ indicating that males experienced greater levels of harmonious passion than females. The univariate effect for sport match was non-significant, F (1, 167) = .31, $p > .50$, $\eta^2 = .00$, indicating that there was no difference in harmonious passion if athletes indicated they were playing their chosen sport or not. Finally, the interaction between gender and sport match was non-significant, F (1, 167) = .24, $p > .50$, $\eta^2 = .00$.

The second repeated measures ANOVA tested the change of obsessive passion across the season with gender and sport match as between subject variables (for means and standard deviations see Table 11). The main effect for time was non-significant, F (1, 163) = 1.32, $p > .25$, $\eta^2 = .01$. Obsessive passion did not change from Time 1 to Time 2. The time X gender interaction was non-significant, F (1, 163) = 1.00 $p > .32$, $\eta^2 = .01$. Finally, the time X sport match interaction was also non-significant, F (1, 163) = 0.00, $p > .99$, $\eta^2 = .00$. We can conclude

that obsessive passion did not change from Time 1 to Time 2 and that the path of these changes was not influenced by gender or sport match.

In addition to the multivariate effects, univariate effects on each of the predictor variables were also investigated. When investigating gender, the univariate effect was significant, F (1, 163) = 4.65, $p < .05$, $\eta^2 = .03$ indicating that males experienced greater levels of obsessive passion than females. The univariate effect for sport match was non-significant, F (1, 163) = .00, $p > .96$, $\eta^2 = .00$, indicating that there was no difference in obsessive passion if athletes indicated they were playing their chosen sport or not. Finally, the interaction between gender and sport match was non-significant, F (1, 163) = .00, $p > .95$, $\eta^2 = .00$.

Again, further analyses were conducted with the subset of cross country athletes to see if the differences seen in harmonious passion were a reflection of sport type or gender. The first repeated measures ANOVA tested the change of harmonious passion across the season with gender as the sole between subject variables. The main effect for time was non-significant, F (1, 49) = 2.02, $p > .16$ $\eta^2 = .04$. Harmonious passion from Time 1 to Time 2 did not change in this subset. The time X gender interaction was significant, F (1, 49) = 10.19, $p < .002$, $\eta^2 = .17$. From Time 1 to Time 2, male cross country athletes' harmonious passion increased slightly while female athletes' harmonious passion decreased. This relationship between harmonious passion and gender is illustrated in Figure 9.

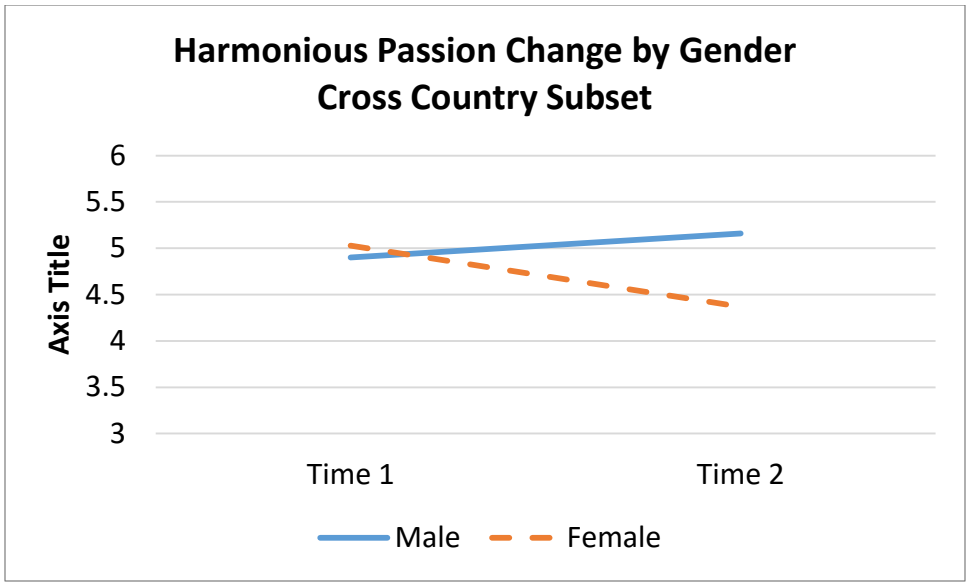

*Figure 9.*Graphic Illustration of Harmonious Passion at Time 1 and Time 2 in Relation to Male and Female Athletes for Cross Country Subset

The second repeated measures ANOVA tested the change of obsessive passion across the season with gender as the between subject variable. Similar to the total sample, the main effect for time was non-significant, F (1, 49) = .249, p > .62, η^2 = .01. Obsessive passion did not change from Time 1 to Time 2. The time X gender interaction was also non-significant, F (1, 49) = 3.35 p > .05, η^2 = .064. Similar to the total sample, we can conclude that the path of obsessive passion change was not influenced by gender.

Exploratory Research Question 4A. *What were the different environmental factors between male and female athletes that may have impacted the change in passion that resulted in females but not in males?*

As there were differences in how general passion and harmonious passion changed across the course of the season when investigating these trajectories by gender, additional exploratory analyses were needed to better understand why these differences may have existed. Therefore, a MANOVA was conducted with gender as the independent variable and the coach-created climate

variables (perceptions of autonomy, relatedness, and competence, task and ego environment, and caring climate) and future sport intentions used as outcome variables. The MANOVA was significant, F (6, 165) = 21.77, $p < .001$, $\eta^2 = .45$. Follow-up univariate analyses indicated that male and female athletes differed on all coach-created climate variables. Specifically, male athletes perceived higher levels of competence, autonomy, a task-created climate, and a caring climate than females, while females perceived higher levels of relatedness and an ego-created climate than male athletes. The fact that male athletes perceived a more positive coach-created climate than female athletes may be one reason for the decreased levels of general passion and harmonious passion seen in female athletes in the sample. Interestingly, the univariate ANOVA indicated no difference between male and female athletes and their future sport intentions. Even though the coach created climates were perceived differently by males and females, it did not influence their thoughts on whether they would play their sport the following season.

Research Question 5. *What factors influence the change of general passion in a group of youth sport athletes?*

To investigate which factors influence the general passion change in youth sport athletes, two sets of regression analyses were conducted. Prior to regression analyses, bivariate correlations were conducted for all study variables collected at each time point. Specifically, correlations for all variables collected at Time 1 were conducted (see Table 12), and correlations for all variables collected at Time 2 were conducted (see Table 13). Additionally, bivariate correlations were conducted for the three types of passion at Time 1 and Time 2 (see Table 14).

Table 12

Correlations for all variables collected at Time 1

Time 1 Variables	Mean (SD)	1	2	3	4	5	6
1. General Passion	6.13 (.97)						
2. Harmonious Passion	5.36 (1.00)	.630**					
3. Obsessive Passion	3.13 (1.43)	.576**	.475**				
4. Sense of Identity Derived from Sport	5.57 (1.39)	.443**	.430**	.359**			
5. Preference for Activity Specialization	2.99 (.98)	.241**	.153*	.379**	.183*		
6. Perceived Parental Preference for Sport Specialization	4.89 (.96)	.022	.082	-.012	-.015	-.014	
7. Perceived Parental Valuation of Sport	4.56 (1.45)	.290**	.345**	.371**	.392**	.209**	.186*

Notes:
* = statistically significant at $p < .05$ level
** = statistically significant at $p < .01$ level

Table 13

Correlations for all variables collected at Time 2

Time 2	Mean (SD)	1	2	3	4	5	6	7	8	9
1. General Passion	6.02 (1.08)									
2. Harmonious Passion	5.28 (1.13)	.713**								
3. Obsessive Passion	3.07 (1.61)	.431**	.384**							
4. BNSSS Competence	5.30 (1.22)	.605**	.582**	.300**						
5. BNSSS Autonomy	5.12 (1.13)	.637**	.645**	.339**	.646**					
6. BNSSS Relatedness	6.00 (.98)	.127	.212**	-.151*	.257**	.131				
7. Ego Environment	3.10 (.93)	-.221**	-.176*	.137	-.241**	-.371**	.009			
8. Task Environment	4.12 (.66)	.410**	.555**	.139	.465**	.476**	.201**	-.329**		
9. Caring Climate	4.21 (.68)	.429**	.475**	.250**	.421**	.512**	.052	-.449**	.588**	
10. Future Sport Intentions	6.11 (1.58)	.495**	.379**	.204**	.402**	.348**	.124	-.012	.265**	.246**

Notes:
* = statistically significant at $p < .05$ level
** = statistically significant at $p < .01$ level

Table 14

Correlations for General Passion, Harmonious Passion, and Obsessive Passion at Time 1 and Time 2

	1	2	3	4	5	6
1. Time 1 General Passion						
2. Time 1 Harmonious Passion	.630**					
3. Time 1 Obsessive Passion	.576**	.475**				
4. Time 2 General Passion	.697**	.509**	.399**			
5. Time 2 Harmonious Passion	.486**	.574**	.340**	.173**		
6. Time 2 Obsessive Passion	.463**	.372**	.632**	.431**	.384**	

Notes:
* = statistically significant at $p < .05$ level
** = statistically significant at $p < .01$ level

The first set of analyses was used to predict an individual's level of general passion from individual and family influences. It was hypothesized that all four of the individual and family influences (sense of identity derived from sport, child's preference for sport specialization, parent's preference for sport specialization, and perceived valuation of sport by parents) would positively predict general passion. Two multiple regression analyses were conducted. The first multiple regression included an individual's sense of identity derived from sport, child's preference for sport specialization, perceived parental preference for specializing in sport, and perceived parent valuation of sport as predictor variables and general passion at Time 1 as an outcome variable. A significant regression equation was found, F (4,164) = 12.09, $p < .001$, with an r^2 value of .23. Only two of the four predictors were significant predictors in the model. Specifically, sense of identity derived from sport and a child's preference for activity specialization were statistically significant predictors (see Table 15 for all values). The second multiple regression analysis excluded the child's preference for sport specialization and perceived parental preference for specializing in sport subscales due to low internal reliability for each scale. Therefore, this multiple regression included only the child's sense of identity derived from the activity and the perceived parental valuation of sport as predictor variables and general passion at Time 1 as the outcome variable. This multiple regression also was significant, F (2,166) = 16.53, $p < .001$, with an r^2 value of .21. The sense of identity from sport was the only significant predictor in the model (see Table 16 for all values). As both models shared similar results, only the simplified model excluding the variables with low internal reliability concerns will be discussed.

Hypothesis 1 for research question 5 was partially supported. Our hypothesis posited that all of the individual and family factors would be positive predictors of general passion. Even

though the sense of identity derived from the activity and perceived valuation of sport by one's parents were positive predictors of general passion, only the sense of identity derived from sport was significant. Therefore, a child's sense of identity from their sport was the only significant predictor of general passion.

Table 15

Results of Multiple Linear Regression Identity Derived from Sport, Child's Preference for Sport Specialization, Parent's Preference for Sport Specialization, and Perceived Valuation of Sport by one's Parents, to Predict Time 1 General Passion

	Beta	SEB	B	*P*
Intercept	3.86	.468		.001
Identity derived from sport	.255	.053	.364	.001
Child's preference for sport specialization	.145	.070	.147	.038
Parent's preference for sport specialization	.009	.071	.009	.899
Perceived valuation of sport by parents	.078	.052	.117	.133

Table 16

Results of Multiple Linear Regression Identity Derived from Sport and Perceived Valuation of Sport by one's Parents, to Predict Time 1 General Passion

	Beta	SEB	B	*P*
Intercept	4.20	.300		
Identity derived from sport	.266	.053	.380	.001
Perceived valuation of sport by parents	.096	.05	.143	.059

The second analysis was used to predict the general passion from coach and environmental influences. For the multiple regression analysis, it was hypothesized that the three subscales of the BNSSS (i.e., autonomy, competence, and relatedness), task climate, and a caring climate would positively predict general passion at Time 2 and an ego climate would negatively predict general passion at Time 2. A significant regression equation was found, F (6,165) = 25.53, $p < .001$, with an r^2 value of .48. However, Hypothesis 2 for research question 5 was only partially supported. Only two of the variables, competence and autonomy, were significant predictors of general passion at Time 2 (see Table 17 for all values). Relatedness, a task climate, an ego climate, and a caring climate were not significant predictors of general passion at Time 2. Competence and autonomy were the only significant predictors of general passion and each positively predicted the construct.

Table 17

Results of Multiple Linear Regression of Competence, Relatedness, Autonomy, Task and Ego Climate, and a Caring Climate to Predict Time 2 General Passion

	Beta	SEB	B	*P*
Intercept	-1.65	.89		.02
Competence	.283	.07	.32	.001
Relatedness	-.024	.07	-.02	.72
Autonomy	.366	.08	.38	.001
Motivational Climate Task	.07	.12	.04	.58
Motivational Climate Ego	.06	.07	.05	.41
Caring Climate	.16	.12	.10	.20

Research Question 6. *What factors influence the change of each type of passion (harmonious and obsessive) across the course of a season?*

Consistent with the recommendation of Tabachnik and Fidell (2007), the fit of the measurement models and structural models were assessed using a combination of absolute fit indices and incremental fit indices. Specifically, for the absolute fit indices, the root mean square error of approximation (RMSEA), and chi square test were used. For the incremental fit indices the comparative fit index (CFI) and incremental index of fit (IFI) were used. In the literature, there is considerable debate suggesting that strict cutoff criteria may be unsuitable (Marsh, Hau, & Wen, 2004). Therefore, the current study following guidelines by Marsh, Hau, and Wen (2004), will distinguish between excellent fit (χ^2/df ratio < 2.00, IFI and CFI > .95, RMSEA < .06), acceptable fit (χ^2/df ratio < 3.00, IFI and CFI > .90, RMSEA < .08), and unacceptable fit (χ^2/df ratio >3.00, IFI and CFI < .90, RMSEA > .08). Additionally, some caution should be used when interpreting the RMSEA values as they have been shown to over reject the true model when sample sizes were small (Hu & Bentler, 1999).

One concern for conducting structural equation modelling is sample size needed for such analyses. According to Jackson (2003), there is empirical support for basing the sample size dependent on model complexity by using the *N:q* rule with *N* representing sample size and *q* representing number of constructs in a model. In the individual and family factor model, 5 variables were included indicating a *N:q* ratio of 171:5. In the coach-created climate model, 9 variables were included representing a *N:q* ratio of 167:9. Jackson indicated that an ideal sample size-to-parameters would be 20:1. Less ideal, but still acceptable, *N:q* ratio is 10:1 and if the *N:q* ratio decreases below 10:1 the trustworthiness of the model is jeopardized. In both of the models, the *N:q* ratio of 10:1 is satisfied. In fact, the individual and family factor model exceeds the 20:1

$N{:}q$ ratio and the coach created climate model nearly reaches the 20:1 $N{:}q$ ratio. Therefore, with our current sample we can safely say that sample size for the two models is acceptable.

The hypothesized model for personal and parental factors is represented in Figure 10. As specified before, the child's preference for sport specialization and the parent's perception of specialization were excluded in this model due to low internal reliability concerns. Therefore, the model consisted of an athlete's sense of identity from the activity and perceived parental valuation for the activity predicting harmonious and obsessive passion which in turn would predict future sport intentions. It was hypothesized that an athlete's sense of identity from the activity and perceived parental valuation for the activity would both positively predict obsessive passion and negatively predict obsessive passion. Further, it was predicted that harmonious

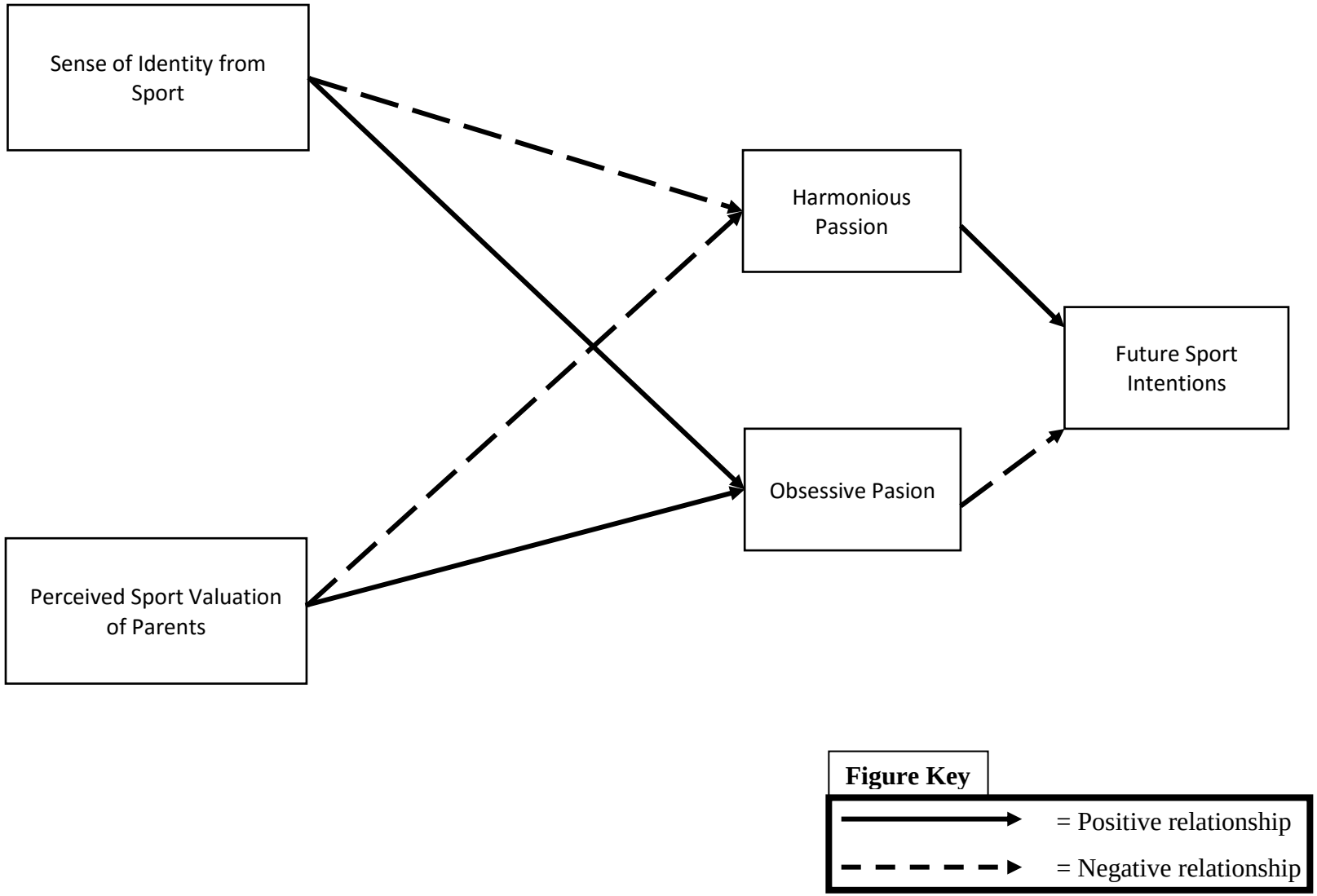

Figure 10. Updated Hypothesized Model of Child and Family Influences

passion would positively predict future sport intentions while obsessive passion would negatively predict future sport intentions.

The hypothesized model had poor fit, χ^2 (4, N = 174) = 51.3, $p < .001$, CFI = .65, RMSEA = .262). Post hoc modifications were performed in an attempt to develop a better fitting model. On the basis of the Lagrange multiplier test and theoretical evidence, two residual covariances were estimated (residual covariance between harmonious and obsessive passion and between a child's sense of identity from the activity and perceived parental valuation for the activity. The model was significantly improved with the addition of these paths, χ^2difference (2, N = 174) = 50.81, $p < .001$.

The final model (see Figure 11) fit the data well, χ^2 (2, N = 174) = .489, p = .78, CFI = 1.00, RMSEA = .001). Contrary to our hypotheses, harmonious passion was positively predicted by greater sense of identity from sport (standardized coefficient = .34, $p < .01$) and a greater perceived parental sport valuation (standardized coefficient = .21, $p < .01$). Consistent with our hypotheses, obsessive passion had a similar pattern across predictor variables with a greater sense of identity from sport (standardized coefficient = .25, $p < .01$) and a greater perceived parental sport valuation (standardized coefficient = .28, $p < .01$) both predicting higher levels of obsessive passion. The hypothesized relationship between the two types of passion and future sport intentions was partially supported. As predicted, greater levels of harmonious passion predicted higher future intentions to continue sport (standardized coefficient = .34, $p < .01$). Contrary to our hypotheses, obsessive passion did not negatively predict future sport intentions, instead levels of obsessive passion had no influence on future sport intentions in the final model (standardized coefficient = -.01, $p > .05$). Nearly a quarter of the variance (22.1%) in harmonious passion and nearly a fifth (19.2%) of the variance in obsessive passion were accounted for by

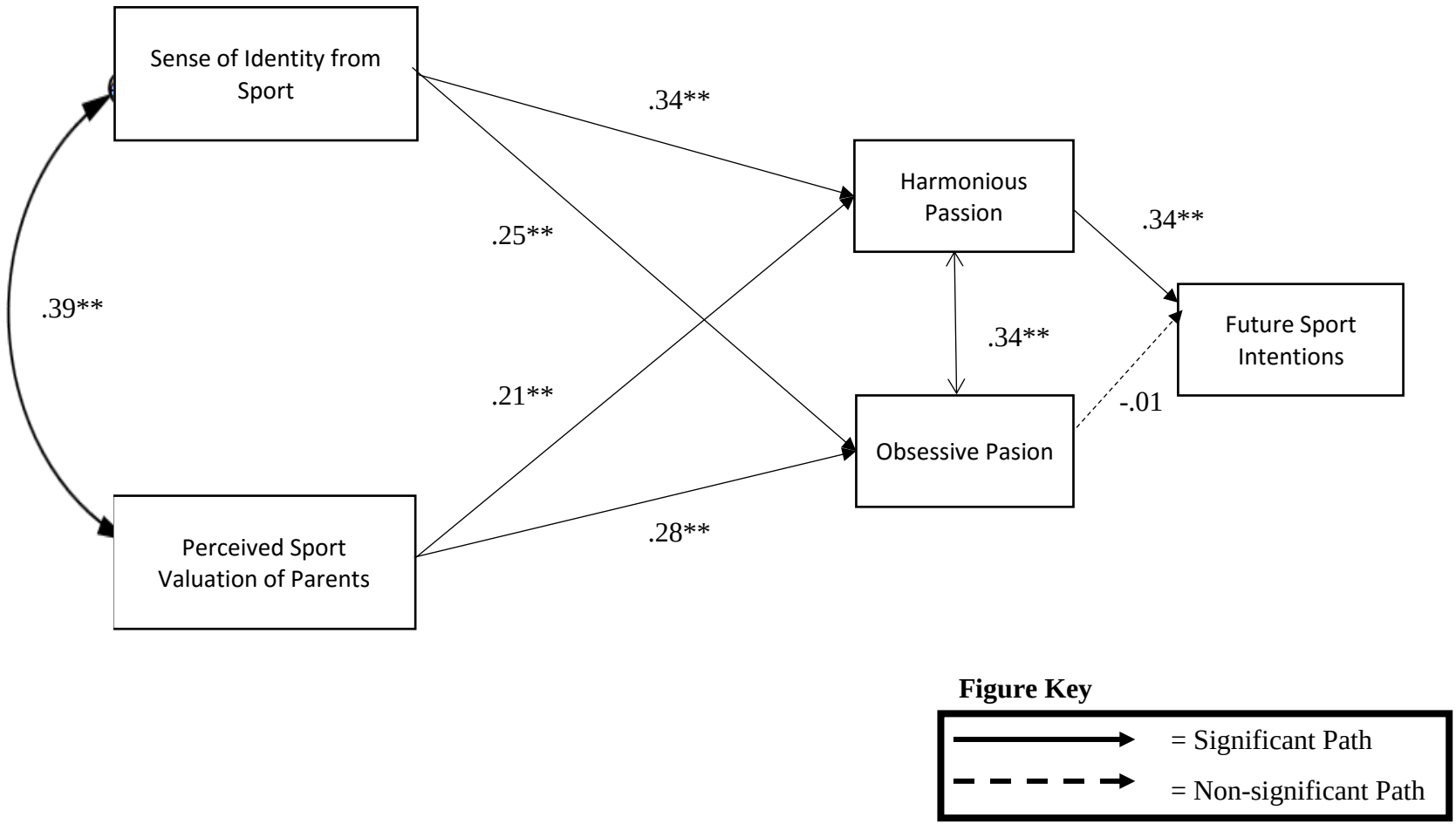

Figure 11. Final structural equation model for child and family influences

athlete's sense of identity from the activity and perceived parental valuation for the activity. Additionally, just 11.3% of the variance of future sport intentions was accounted for by harmonious and obsessive passion.

Coach Climate Variables

The hypothesized model for coach created and environmental factors is represented in Figure 12. As specified before, high perceptions of a caring climate, task climate, and fulfillment of the three basic needs of autonomy, competence, and relatedness would positively predict harmonious passion and negatively predict obsessive passion. Conversely, high perceptions of an ego climate would positively predict obsessive passion and negatively predict harmonious passion. Further, harmonious passion would positively predict future sport intention, and obsessive passion would negatively predict future sport intentions.

The hypothesized model had poor fit, χ^2 (21, N = 174) = 327.2, $p < .001$, CFI = .27, RMSEA = .290). Post hoc modifications were performed in an attempt to develop a better fitting model. On the basis of the Lagrange multiplier test and theoretical evidence, multiple residual covariances were estimated (between harmonious and obsessive passion; caring climate and task climate; caring climate and ego climate; task climate and ego climate; task climate and competence; task climate and relatedness; autonomy and competence; and competence and relatedness). The model was significantly improved with the addition of these paths, χ^2difference (8, N = 174) = 586.4, $p < .001$.

Even though the updated model was an improved fit from the initial hypothesized model, it still had poor fit overall, χ^2 (14, N = 174) = 97.3, $p < .001$, CFI = .80, RMSEA = .187). Therefore, a second hypothesized model for environment and coach influences was posited. In this second model (see Figure 13), the three aspects of need fulfillment were used to create

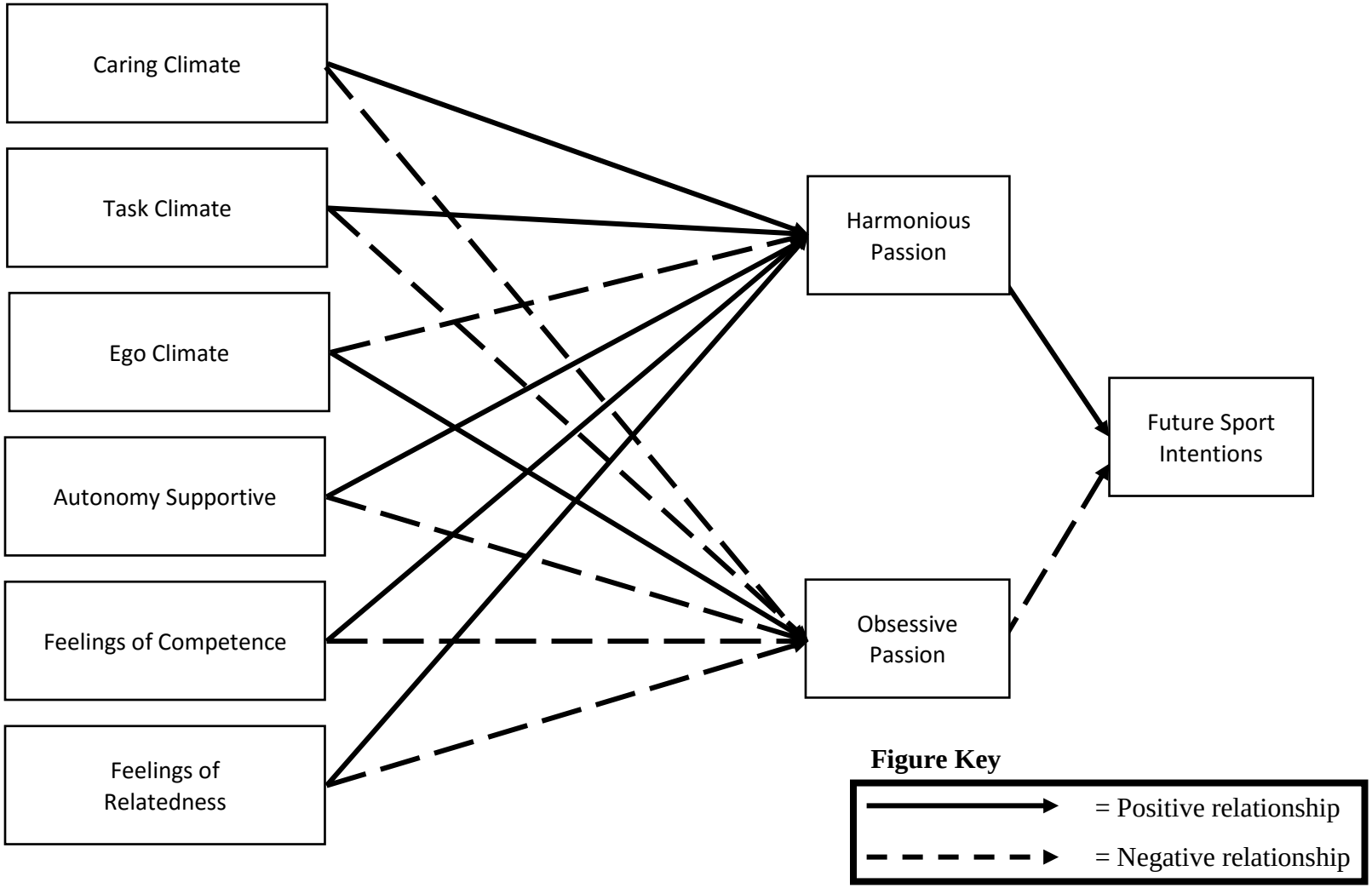

Figure 12. Initial Hypothesized Model for Environmental Relationships of Passion and Future Sport Intentions

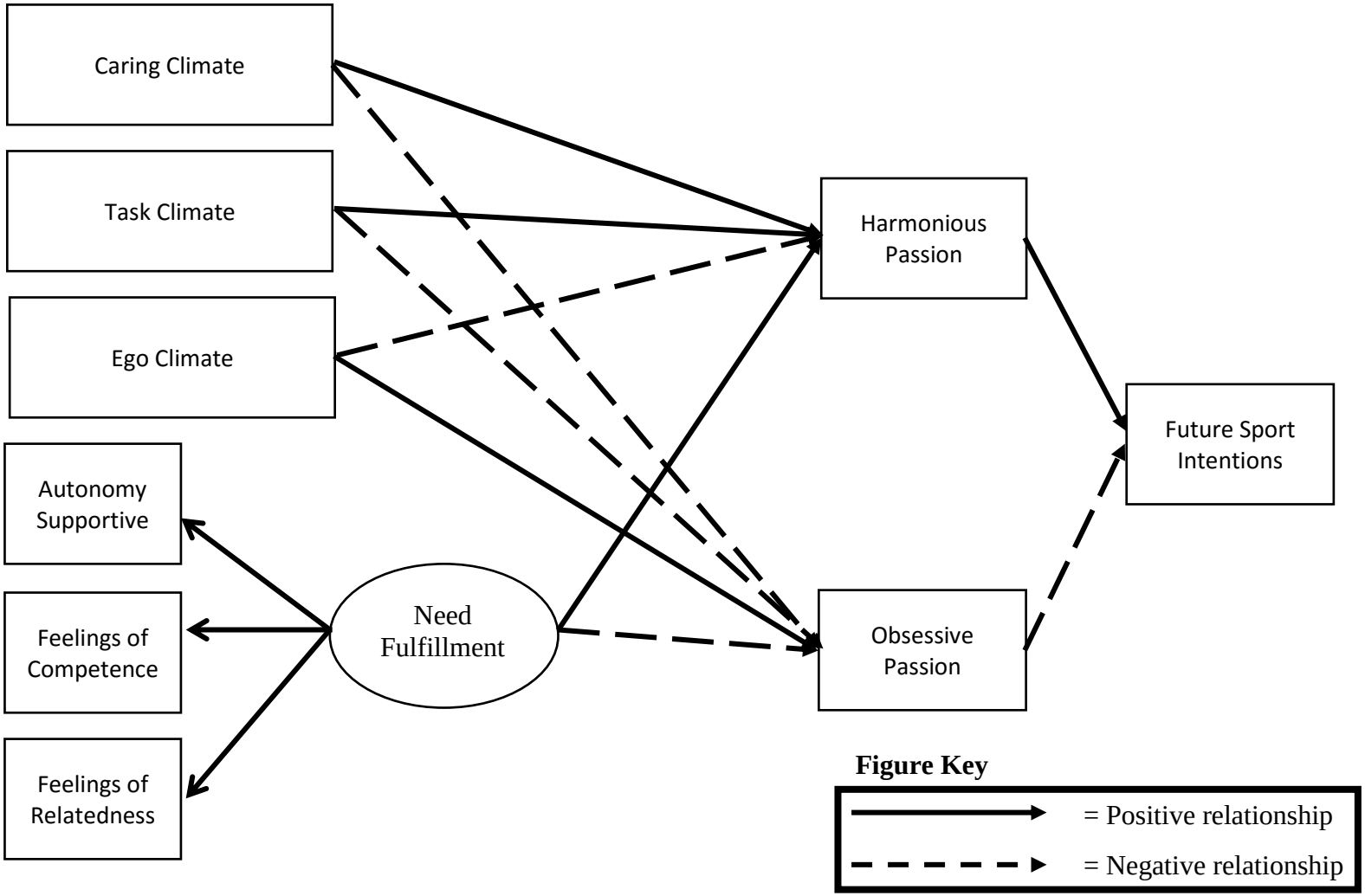

Figure 13. Updated Hypothesized Path Model for Environmental Relationships of Passion and Future Sport Intentions

latent variable labelled "need fulfillment". Model 2 had poor initial fit, χ^2 (22, N = 174) = 233.6, p < .001, CFI = .58, RMSEA = .236). Post hoc modifications were performed in an attempt to develop a better fitting model. On the basis of the Lagrange multiplier test and theoretical evidence, multiple residual covariances were estimated (between caring climate and task environment; caring climate and ego environment; caring climate and need fulfillment; task environment and ego environment; task environment and need fulfillment; ego environment and need fulfillment; and competence and relatedness).

The final model (see Figure 14) fit the data well, χ^2 (14, N = 174) = 23.05, p = .06, CFI = .98, RMSEA = .06). The latent variable of need fulfillment predicated autonomy (standardized coefficient = .86, p < .01, feelings of competence (standardized coefficient = .75, p < .01), and feelings of relatedness (standardized coefficient = .18, p < .01) indicating that the three aspects of Self-Determination Theory all were represented in the latent variable of Need Fulfillment. Additionally, in support of our updated hypothesis, both a task climate (standardized coefficient = .19, p < .01) and need fulfillment (standardized coefficient = .70, p < .0) positively predicted harmonious passion. However, contrary to our hypotheses, a caring climate (standardized coefficient = .03, p > .05) was unrelated to harmonious passion, and an ego climate also positively predicted harmonious passion (standardized coefficient = .17, p < .01). There was mixed support for our hypotheses concerning the relationships of our variables and obsessive passion. As expected, an ego climate (standardized coefficient = .40, p < .01) positively predicted obsessive passion indicating support for our hypothesized model. However, contrary to our hypotheses, a task climate (standardized coefficient = -.10, p > .01) was unrelated to obsessive passion, and both need fulfillment (standardized coefficient = .49, p < .01) and a caring climate (standardized coefficient = .19, p < .01) positively predicted obsessive passion. As

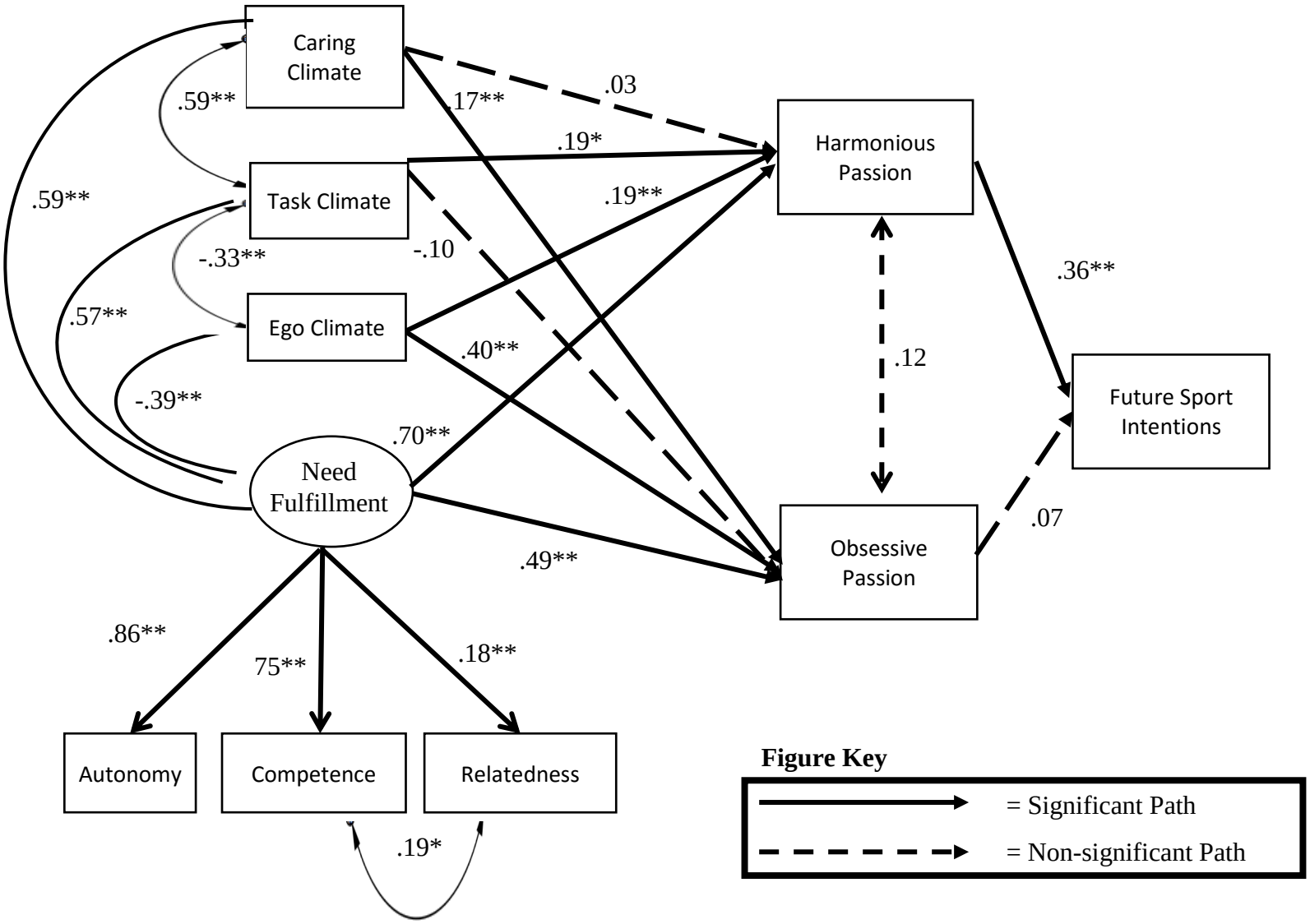

Figure 14. Structural Equation Model for Environmental Relationships of Passion and Future Sport Intentions

predicted, greater levels of harmonious passion predicted higher future intentions to continue sport (standardized coefficient = .36, $p < .01$). Contrary to our hypotheses, obsessive passion did not negatively predict future sport intentions. Instead levels of obsessive passion had no influence on future sport intentions in the final model (standardized coefficient = -.07, $p > .05$). To simplify the interpretation of this model, a final path model is also represented in Figure 15 with only significant paths between variables represented. Nearly two-thirds of the variance (62.3%) in harmonious passion and nearly one-third (27.9%) of the variance in obsessive passion were accounted for by athletes' feeling of need fulfillment and perceptions of the task, ego, and caring sport climates. Additionally, just 15.4% of the variance of future sport intentions was accounted for by harmonious and obsessive passion.

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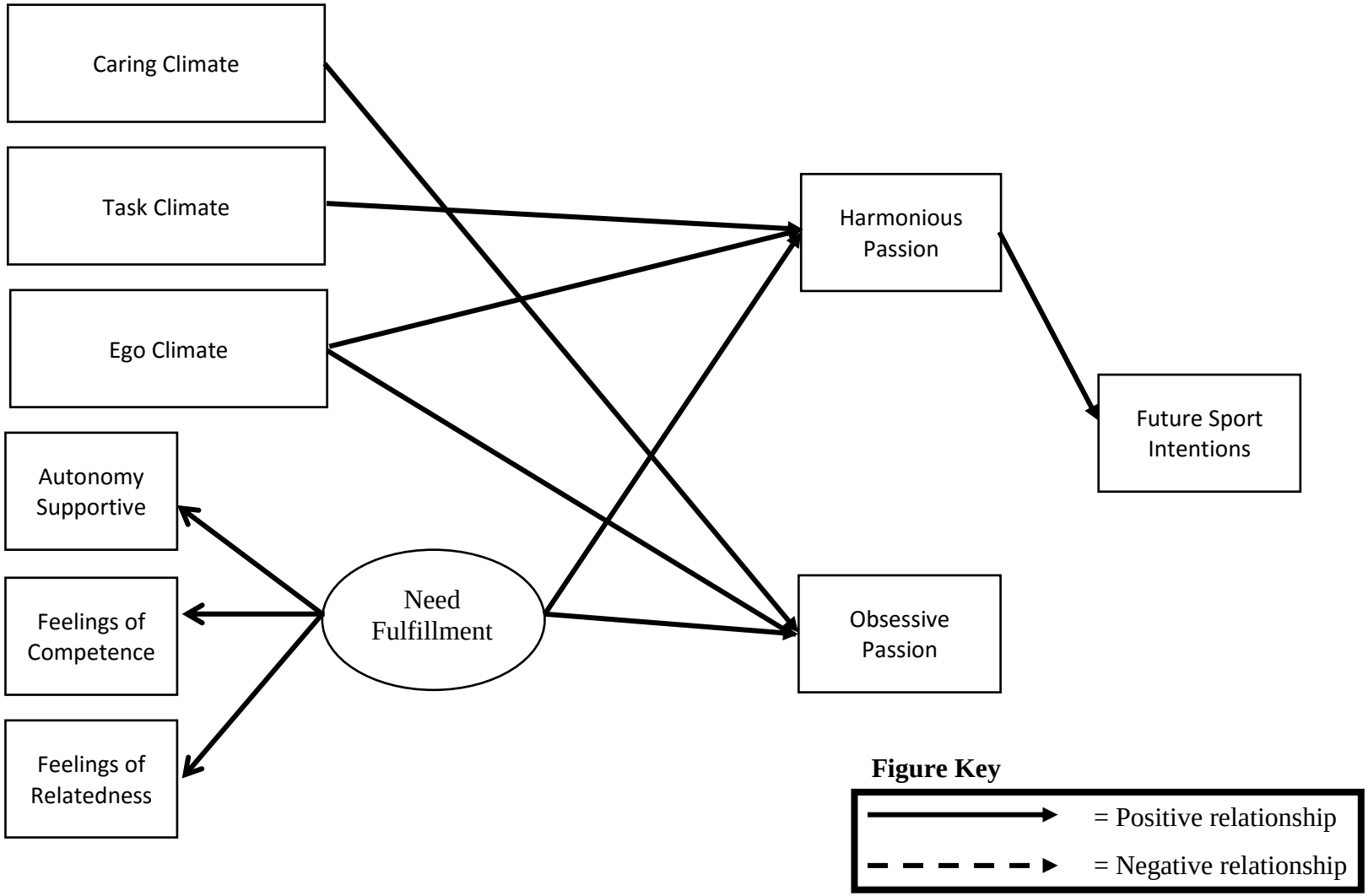

Figure 15. Final Path Model with all Significant Paths Included for Environmental Relationships of Passion and Future Sport Intentions

CHAPTER V: DISCUSSION

The current study was conducted to investigate the change of passion in a group of junior high and high school students over the course of a sport season. Additionally, the relationship between general, harmonious, and obsessive passion were investigated in relation to a number of self-perceptions and youth perceptions of parental views of sport. Finally, youth perceptions of the coach and sporting environment were also investigated in terms of their relationship to the three types of passion. The discussion will focus on several notable aspects from this study with special attention paid to how the results fit into the previous literature that has investigated passion and its change in sport and other contexts.

Athletes Passion for Sport

In the current study, most of the athletes were highly passionate for their current sport. In fact, of the athletes in the study only 2 were considered not passionate at either of the time points, one athlete was classified as not passionate at Time 1 but was classified as passionate at Time 2, and five athletes were considered passionate at Time 1 but were classified as not passionate at Time 2. It is not surprising that a vast majority of athletes were considered passionate for their current sport. Vallerand and others (Vallerand et al., 2003) stated that passionate individuals would enjoy an activity, find that activity significant in their own life, and spend a significant portion of time engaged in the activity. As athletes in the current study were devoting time to sport instead of other activities, it would be assumed they find value in the activity and enjoy participation. Further, as athletes were practicing and competing up to six days a week, they would be spending a significant amount of time participating. It may be that these athletes have reached a level where most of those athletes who were not passionate have already dropped out of sport. Studies have shown that there is a significant decrease in sport participation

beginning at around age 12, and youth may elect or be forced (i.e., cut from team) to cease participation in activities in which they are not fully invested. In essence, as school, friend, and activity requirements become more extensive, most athletes have only the ability or desire to continue participation in sports in which they are passionate.

Athletes' high levels of passion were also not surprising considering the developmental stage that several athletes were at during this time. One model to frame this participation that has been well-supported in the literature is the Developmental Model of Sport Participation (DMSP; Côté, 1999). In the DMSP, Côté indicated that athletes go through four distinct stages of talent development: sampling years, specializing years, investment years, and the maintenance years. In each of these phases, the DMSP uses the terms deliberate play and deliberate practice to differentiate performance stages. Deliberate play involves activities that are intrinsically motivating, provide immediate gratification, and are specifically designed to maximize enjoyment. Conversely, deliberate practice is characterized by training that generates no immediate rewards, requires physical and mental energy, and athletes are motivated by the goal of improving performance rather than inherent enjoyment. During the sampling years, athletes are involved in a large number of sports and sporting opportunities with experiences rooted in a high level of deliberate play and low levels of deliberate practice. In the specializing years, athletes' deliberate play and practice are balanced, and athletes typically reduce their involvement in other sports. Following the specializing years, athletes enter the investment years characterized by high amounts of deliberate practice, low levels of deliberate play, and a focus on only one sport. The final stage of the DMSP is the maintenance stage of sport participation. In this stage, athletes are firmly embedded into their sport and are competing with regularity at a highly competitive level. For most of the athletes in this study, they would currently be either at

the end of the sampling stage or entering the specializing phase. Athletes are limiting involvement to a few sports they find most valuable and are most passionate to maximize their effort and time. As these athletes begin to limit their involvement to only a few sports, they most likely choose their sport from other options due to their high levels of passion for the activity.

As the majority of athletes were passionate at both time points, it may be of interest to try to better understand the motivations of the athletes who were non-passionate at one or both of the time points and still chose to participate in sport. It might be that youth have no interest in the sport, but instead find the environment conducive to seeing their peer group or making friends. Cox and colleagues (Cox & Ullrich-French, 2010; Cox, Ducheon, & McDavid, 2009) have found that peer approval is critical to youth in adolescence. Youth may see participation in sport as an option to further find peer approval even if they are not passionate for sport. A second option may be that youth feel as if they are forced to participate for some external factor with little enjoyment received from participation. Specifically, there are some cases where youth are instructed to either do a sport or activity or find a job. If the youth sees sport as a way to avoid working in an entry level position they might choose this option. A final option may be that youth feel that they have no option but to participate in sport and feel entrapped in the sport environment. Raedeke (1997) found that some athletes felt this entrapment in swimming which eventually led to experiencing burnout because they felt as if they had no choice but to continue participation in sport.

Youth who were passionate at only one time during the season deserve further investigation as well. It may be especially important to better understand the development of passion by looking at those youth who began the season as non-passionate and ended the season as passionate. It might be that the experience of these athletes can better explain the function of

youth's self-perceptions, perceptions of their parents' views toward sport, and sport environment in developing passion for a sport. As only one athlete in the current study was classified as non-passionate at Time 1 and passionate at Time 2, few conclusions can be drawn, but these types of athletes deserve additional study in future works. In addition to the athlete who developed passion during the season, there were five athletes who actually went from being passionate at Time 1 to non-passionate at Time 2. These athletes may also be of interest for future qualitative studies to find out if there were major aspects that extinguished passion in these athletes. If the reasons for the disappearance of passion were modifiable, steps could be taken to ensure that these aspects did not occur. Examples of aspects that could have been prevented include poor coaching behaviors, negative peer interactions, or over-involved parents. If coaches are not prepared to lead a team, youth consequences may be negative. However, several researchers have shown that providing coach education can lead to athlete satisfaction and retention (Barnett, Smoll, & Smith, 1992; Gilbert & Trudel, 2004). Additionally, parent pressure has been shown to be detrimental to athlete outcomes (Harwood & Knight, 2009), but if parents can be taught how athletes want them to behave (Knight, Neely, & Holt, 2011), it is possible that some negative youth outcomes can be limited. Again, a better understanding for why this passion extinguished during the course of the season would help aid policy makers, coaches, and parents in providing the best experiences possible for youth in the sport experience in hopes of increasing enjoyment and retention.

In addition to the sample showing high levels of general passion, the sample also showed high levels of harmonious passion and lower levels of obsessive passion. The findings from the current study reflect similar values of harmonious and obsessive passion from a group of youth enrolled in an introductory music course (Mageau et al., 2009). Specifically, youth who

developed passion during this year-long music program had similar levels of harmonious passion (M = 5.33) and obsessive passion (M = 3.52) compared to athletes in the current study (Harmonious passion: M = 5.36; Obsessive Passion M = 3.13). Mageau and colleagues also compared these beginning musicians to a group of experts that included musicians who were performing at a highly selective bachelor's level music program and national level athletes. The researchers found that the beginning level musicians differed slightly on levels of harmonious passion, but noticed there were large differences in levels of obsessive passion ($M_{novices}$ = 3.52, $M_{experts}$ = 4.82). These differences in experts' level of obsessive passion were similar to the current sample. Specifically, athletes in the sample had much lower levels of obsessive passion than experts in the Mageau study ($M_{athletes}$ = 3.13, $M_{experts}$ = 4.82). The differences in obsessive passion between athletes in the current sample and elite performers indicate that it may be necessary for athletes or other performers to reach the elite levels of their domain to have higher levels of obsessive passion. It is likely that for athletes to reach these elite levels of performance, they must have a drive to practice at an obsessive pace, willing to prioritize sport practice over other priorities including family, friends, school, and social life. However, even though expert level performers have high levels of obsessive passion, it is not clear when this characteristic emerges. It is possible that elite-level athletes develop these obsessive habits early in life, but it is also possible that athletes only develop obsessive passion when placed into an environment where obsessive passion is the expected norm. Further study is needed to see how obsessive passion develops for high level performance as well as the relationship between obsessive passion and elite level performance.

Passion and Sport Choice

The way athletes viewed their current sport also influenced their perceptions of passion. Specifically, those athletes who indicated that they were playing their preferential sport at the time of data collection had higher levels of general passion than those individuals who indicated the current sport they were playing was not their sport of choice. In the early to late adolescence years, it is possible for athletes to play three different sports with participation in one sport in each of the fall, winter, and spring seasons of the school year. Therefore, even though athletes were passionate about the sport in which they were currently participating, the current sport may not be the sport they were most passionate about. In essence, athletes could be passionate about a number of sports, but still have one sport in which they were most passionate. When differentiating athletes by whether or not they were currently in the sport in which they were most passionate or not, the levels of general passion were significantly different. Specifically, those athletes who indicated they were playing the sport they were most passionate had higher levels of general passion at both Time 1 and Time 2. This distinction makes conceptual and practical sense. If a number of athletes are involved in a single sport, those athletes who are more invested in it should have higher levels of passion. Again, this matches with Vallerand and colleagues (Vallerand et al., 2003) perspective on passion. They believed that athletes' passion would reflect the enjoyment they feel and importance they place on the activity. Both of these aspects would be higher if an athlete indicated the sport they were playing would be their primary sport.

Interestingly, even though there were differences in athletes level of general passion depending on if they indicated they were currently playing their preferred sport, the levels of harmonious and obsessive passion did not differ for these athletes. This non-significant

difference in harmonious and obsessive passion, regardless of sport choice, indicates that whether athletes are passionate about a sport is more important than if they prefer the sport they are participating over other sports. Additionally, it may be important to investigate whether athletes can be passionate for "sport" in general or if it is better to survey athletes concerning a specific sport. It may be that athletes who are passionate for sport or physical activity in general may have different outcomes than athletes who are only passionate about a single sport. This difference needs further investigation and future studies should investigate whether these differences influence outcomes of sport.

Passion Change across the Season

When investigating the changes of passion across the course of the season, the sample had very small changes associated with general and harmonious passion and no changes with obsessive passion. The reasons for these small or lack of changes in passion may be due to several factors. One factor for the lack of change in the three types of passion could be that the sample entered into the season with high levels of both general and harmonious passion. If athletes already had a high level of passion, it might take extraordinary factors to continue to increase these. In much the same way that a novice developing task expertise often has quick gains initially with much slower gains after initial competencies are reached, it may be that developing initial levels of passion are quick with further increases in passion taking much longer to develop. As these athletes may have been playing sport for extensive time before the current season, it may be that they developed the initial passion early, and the current sport environment only served to maintain these levels.

A second possibility for the relative lack of change of passion may be that these athletes all participated in environments that were relatively high functioning. Athletes have previously

cited poor coaching, bad peer relationships, and a lack of skills as reasons for withdrawing from sport (Keathley, Himelein, & Srigley, 2013; Molinero et al., 2006; Rottensteiner, Laakso, Pihlaja, & Konttinen, 2013). In the current study, youth perceived high levels of autonomy, relatedness, and competence as well as high levels of a task-oriented and caring climate. Each of these aspects would indicate that the sport environment for athletes in this study was positive and conducive to maintaining passion levels throughout the season. According to Self-Determination Theory (Deci & Ryan, 1985; 2000), if athletes feel as if they are provided with a high level of autonomy, are competent at their sport, and have high quality relationships with teammates and coaches, all of their basic needs are being fulfilled. As the passion construct is related to Self-Determination Theory (Vallerand et al., 2003), if athletes' basic needs are being fulfilled the environment should be conducive to maintaining athletes high levels of passion. Additionally, it has been found that when coaches emphasize a caring climate and emphasize personal mastery and improvement, a variety of positive outcomes including interest, perceived competence, effort, and commitment (Brown & Fry, 2013), global self-worth (Brown & Fry, 2014a) life satisfaction and a greater commitment to exercise (Brown & Fry, 2014b), and positive affect, body esteem, better quality attachments with teachers and peers, and more friends (Stark & Newton, 2014) are expected. Therefore, even though the relationship between passion and these climates has not yet been developed, it can be assumed that the high caring and mastery climates may be conducive to maintaining high levels of passion.

The sample as a whole experienced small changes in general and harmonious passion from beginning of the season to the end of the season; however, these differences were better explained when investigating how passion changed across the course of the season with attention paid to gender differences. Even though there were some differences in passion change when

investigating gender, it is critical to understand that the differences were more likely been due to the differences in the coach-created environments of male and female athletes and not due to gender per se. In fact, when looking at initial levels of passion in male and female athletes no significant differences existed. The fact that male and female athletes entered the season with small differences in levels of passion supports that gender itself was not the sole reason for changes in general and harmonious passion and rather something else may have caused the change. Recent literature has shown that male and female athletes have similar past sport experiences, and differences exist more due to the structural organization of each sport instead of the gender of the athlete (Martin, Ewing, & Oregon, under review). Therefore, it is possible that the differences in trajectory of general and harmonious passion had more to do with the environment of these athletes and not their gender. The results of our MANOVA support this hypothesis. Specifically, when investigating the differences in gender, male athletes perceived a much more positive environment than female athletes. Male athletes perceived higher levels of competence and autonomy, as well as perceiving coaches providing increased levels of a caring and task-oriented climate. In combination, the decrease general passion and harmonious passion experienced by female athletes was most likely due to the less positive climate provided by coaches. Male and female athletes each entered the season with similar perceptions of passion, but after participating in the less positive environment perceived their passion levels decreasing. Further study is needed to better understand if this coaching difference is similar at the high school level for male and female athletes or if these differences were only a result of the particular teams that were included in the study.

Passion and Individual and Family Influences

As passion is context specific in that it is developed for a single activity, it conceptually makes sense that various individual perceptions and perceived parental perceptions may influence its development. Therefore, several youth perceptions were investigated to discover their relationship with both general passion as well as the two types of passion. There is some caution that needs to be used in the upcoming section. The athletes preference for activity specialization and the perceived parental preference for sport specialization both failed to achieve the .70 alpha coefficient suggested by Nunnally and Bernstein (1994). Even though the scales were created for use with junior high and high school aged athletes, several factors may have played a role in the lack of internal reliability for these subscales. First, the scales each had a low number of items that often results in low internal consistency. As these scales only had four and six items respectively, elimination of one problem item was not possible, and, therefore, one problematic item may have caused the scale to lack internal consistency. A second possibility for the lack of internal consistency could be that the questions were originally used in French (Mageau et al., 2009) and were translated to English for this study. It is possible that some of the questions did not translate to their exact meaning from French to English or that some concepts were not as clear when used in a second language. Future studies should investigate if these scales were only problematic in this study or if the constructs these scales were trying to measure were not encompassed in the scale. Regardless, because these two scales did not have high levels of internal consistency, only initial analyses were conducted with these scales.

Athletes perceived high levels of sense of identity from their sport as well as parental preference for sport specialization and parental valuation for sport. In fact, athletes scored well-

above the midpoint on all of these scales. Past studies have found that athletes in this age range typically have high levels of identity in sport (Grove, Fish, & Eklund, 2004; Houle, Brewer, & Kluck, 2010), and this group also showed high levels of identity with their sport. As a majority of athletes chose this sport to be the one sport they would continue if they had to choose only one, it makes sense that they would hold high levels of identity toward it. High identity in sport may place athletes at an increased likelihood to negative outcomes including challenges when retiring (Lavallee, Gordon, & Grove, 1997) and if suffering injuries (Brewer, 1993); however, aspects of athletic identity also have been shown to be positively related to the passion construct (Martin & Horn, 2013). Additionally, athletes perceived parents placing high value in their participation in sport and youth athletes perceived parents highly preferring sport specialization in their current sport. It is possible that both of these aspects may be related to parental pressure that has been shown to have negative influences on youth sport participation (Hellstedt, 1990). If athletes feel that their parents want them to only play in their current sport and value their participation highly, they may feel as if they have no choice but to continue involvement even if they no longer desire to do so. As several researchers have suggested (Knight, Boden, & Holt, 2010; Knight, Neely, & Holt, 2011), clear communication between parent and child is critical to ensure these youth perceptions are seen as being positive (i.e., parents are highly involved), instead of negative (e.g., pressure to continue).

When investigating the relationship of identity derived from sport and perceived valuation by one's parents with general passion and the dualistic passion model the relationships are very similar. Linear regression analyses indicated that both predictors positively predicted general passion at Time 1; however, only identity derived from sport was a significant predictor. Even though the linear regression indicated only identity predicted general passion, both identity

and perceived sport valuation were significant predictors in the final structural equation model. In fact, both sense of identity from sport and perceived parental valuation of sport were significant predictors for both harmonious and obsessive passion. All four of these paths were positive; however, a sense of identity from sport more strongly predicted harmonious passion while perceived parent valuation of sport more strongly predicted obsessive passion. This model indicates that both of these variables may have positive and negative aspects associated with them. Both of these variables were measured in a univariate manner which may help explain how they were positive predictors for both of the passion types. Athletic identity has support that it is a multidimensional construct (Brewer, Boin, & Petitpas, 1993). It may be that some of the dimensions of athletic identity (e.g., social identity) may have resonated more strongly with harmonious passion and other dimensions (e.g., exclusivity and negative affectivity) may have been more strongly related to obsessive passion. These relationships have been shown in a previous study with adolescent youth athletes (Martin & Horn, 2013) and would help explain how the construct represented was positively related to both harmonious and obsessive passion. Interestingly, when the three dimensions of athletic identity were combined into a single scale in the Martin and Horn study, the relationships between athletic identity and both harmonious and obsessive passion were both positive, similar to results in this study. The current unidimensional scale was used, because it had previously been shown to have a strong relationship with passion development (Mageau et al., 2009). Using more refined scales in the future may be beneficial to truly understanding the relationship of identity and passion. Similarly, athletes may view different aspects of parent valuation as both autonomy supportive and autonomy restricting. For example, athletes may perceive their parents' valuation of sport as autonomy supportive and more likely to build harmonious passion if they believe parents provide them the choices of

which sports to play and how frequently to participate. Conversely, athletes may perceive their parents' valuation as more controlling and more likely to be related to obsessive passion if parents' sport participation value is seen as a pressure to continue in sport regardless of athlete desires. In the future, additional consideration should be used in determining if unidimensional scales are adequate, or if more refined multidimensional scales are needed to better understand these processes. The current results help researchers initially understand the relationship between parental valuation and sport identity with passion, but more refined scales may help further explain these relationships.

Perceived Sport Environment

The athletes in the current sample perceived their environment to be positive in a majority of the aspects. In relation to the three needs of Self-determination theory (Deci & Ryan, 1985, 2000) that encompass Basic Needs Theory (Ryan & Deci, 2002), the mean for athletes was well above the midpoint on autonomy, relatedness, and competence. In essence, athletes in the sample perceived they had high levels of choice in their sport, felt as if they were significantly skilled to be successful in sport, and had high quality relationships in sport with other athletes and coaches. As all three aspects of BNT were high, it would be predicted that participants would be likely to experience growth, positive personal development, and subjective well-being (Deci & Ryan, 2000).

In addition to fulfillment of the three basic needs, athletes also noted a positive coach-created climate for sport. Athletes in this environment felt that coaches emphasized mastery and personal improvement most frequently, but also indicated that ego-oriented aspects such as preferential treatment to the most skilled athletes and inter-individual competition were present in the context. It is important to note that the sport environment cannot be classified in a

dichotomous nature with it being either task or ego based environment. Some recent research has begun to classify athletes perceived climates using cluster analysis (see Harwood, Cumming, & Hall, 2003; Hodge & Petlichkoff, 2000), but the practice is not yet common for the sport literature. Investigation of how these two, non-dichotomous, features of the climate interact can lead to a more nuanced understanding of the sport environment. In the junior high and high school domains, coaches are constantly balancing creating task and ego environment. In junior high and high school, athletes are competing with each other for limited playing time, coach attention, and competition spots while also trying to improve. Even though there are limited resources, a mastery focus is critical as many youth who are less skilled early in these time periods may be critical performers later in their high school careers. Coaches must balance this idea of providing attention to the most successful athletes for the current year's success without neglecting athletes who may achieve large gains in future years and, ultimately, be the most successful. Finally, athletes also perceived high levels of a caring climate. A caring climate is characterized by a demonstration of caring fully for all individuals in the climate, having concern for others, and prioritizing the needs of another individual over their own (Newton et al., 2007). Athletes felt cared for by teammates and coaches and perceived they were valued in ways beyond their sporting abilities. Taken together, athletes in the current study felt as if they were cared for and valued and viewed the environment as primarily encouraging mastery and task improvement while also understanding the sport environment is inherently competitive in some aspects. Overall, the athletes in the study perceived that coaches and teammates were creating a highly positive environment for their sport participation.

Perceived Sport Environment and General Passion

In the context of the current study, basic need fulfillment would most likely be positively associated with positive variables such as general passion. Interestingly, when looking at correlations of the three basic needs and general passion, the hypotheses of BNT were only partially supported. As predicted, both autonomy and competence were strongly positively related to general passion. However, when looking at the relationship between relatedness and general passion, the relationship was non-significant. In this context, the feelings of autonomy and competence were much more strongly related to general passion than feelings of relatedness. The simple linear regression analysis showed similar results to the correlations with both competence and autonomy significant positive predictors of general passion while relatedness was non-significant. These findings support assertions by Vallerand and Mageau (2003) that a coach's autonomy supportive behaviors may be a critical aspect influencing athlete's motivation, and eventual passion, toward an activity. Even though Vallerand and Mageau did predict the significance of autonomy support, they did not indicate that competence would be critical to the passion construct as well.

The coach-created climate was also related to the youth athletes' levels of general passion. When investigating the bivariate correlations, as expected, a task-oriented environment and caring climate were positively related to general passion while an ego-oriented climate was negatively related to general passion. As general passion is encompassed by an athlete's enjoyment of the activity, investing time and energy into the activity, and finding the activity important, it is not surprising that the relationships with achievement goal theory are as expected. In a task climate, youth focus not on others, but rather on the sport itself and how they can improve skills to become a better player. Further, in a caring climate, athletes feel valued and

believe their contributions go beyond the sport environment. The emphasis on the sport itself as well as the caring environment established by the coach and players should cultivate an enjoyment of sport as well as a willingness to invest time and energy into sport, both markers of general passion. Similarly, past studies have found that a more task-focused environment is related to greater levels of enjoyment (Atkins, Johnson, Force, & Petrie, 2015) and persistence in sport (Atkins, Johnson, Force, & Petrie, 2015; Jõesaar, Hein, & Hagger, 2011). Interestingly, even though the correlations were rather high in relation to general passion, investigation of the linear regression analyses indicated that none of the coach-climate variables were significant predictors of general passion. Because none of the predictors were significant, it can be assumed that the variance in the coach-created climate variables was subsumed by the three aspects of basic need theory. Even though these variables explained nearly half of the variance in general passion ($r^2 = .48$), a majority was explained by just competence and autonomy. Future studies should investigate other factors that may help explain general passion to better understand how to create athletes who are passionate for their sport.

Perceived Sport Environment and the Dualistic Model of Passion

In addition to investigating the relationship of the perceived sport environment on general passion, this study also looked at how the sport environment variables were related to harmonious and obsessive passion. It was expected that basic need fulfillment would be positively related to harmonious passion and negatively related or unrelated to obsessive passion. Investigation of correlation analyses indicated that these assumptions were only partially supported. Feelings of relatedness were positively related to harmonious passion and negatively related to obsessive passion as predicted, but feelings of competence and autonomy were positively related to both harmonious and obsessive passion. One possible explanation for the

negative relationship between relatedness and obsessive passion could be the individual's rationale for participation. Individuals with high levels of obsessive passion for an activity feel compelled to participate in the activity and often see the sport overtake large aspects of their identity (Vallerand et al., 2003). If individuals enter into sport with high levels of obsessive passion, the value they place on relationships may be minimal, and therefore, they may not make efforts to develop relationships during the season. Instead of building these relationships with others, these athletes focus solely on becoming better at sport. In a sport like cross country, this may manifest itself in an athlete preferring to run alone, because they feel they are getting a better workout when not running with teammates. These athletes might feel that pushing themselves is more important than the relationships they may build when running with teammates. Even though this is a possible explanation for this relationship, it is important to note the relationship, although significant, was weak.

The final structural equation model for environmental relationships provides more information on the relationship between the three aspects of basic need fulfillment with each other. All three of the observed basic needs were significant predictors for the latent variable of need fulfillment. However, although it was significant, relatedness contributed much less to the latent variable of need fulfillment than autonomy and competence. Comparing these factor loadings again point to the important roles autonomy and competence played in the lives of athletes in the sample compared to how they viewed relatedness. Even though autonomy and competence were two strong predictors to basic needs, and ultimately passion, it is noteworthy that relatedness, although significant, was a weaker predictor. This finding is especially interesting in the adolescent years when peers may be especially important for youth. Youth this age (14-18) typically value peer acceptance more than younger athletes (Bloom, 1985) and are

beginning to value peer relationships more than parent relationships (Wylleman & Lavallee, 2004). Even though relationships are critical to youth at this age, and the perceived relationships in the sample were high, the relative contribution of relatedness to the latent factor of need fulfillment and its relationship to general passion were relatively small. It may be that even though relationships are critical to youth as they begin to form their identity and develop independence from parents, as sport is still largely adult centered (Coakley, 2008), these relationships may be less important in sport than in other contexts. As a large percentage of the athletes in the group participated in sports where success was largely dependent on individual performances (e.g., tennis, swimming, cross country), it might be that relatedness was not critical to basic need fulfillment. Additionally, as youth sport is only one context in which youth are engaged, they may have more important peer relationships in domains such as school or peers outside of sport. The relative importance of the three factors of Basic Needs Theory should be investigated in other youth sport contexts to better understand if all are equally important or if the context determines which factor is most critical to basic need fulfillment.

As the relationships between need fulfillment and harmonious and obsessive passion has previously been largely unexplored, a better understanding of this relationship may help us conceptualize the most beneficial environment to develop passion in youth. Our hypothesis, that basic need fulfillment would positively predict harmonious passion and negatively predict obsessive passion, was partially supported. Basic need fulfillment was positively related to harmonious passion but was also positively related to obsessive passion. Additionally, need fulfillment was the strongest predictor in the model for both harmonious and obsessive passion, although need fulfillment was a stronger predictor of harmonious passion than obsessive passion. The relationship between basic need fulfillment and harmonious passion is not surprising, as

several other positive outcomes are related to autonomy, competence, and relatedness including subjective well-being (Adie, Duda & Ntoumanis, 2008; Gagne, 2003). However, the relationship between need fulfillment and obsessive passion is more difficult to understand and deserves further discussion.

A few studies have tried to better understand the relationship between basic need fulfillment and the dualistic model of passion, but instead of looking at all three aspects of need fulfillment, they have only investigated the role of autonomy support. Interestingly, none of these studies have investigated the relationship in sport, instead looking in academic settings. In each of these studies, autonomy support was found to be positively related to harmonious passion, but the relationship with obsessive passion differed. Mageau and colleagues found that in a music course autonomy support was positively related to harmonious passion but unrelated to obsessive passion (Mageau et al., 2009). In two studies in the academic realm, Bonneville-Roussy, Vallerand, and Bouffard (2013) found autonomy support positively related to harmonious passion and either unrelated or positively related to obsessive passion. Interestingly, each study found that harmonious passion was positively related to autonomy support, but where Mageau and colleagues (2009) and Study 1 of Bonneville-Roussy and colleagues (2013) found no significant relationship with autonomy support and obsessive passion, the current study and Study 2 of Bonneville-Roussy and colleagues found a moderate positive relationship. One key aspect that differed in the two studies that may partially explain these differences in relationship quality and strength is that previous studies took place in the academic realm while the current study was in the athletic realm. In the sport environment, it may be that a coach's autonomy support plays a much larger role on youth passion than a music teacher can have on youth's passion for an instrument in a music course. These relationships should be further investigated to

better understand the role that autonomy support and basic need fulfillment has on youth's passion in the sport context, with particular attention paid to particular social agents' autonomy supportive behaviors.

As past literature gives few clues as to why the relationship of basic need fulfilment and obsessive passion would be positive, exploratory explanations may be merited. Obsessive and harmonious passion are unique constructs but are not orthogonal in nature. In fact, in this study the two were moderately positively related. As there is some overlap in the two constructs, it might be that fulfillment of the three basic needs are critical aspects to developing both types of passion, albeit less important for obsessive passion. It might be that in a positive environment where autonomy is encouraged, athletes feel competent, and high quality interpersonal relationships exist is a perfect environment for passion to grow, but some other environmental aspect dictates the type of passion that is internalized. As only a small handful of studies have looked at the processes by which harmonious and obsessive passion change, further studies need to investigate what other constructs may be related to obsessive passion and its continued growth.

The relationship between the dualistic model of passion and the coach-created climate was also investigated by both correlations and in the structural equation model. As expected, correlations showed that a task-involving climate and a caring climate were positively related to harmonious passion, and an ego-involving climate was negatively related to harmonious passion. Even though the hypothesized relationships for harmonious passion were as expected, the correlations between the coach-created climate and obsessive passion were unexpected. A caring climate was positively related to obsessive passion while both task- and ego-involving climates were unrelated to obsessive passion. In the model, several of these relationships were also

present while others were non-significant. Specifically, a task climate was only related to harmonious passion, while a caring climate was only related to obsessive passion. Additionally, an ego climate predicted both harmonious and obsessive passion but was a stronger predictor of obsessive passion.

The positive relationship between a task climate and harmonious passion is well-supported both conceptually and in past studies. When coaches emphasize personal improvement and mastery, athletes should be more likely to internalize the activity in a more autonomous manner. In an investigation of the relationship between achievement goal theory and self-determination theory, Ntoumanis (2001) found that youth athletes who perceived a task-oriented climate experienced more autonomous forms of motivation. As the foundation of the dualistic model of passion is Self-Determination Theory (Vallerand et al., 2003), it can be expected that athletes who perceived a task-climate will more likely experience more autonomous forms of motivation and be less likely to internalize more controlled forms of motivation. If athletes internalize these more autonomous forms of motivation, it should result in harmonious passion and make them less likely to develop obsessive passion.

In addition, the positive relationship between an ego-oriented climate and obsessive passion makes conceptual sense. In fact, when first conceptualized, individuals when thought to have obsessive passion for an activity because it was ego-affirming and because of this ego-investment engaged in a rigid manner (Hodgins & Knee, 2002). If athletes are placed in an environment that emphasizes interpersonal competition and demonstration of ability over others, they are likely to feel as if they are in a controlling environment with several external contingencies placed on them (Ntoumanis, 2001). Instead of basing their ability level on their own improvement, in an ego-oriented climate, they are impacted in a much greater level by

external forces such as opposing player's ability. If athletes experience an ego-oriented climate, they may be more likely to experience more controlled forms of motivation which should lead to obsessive passion. These expected results were reflected in the current studies' results. Unexpectedly, an ego-oriented climate also was positively related to harmonious passion. These results are surprising as past studies (Ntoumanis, 2001) found that ego-oriented environments were positively related to controlled forms of motivation. In this study, high levels of an ego-oriented climate should have been inversely related to harmonious passion. It is important to note the Ntoumanis study showed the relationship between the achievement goal theory and motivation as measured on the SDT continuum. However, studies (Vallerand et al., 2003) have shown that even though the passion construct has a foundation in the SDT framework, they are unique constructs. There may be some other aspects that mediate the relationship between motivation and passion that would help to explain the positive relationship between an ego-climate and harmonious passion.

The non-significant path from a caring climate to harmonious passion as well as the significant positive relationship with obsessive passion were both surprising and in contrast to our hypotheses on the direction of these relationships. A caring climate is characterized by attending to the needs of others in the context, being open to their ideas and personality, and receiving them in a non-judgmental manner. In previous studies that measured the caring climate as well as youth behaviors, a climate high in caring was related to higher levels of caring behaviors as well (Brown & Fry, 2014b). However, most of these studies were conducted with youth in a non-competitive setting. Even though the current sample was not elite-level competitors, they were competing against other schools and area teams. In the context of the study, it might be that youth felt that they were situated in a caring climate but that gave them the

ability to focus more on their own success. This focus on personal success may have resulted in obsessive passion where youth were compelled to compete at increasing higher levels. As this is the first study to investigate how the dualistic model of passion and the caring climate are related, further study is needed before any conclusions can be drawn.

Future Sport Intentions

In the SEM, harmonious passion was positively related to future sport intentions while obsessive passion was unrelated to future sport intentions. Very few studies have looked at future sport intentions or continuation in sport in relation to the dualistic model of passion, and those that do have contrasting findings. In one of Vallerand's initial studies on passion (Vallerand et al., 2003), future sport intentions were investigated in a group of collegiate football players. Neither harmonious nor obsessive passion were significant predictors of intention to continue sport participation from beginning to the end of the season; however, obsessive passion approached significance. The authors cited these athletes rigidness in continuing play as a reason for the near-significant association between obsessive passion and intention to continue. Interestingly, in the current study, the rigidness to continue participation was not present. It might be that athletes who experience obsessive passion for sport feel compelled to participate in the sport at that moment but can overcome these feelings when placed in a more long-term proposition. Additionally, one consideration for these differing results is that we used intentions to participate instead of actual behavior. It might be that those athletes who hold an obsessive passion for sport do not realize it, and when asked about intentions, they indicate they may not be compelled to participate but if behavior was measured, it would indicate otherwise. Further study on the relationship of intentions for a variety of behaviors and how individuals with

obsessive passion engage in those behaviors could lead to a more nuanced understanding of the relationship between intentions to continue and obsessive passion.

A second study investigated the dualistic model of passion and persistence in an educational context. In a structural equation model, Bonneville-Roussy, Vallerand, and Bouffard (2013) found that only harmonious passion was positively related to persistence in education. Obsessive passion was unrelated to persistence. This study in the educational context mirrors the current findings in the sport context. Both studies found that even though both of the passion types were positively correlated to some marker of continuation in sport, when placed into an SEM, only harmonious passion was a significant predictor. It might be that when both types of passion are considered together they interact in unique ways. For example, in the current study future sport intentions and obsessive passion were positively correlated, but this relationship was null when placed with other factors. Similarly, in a sample of adolescent athletes, Martin and Horn (2013) found that obsessive passion was negatively correlated to all aspects of burnout and only when conducting hierarchical multiple regression analyses did the relationship with two of the burnout dimensions and obsessive passion become positive. Again, this demonstrates the importance of investigating the two variables concurrently and not relying on univariate analyses where the true relationship may be hidden due to the shared variance of the two types of passion.

It is interesting that the current study found that obsessive passion has no link to future sport intentions in adolescent athletes. Previous studies (Mageau et al., 2009) have found that elite level performers had higher levels of both harmonious and obsessive passion than novices, but the largest difference in the two groups was that expert performers had much higher levels of obsessive passion. In essence, the greatest difference between novices and experts were that experts' levels of obsessive passion were much greater. It might be that for individuals to reach

these highest levels of performance, high levels of both harmonious and obsessive passion are needed. Therefore, a better understanding of what aspects relate to obsessive passion would be beneficial in understanding the path to elite level achievement. The role that obsessive passion and elite level performance needs to be better understood. It may be that even though obsessive passion has typically been indicated as a negative aspect of activity involvement, it may be necessary to reach elite levels of performance in some way. Future studies should investigate if obsessive passion can be facilitative in the performance relationship, especially if high levels of obsessive passion are experienced concurrently with high levels of harmonious passion. Investigation of these person-level analyses instead of the typical variable-level analyses may yield new results and should be encouraged when investigating the dualistic model of passion.

Strengths and Limitations

The current study had a number of strengths that should be highlighted. As stated previously, very few studies that have involved passion have investigated that phenomenon in a longitudinal manner. Additionally, both of those studies (Bonneville-Roussy, Vallerand, & Bouffard, 2013; Mageau et al., 2009) were conducted in the music setting. Even though expert performance has been studied extensively in both sport and music performance, it is possible that the factors that lead to developing passion in those two contexts are unique. Studying the how passion changes in the sport realm is a critical first step in better understanding the construct and helping coaches, athletes, and parents better comprehend the aspects that may relate to forming passionate athletes. Additionally, the retention of athletes from Time 1 to Time 2 was high with nearly 90% of athletes who returned consent forms completing surveys at both time points. This high level of retention provides a more complete idea of what is occurring over the course of the season and not just an idea of a small group of athletes. Additionally, athletes from a number of

sports were included which also gives a more diverse idea of what is happening at the youth sport level and provides a larger picture of high school sports than if only one or two sports were included. Lastly, the number of athletes who completed surveys at both time points was quite large and allowed for sufficient power to find effects that may have existed.

Even though the current study had several strengths, it was not without limitations. First, while the researcher tried to recruit a diverse sample from a number of sports and schools, the ethnic diversity of athletes in the study was limited. More specifically, a majority of youth in the sample were Caucasian. Additional efforts should be made to better understand if the relationships with passion and various individual and coach-created climate factors are similar in these other groups or if there are some differences. Second, some of the scales had low internal reliability and were not used in a majority of the analysis. These surveys were translated from French, and it is possible that translating the surveys lost some aspects that were present in the originals. Future studies should look to investigate how parent perceptions may influence youth's passion for sport with scales that are sure to have reliability and validity with the individuals in that study. Another limitation that deals with scale choice is the use of the sense of identity derived from sport scale. This scale was selected because it was used in the Mageau and colleagues (2009) study that investigated passion development in youth and showed high internal reliability and high correlations with other scales in the study. However, as two of the scales used in the original Mageau study (child's preference for sport specialization, and parent's preference for sport specialization) were used sparingly due to low internal reliability, it may have been more useful to use a more established scale to measure athletic identity in a multidimensional manner. The Athletic Identity Measurement Scale (Brewer et al., 1993) is one option to measure sport identity that could have provided more information as it has three dimensions which may

have helped better explain the relationships of athletic identity and the dualistic model of passion.

Future Directions

As these athletes already had high levels of passion for their sport, it may be necessary to follow younger athletes to truly understand the process of how athletes develop a passion for sport. Following youth during their elementary or middle school as they begin to play sport more regularly may be the best way to understand how passion first grows and changes. With the increased rate of professionalization that is occurring in youth sports (Farrey, 2008), the age when youth are first showing signs of passion may be quite young, and some scale modification or validation is needed to ensure results from these populations are trustworthy. Another consideration for investigating the initial development of passion may be to investigate if there are differences in the development of passion for sport in general and development of passion for a specific sport. As youth typically are involved in some type of physical activity program from a very young age, they may first show a passion for physical activity in general. This initial love of physical activity may predispose them to see passion growth for a specific sport more easily, but distinguishing between passion for physical activity and a specific sport has not yet been done and may prove useful in better understanding the process. Another possibility to better understand this process is to follow older individuals who are introduced into a novel activity to see what factors influence initial passion development and changes later in life. Comparing the process of passion development in youth and older adults may further our understanding of the construct and highlight whether development is dependent on experience level, age or developmental level, or some other factors.

This study provides initial support for how high levels of general passion and harmonious passion are maintained with high quality coaching. Additionally, there is initial evidence that these types of passion may be decreased if there are even small aspects of suboptimal coaching behaviors that occur over the course of the season. Even though this information is beneficial in beginning to understand how athletes' levels of passion change due to coach behaviors, little is still known about how obsessive passion is developed. Through previous research (Mageau et al., 2009) we know expert level performers have higher levels of obsessive passion than novices, but we do not know if these levels of obsessive passion are inherent to these high achieving individuals or if it is developed after many years of practice and experience. As other constructs in sport psychology such as ability and leadership have been shown to be modifiable and not inherent (Dweck, 2006), it makes sense that obsessive passion can be developed through a combination of the sport climate, coaching behaviors, and self-perceptions. Further research is needed to better understand this phenomenon, especially as obsessive passion may be a contributing factor for elite level performance.

One other consideration for the dualistic model of passion should be noted. In previous research, the obsessive passion construct has typically been related to more negative outcomes than the harmonious passion construct. However, even though initial support for several negative aspects of obsessive passion has been found, it should not be assumed that there are no potential positive aspects in the construct. To reach high levels of sport or other performance domains, a certain obsessive nature is needed. If athletes are not willing to go to the gym or pool every morning to devote themselves to their craft for hours on end in isolation, the likelihood of reaching the most elite levels is extremely unlikely. It is possible that in order to reach high levels of performance a certain level of negative behavior is necessary. It might be that the

negative connotation with the obsessive passion construct is more a function of name. For example, several experts in various fields are lauded for their single minded drive to success in their field with complete disregard to their functioning in other domains. If instead of obsessive passion, this construct was named something like “unwavering determination” or “willingness to do anything for success”, the construct may be looked at in a more positive manner. This obsessiveness may be most beneficial in a high achieving context, but to consider it solely negative without better understanding the nature of the highest levels of performance is unwise.

Lastly, as few of the variables in the study were strongly related to obsessive passion, better understanding of which constructs are positively related to it are needed. Two distinct possibilities are grit and perfectionism. As defined by Duckworth and colleagues (Duckworth, Peterson, Matthews, & Kelly, 2007), grit is passion and persistence over time. Grit has two dimensions encompassed within the construct. First, a gritty individual is able to not be discouraged by setbacks for their primary goal. They can overcome challenges that are placed in their path and continue toward some goal. Second, and more related to obsessive passion, is the ability to stay focused on a long-term goal without suffering a loss of focus from distractions along the way. It is possible that athletes classified as gritty have the single minded focus that is related to obsessive passion and can help us better understand how obsessive passion is related to the development of passion. A second personality construct that may be related to obsessive passion is perfectionism. Recently, perfectionism has been conceptualized into a multi-dimensional sport construct with both positive and negative aspects (Gotwals & Dunn, 2009). It might be that those athletes who have more negative aspects of perfectionism are also likely to have high levels of obsessive passion. If this relationship is true, it might be that those athletes

with obsessive passion may need additional support so not to suffer burnout or other negative associated outcomes with the maladaptive perfectionism.

Conclusions

This dissertation studied passion and passion change in a longitudinal manner in respect to various personal and environmental characteristics. A majority of youth athletes held high levels of general passion for the sport that they played. Additionally, youth who were passionate for sport held high levels of harmonious passion and moderate levels of obsessive passion. As a whole, the sample experienced minor changes from pre-season to post-season on general and harmonious passion and no changes on obsessive passion. Additionally, when investigating in relation to gender, these changes became more pronounced with females experiencing a decrease in general passion and harmonious passion from pre-season to post-season. When investigating the differences in gender, females perceived a much less positive sport environment than males which most likely played a role in the decrease in passion. Specifically, female athletes perceived lower levels of competence, autonomy, task-created climate and caring climate and higher levels of an ego-oriented climate than male athletes.

When looking at the relationships of various individual and family influences and coach and environmental factors with all three passion types, several interesting aspects were found. When looking at general passion, the only child and family influence that was a significant predictor was youth's sense of identity from sport. Further, when looking at environmental factors, only autonomy and competence were significant predictors for general passion. It seems that the most critical aspect for creating an environment where general passion is present is to help athletes identify with their sport and provide them with high levels of autonomy and competence. When looking at harmonious and obsessive passion, both a sense of identity from

sport and perceived parental valuation of sport positively predicted both types of passion. The structural equation model for harmonious and obsessive passion and coach-created environmental factors was more complicated than the model for child and family influences. In this model, the latent factor of basic need fulfillment predicted autonomy and competence much stronger than relatedness indicating that in this sample, autonomy and competence were more important to need fulfillment than relatedness. Basic need fulfilment was the strongest predictor of both harmonious and obsessive passion but was a stronger predictor of harmonious passion than obsessive passion. Similar to basic need fulfillment, an ego climate positively predicted both harmonious and obsessive passion in the model. However, unlike basic need fulfillment, an ego-oriented climate was a stronger predictors of obsessive passion than harmonious passion. As predicted a task climate was a positive predictor of harmonious passion and was not a significant predictor to obsessive passion. Surprisingly, and contrary to our hypothesis, a caring climate was unrelated to harmonious passion and was actually a positive predictor of obsessive passion. Finally, when looking at the relationships between harmonious and obsessive passion and sport continuation, only harmonious passion was a significant predictor of intention to continue in sport. Therefore, if coaches, athletes, and parents value athlete retention and continuation in sport, an environment where harmonious passion is developed should be prioritized.

APPENDICES

Appendix A: Demographic Information

Participant ID:_____

Age _____ **Current Grade Level:** _____

Gender (circle): Male Female

Ethnicity (circle): African American Asian Caucasian Hispanic
Native American Multicultural Other

Sport Experience: In the chart below, list the sports you played or are still playing both for your school and for any non-school/club sport teams.

Sport	**Grades Played on School Team**	**Grades Played on Non-School/Club Team**
Example: Basketball	6, 7, 8	AAU: 7, 8
Example: Volleyball	6, 7, 8	JO Club: 8
Example: Track	8	None

In the sport you are currently playing, do you play on a team year round? Yes No

In your current sport, how many hours do you play your sport outside of organized practices per week during a normal week (e.g., at home, pick-up games, private lessons)? _____

What is your parent's highest level of education? (Circle the Highest)

Mother/Guardian- High School Some college Bachelors Degree Advanced Degree I don't know

Father/Guardian- High School Some college Bachelors Degree Advanced Degree I don't know

If you could only play one sport all day long, which sport would you choose? _____

Appendix B: Passion Scale

While thinking of (your sport) and using the scale below, please indicate your level of agreement with each item.

Not Agree at All 1	Very Slightly Agree 2	Slightly Agree 3	Moderately Agree 4	Mostly Agree 5	Strongly Agree 6	Very Strongly Agree 7

Passion Qualifiers:

1. My sport is important for me	1	2	3	4	5	6	7
2. I spend a lot of time playing my sport.	1	2	3	4	5	6	7
3. I love my sport.	1	2	3	4	5	6	7

Harmonious Passion Items

4. My sport is in harmony with the other activities in my life.	1	2	3	4	5	6	7
5. The new things that I discover with my sport allow me to appreciate it even more.	1	2	3	4	5	6	7
6. My sport reflects the qualities I like about myself.	1	2	3	4	5	6	7
7. My sport is well integrated in my life.	1	2	3	4	5	6	7
8. My sport is in harmony with other things that are part of me.	1	2	3	4	5	6	7
9. My sport allows me to live a variety of experiences.	1	2	3	4	5	6	7

Obsessive Passion Items

10. I have difficulties controlling my urge to play my sport.	1	2	3	4	5	6	7
11. I have almost an obsessive feeling for my sport.	1	2	3	4	5	6	7
12. My sport is the only thing that really turns me on.	1	2	3	4	5	6	7
13. If I could, I would only play my sport.	1	2	3	4	5	6	7
14. My sport is so exciting that I sometimes lose control over it.	1	2	3	4	5	6	7
15. I have the impression that my sport controls me.	1	2	3	4	5	6	7

Appendix C: Sense of Identity Derived from an Activity

Translated items from French by Genevieve Mageau:

Indicate the extent to which you agree with each item by circling the corresponding number.

Do not agree at all 1	Hardly agree 2	Slightly agree 3	Somewhat agree 4	agree 5	Strongly agree 6	Very strongly agree 7

1. I consider myself to by an athlete.	1	2	3	4	5	6	7
2. My social network sees me as an athlete.	1	2	3	4	5	6	7
3. If I had to describe myself, I would mention that I am an athlete.	1	2	3	4	5	6	7
4. If my social network had to describe me, they would mention that I am an athlete.	1	2	3	4	5	6	7

Appendix D: Preference for Activity Specialization

Indicate the extent to which you agree with each item by circling the corresponding number.

Do not agree at all 1	Hardly agree 2	Slightly agree 3	Somewhat agree 4	agree 5	Strongly agree 6	Very strongly agree 7

IN GENERAL:

1. During my leisure times, I prefer giving up some activities in order to spend all of my time playing sport.	1	2	3	4	5	6	7
2. I like doing many different activities in my leisure times.	1	2	3	4	5	6	7
3. I like doing one single activity in my leisure times.	1	2	3	4	5	6	7
4. I prefer doing many different activities in my leisure times rather than always doing the same things.	1	2	3	4	5	6	7

Appendix E: Perceived Parental Preference for Specializing in Sport

While thinking of your parents/guardians, indicate the extent to which you agree with the following items.

Do not agree at all 1	Hardly agree 2	Slightly agree 3	Somewhat agree 4	agree 5	Strongly agree 6	Very strongly agree 7

Regarding your sport participation …

1. My parent sometimes imposes limits on the number of hours that I spend playing my sport.	1	2	3	4	5	6	7
2. It does not matter to my parent that I spend full days playing sport.	1	2	3	4	5	6	7
3. My parent sometimes suggests that I do something other than playing my sport during my leisure times.	1	2	3	4	5	6	7
4. My parent encourages me to spend all my leisure times playing sport.	1	2	3	4	5	6	7
5. During my leisure times, my parent lets me play sport as long as I want.	1	2	3	4	5	6	7
6. My parent manages things so that I don't only do this activity during my leisure times.	1	2	3	4	5	6	7

Appendix F: Perceived Valuation for Sport by One's Parents

While thinking of your parents/guardians, indicate the extent to which you agree with the following items.

Do not agree at all 1	Hardly agree 2	Slightly agree 3	Somewhat agree 4	agree 5	Strongly agree 6	Very strongly agree 7

1. To play my sport is very important to my parent(s).	1	2	3	4	5	6	7
2. My parent(s) would be willing to invest a lot of time and energy in my practicing my sport.	1	2	3	4	5	6	7
3. My parent(s) would be ready to make big sacrifices to be able for me to continue playing my sport.	1	2	3	4	5	6	7
4. To play my sport is presently one of the most important things for my parent(s) in their life.	1	2	3	4	5	6	7

Appendix G: Basic Needs Satisfaction in Sport Scale

While thinking of your sport and using the scale below, please indicate your level of agreement with each item.

Not True at All 1	Very Slightly True 2	Slightly True 3	Moderately True 4	Mostly True 5	Strongly True 6	Very True 7

1. I can overcome challenges in my sport.	1	2	3	4	5	6	7
2. I am skilled at my sport.	1	2	3	4	5	6	7
3. I feel I am good at my sport.	1	2	3	4	5	6	7
4. I get opportunities to feel that I am good at my sport.	1	2	3	4	5	6	7
5. I have the ability to perform well in my sport.	1	2	3	4	5	6	7
6. In my sport, I get opportunities to make choices.	1	2	3	4	5	6	7
7. In my sport, I have a say in how things are done.	1	2	3	4	5	6	7
8. In my sport, I can take part in the decision-making process.	1	2	3	4	5	6	7
9. In my sport, I get opportunities to make decisions.	1	2	3	4	5	6	7
10. In my sport, I feel I am pursuing goals that are my own.	1	2	3	4	5	6	7
11. In my sport, I really have a sense of wanting to be there.	1	2	3	4	5	6	7
12. In my sport, I feel I am doing what I want to be doing.	1	2	3	4	5	6	7
13. I feel I participate in my sport willingly.	1	2	3	4	5	6	7
14. In my sport, I feel that I am being forced to do things that I don't want to do.	1	2	3	4	5	6	7
15. I choose to participate in my sport according to my own free will.	1	2	3	4	5	6	7
16. In my sport, I feel close to other people.	1	2	3	4	5	6	7
17. I show concern for others in my sport.	1	2	3	4	5	6	7
18. There are people in my sport who care about me.	1	2	3	4	5	6	7
19. In my sport, there are people who I can trust.	1	2	3	4	5	6	7
20. I have close relationships with people in my sport.	1	2	3	4	5	6	7

Appendix H: Motivational Climate Scale for Youth Sports

Directions: Here are some statements about what your current team is like. Please read each one and circle the number that is most correct. If there was more than one coach on your team, the questions are about the coach with whom you spend most of your time.

Not at all True		**Somewhat True**		**Very True**
1	**2**	**3**	**4**	**5**

1. Winning games was the most important thing for the coach.	1	2	3	4	5
2. The coach made players feel good when they improved a skill.	1	2	3	4	5
3. The coach spent less time with the players who weren't as good.	1	2	3	4	5
4. The coach encouraged us to learn new skills.	1	2	3	4	5
5. The coach told us which players on the team were the best.	1	2	3	4	5
6. The coach told players to help each other get better.	1	2	3	4	5
7. The coach told us that trying our best was the most important thing.	1	2	3	4	5
8. The coach paid most attention to the best players.	1	2	3	4	5
9. Coach said that teammates should help each other improve their skills.	1	2	3	4	5
10. Players were taken out of games if they made a mistake.	1	2	3	4	5
11. The coach said that all of us were important to the team's success.	1	2	3	4	5
12. Coach told us to try to be better than our teammates.	1	2	3	4	5

Appendix I: Caring Climate Scale

Directions: As you read each of the following statements **think about what your team and coaches are typically like.** Please circle the number on the 5-piont scale listed below that best describes how you truly feel. There are no right or wrong answers. We just really want to know how you feel.

Strongly Disagree	**Disagree**	**Neither Agree Nor Disagree**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

During your sport:

1. Kids are treated with respect.	1	2	3	4	5
2. The leaders respect kids.	1	2	3	4	5
3. The leaders are kind to kids.	1	2	3	4	5
4. The leaders care about kids.	1	2	3	4	5
5. Kids feel that they are treated fairly.	1	2	3	4	5
6. The leaders try to help kids.	1	2	3	4	5
7. The leaders want to get to know all the kids.	1	2	3	4	5
8. Everyone likes kids for who they are.	1	2	3	4	5
9. The leaders listen to kids.	1	2	3	4	5
10. The leaders accept kids for who they are.	1	2	3	4	5
11. Kids feel safe.	1	2	3	4	5
12. Kids feel comfortable.	1	2	3	4	5
13. Kids feel welcomed every day	1	2	3	4	5

Appendix J: Future Sport Intentions

Directions: Please answer the following questions when you are thinking about your current sport.

Very Unlikely			Neither Likely nor Unlikely			Very Likely
1	**2**	**3**	**4**	**5**	**6**	**7**

1. I intend to play my sport next season.	1	2	3	4	5	6	7
2. I will try to play my sport next season.	1	2	3	4	5	6	7
3. I am determined to play my sport next season	1	2	3	4	5	6	7

Appendix K: Parental Consent Form

A Longitudinal Study Investigating the Passion Development over the Course of a Sport Season
Research Participant Information Parental Consent Form
Michigan State University
Department of Kinesiology

Your child is being asked to participate in a research study. Researchers are required to provide a parental consent form to inform you about the research study, to convey that your child's participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision about your child's participation. You should feel free to ask the researchers any questions you may have.

Purpose
Your child is being asked to participate in a study being conducted by Eric Martin and Dr. Daniel Gould, of Michigan State University. The purpose of this project is to gain an understanding of how passion develops over the course of a sport season. Your child has been selected as a possible participant in this study because he/she is a junior high or high school athlete currently participating in a sport. From this study, the researchers hope to learn more about the types of experiences that are important in influencing passion development and the environment that is most critical for helping youth begin to love their sport.

What your child will do
If your child agrees to be in this research study, they will be asked to complete two surveys (once at the beginning of the season and once at the end). Each survey will take about 30 minutes to complete. When they are finished, a member of the research team will collect them. To help provide privacy, your child will create a 'unique user name' that will link the two surveys. Once these matches have been made, the study team will remove all identifying information to assure confidentiality.

Risk
There are no foreseeable risks associated with participation in this study.

Benefit
There is no direct benefit from participation in this study.

Your Rights
Participation is completely voluntary. Refusal to participate will involve no penalty or loss of benefits to which you (or your child) are otherwise entitled. Your child may discontinue participation at any time without penalty or loss of benefits to which they are otherwise entitled. You and/or child have the right to say no and they the right to skip a question if they don't want to answer it.

Privacy
Information about your child will be kept confidential to the maximum extent allowable by law. The only people, who will have access to the surveys or research related information, are study team members and the Human Research Protection Program (HRPP) at Michigan State University. All study information will be kept in a locked office on the MSU campus for at least 3 years after the close of the study. The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain confidential.

Cost & Compensation
There's no cost to participate. As part of the study we will send home a parental permission form/consent form. As an incentive for participation, if your child's team is able to return at least 80% of these forms,

when the study team comes to distribute and collect the end-of-season survey, researchers will provide approximately $6 per person for food for a party. In most instances, pizza, and drinks will be provided. As a side note, your team coach(es) may suggest alternative food choices that meet the study team's budgeted incentive amount.

Contact information
If you have any questions concerning your child's participation in this study, such as scientific issues, how to do any part of it, or to report an injury please contact the principal investigator, Dr. Dan Gould at (517) 432-0175 or Eric Martin at emmartin11@gmail.com.

If you have questions or concerns about your child's role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 408 W. Circle Drive, Room 207, Olds Hall, MSU, East Lansing, MI 48824.

Documentation of Parental Consent

Please check one:

____ yes my child may participate in this study.

____ no thanks, I don't want my child to participate.

(Your signature below is only necessary with a 'yes' response above.)

Your signature below means that you voluntarily agree to allow your child to participate in this research study.

_____
Please print your child's name

_____
Please print your name here

_____ _____
Parent Signature Date

You will be given a copy of this form to keep.

Appendix L: Athlete Assent Form

A Longitudinal Study Investigating the Passion Development over the Course of a Sport Season
Research Participant Information and Assent Form
Michigan State University
Department of Kinesiology

You are being asked to participate in a research study. Researchers are required to provide an assent form to inform you about the research study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Purpose
You are being asked to participate in a study being conducted by Eric Martin and Dr. Daniel Gould, of Michigan State University. The purpose of this project is to gain an understanding of how passion develops over the course of a sport season. You have been selected as a possible participant in this study because you are a junior high or high school aged athlete currently participating in sport. From this study, the researchers hope to learn more about the types of experiences that are important in influencing passion development and the environment that is most critical for helping youth begin to love their sport. Along with your permission, we also need to have your parent(s) consent before you can begin.

What you will do
If you agree to be in this research study, you will be asked to complete two surveys (once at the beginning of the season and once at the end). Each survey will take about 30 minutes to complete. When you are finished, a member of the research team will collect them. To help provide privacy, you will create a 'unique user name' that will link the two surveys. Once these matches have been made, the study team will remove all identifying information to assure confidentiality.

Risk
There are no foreseeable risks associated with participation in this study.

Benefit
There is no direct benefit from participation in this study.

Your Rights
Participation is completely voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. You have the right to say no, and you have the right to skip a question if you don't want to answer it.

Privacy
Information about you will be kept confidential to the maximum extent allowable by law. The only people, who will have access to the surveys or research related information, are study team

members and the Human Research Protection Program (HRPP) at Michigan State University. All study information will be kept in a locked office on the MSU campus for at least 3 years after the close of the study. The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain confidential.

Cost & Compensation
There's no cost to participate. As part of the study we will send home a parental permission form/consent form. As an incentive for participation, if your team is able to return at least 80% of these forms, when the study team comes to distribute and collect the end-of-season survey, researchers will provide approximately $6 per person for food for a party. In most instances, pizza, and drinks will be provided. As a side note, your team coach(es) may suggest alternative food choices that meet the study team's budgeted incentive amount.

Contact information
If you have any questions concerning your participation in this study, such as scientific issues, how to do any part of it, or to report an injury please contact the principal investigator, Dr. Dan Gould at (517) 432-0175 or Eric Martin at emmartin11@gmail.com.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 408 W. Circle Drive, Room 207, Olds Hall, MSU, East Lansing, MI 48824.

DOCUMENTATION OF ASSENT.

Your signature below means that you voluntarily agree to participate in this research study.

_____ _____

Signature Date

You will be given a copy of this form to keep.

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